iglidur®

The right plain bearing for your application

Low cost allrounder

iglidur® G
The universal bearing from a wide range.

▶ Page 1.28
www.igus.de/en/g

iglidur® J
Low friction values in dry running best, performance with soft shafts.

▶ Page 1.38
www.igus.de/en/j

High temperature

iglidur® X
Temperature resistant from -100°C to 250°C, universal resistance to chemicals.

▶ Page 1.62
www.igus.de/en/x

iglidur® Z
The high temperature material for extreme loads, temperatures, pressures.

▶ Page 1.126
www.igus.de/en/z

Low friction

iglidur® J
Low friction values with many different shafts, lowest possible friction value against V4A.

▶ Page 1.38
www.igus.de/en/j

iglidur® Z
When low friction values and high temperatures are called for simultaneously.

▶ Page 1.126
www.igus.de/en/z

For high loads up to 150MPa

iglidur® X
For high loads and very high temperatures.

▶ Page 1.62
www.igus.de/en/x

iglidur® Z
For very high loads and speeds.

▶ Page 1.126
www.igus.de/en/z

Resistant to chemicals

iglidur® X
Almost universally resistant to chemicals, even at high temperatures.

▶ Page 1.62
www.igus.de/en/x

iglidur® A500
Complies with the requirements of the FDA. As iglidur®X, with additional approval for direct contact with foodstuffs.

▶ Page 1.82
www.igus.de/en/a500

Operation under water

iglidur® UW
For fast rotational speeds under water (e.g. pumps) at low radial loads.

▶ Page 1.118
www.igus.de/en/uw

iglidur® H370
For underwater operation at low speeds, applications up to 200°C possible.

▶ Page 1.98
www.igus.de/en/h370

Compatible with foodstuffs

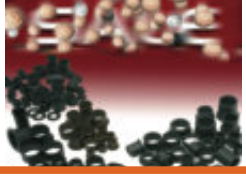
iglidur® A180
Comply with the requirements of the FDA for repeated contact with food. For low and medium loads. Perfect for wet environment.

▶ Page 1.68
www.igus.de/en/a180

iglidur® A200
Comply with the requirements of the FDA for repeated contact with food. For low and medium loads.

▶ Page 1.72
www.igus.de/en/a200

Low Cost



iglidur® GLW*
Low cost in high quantities. For high loads.

▶ Page 1.132
www.igus.de/en/glw

* on request

iglidur® R
Especially low cost plain bearings with low friction value.

▶ Page 1.114
www.igus.de/en/r

Available from stock

iglidur® M250
Thick-walled, robust, vibration dampening, resistant to dirt.

▶ Page 1.46
www.igus.de/en/m250

iglidur® W300
For exceptional service life, also suitable for soft shafts.

▶ Page 1.54
www.igus.de/en/w300

iglidur® P
High precision in damp and warm conditions.

▶ Page 1.106
www.igus.de/en/p

iglidur® V400
Extreme wear resistance with soft shafts, highly elastic.

▶ Page 1.122
www.igus.de/en/v400

iglidur® A500
Complies with the requirements of the FDA. Up to 250°C with special approval for foodstuffs.
▶ Page 1.82
www.igus.de/en/a500

iglidur® H4
Temperature resistant for applications in engine compartments, low cost and versatile.
▶ Page 1.94
www.igus.de/en/h4

iglidur® L250
Excellent friction values at high rotational speeds and low load, recommended for V2A.

▶ Page 1.102
www.igus.de/en/l250

iglidur® Q
Recommended for use with hard-chromed surfaces.

▶ Page 1.110
www.igus.de/en/q

iglidur® Q
Cost effective plain bearings with excellent resistance to high loads.

▶ Page 1.110
www.igus.de/en/q

iglidur® F
For extremely high loads and pressure lubrication electrically conductive.

▶ Page 1.86
www.igus.de/en/f

iglidur® V400
High chemical resistance, very high wear resistance even in contact with soft shafts.
▶ Page 1.122
www.igus.de/en/v400

iglidur® Z
Good chemical resistance, low friction values and good resistance under high loads.
▶ Page 1.126
www.igus.de/en/z

iglidur® H
For underwater operation, applications up to 200°C, good chemical resistance.

▶ Page 1.90
www.igus.de/en/h

iglidur® A290
The material complies with the requirements of the BfR. Plain bearings with high mechanical resistance. Temperatures up to 140°C.
▶ Page 1.78
www.igus.de/en/a290

iglidur® A500
Complies with the requirements of the FDA. Highest chemical resistance, no water absorption and temperatures up to 250°C.
▶ Page 1.82
www.igus.de/en/a500

iglidur® – Detailed Table of Contents

Design Engineering with iglidur®

iglidur® – Bearing Materials for all cases

iglidur® G

The All-Round Performer

▶ page 1.28

- Maintenance-free dry running
- High wear resistance
- More than 650 sizes available from stock

from stock

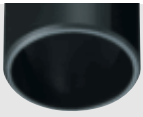
iglidur® J

The Fast and Slow Motion Specialist

▶ page 1.38

- Low wear against different shaft materials
- Low coefficients of friction in dry run
- Best performance with soft shaft materials

from stock



iglidur® M250

Thick and Robust

▶ page 1.46

- Excellent vibration dampening
- Resistant to edge loading
- High impact resistance

from stock

iglidur® W300

The Marathon Runner

▶ page 1.54

- For especially long service life
- Low coefficient of friction
- Also suitable for soft shafts

from stock

iglidur® X

The High-Tech Problem Solver

▶ page 1.62

- Temperature resistant from -100°C up to 250°C
- Universal resistance to chemicals
- Very low moisture absorption

from stock

iglidur® – Special Bearing Materials

iglidur® A180

Very Appetising

▶ page 1.68

- Suitable for direct contact with food and pharmaceuticals
- Physiologically safe
- Comply with the requirements of the FDA for repeated contact with food
- Very low moisture absorption

from stock

iglidur® A200

Very Appetising

▶ page 1.72

- Comply with the requirements of the FOOD AND DRUG ADMINISTRATION for repeated contact with food
- Good abrasion resistance

from stock

iglidur® A290

Very Appetising

▶ page 1.78

- Suitable for direct contact with food and pharmaceuticals
- Physiologically safe

from stock

iglidur® – Special Bearing Materials

iglidur® A500
Food Applications
► Page 1.82

- Complies with the requirements of the FOOD AND DRUG ADMINISTRATION
- Temperature resistant from -100°C up to +250°C

from stock

iglidur® F
The Lightning Conductor
► Page 1.86

- Electrically conductive
- High compressive strength
- High temperature resistance

from stock

iglidur® H
For Wet Environments
► Page 1.90

- Suitable for underwater applications
- For high temperatures
- Good chemical resistance


from stock

iglidur® H4
For Under Bonnet Applications
► Page 1.94

- Good abrasion resistance
- Low coefficients of friction
- High temperature resistance from -40°C up to +200°C

from stock

iglidur® H370
The Underwater Specialist
► Page 1.98

- Excellent for underwater applications
- Wear-resistant
- Good chemical resistance


from stock

iglidur® L250
For Fast Rotations
► Page 1.102

- Recommended for rotating applications
- Very low coefficients of friction
- Excellent wear resistance


from stock

iglidur® P
Cost-Effective and Maintenance-Free
► Page 1.106

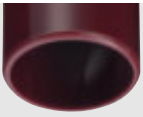
- Low water absorption
- Low wear rates
- Cost-effective


from stock

iglidur® Q
Fit for High Loads
► Page 1.110

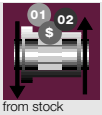
- Excellent wear resistance at high loads
- Recommended for extreme p x v values
- Maintenance-free dry running

from stock



iglidur® R
Low Friction, Low Cost
► Page 1.114

- low friction value
- Very low cost



from stock

iglidur® UW
The Underwater Specialist
► Page 1.118

- For underwater applications
- For fast and constant movements


from stock

iglidur® V400
Wear-Resistant at High Temperatures
► Page 1.122

- Extreme wear resistance with soft shaft materials
- Good chemical resistance
- High elasticity

from stock

iglidur® Z
The High Temperature Material
► Page 1.126

- For high temperature applications
- High thermal resistance
- For extreme loads

from stock

On the next pages you'll find iglidur® special materials on request and iglidur® special products (Clip Bearings, Flange Bearings, Thrust Bearings), available from stock.

iglidur® – Special Materials, on Request

iglidur® B
Maximum Vibration Dampening
▶ page 1.132

- Reduction of noise
- Very high elasticity
- Seal function possible

on request

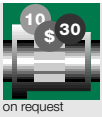
iglidur® C
PTFE- and Silicone-Free
▶ page 1.132

- PTFE and silicone-free
- Good abrasion resistance
- Maintenance-free


on request

iglidur® D
Low Friction, Low Cost
▶ page 1.132

- Low cost
- Low coefficients of friction at high speeds



on request

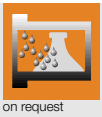
iglidur® GLW
Strong and Reasonably Priced
▶ page 1.132

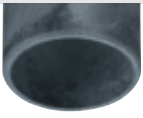
- Low cost
- Applications with static loads

on request

iglidur® H2
Cost-Effective, for Temperatures up to 200°C
▶ page 1.133

- Low cost
- For high temperatures


on request



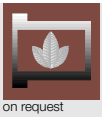
iglidur® J200
For Anodized Aluminium
▶ page 1.133

- Very long service life with hard anodized aluminium
- Low coefficients of friction
- Low wear


on request

iglidur® T220
For the Tobacco Industry
▶ page 1.133

- Free of undesirable ingrediants as requested by main manufacturers of tobacco products


on request

iglidur® UW500
The Underwater Specialist
▶ page 1.133

- For underwater use at high temperatures
- For fast and constant movements

on request

!Tip!

Shafts
DryLin® ▶ page 3.89

Spherical Balls
Spherical Balls made from iglidur® W300 ▶ page 2.34

iglidur® – Special Products, from Stock

iglidur® Clip Bearings

▶ page 1.134

- Secured with the double flange design
- Maintenance-free and self-lubricating
- Good wear resistance
- Smooth operation
- Low noise

from stock

iglidur® Clips2

Suitable for High Loads

▶ page 1.138

- Low bearing clearance, very precise
- Easy installation owing to angled slit
- Material: iglidur® M250
- Maintenance-free and predictable service life

from stock

iglidur® MKM

Double flange bearing

▶ page 1.140

- Both flange surfaces
- Pressfit
- Axial preload
- Big axial forces
- Compensation of metal sheet tolerances

from stock

iglidur® MDM

Double flange bearing

▶ page 1.141

- Simply clip-in assembly
- Both flange surfaces
- Symmetrical flanges
- Cannot be lost after E-coating process
- Easy assembly

from stock

iglidur® JVSM

Pre-tensioned, no clearance

▶ page 1.142

- Bearing pre-tensioned
- Zero clearance, even under no load
- Material: iglidur® J
- Maintenance-free
- Predictable service life

from stock

iglidur® Flange Bearings

▶ page 1.144

- Maintenance-free
- Very good wear resistance
- Very high temperature resistance
- Resistant to dirt, dust and lint
- Corrosion resistant

from stock

iglidur® PEP

Polymer Encased Polymer (PEP)

▶ page 1.146

- Cost-effective polymer bearing system
- Independent of the shaft material
- Independent of the shaft surface
- Protection of expensive and sensitive shafts

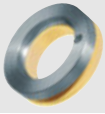
from stock

Polysorb Polymer Disc Springs

▶ page 1.150

- When an application requires flat spring characteristics which are only possible in metal at a considerable expens
- Compensation of axial clearances and manufacturing tolerances

from stock



iglidur® JATM

Thrust Bearing

▶ page 1.152

- Maintenance-free plain bearing system
- For high performance
- Corresponding sliding surfaces
- Predictable service life

from stock

iglidur® Polymer Bearing with integrated Seal

▶ page 1.153

- Polymer bearing with clipsed-in radial shaft seal
- Seals towards the rotating shaft
- Temperature range like iglidur® J
- Coefficient of friction only 10% higher than iglidur® J
- Wear data similarly excellent as iglidur® J

from stock

iglidur® PRT

Slewing Ring Bearing

▶ page 1.154

- Maintenance-free
- Low coefficients of friction
- Cost-effective
- Robust

from stock

Chemical Resistance

▶ Page 3.118

On the next pages you'll find material tables and selection guides

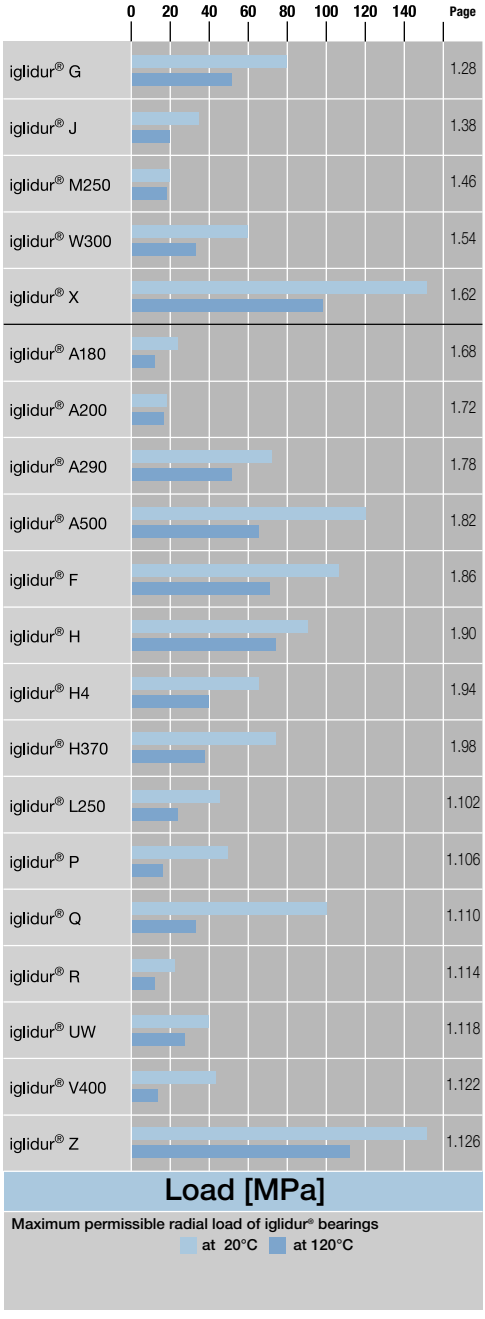
Bearing materials According to Main Characteristics

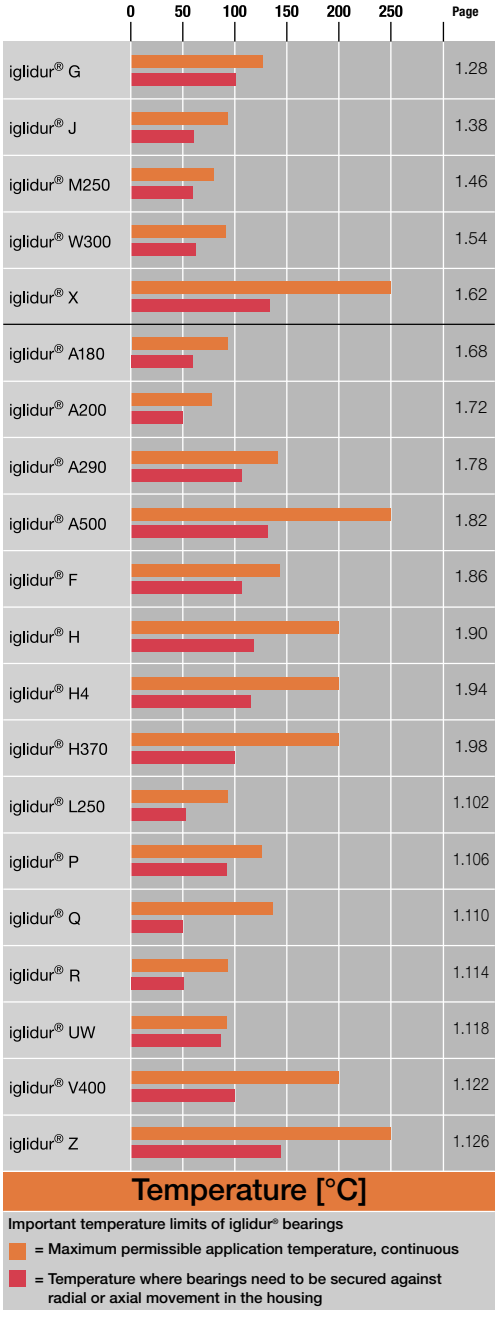
	Characteristics of the iglidur® Materials		Speciality	long life dry running	for high loads	for high temperatures	less friction/ high speed	dirt resistant
Standards for All Cases		iglidur® G	Economical Allrounder	●	●			●
		iglidur® J	Low friction	●			●	
		iglidur® M250	Best for vibration dampening	●				●
		iglidur® W300	Wear resistant	●			●	●
		iglidur® X	High temperatures, chemicals	●	●	●		
Bearing Material for special cases		iglidur® A180	FDA-conform, for wet environments	●			●	
		iglidur® A200	Best for Food FDA-conform					●
		iglidur® A290	Best for Food BfR-conform		●			
		iglidur® A500	High temperatures FDA-conform		●	●		
		iglidur® F	electrical conductive		●			
		iglidur® H	Underwater applications			●		
		iglidur® H4	Best for Automotive Industry	●		●	●	
		iglidur® H370	Best for Underwater applications			●	●	
		iglidur® L250	Best for fast rotations	●			●	
		iglidur® P	Low Water absorption	●				●
		iglidur® Q	Best for high Loads	●	●		●	
		iglidur® R	less friction values, cost-effective	●			●	
		iglidur® UW	Specialist for underwater use					
		iglidur® V400	Wear resistent at high temperatures	●		●	●	
		iglidur® Z	Best for high temperatures	●	●	●	●	
Special Bearings on request		iglidur® B	very elastic					
		iglidur® C	free from PTFE and silicon					
		iglidur® D	Highly cost-effective				●	
		iglidur® GLW	Strong and Reasonably Priced					●
		iglidur® H2	For Temperatures up to 200°C			●		
		iglidur® J200	Linear movement (see DryLin®)	●			●	●
		iglidur® T220	Tabacco industry					
		iglidur® UW500	Specialist for Underwater use (hot water)			●		

Selection According to Main Criteria

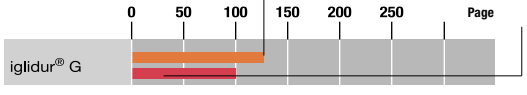
chemical resistant	low water absorption	food suitable	vibrations dampening	edge pressure	for under water use	economic	Page
						●	1.28
	●			●		●	1.38
			●	●		●	1.46
				●		●	1.54
●	●				●		1.62
	●	●		●		●	1.68
		●	●	●			1.72
		●				●	1.78
●	●	●		●	●		1.82
				●			1.86
●	●				●		1.90
●	●				●	●	1.94
●	●				●		1.98
				●			1.102
	●					●	1.106
							1.110
	●			●		●	1.114
	●				●	●	1.118
●	●			●			1.122
●	●			●			1.126
			●	●			1.132
				●			1.132
	●			●		●	1.132
						●	1.132
●	●				●		1.133
	●			●			1.133
							1.133
●	●				●		1.133
							1.9

Selection According to Four Main Criteria





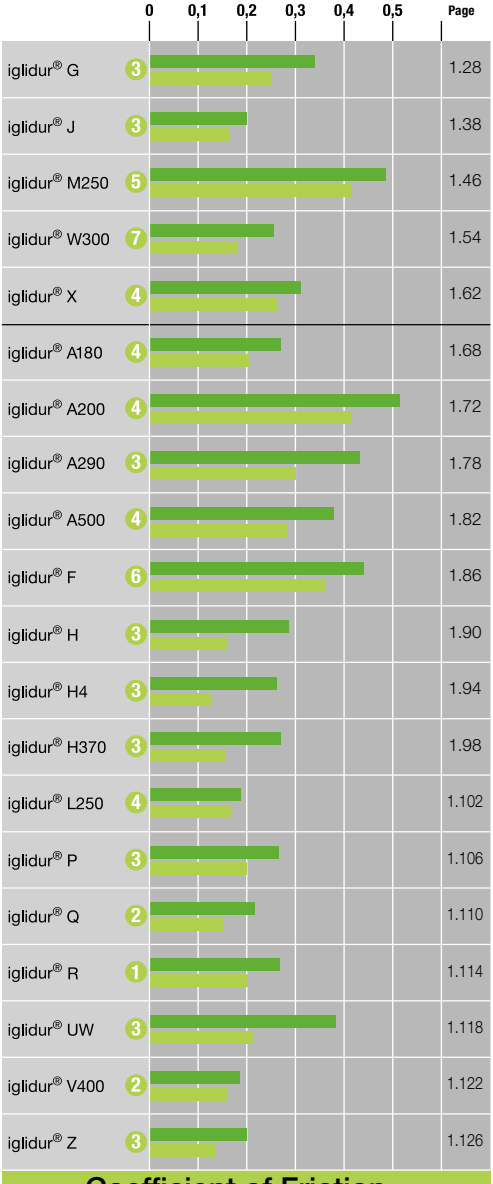
Reading example



iglidur® G bearings can work with a temperature up to 130°C

iglidur® G bearings can work without being secured with a temperature up to 100°C

Material Table

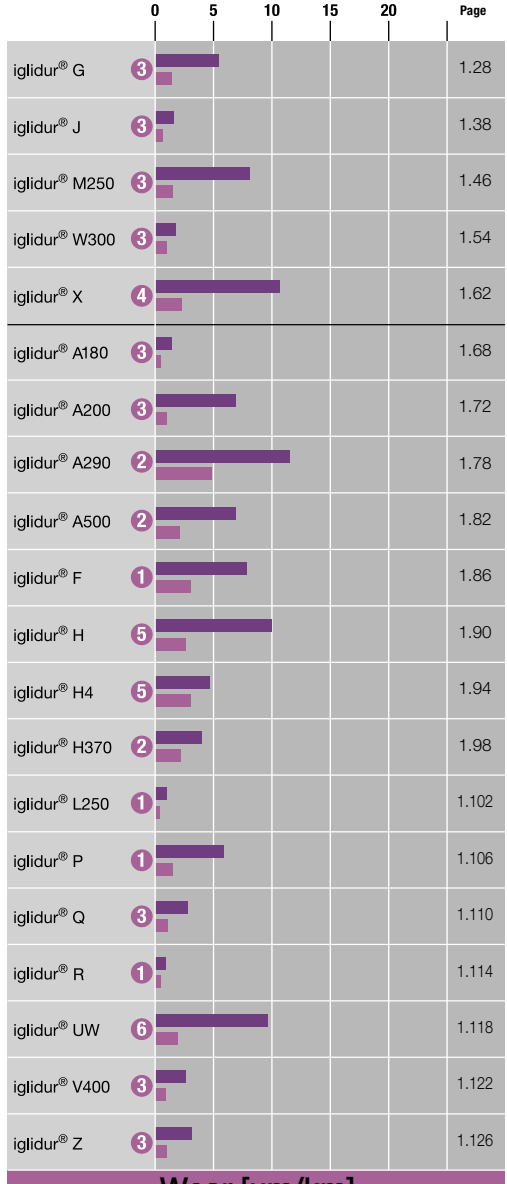


Coefficient of Friction

Coefficients of friction of iglidur® bearings sliding against steel, p = 1,2 MPa, v = 0,3 m/s

= Coefficient of friction of best combination 1 Cf53 2 Hard chromed 3 Alu. hc 4 Free-cutting Steel 5 St37 6 V2A 7 X90

= Average coefficient of all the seven sliding combinations tested



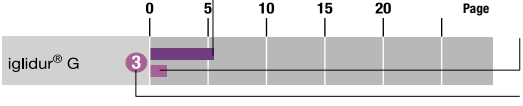
Wear [µm/km]

Wear of iglidur® bearings sliding against steel, p = 1 MPa

= Wear of best combination 1 Cf53 2 Hard chromed 3 Alu. hc 4 Free-cutting Steel 5 St37 6 V2A 7 X90

= Average wear of all the seven sliding combinations tested

Reading example



The average tested wear of iglidur® G against seven different shaft materials is 5.5 µm/km.

The average tested wear of iglidur® G against Alu. hc shaft is only 1 µm/km.

iglidur® G gets the highest resistance to wear under the given loads with hard anodized aluminium.

Material Table

If you don't know which Material you need, please go back to the Selection tables on Page:

- ▶ According to Main Characteristics, Page 1.8
- ▶ According to Main Criteria, Page 1.10

	iglidur® G	iglidur® J	iglidur® M250	iglidur® W300	iglidur® X
General Properties	Bearing Materials for all cases				
Density g/cm³	1,46	1,49	1,14	1,24	1,44
Colour	grey	Yellow	Charcoal	Yellow	Black
Max. moisture absorption at 23°C / 50% r.F. % weight	0,7	0,3	1,4	1,3	0,1
Max. moisture absorption % weight	4,0	1,3	7,6	6,5	0,5
Coefficient of sliding friction, dynamic against steel (µ)	0,08–0,15	0,06–0,18	0,10–0,30	0,08–0,23	0,09–0,27
p x v value, max. (dry) MPa x m/s	0,42	0,34	0,12	0,23	1,32
Mechanical Properties					
Modulus of elasticity MPa	7800	2400	2700	3500	8100
Tensile strength at 20°C MPa	210	73	112	125	170
Compressive strength (axial) MPa	78	60	52	61	100
Max. permissible static surface pressure (20°C) MPa	80	35	20	60	150
Shore D-hardness	81	74	79	77	85
Physical and Thermal Properties					
Max. long term application temperature °C	130	90	80	90	250
Max. short term application temperature °C	220	120	170	180	315
Min. application temperature °C	–40	–50	–40	–40	–100
Thermal conductivity [W/m x K]	0,24	0,25	0,24	0,24	0,60
Coefficient of thermal expansion (at 23°C) [K^{-1} x 10^{-5}]	9	10	10	9	5
Electrical Properties					
Specific volume resistance Ω cm	> 10^{13}	> 10^{13}	> 10^{13}	> 10^{13}	< 10^{5}
Surface resistance Ω	> 10^{11}	> 10^{12}	> 10^{11}	> 10^{12}	< 10^{3}
	page 1.28	page 1.38	page 1.46	page 1.54	page 1.62










iglidur®

	iglidur® A180	iglidur® A200	iglidur® A290	iglidur® A500	iglidur® F	iglidur® H	iglidur® H4	iglidur® H370	iglidur® L250	iglidur® P
Special Bearing Materials										
	1,46	1,14	1,41	1,28	1,25	1,64	1,79	1,60	1,5	1,58
	White	White	White	Brown	Black	Grey	Brown	Grey	Beige	Black
	0,2	1,5	1,7	0,3	1,8	< 0,1	0,1	< 0,1	0,7	< 0,2
	1,3	7,6	7,3	0,5	8,4	0,3	0,2	< 0,1	3,9	0,4
	0,05–0,23	0,10–0,40	0,13–0,40	0,26–0,41	0,10–0,39	0,07–0,20	0,08–0,25	0,07–0,17	0,08–0,20	0,06–0,21
	0,31	0,09	0,23	0,28	0,34	1,37	0,7	0,74	0,4	0,39
	2300	2500	8800	3600	11600	12500	7500	11000	1950	5300
	88	116	250	140	260	175	120	135	67	120
	n. d.	54	91	n. d.	98	81	n. d.	79	n. d.	66
	28	18	70	120	105	90	65	75	45	50
	76	81	88	83	84	87	80	82	68	75
	90	80	140	250	140	200	200	200	90	130
	110	170	180	300	180	240	240	240	180	200
	–50	–40	–40	–100	–40	–40	–40	–40	–40	–40
	0,25	0,24	0,24	0,24	0,65	0,60	0,24	0,50	0,24	0,25
	11	10	7	9	12	4	5	5	10	4
	$> 10^{12}$	$> 10^{13}$	$> 10^{11}$	$> 10^{9}$	$< 10^{3}$	$< 10^{5}$	$> 10^{13}$	$< 10^{5}$	$> 10^{10}$	$> 10^{13}$
	$> 10^{11}$	$> 10^{12}$	$> 10^{11}$	$> 10^{9}$	$< 10^{2}$	$< 10^{2}$	$> 10^{12}$	$< 10^{5}$	$> 10^{11}$	$> 10^{12}$
	page 1.68	page 1.72	page 1.78	page 1.82	page 1.86	page 1.90	page 1.94	page 1.98	page 1.102	page 1.106

Material Table

If you don't know which Material you need, please go back to the Selection tables on Page:

- ▶ According to Main-Characteristics, Page 1.8
- ▶ According to Main-Criteria, Page 1.10

	iglidur® Q	iglidur® R	iglidur® UW	iglidur® V400	iglidur® Z
General Properties	Special Bearing Materials				
Density g/cm³	1,40	1,39	1,52	1,51	1,40
Colour	Black	Dark Red	Black	White	Brown
Max. moisture absorption at 23°C / 50% r.F. % weight	0,9	0,2	0,2	0,1	0,3
Max. moisture absorption % weight	4,9	1,1	0,8	0,2	1,1
Coefficient of sliding friction, dynamic against steel (µ)	0,05–0,15	0,09–0,25	0,22–0,5	0,15–0,20	0,06–0,14
p x v value, max. (dry) MPa x m/s	0,55	0,27	0,30	0,5	0,84
Mechanical Properties					
Modulus of elasticity MPa	4500	1950	9600	4500	2400
Tensile strength at 20°C MPa	120	70	90	95	95
Compressive strength (axial) MPa	89	n. d.	n. d.	n. d.	65
Max. permissible static surface pressure (20°C) MPa	100	23	40	45	150
Shore D-hardness	83	77	78	74	81
Physical and Thermal Properties					
Max. long term application temperature °C	135	90	90	200	250
Max. short term application temperature °C	155	110	110	240	310
Min. application temperature °C	–40	–50	–50	–50	–100
Thermal conductivity [W/m x K]	0,23	0,25	0,60	0,24	0,62
Coefficient of thermal expansion (at 23°C) [K^{-1} x 10^{-5}]	5	11	6	3	4
Electrical Properties					
Specific volume resistance Ω cm	> 10^{15}	> 10^{12}	< 10^{5}	> 10^{12}	> 10^{11}
Surface resistance Ω	> 10^{12}	> 10^{12}	< 10^{5}	> 10^{12}	> 10^{11}
	page 1.110	page 1.114	page 1.118	page 1.122	page 1.126

	iglidur® B	iglidur® C	iglidur® D	iglidur® GLW	iglidur® H2	iglidur® J200	iglidur® T220	iglidur® UW500
Special Bearings on Request								
	1,15	1,1	1,40	1,36	1,69	1,72	1,28	1,49
	Grey	White	Green	Black	Brown	Dark grey	White	Black
	1,0	1,0	0,3	1,3	< 0,1	0,2	0,3	0,1
	6,3	6,9	1,1	5,5	0,2	0,7	0,5	0,5
	0,18–0,28	0,17–0,25	0,08–0,26	0,10–0,24	0,07–0,30	0,11–0,17	0,20–0,32	0,20–0,36
	0,15	0,1	0,27	0,30	0,58	0,3	0,28	0,35
	1750	1900	2000	7700	10300	2800	1800	16000
	55	60	72	235	210	58	65	260
	n. d.	n. d.	70	74	109	n. d.	n. d.	n. d.
	40	40	23	80	110	23	45	140
	69	72	78	78	88	70	76	86
	100	90	90	100	200	90	100	250
	130	130	110	160	240	120	160	315
	–40	–40	–50	–40	–40	–50	–40	–100
	0,24	0,24	0,25	0,24	0,24	0,24	0,24	0,60
	12	15	11	17	4	8	11	4
	$> 10^{10}$	$> 10^{10}$	$> 10^{14}$	$> 10^{11}$	$> 10^{15}$	$> 10^{8}$	$> 10^{10}$	$< 10^{9}$
	$> 10^{9}$	$> 10^{9}$	$> 10^{14}$	$> 10^{11}$	$> 10^{14}$	$> 10^{8}$	$> 10^{10}$	$< 10^{9}$
	page 1.132	page 1.132	page 1.132	page 1.132	page 1.133	page 1.133	page 1.133	page 1.133

iglidur® – Fit it and Forget it

Every designer's dream: A life-time-predictable plain bearing without lubrication at low cost

Plain bearing laboratory for tribological tests

Testing the properties of polymer bearings

iglidur® – Plain Bearings Made of High Performance Polymers

Excellent polymers, improved by precise additions of reinforcing materials and lubricants, tested a thousand times and proven a million times.

Each year, igus® engineers develop more than one hundred new plastic compounds and test maintenance free plain bearings in more than 5,000 experiments per year. That's how in recent years they have built an extensive database of the tribological properties of polymers.

This database makes it possible for us to better assess most of the applications in advance, to calculate the expected service life, and provide our customer with confidence during use.

Fit it and Forget it

Based on the results of several thousand empirical tests, we are now able to provide you with reliable answers to almost all inquiries about the service life of iglidur® plain bearings. We can also recommend the most appropriate shaft material using the results from our testing database.

First Class Materials in the Injection Moulding Process

Very few basic materials can be modified and adapted as well as thermoplastics. Thermoplastics can be provided with lubricants, reinforced mechanically by the addition of technical fibres, or varied by additional filling materials, especially with regard to friction and wear behaviour.

Plain Bearings – Long Service Life at Low Cost

igus® develops materials that are well suited to the different requirements of maintenance-free plain bearings:

1. Plain bearings must, at times over many years, receive high loads.
2. Maintenance-free plain bearings should have low coefficients of friction.
3. Their wear resistance should ensure that they can be used for a long time.

Both in material development as well as in the design of bearings, former disadvantages of plastics can be greatly reduced. Thus iglidur® plain bearings are thin walled and some materials have especially high thermal conductivity. Both features help to rapidly dissipate heat and thus directly increase the load capacity of the bearing.

Properties of iglidur® Bearings

Above and beyond the general properties, each iglidur® bearing material has a series of particular properties that create its suitability for certain applications and requirements. You'll find a detailed description of the materials in the following chapters along with a complete list of existing dimensions.

The Self-Lubricating Effect

The high performance polymers of the iglidur® plain bearing are composed of:

- base polymer
- fibres and filling materials
- solid lubricants

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iglidur® – Self-lubrication-Effect

These components are not applied in layers, but instead are mixed together homogeneously. The advantage of this design is clear once the requirements of the surface bearing are explained:

1. The coefficient of friction, which is determined especially by the surface of the bearing, should be as small as possible.
2. The surface may not be removed by forces that act on the bearing
3. The wearing force acts especially on the surface of the bearing, for this the bearing must be capable of high resistance.

There is no such thing as a single, universal material that performs all of these functions well.

The Traditional Solution is:

Hard shells with soft coating. Each lubricated bearing works according to this principle, and likewise a number of maintenance-free bearings that are equipped with special slide layers. However, this soft slide layer is not strong enough. For high loads, edge pressure or oscillations, it becomes removed.

iglidur® Plain Bearings Function Differently

One component of the iglidur® materials acts for each function of the bearing:

- The **base polymers** are responsible for the resistance to wear
- **Fibres and filling materials** reinforce the bearing so that high forces or edge loads are possible
- **Solid lubricants** lubricate the bearing independently and prevent friction of the system.

Self-Lubrication

The solid lubricants are, as microscopically small particles, embedded in millions of tiny chambers of the mostly fibre reinforced material. From these chambers, the plain bearings release tiny amounts of solid lubricants during movement.

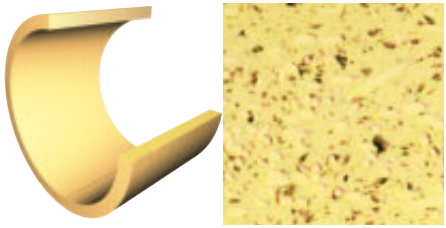
The solid lubricants help to lower the coefficient of friction of the iglidur® bearing. Since they are embedded in the tiny chambers, they cannot be pressed out. They are always there as soon as the bearing or the shaft is set in motion.

Base Polymers and Technical Fibres

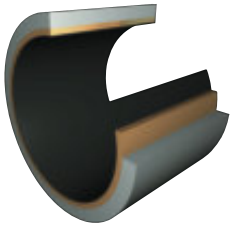
The radial pressure with which the bearings are loaded is received by the polymer base material. In the contact area, this material provides a support to the shaft. The polymer base material ensures that the lubricants do not receive a surface pressure that is too high. The base material is also reinforced by technical fibres or filling materials. These additional materials stabilize the bearing especially in cases of continuous load.

The Start-up Phase

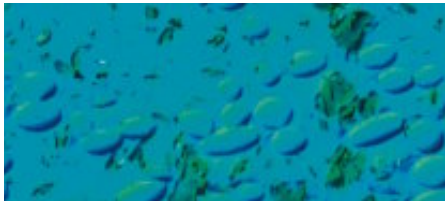
In the starting phase, the shaft and the iglidur® plain bearing become mated to one another. During this phase, the surfaces of both materials are adjusted to each other. The specific pressure of the system drops since the contact surfaces of the shaft and bearing expand during the start-up. At the same time, the rate of wear decreases and approaches a linear curve. In this phase, the coefficients of friction are changing until finally reaching a value that to a large extent is constant.



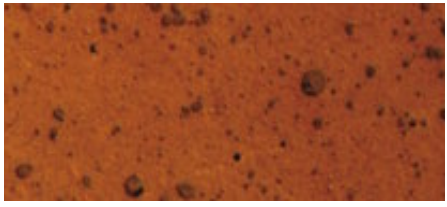
iglidur® plain bearings are homogeneously structured. Base polymer, bonding materials and solid lubricants mutually complement each other.



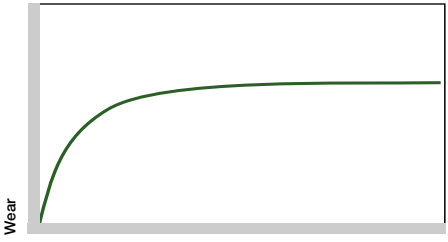
The traditional solution, bearing shells made of layers with lubricants and/or coating.



Base polymers with fibres and solid lubricants, magnified 200 times, dyed.



Base polymers without reinforcing materials with solid lubricants, magnified 50 times, dyed.



During the start-up phase, the rate of wear drops greatly.

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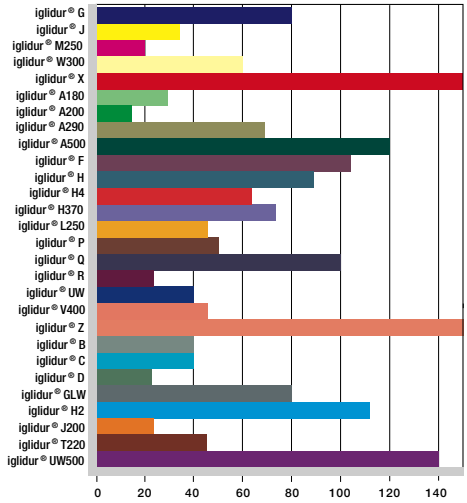
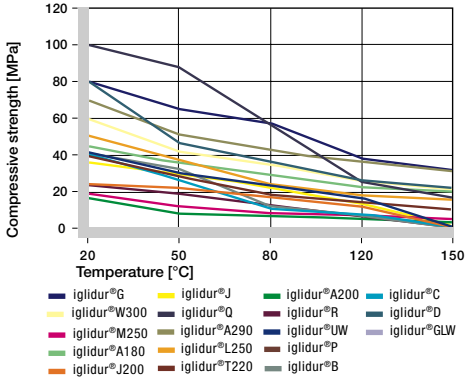
iglidur® – Strength, Pressure and Temperature

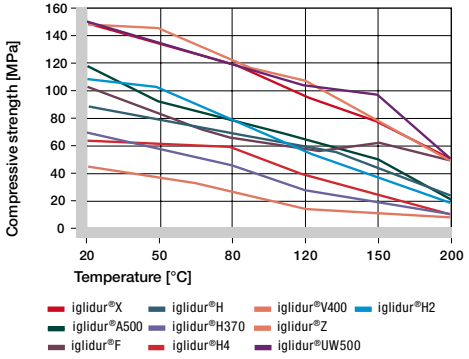
18.1) Permissible average static surface pressure at 20°C



18.2) Compression resistance of iglidur® plain bearings as a function of temperature



18.3)



Compressive Strength

The load of a plain bearing is expressed by the surface pressure (p) in MPa. For this purpose, the radial load is determined on the projected surface of the bearing.

Radial bearing: $p = \frac{F}{d1 \times b1}$

For thrust bearings, the load is produced accordingly.

Axial bearing: $p = \frac{F}{(d2^2 - d1^2) \times \frac{\pi}{4}}$

in this process:

F	**load in N**
d1	**bearing inner diameter in mm**
b1	**bearing length in mm**
d2	**outer diameter of the bearing in mm**

Permissible Average Surface Pressure

A comparative value of the iglidur® material is the permissible average static surface pressure (p) at 20°C. The values of the individual iglidur® plain bearings differ greatly on this point. The value (p) indicates the limit of the load of a plain bearing. The plain bearing can carry this load permanently without damage. The given value applies to static operation; only very slow speeds up to 0.01 m/s are tolerated under this load. Higher loads than those indicated are possible if the duration of the load is short. For a few minutes, the load can be more than doubled, depending on the material. Please call us if you have questions.

▶ Material table, page 1.12

Pressure and Temperature

Graph 18.2 and 18.3 shows the permissible static surface pressure (p) of the iglidur® plain bearing as a function of temperature.
When using the plain bearing, the bearing temperature can be higher than the ambient temperature, due to friction. Take advantage of the opportunity presented by the predictability of the iglidur® plain bearing to record these effects in advance, or determine the effective temperatures in the test.

Pressure and Speed

With decreasing radial load on the plain bearing, the permissible surface speed increases. The product of the load (p) and speed (v) can be understood as a measurement for the frictional heat of the bearing. This relationship is shown by the p x v graph that is the first in the respective chapter for each iglidur® material.

Pressure and Wear

The load of the plain bearing has an effect on the wear of the bearing. The following graphs show the wear behaviour of the iglidur® bearing materials. It is easily recognized that for each load, there is an optimal plain bearing available.

Pressure and Coefficient of Friction

With increasing load, the coefficient of friction of the plain bearing typically decreases. In this context, shaft materials and surfaces are also significant.

▶ Coefficient of Friction, page 1.22

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iglidur® – Surface Speed

Surface Speed

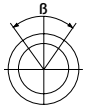
With plain bearings, the surface speed is critical. The rotational speed is not the limit, it is the sliding surface speed between the shaft and the bearing. The surface speed is expressed in metres per second and calculated from the rotational speed with the following formula.

Rotations: $v = \frac{n \times d1 \times \pi}{(60 \times 1000)} \left[\frac{m}{s}\right]$

Oscillating movements: $v = d1 \times \pi \times \frac{2 \times ß}{360} \times \frac{f}{1000} \left[\frac{m}{s}\right]$

in the process:

d1 = shaft diameter [mm]
f = frequency in Hertz
ß = angle of motion per cycle [°]
n = RPM



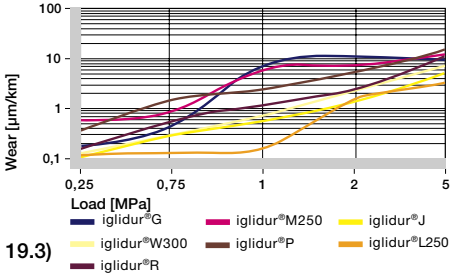
Permissible Surface Speeds

iglidur® plain bearings were primarily developed for low to average running speeds in continuous operation. Table 19.1 and 19.6 shows the permissible surface speed of iglidur® plain bearings for rotating, oscillating, and linear movements. These surface speeds are limit values assuming minimum pressure loading of the bearing. In practice, these limit values are rarely reached due to an inverse relationship between load and speed. All increases of the pressure leads unavoidably to a reduction of the allowable surface speeds and vice versa. The speed limit is determined by the thermal properties of the bearing. This is also the reason why different running speeds can occur for the different movement types. For linear movements, more heat can be dissipated via the shaft, since the bearing uses a longer surface area on the shaft.

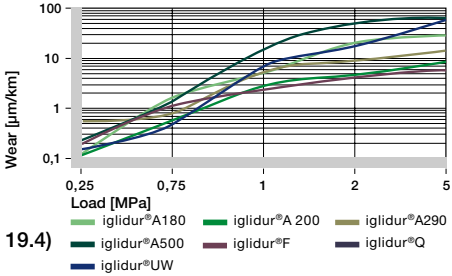
19.1) Surface speeds (constant) of the plain bearing [m/s]

Material	Rotating	Oscillating	Linear
iglidur® G	1	0,7	4
iglidur® J	1,5	1,1	8
iglidur® M250	0,8	0,6	2,5
iglidur® W300	1	0,7	4
iglidur® X	1,5	1,1	5
iglidur® A180	0,8	0,6	3,5
iglidur® A200	0,75	0,6	2
iglidur® A290	1	0,7	3
iglidur® A500	0,6	0,4	1
iglidur® F	0,8	0,6	3
iglidur® H	1	0,7	3
iglidur® H4	1	0,7	1
iglidur® H370	1,2	0,8	4
iglidur® L250	1	0,7	2
iglidur® P	1	0,7	3
iglidur® Q	1	0,7	5
iglidur® R	0,8	0,6	3,5
iglidur® UW	0,5	0,4	2
iglidur® V400	0,9	0,6	2
iglidur® Z	1,5	1,1	5
iglidur® B	0,7	0,5	2
iglidur® C	1	0,7	2
iglidur® D	1,5	1,1	8
iglidur® GLW	0,8	0,6	2,5
iglidur® H2	0,9	0,6	2,5
iglidur® J200	1	0,7	10
iglidur® T220	0,4	0,3	1
iglidur® UW500	0,8	0,6	2

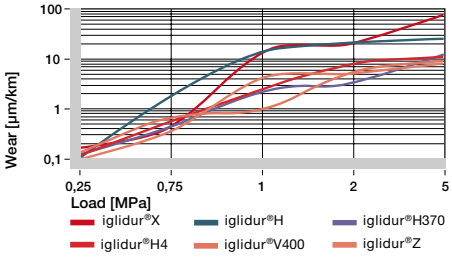
19.2) Wear of iglidur® plain bearings under Low Loads



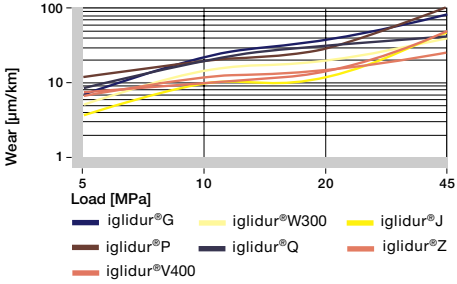
19.3)



19.4)



19.5) Wear of iglidur® plain bearings under medium and high Loads



19.6) Surface speeds (short term) of the plain bearing [m/s]

Material	Rotating	Oscillating	Linear
iglidur® G	2	1,4	5
iglidur® J	3	2,1	10
iglidur® M250	2	1,4	5
iglidur® W300	2,5	1,8	6
iglidur® X	3,5	2,5	10

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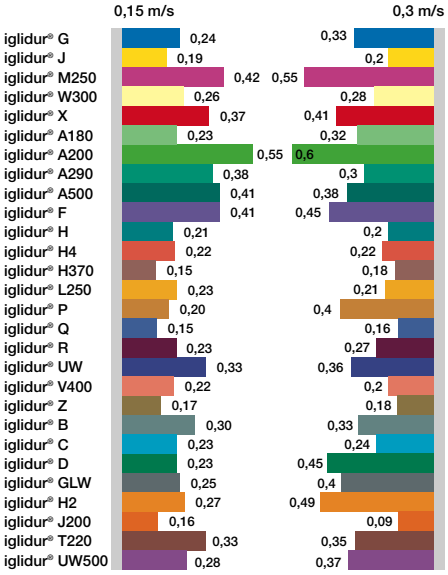
iglidur® – The p x v Value

20.1) Coefficients of friction of iglidur® materials for different surface speeds (shaft Cf 53)

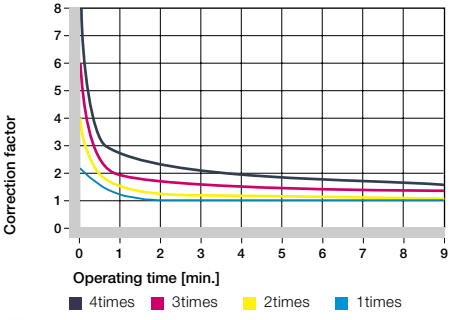


$$p \times v_{perm.} = \left(\frac{(K1 \times \pi \times \lambda k \times \Delta T)}{\mu \times s} + \frac{(K2 \times \pi \times \lambda s \times \Delta T)}{\mu \times b1 \times 2} \right) \times 10^{-3}$$

where:

K1, K2	=	constant for heat dissipation (K1 = 0.5, K2 = 0.042)
s	=	bearing wall thickness [mm]
b1	=	bearing length [mm]
μ	=	coefficient of friction
λs	=	thermal conductivity of the shaft
λk	=	thermal conductivity of the bearing
ΔT	=	$(T_a - T_u)$
T_u	=	ambient temperature
T_a	=	Maximum application temperature

20.2) Correction factor for p x v value



Surface Speed and Wear

Considerations regarding the permissible surface speeds should also include the wear resistance of the plain bearing. High running speeds automatically bring correspondingly high wear rates with them.

Surface Speed and Coefficient of Friction

In practice the coefficient of friction of plain bearings is a result of the surface speed. High surface speeds have a higher coefficient of friction than low surface speeds. Graph 20.1 shows this relationship by using the example of a Cold Rolled Steel shaft (Cf53) with a load of 0.7 MPa.

p x v value

For plain bearings, the product is given a new value depending on the specific load (p) and the surface speed The **p x v value** can be considered a measure of the frictional heat and can be used as an analytical tool to answer questions concerning the proper application of a plain bearing. For this purpose, the actual **p x v value** is a function of the shaft material of the ambient temperature and the operating time.

Correction Factor

The tolerated **p x v value** can be increased in allowable operation if the bearing temperature never reaches the maximum limit because of the short operating time. Tests have shown that this is true for operating times below 10 minutes. An important qualifier here is the ratio of the operating time and pause intervals. It is known that long pauses make a greater contribution to re-cooling. The different curves of graph 20.2 represent different ratios (3x means that the pause lasts three times longer than the operating time).

Lubrication

Although iglidur® plain bearings are designed to run dry, they are quite compatible with standard oils and greases. A single lubrication during the installation improves the start-up behaviour and the coefficient of friction, thus reducing the frictional heat. Due to this effect, the permissible loads for plain bearings can be increased by lubrication. Numerous results from lubricated applications are available from experiments. For further information, please contact us.
Table 20.4 shows the correction factors for p x v value using lubrication.

20.3) Heat conductivity values of shaft or housing materials

Material	Thermal conductivity [W/m x k]	Material	Thermal conductivity [W/m x k]
Steel	46	303 Stainless	16
Aluminium	204	Ceramics	1.4
Grey cast iron	58	Plastics	0.24

20.4) Correction of the tolerated p x v value by means of lubrication

Lubrication	Correc. factor	Lubrication	Correc. factor
Dry run	1	Continuous, water	4
During installation	1.3	Continuous, oil	5
Continuous, grease	2		

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iglidur® – Temperatures

Temperature

Plain bearings made of high performance polymers are usually underestimated at higher temperatures. Who would believe that bearings made of plastic could be used up to over 300°C? Data is often found in the literature about the continuous use temperature. The continuous use temperature is the highest temperature, which the plastic can withstand for a period of time without a reduction in the tensile strength of the material above or below a prespecified value. Please note, these standard test results have limited applications, since bearings are almost always under load.

Application Temperatures

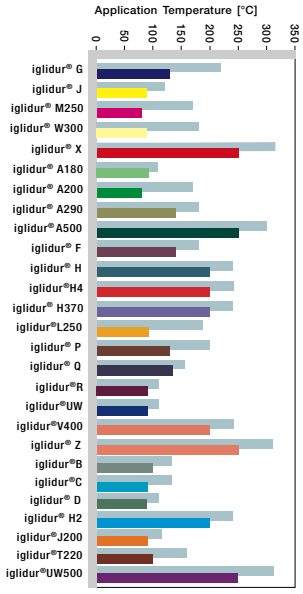
The minimum application temperature is the temperature below which the material is so rigid and hard that it becomes too brittle for standard applications. The maximum continuous application temperature is the temperature which the material can endure without the properties changing considerably. The maximum, short-term application temperature is the temperature above which the material becomes so soft, that it can only withstand small external loads. "Short term" is defined as a period of a few minutes. If the plain bearings are moved axially or axial forces occur, there is more opportunity for the bearing to lose pressfit. In these cases, axial securing of the bearing is necessary in addition to the pressfit. Table 21.4 shows the maximum ambient temperatures to which the plain bearings can be exposed for a short-term. If these temperatures are realised, the bearings may not be additionally experienced. In fact, a relaxation of the bearings can occur at these temperatures, even without an additional load. Thus it is necessary to ensure that the bearing cannot slide out of the bore. This is achieved by changing bore design or additionally securing the bearing.

Temperature and Load

The compressive strength of plain bearings decreases as temperature increases. During this process, the materials react very differently from another iglidur® X for example, still accepts loads of 52 MPa even at temperatures of 200°C.

Coefficient of Thermal Expansion

The thermal expansion of polymers is approximately 10 to 20 times higher when compared to metals. In addition to this, it also acts non-linearly in plastics. The coefficient of thermal expansion of the iglidur® plain bearing is a significant reason for the required play in the bearing. At the given application clearance, seizing of the bearing to the shaft does not occur at high temperatures. The coefficient of thermal expansion of iglidur® plain bearings was examined for significant temperature ranges and the results are given in the individual materials tables, at the start of each chapter.



21.2) Comparison of the continuous and short term upper application temperature limits

max., short term [°C]

max., long term [°C]

21.3) Lower application temperature limit of the iglidur® materials

	Lower application Temp. limit [°C]		Lower application Temp. limit [°C]
iglidur® G	–40	iglidur® P	–40
iglidur® J	–50	iglidur® Q	–40
iglidur® M250	–40	iglidur® R	–50
iglidur® W300	–40	iglidur® UW	–50
iglidur® X	–100	iglidur® V400	–40
iglidur® A180	–50	iglidur® Z	–100
iglidur® A200	–40	iglidur® B	–40
iglidur® A290	–40	iglidur® C	–40
iglidur® A500	–100	iglidur® D	–50
iglidur® F	–40	iglidur® GLW	–40
iglidur® H	–40	iglidur® H2	–40
iglidur® H4	–40	iglidur® J200	–50
iglidur® H370	–40	iglidur® T220	–40
iglidur® L250	–40	iglidur® UW500	–100

21.1) Maximum ambient temperature, short term, without loading

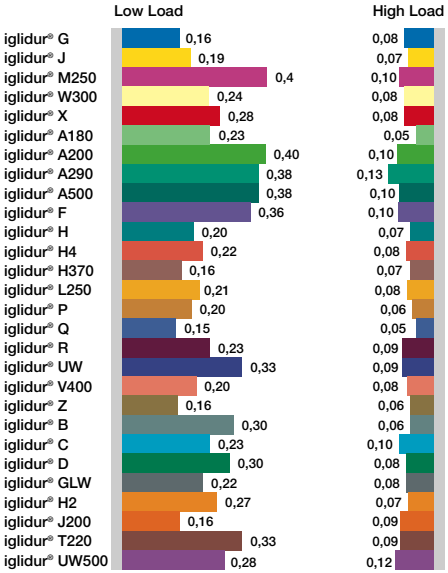
	max., short term temp [°C]		max., short term temp [°C]
iglidur® G	220	iglidur® P	200
iglidur® J	140	iglidur® Q	200
iglidur®M250	200	iglidur® R	140
iglidur® W300	200	iglidur® UW	140
iglidur® X	315	iglidur® V400	250
iglidur® A180	110	iglidur® Z	310
iglidur® A200	200	iglidur® B	130
iglidur® A290	230	iglidur® C	150
iglidur® A500	315	iglidur® D	140
iglidur® F	230	iglidur® GLW	200
iglidur® H	260	iglidur® H2	260
iglidur® H4	260	iglidur® J200	140
iglidur® H370	260	iglidur® T220	170
iglidur® L250	200	iglidur® UW500	315

21.4) Temperature at which additional securing of the iglidur® plain bearing is required

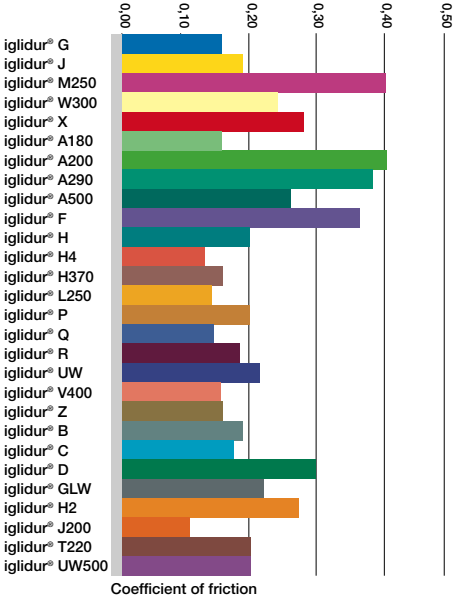
	Securing mechanism provided starting at [°C]		Securing mechanism provided starting at [°C]
iglidur® G	100	iglidur® P	90
iglidur® J	60	iglidur® Q	50
iglidur® M250	60	iglidur® R	50
iglidur® W300	60	iglidur® UW	80
iglidur® X	135	iglidur® V400	100
iglidur® A180	60	iglidur® Z	135
iglidur® A200	50	iglidur® B	50
iglidur® A290	110	iglidur® C	40
iglidur® A500	130	iglidur® D	50
iglidur® F	105	iglidur® GLW	80
iglidur® H	120	iglidur® H2	110
iglidur® H4	110	iglidur® J200	60
iglidur® H370	100	iglidur® T220	50
iglidur® L250	55	iglidur® UW500	150

iglidur® – Coefficient of Friction

22.1) Frictional values of iglidur® materials under different loads



22.2) Coefficients of friction of the iglidur® plain bearings for the recommended surface roughness and low load, p = 0.75 MPa



Coefficient of Friction

iglidur® plain bearings are self-lubricating by the addition of solid lubricants. The solid lubricants lower the coefficient of friction of the plain bearings and thus increase the wear resistance. The coefficient of friction measurement:

FR = μ x F

Depending on whether an application is starting from a stopped position or the movement is in progress and needs to be maintained, a choice is made between static friction coefficient and the dynamic friction coefficient.

Coefficients of Friction and Surfaces

At study here is the relationship between coefficients of friction and surface roughness of shaft materials. It is clearly shown that the amount of friction is composed of different factors. If the shaft is too rough, abrasion levels play an important role. Small areas of unevenness that can interlock with each other must be worn off the surface. When the surfaces are too smooth, however, higher adhesion results, i.e. the surfaces stick to each other. Higher forces are necessary to overcome the adhesion, which results from an increased coefficient of friction. Stick-slip can be the result of a large difference between static and dynamic friction and of a higher adhesive tendency of mating surfaces. Stick-slip also occurs due to intermittent running behaviour and can result in loud squeaking. Stick slip thus represents a cause for malfunction of plain bearings. Over and over again, it is observed that these noises do not occur or can be eliminated with rough shafts. Thus for applications that have a great potential for stick slip – slow movements, large resonance of the housings – attention must be paid to the optimal roughness of the shafts.

Wear Resistance

Due to the fact that the wear of machine parts is a function of so many different influences, it is difficult to make general statements about the wear behaviour. Therefore, in numerous experiments, the wear is of primary importance as a measurement parameter. In testing, it has become clear what variances are possible between different material pairings. For given loads and surface speeds, the wear resistance can easily vary by a factor of 10 between materials pairings that run well together.

▶ Shaft Materials, pages 1.23

Wear and Load

Different loads greatly influence the bearing wear. Among the iglidur plain bearings, certain materials are optimized for low loads, while others are better suited for high or extremely high loads. With a hardened, ground shaft, iglidur® J can be characterized as the most wear resistant bearing material for low loads. iglidur® Q on the other hand, is optimized for extreme loads.

Wear and Temperature

Within wide temperature ranges, the wear resistance of the iglidur® plain bearings shows little change. In the maximum temperature range, however, the temperature increases and the wear of the plain bearing increases. The table on the following page compares the “wear limits”. One particular exception is represented by iglidur® X The wear resistance of iglidur® X increases greatly as temperature increases and reaches the optimum wear resistance at a temperature of 160°C. Then resistance decreases again, gradually.

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Wear during Abrasive Dirt Accumulation

Special wear problems frequently occur if abrasive dirt particles get into the bearing. iglidur® plain bearings can clearly improve the operating time of machines and systems in these situations. The high wear resistance of the materials and the self-lubrication process provide for the highest service lifetime. Because no oil or grease is on the bearing, dirt particles can not penetrate as easily into the bearing. The largest portion simply falls away from the bearing thus limiting potential damage. If however, a hard particle penetrates into the bearing area, then. an iglidur® plain bearing can absorb this particle. The foreign body becomes embedded in the wall of the bearing. Up to a certain point, operation can be maintained at optimal levels even when there is extreme dirt accumulation. However, it's not just hard particles that can damage bearings and shafts. Soft dirt particles such as for example, textile or paper fibres, are frequently the cause for increased wear. In this instance, the dry of capability and the dust resistance of the iglidur® plain bearings go into action. In the past, they were able to help save costs in numerous applications.

Wear and Surfaces

Shaft surfaces are important for the wear of bearing systems. Similar to the considerations for coefficients of friction, a shaft can be too rough in regard to the bearing wear, but it can also be too smooth. A shaft that is too rough acts like a file and during movement separates small particles from the bearing surface. For shafts that are too smooth, however, higher wear can also occur. An extreme increase in friction results due to adhesion. The forces that act on the surfaces of the sliding face can be so large that regular material blow-outs occur. It is significant to note that wear by erosion is non linear. Moreover, it is random and can not be accurately predicted.

Shaft Materials

The shaft is, next to the plain bearing itself, the most important parameter in a bearing system. It is in direct contact with the bearing, and like the bearing, it is affected by relative motion. Fundamentally, the shaft is also worn, however, modern bearing systems are designed in a way that the wear of the shafts is so small that it can not be detected with traditional methods of measurement technology. Shafts can be distinguished and classified according to their hardness and according to the surface roughness. The effect of the surface is described on page 1.22.

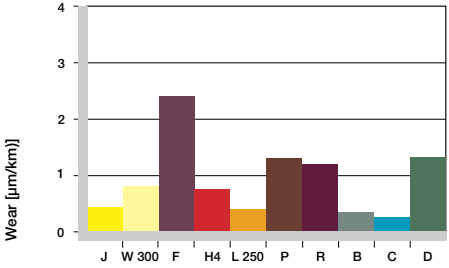
▶ Coefficient of Friction, page 1.22
▶ Wear Resistance, page 1.22

The hardness of the shaft also plays an important role. When the shafts are less hard, the shaft is smoothed during the break-in phase. Abrasive points are worn off and the surface is rebuilt. For some materials, this effect has positive influences, and the wear resistance of the polymer bearing increases. In the following graphs, the most common shaft materials are listed and the iglidur® materials that are best suited are compared. For easier understanding, the scaling of the wear axis is the same in all graphs. The small wear results of the systems with hard-chromed shafts are especially impressive. This very hard, but also smooth shaft acts beneficially on the wear behaviour in many bearing pairs. The wear of many iglidur® plain bearings is lower on this shaft than on any other shaft material tested. However, it should be pointed out that because of the typically small surface roughness, the danger of stick slip on hard chromed shafts is especially high. Such an overwhelmingly positive influence is not as readily available in the other shaft materials.

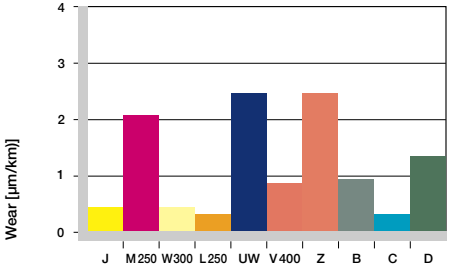
23.1) Wear limits of iglidur® plain bearings

Material	Wear limit [°C]	Material	Wear limit [°C]
iglidur® G	120	iglidur® P	100
iglidur® J	70	iglidur® Q	80
iglidur® M250	80	iglidur® R	70
iglidur® W300	120	iglidur® UW	70
iglidur® X	210	iglidur® V400	130
iglidur® A180	70	iglidur® Z	200
iglidur® A200	80	iglidur® B	70
iglidur® A290	120	iglidur® C	70
iglidur® A500	190	iglidur® D	70
iglidur® F	130	iglidur® GLW	100
iglidur® H	120	iglidur® H2	120
iglidur® H4	120	iglidur® J200	70
iglidur® H370	150	iglidur® T220	90
iglidur® L250	120	iglidur® UW500	190

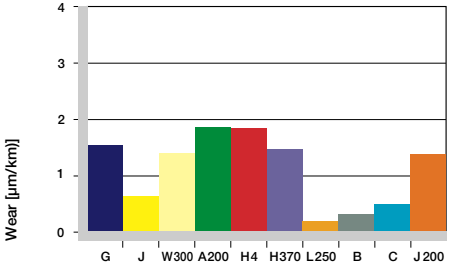
23.2) Wear with shaft Cf53, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



23.3) Wear with shaft 304L, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



23.4) Wear with shaft St37, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



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iglidur® – Chemical Resistance

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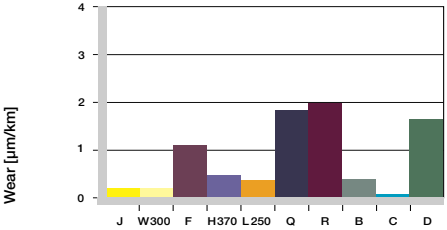
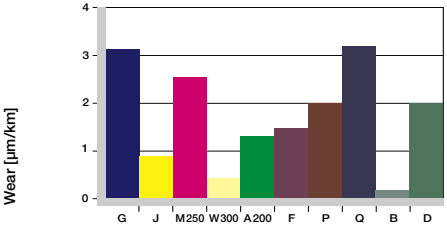
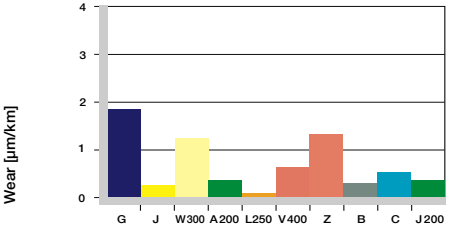
24.1) Wear with hard chromed shaft, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



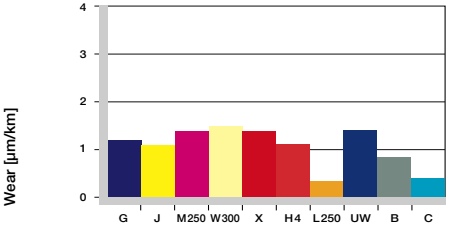
24.2) Wear with a silver steel shaft, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



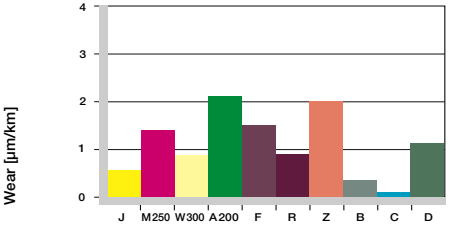
24.3) Wear with an aluminium shaft, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



24.4) Wear with a machining steel shaft, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



24.5) Wear with shaft X90, p = 0,75 MPa, v = 0,50 m/s, Ra = 0,20 µm



For example, with shafts made of 303 Stainless with low loads, good to very good values can be obtained with the right bearing material. However, it must also be stated that no other shaft material produces a larger difference in wear among the bearing materials. For materials such as 303 Stainless Steel, therefore, the selection of suitable bearing materials is especially important. Other soft shaft materials obtain a slightly different view with different bearing materials. With machining steel, the wear values of the seven best iglidur® bearing materials are in a narrow range between 0.6 and 1.8. For many other shafts, the influence of the shaft materials is much larger, resulting in a difference, up to 10 times, between the best and the worst of the bearings tested. If the shaft that you have chosen for your application is missing in this overview, please call us. The test results give only a sample of the existing data. All of the results given were obtained under the same loads and speeds: All of the results shown were made with the loads p = 0.75 MPa and v = 0.5 m/s You can call us for the data for other p x v combinations.

Chemical Resistance

iglidur® plain bearings can come into contact with many chemicals during their use. This contact can lead to changes of the structural properties. The behaviour of plastics toward a certain chemical is dependent on the temperature, the length of exposure, and the type and amount of the mechanical loading. If iglidur® plain bearings are resistant against a chemical, they can be used in these media. Sometimes, the surrounding media can even take on the role of a lubricant. With the most resistant iglidur® material iglidur® X the medium can even be hydrochloric acid. All iglidur® plain bearings can be used in greatly diluted acids and diluted alkalines. Differences can result at higher concentrations or higher temperatures. For all iglidur® plain bearings, their resistance against traditional lubricants applies in the same way. Therefore plain bearings may also be used lubricated. However, in dirty environments, a traditional lubricant can decrease the wear resistance when compared to running dry. The following overview should quickly assist you: If it is not completely clear in a design application which of the different chemicals can occur or in which concentration, plain bearings made out of iglidur® X should be used. This has the best resistance and is only attacked by a few concentrated acids. You'll find a list of chemical resistances on page 1.24.

Use in the Food Industry

For the special requirements made of machines and systems for producing food, the iglidur® product line offers four specially developed bearing materials. The materials used to produce the iglidur® A180, A200 and iglidur® A500 bearings comply with FDA regulations. The material of iglidur® A290 complies to the standards of the BfR (German Federal Institute for Risk Assessment.

iglidur® – Environment

Radioactive Radiation

A comparison of the resistance to radioactive radiation is shown in the table 25.2. By a wide margin iglidur® X and Z are the most resistant materials.

UV Resistance

Plain bearings can be exposed to constant weathering when they are used outside. The UV resistance is an important measurement and indicates whether a material is attacked by UV radiation. The effects can extend from slight changes in colour to brittleness of the material. A comparison of the materials to each other is shown in the table 25.3. The results show that iglidur® plain bearings are suitable for outside use. Only for a few iglidur® materials are any changes expected.

Vacuum

iglidur® plain bearings can be used in a vacuum to a limited extent. Only a small amount of outgassing takes place. In most iglidur® plain bearings, the outgassing does not change the material properties.

iglidur® plain bearing in UV test

25.1) Chemical resistance of iglidur® plain bearings

Material	Hydro-carbon	Greases, oils without additives	Weak acids	Weak alkaline
iglidur® G	+	+	0 to –	+
iglidur® J	+	+	0 to –	+
iglidur® M250	+	+	0 to –	+
iglidur® W300	+	+	0 to –	+
iglidur® X	+	+	+	+
iglidur® A180	+	+	0 to –	+
iglidur® A200	+	+	0 to –	+
iglidur® A290	+	+	0 to –	+
iglidur® A500	+	+	+	+
iglidur® F	+	+	0 to –	+
iglidur® H	+	+	+ to 0	+
iglidur® H4	+	+	+ to 0	+
iglidur® H370	+	+	+ to 0	+
iglidur® L250	+	+	0 to –	+
iglidur® P	–	+	0	–
iglidur® Q	+	+	0 to –	+
iglidur® R	+	+	0 to –	+
iglidur® UW	+	+	0 to –	+
iglidur® V400	+	+	+	+
iglidur® Z	+	+	+	+
iglidur® B	–	–	0 to –	–
iglidur® C	+	+	0 to –	+
iglidur® D	+	+	0 to –	+
iglidur® GLW	+	+	0 to –	+
iglidur® H2	+	+	+ to 0	+
iglidur® J200	+	+	0 to –	+
iglidur® T220	–	+	0	–
iglidur® UW500	+	+	+	+

+ resistant
0 conditionally resistant
– not resistant

All data given concerns the chemical resistance at room temp. [20°C]

25.2) Radiation resistance of iglidur® plain bearings

Material	Radiation resistance
iglidur® X, UW500, Z	1 x 10^5 Gy
iglidur® A200, M250	1 x 10^4 Gy
iglidur® P	5 x 10^2 Gy
iglidur® A180, A290, B, D, F, G, J, J200, Q, R, T220, UW, W300	3 x 10^2 Gy
iglidur® H, H2, H370	2 x 10^2 Gy
iglidur® A500	2 x 10^5 Gy
iglidur® L250	3 x 10^4 Gy
iglidur® C, V400	2 x 10^4 Gy
iglidur® H4	2 x 10^2 Gy

25.3) UV resistance of iglidur® plain bearings

Material	Points UV resistance
iglidur® G	●●●●●
iglidur® J	●●●
iglidur® M250	●●●●
iglidur® W300	●●●
iglidur® X	●●●●●
iglidur® A180	●●●
iglidur® A200	●●●●
iglidur® A290	●●●●
iglidur® A500	●●●
iglidur® F	●●●●●
iglidur® H	●●
iglidur® H4	●
iglidur® H370	●●●●●
iglidur® L250	●●●
iglidur® P	●●●●●
iglidur® Q	●●
iglidur® R	●●●●
iglidur® UW	●●●
iglidur® V400	●●●
iglidur® Z	●●●
iglidur® B	●
iglidur® C	●
iglidur® D	●●●●●
iglidur® GLW	●●●●●
iglidur® H2	●
iglidur® J200	●●●
iglidur® T220	●●
iglidur® UW500	●●●●●

● lowest resistance ●●●●● highest resistance

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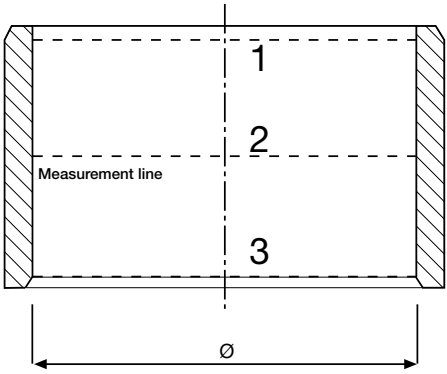
iglidur® – Tolerances and Measurement System

26.1) Electrical properties of conductive iglidur® plain bearings

Material	Surface resistance [Ω]
iglidur® F	1,5 x 10^1
iglidur® H	8,8 x 10^1
iglidur® H370	2,8 x 10^3
iglidur® X	6,9 x 10^2



Positions of the measurement planes

Measurement of the inner diameter of a pressfit plain bearing

Electrical Properties

In the product line of the maintenance-free, self-lubricating iglidur plain bearings, there are both insulating as well as electrically conductive materials. The most important electrical properties are given in detail in the individual material descriptions. The table 26.1 compares the most important electrical properties of iglidur® plain bearings. The iglidur® plain bearings not mentioned here are electrically insulating. Please observe that for some materials the properties can be changed by the material's absorption of moisture. In experiments, it should be tested whether the desired properties are also stable when the conditions are changing.

Tolerances and Measurement System

The installation dimensions and tolerances of the iglidur® plain bearings are a function of the material and wall thicknesses. For each material, the moisture absorption and the thermal expansion are imperative. Plain bearings with low moisture absorption can be designed when there is a minimal amount of tolerance. For wall thickness, the rule is: The thicker the bearings are, the larger the tolerances must be. Thus, different tolerance classes exist for iglidur® plain bearings: Within these tolerances, iglidur® plain bearings can operate in the permissible temperature range and in humidity conditions up to 70% according to the installation recommendations. Should higher air moisture levels be present, or the bearing is operated under water, we provide advice with regard to applications, in order to help you use your bearings correctly.

Testing Methods

iglidur® plain bearings are pressfit bearings for bores machined to our recommendations. This pressfitting of the bearing fixes the bearing in the housing, and the inner diameter of the plain bearing is also formed upon pressfit. The bearing test is performed when the bearing is installed in a bore with the minimum specified dimension; both using an dial gauge and a Go No-Go gauge.

- the "Go-Side" of the Go-No-Go gauge, pressed into the bore, must pass easily through the bearing
- With the 3 point probe, the inner diameter of the bearing after pressfit must lie within the prescribed tolerance on the measurement plane, see margin graphic.

Troubleshooting

In spite of careful manufacturing and assembly of the bearings, differences and questions regarding the recommended installation dimensions and tolerances can result. For this reason, we have compiled a list of the most frequent reasons for differences. In many cases, with this troubleshooter, the reasons for the differences can be found quickly.

- The bore is not chamfered properly – the bearing material is removed upon pressfitting. The correct chamfer should be 25 to 30 degrees, not 45 degrees.
- A centering pin was used which expanded the inside diameter of the bearing during pressfit.
- The bore does not meet the recommended housing bore specifications.
- The housing is made out of a soft material that was expanded by the bearing installation.
- The shaft is not within recommended tolerances.
- The measurement is not performed within the same parameters shown.

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Machining

iglidur® plain bearings are delivered ready to install. The extensive product line makes it possible to use a standard dimension in most cases. If for some reason, a subsequent machining of the plain bearing is necessary, table 27.1 shows the machining standard values. The subsequent machining of the running surfaces is to be avoided if possible. Higher wear rate is most often the result. An exception is the iglidur® M250 which is very suitable for secondary machining. In other iglidur® plain bearings, disadvantages of a sliding surface machining can be counteracted by lubrication during installation.

Installation

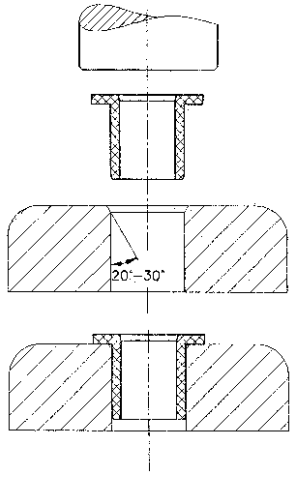
iglidur® plain bearings are produced oversized as standard. The inner diameter adjusts only after pressfit in the proper housing bore with a recommended tolerance. The before pressfit oversized dimension can be up to 2% of the inner diameter. In this manner, the secure press-fitting of the bearing is achieved. Axial or radial shifts in the housing are also prevented. The bore in the housing should be finished in the recommended tolerance for all bearings and be as smooth, flat, and chamfered when possible with an angle of 25 to 30 degrees. The installation is effected using an flat press. The use of centering or calibrating pins can cause damage to the bearing and create a larger amount of clearance.

Adhesion

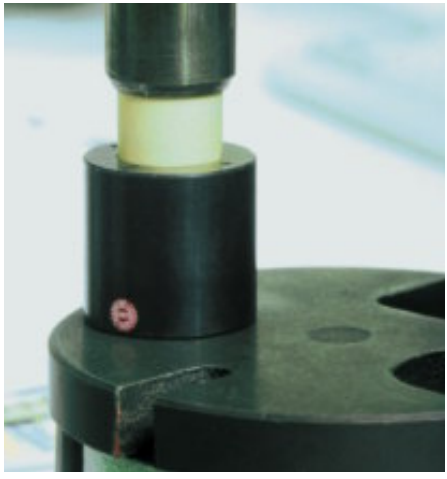
Adhering of the bearing is normally not necessary. If the pressfit of the bearing could be lost because of high temperatures, the use of a plain bearing having a higher temperature resistance is recommended. If however, the securing of the bearing by adhesives is planned, individual tests are necessary in each case. The transfer of successful results to other application cases is not possible.

27.1) Table guidelines for machining

Process	Turning	Boring	Milling
Tool material	SS	SS	SS
Feed [mm]	0.1 - 0.5	0.1 - 0.5	> 0.5
Tool relief angle	5 - 15	10 - 12	
Tool rake angle	0 - 10	3 - 5	
Cutting speed [m/min]	200 - 500	50 - 100	> 1000



Section view: pressfit of the bearing



The installation

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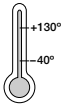
iglidur® G – The Economical Allrounder

iglidur® G bearings cover an extremely wide range of differing requirements – they are truly "allround". Application is recommended for medium to high loads, medium sliding velocities and medium temperatures.

Product range

- 3 Styles
- > 650 Dimensions
- Ø 1–150 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1	2
Oscillating	1,5	2,5
Linear	4	5

Price index

Conveyor chains: Through edge loading, short term surface pressures of over 50 MPa can occur

Resistance to wear and true dry operating characteristics in this packing machine

The special geometry adapted to the centrifugal arm results in a significant reduction in the processing costs

When to use iglidur® G

- Economical all-round performance bearing
- Maintenance-free, dry running
- Vibration dampening
- High wear resistance
- Resistance to dust and dirt
- Over 900 sizes available from stock
- Cost-effective
- For above average loads
- For low to average running speeds
- When the bearing needs to run on different shaft materials
- For oscillating and rotational movements

When not to use iglidur® G

- When mechanical reaming of the wall surface is necessary ▶ **iglidur® M250** page 1.46
- When the highest wear resistance is required ▶ **iglidur® W300** page 1.54

Material table

General properties	Unit	iglidur® G	Testing Method
Density	g/cm³	1,46	
Colour		dark grey	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,7	DIN 53495
Max. moisture absorption	% weight	4,0	
Coefficient of sliding friction, dynamic against steel	µ	0,08 - 0,15	
p x v value, max. (dry)	MPa x m/s	0,42	
Mechanical properties			
Modulus of elasticity	MPa	7.800	DIN 53457
Tensile strength at 20°C	MPa	210	DIN 53452
Compressive strength	MPa	78	
Max. static surface pressure (20°C)	MPa	80	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	130	
Max. short term application temperature	°C	220	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	9	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

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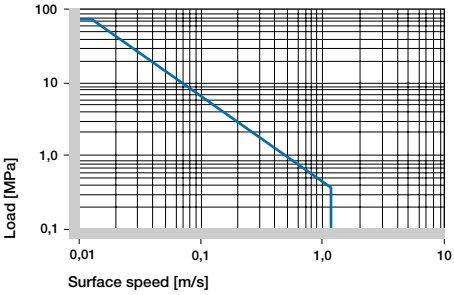
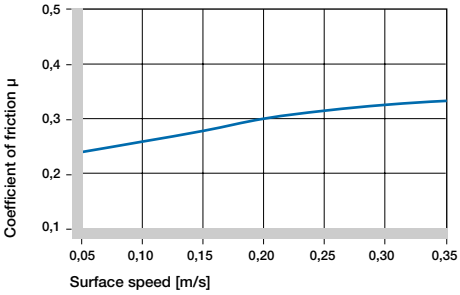
Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/g

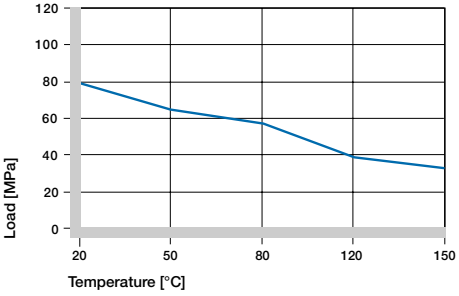
Permissible p x v values for running dry against a steel shaft, at 20°C



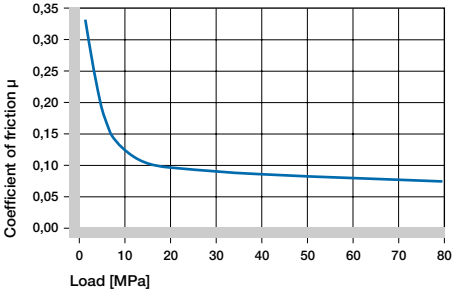
Coefficient of friction of iglidur® G as a function of the running speed, p = 0.75 MPa



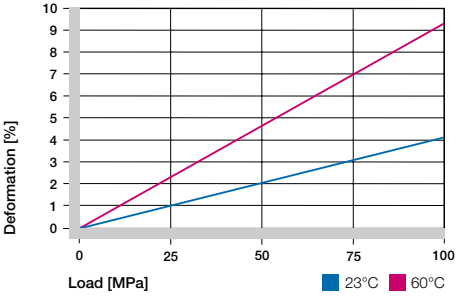
Recommended maximum surface pressure of iglidur® G as a function of temperature



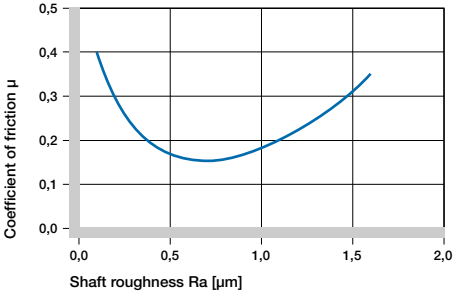
Coefficient of friction of iglidur® G as a function of the load, v = 0.01m/s



Deformation under load and temperature



Coefficient of friction as function of the shaft surface (shaft – cold rolled steel)



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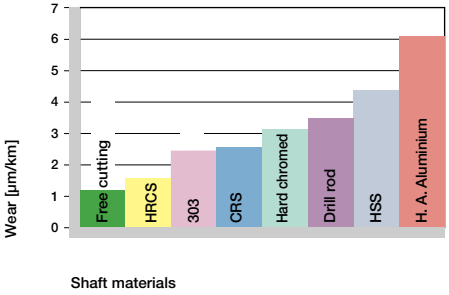
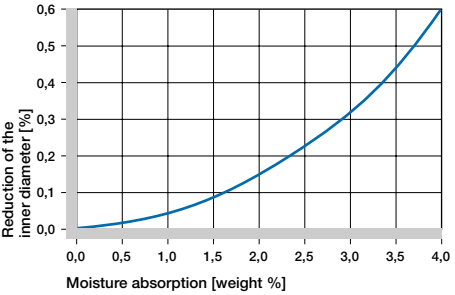
iglidur® G – Information and Technical Data

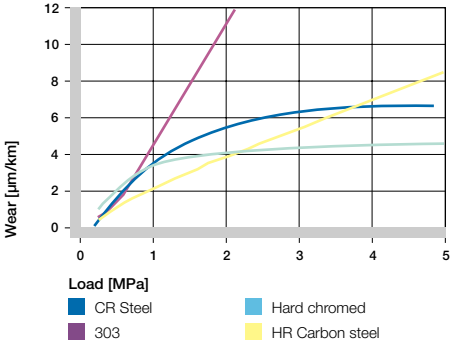
Wear rotating with different shaft materials, load p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® G plain bearings



Wear with different shaft materials in rotational operation, as a function of the load



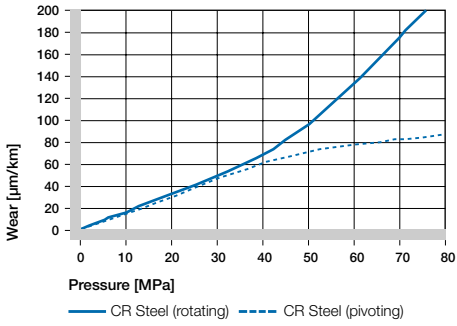
Electrical properties

iglidur® G	
Specific volume resistance	> 10^{13} Ω cm
Surface resistance	> 10^{11} Ω

Tolerances for iglidur® G plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® G E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150
> 50 to 80	0 - 0,074	+0,060 + 0,180
> 80 to 120	0 - 0,087	+0,072 + 0,212
> 120	0 - 0,100	+0,085 + 0,245

Wear for pivoting and rotating applications with shaft material cold rolled steel, as a function of the pressure



Chemical resistance of iglidur® G

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

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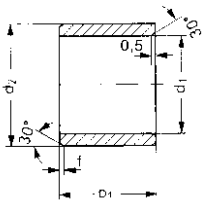
iglidur® G – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
G S M-01 03 - 02
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1 h13
GSM-0103-02	1,5	3,0	2,0
GSM-0203-03	2,0	3,5	3,0
GSM-02504-05	2,5	4,5	5,0
GSM-0304-03	3,0	4,5	3,0
GSM-0304-05	3,0	4,5	5,0
GSM-0304-06	3,0	4,5	6,0
GSM-0405-04	4,0	5,5	4,0
GSM-0405-06	4,0	5,5	6,0
GSM-0406-08	4,5	6,0	8,0
GSM-0407-05	4,0	7,0	5,5
GSM-0506-05	5,0	6,0	5,0
GSM-0506-07	5,0	6,0	7,0
GSM-0507-05	5,0	7,0	5,0
GSM-0507-08	5,0	7,0	8,0
GSM-0507-10	5,0	7,0	10,0
GSM-0607-06	6,0	7,0	6,0
GSM-0607-17.5	6,0	7,0	17,5
GSM-0608-04	6,0	8,0	4,0
GSM-0608-05	6,0	8,0	5,0
GSM-0608-055	6,0	8,0	5,5
GSM-0608-06	6,0	8,0	6,0
GSM-0608-08	6,0	8,0	8,0
GSM-0608-09	6,0	8,0	9,5
GSM-0608-10	6,0	8,0	10,0
GSM-0608-11	6,0	8,0	11,8
GSM-0608-13	6,0	8,0	13,8
GSM-0608-15	6,0	8,0	1,5
GSM-0608-25	6,0	8,0	2,5
GSM-0708-10	7,0	8,0	10,0
GSM-0708-19	7,0	8,0	19,0
GSM-0709-08	7,0	9,0	8,0
GSM-0709-09	7,0	9,0	9,0
GSM-0709-10	7,0	9,0	10,0
GSM-0709-12	7,0	9,0	12,0
GSM-0809-05	8,0	9,0	5,0
GSM-0809-06	8,0	9,0	6,0
GSM-0809-08	8,0	9,0	8,0
GSM-0809-12	8,0	9,0	12,0
GSM-0810-05	8,0	10,0	5,0
GSM-0810-06	8,0	10,0	6,0
GSM-0810-07	8,0	10,0	6,8
GSM-0810-08	8,0	10,0	8,0
GSM-0810-10	8,0	10,0	10,0
GSM-0810-12	8,0	10,0	12,0
GSM-0810-13	8,0	10,0	13,0
GSM-0810-15	8,0	10,0	15,0
GSM-0810-16	8,0	10,0	16,0

Part No.	d1*	d2	b1 h13
GSM-0810-20	8,0	10,0	20,0
GSM-0810-22	8,0	10,0	22,0
GSM-0911-06	9,0	11,0	6,0
GSM-1011-06	10,0	11,0	6,0
GSM-1011-10	10,0	11,0	10,0
GSM-1011-25	10,0	11,0	25,0
GSM-1011-30	10,0	11,0	30,0
GSM-1012-04	10,0	12,0	4,0
GSM-1012-045	10,0	12,0	4,5
GSM-1012-05	10,0	12,0	5,0
GSM-1012-06	10,0	12,0	6,0
GSM-1012-07	10,0	12,0	7,0
GSM-1012-08	10,0	12,0	8,0
GSM-1012-09	10,0	12,0	9,0
GSM-1012-10	10,0	12,0	10,0
GSM-1012-12	10,0	12,0	12,0
GSM-1012-14	10,0	12,0	14,0
GSM-1012-15	10,0	12,0	15,0
GSM-1012-17	10,0	12,0	17,0
GSM-1012-20	10,0	12,0	20,0
GSM-1213-12	12,0	13,0	12,0
GSM-1213-15	12,0	13,0	15,0
GSM-1214-04	12,0	14,0	4,0
GSM-1214-05	12,0	14,0	5,0
GSM-1214-06	12,0	14,0	6,0
GSM-1214-08	12,0	14,0	8,0
GSM-1214-10	12,0	14,0	10,0
GSM-1214-12	12,0	14,0	12,0
GSM-1214-14	12,0	14,0	14,0
GSM-1214-15	12,0	14,0	15,0
GSM-1214-20	12,0	14,0	20,0
GSM-1214-25	12,0	14,0	25,0
GSM-1215-06	12,0	15,0	6,0
GSM-1215-22	12,0	15,0	22,0
GSM-1216-10	12,0	16,0	10,0
GSM-1216-20	12,0	16,0	20,0
GSM-1315-070	13,0	15,0	7,0
GSM-1315-075	13,0	15,0	7,5
GSM-1315-10	13,0	15,0	10,0
GSM-1315-15	13,0	15,0	15,0
GSM-1315-20	13,0	15,0	20,0
GSM-1315-25	13,0	15,0	25,0
GSM-1416-03	14,0	16,0	3,0
GSM-1416-06	14,0	16,0	6,0
GSM-1416-08	14,0	16,0	8,0
GSM-1416-10	14,0	16,0	10,0
GSM-1416-12	14,0	16,0	12,0

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

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iglidur® G – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
GSM-1416-15	14,0	16,0	15,0
GSM-1416-20	14,0	16,0	20,0
GSM-1416-25	14,0	16,0	25,0
GSM-1516-15	15,0	16,0	15,0
GSM-1517-04	15,0	17,0	4,0
GSM-1517-10	15,0	17,0	10,0
GSM-1517-12	15,0	17,0	12,0
GSM-1517-15	15,0	17,0	15,0
GSM-1517-20	15,0	17,0	20,0
GSM-1517-25	15,0	17,0	25,0
GSM-1618-055	16,0	18,0	5,5
GSM-1618-08	16,0	18,0	8,0
GSM-1618-10	16,0	18,0	10,0
GSM-1618-12	16,0	18,0	12,0
GSM-1618-13.5	16,0	18,0	13,5
GSM-1618-15	16,0	18,0	15,0
GSM-1618-20	16,0	18,0	20,0
GSM-1618-25	16,0	18,0	25,0
GSM-1618-30	16,0	18,0	30,0
GSM-1618-50	16,0	18,0	50,0
GSM-1820-10	18,0	20,0	10,0
GSM-1820-12	18,0	20,0	12,0
GSM-1820-15	18,0	20,0	15,0
GSM-1820-20	18,0	20,0	20,0
GSM-1820-25	18,0	20,0	25,0
GSM-1820-45	18,0	20,0	45,0
GSM-1922-06	19,0	22,0	6,0
GSM-1922-28	19,0	22,0	28,0
GSM-1922-35	19,0	22,0	35,0
GSM-2021-20	20,0	21,0	20,0
GSM-2022-03	20,0	22,0	3,0
GSM-2022-08	20,0	22,0	8,0
GSM-2022-105	20,0	22,0	10,5
GSM-2022-15	20,0	22,0	15,0
GSM-2022-20	20,0	22,0	20,0
GSM-2022-22	20,0	22,0	22,0
GSM-2022-30	20,0	22,0	30,0
GSM-2023-10	20,0	23,0	10,0
GSM-2023-15	20,0	23,0	15,0
GSM-2023-20	20,0	23,0	20,0
GSM-2023-23	20,0	23,0	23,0
GSM-2023-24	20,0	23,0	24,0
GSM-2023-25	20,0	23,0	25,0
GSM-2023-30	20,0	23,0	30,0
GSM-2224-10	22,0	24,0	10,0
GSM-2224-15	22,0	24,0	15,0
GSM-2224-17	22,0	24,0	17,0
GSM-2224-20	22,0	24,0	20,0
GSM-2224-30	22,0	24,0	30,0
GSM-2225-15	22,0	25,0	15,0
GSM-2225-20	22,0	25,0	20,0
GSM-2225-25	22,0	25,0	25,0
GSM-2225-30	22,0	25,0	30,0
GSM-2427-06	24,0	27,0	6,0
GSM-2427-15	24,0	27,0	15,0
GSM-2427-20	24,0	27,0	20,0

Part No.	d1*	d2	b1 h13
GSM-2427-25	24,0	27,0	25,0
GSM-2427-30	24,0	27,0	30,0
GSM-2526-25	25,0	26,0	25,0
GSM-2528-15	25,0	28,0	15,0
GSM-2528-20	25,0	28,0	20,0
GSM-2528-24	25,0	28,0	24,0
GSM-2528-25	25,0	28,0	25,0
GSM-2528-30	25,0	28,0	30,0
GSM-2528-35	25,0	28,0	35,0
GSM-2528-50	25,0	28,0	50,0
GSM-2630-16	26,0	30,0	16,0
GSM-2730-05	27,0	30,0	5,0
GSM-2832-105	28,0	32,0	10,5
GSM-2832-12	28,0	32,0	12,0
GSM-2832-15	28,0	32,0	15,0
GSM-2832-20	28,0	32,0	20,0
GSM-2832-23	28,0	32,0	23,0
GSM-2832-25	28,0	32,0	25,0
GSM-2832-30	28,0	32,0	30,0
GSM-3031-12	30,0	31,0	12,0
GSM-3031-30	30,0	31,0	30,0
GSM-3034-15	30,0	34,0	15,0
GSM-3034-20	30,0	34,0	20,0
GSM-3034-24	30,0	34,0	24,0
GSM-3034-25	30,0	34,0	25,0
GSM-3034-30	30,0	34,0	30,0
GSM-3034-35	30,0	34,0	25,0
GSM-3034-40	30,0	34,0	40,0
GSM-3034-525	30,0	34,0	52,5
GSM-3236-20	32,0	36,0	20,0
GSM-3236-30	32,0	36,0	30,0
GSM-3236-40	32,0	36,0	40,0
GSM-3539-14	35,0	39,0	14,0
GSM-3539-20	35,0	39,0	20,0
GSM-3539-25	35,0	39,0	25,0
GSM-3539-30	35,0	39,0	30,0
GSM-3539-40	35,0	39,0	40,0
GSM-3539-50	35,0	39,0	50,0
GSM-3640-20	36,0	40,0	20,0
GSM-3741-20	37,0	41,0	20,0
GSM-4044-10	40,0	44,0	10,0
GSM-4044-16	40,0	44,0	16,5
GSM-4044-20	40,0	44,0	20,0
GSM-4044-30	40,0	44,0	30,0
GSM-4044-40	40,0	44,0	40,0
GSM-4044-50	40,0	44,0	50,0
GSM-4246-40	42,0	46,0	40,0
GSM-4550-22	45,0	50,0	22,0
GSM-4550-235	45,0	50,0	23,5
GSM-4550-30	45,0	50,0	30,0
GSM-4550-38	45,0	50,0	38,0
GSM-4550-40	45,0	50,0	40,0
GSM-4550-50	45,0	50,0	50,0
GSM-5055-20	50,0	55,0	20,0
GSM-5055-25	50,0	55,0	25,0
GSM-5055-30	50,0	55,0	30,0

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

iglidur® G

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iglidur® G – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
GSM-5055-40	50,0	55,0	40,0
GSM-5055-50	50,0	55,0	50,0
GSM-5257-20	52,0	57,0	20,0
GSM-5560-20	55,0	60,0	20,0
GSM-5560-40	55,0	60,0	40,0
GSM-5560-50	55,0	60,0	50,0
GSM-5560-60	55,0	60,0	60,0
GSM-6065-30	60,0	65,0	30,0
GSM-6065-40	60,0	65,0	40,0
GSM-6065-50	60,0	65,0	50,0
GSM-6065-60	60,0	65,0	60,0
GSM-6267-35	62,0	67,0	35,0
GSM-6570-30	65,0	70,0	30,0
GSM-6570-50	65,0	70,0	50,0
GSM-7075-60	70,0	75,0	60,0
GSM-7277-76	72,0	77,0	76,0
GSM-7580-40	75,0	80,0	40,0
GSM-7580-60	75,0	80,0	60,0
GSM-8085-60	80,0	85,0	60,0
GSM-8085-100	80,0	85,0	100,0
GSM-8590-100	85,0	90,0	100,0
GSM-9095-100	90,0	95,0	100,0
GSM-95100-100	95,0	100,0	100,0
GSM-100105-30	100,0	105,0	30,0
GSM-100105-100	100,0	105,0	100,0
GSM-110115-100	110,0	115,0	100,0
GSM-120125-100	120,0	125,0	100,0
GSM-125130-100	125,0	130,0	100,0
GSM-130135-100	130,0	135,0	100,0
GSM-135140-80	135,0	140,0	80,0
GSM-140145-100	140,0	145,0	100,0
GSM-150155-100	150,0	155,0	100,0

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

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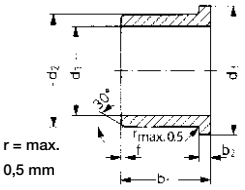
mm

iglidur® G – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

G F M-03 04 - 02
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
GFM-0304-02	3,0	4,5	7,5	2,0	0,5
GFM-0304-0275	3,0	4,5	7,5	2,7	0,75
GFM-0304-03	3,0	4,5	7,5	3,0	0,75
GFM-0304-05	3,0	4,5	7,5	5,0	0,75
GFM-030407-05	3,0	4,5	7,0	5,0	0,75
GFM-0405-03	4,0	5,5	9,5	3,0	0,75
GFM-0405-04	4,0	5,5	9,5	4,0	0,75
GFM-0405-06	4,0	5,5	9,5	6,0	0,75
GFM-04050-04	4,0	5,0	9,5	4,0	0,5
GFM-04050-06	4,0	5,0	9,5	6,0	0,5
GFM-040508-10	4,0	5,5	8,0	10,0	0,75
GFM-0506-035	5,0	6,0	10,0	3,5	0,5
GFM-0506-04	5,0	6,0	10,0	4,0	0,5
GFM-0506-05	5,0	6,0	10,0	5,0	0,5
GFM-0506-06	5,0	6,0	10,0	6,0	0,5
GFM-0506-15	5,0	6,0	10,0	15,0	0,5
GFM-0507-03	5,0	7,0	11,0	3,5	1,0
GFM-0507-04	5,0	7,0	11,0	4,0	1,0
GFM-0507-05	5,0	7,0	11,0	5,0	1,0
GFM-0507-30	5,0	7,0	11,0	30,0	1,0
GFM-050709-05	5,0	7,0	9,0	5,0	1,0
GFM-050715-04	5,0	7,0	15,0	4,0	1,0
GFM-0607-024	6,0	7,0	11,0	2,4	0,5
GFM-0607-045	6,0	7,0	11,0	4,5	0,5
GFM-0607-06	6,0	7,0	11,0	6,0	0,5
GFM-0607-10	6,0	7,0	11,0	10,0	0,5
GFM-0608-04	6,0	8,0	12,0	4,0	1,0
GFM-0608-048	6,0	8,0	12,0	4,8	1,0
GFM-0608-05	6,0	8,0	12,0	5,0	1,0
GFM-0608-06	6,0	8,0	12,0	6,0	1,0
GFM-0608-07	6,0	8,0	12,0	7,0	1,0
GFM-0608-08	6,0	8,0	12,0	8,0	1,0
GFM-0608-10	6,0	8,0	12,0	10,0	1,0
GFM-0608-25	6,0	8,0	12,0	25,0	1,0
GFM-0608-35	6,0	8,0	12,0	35,0	1,0
GFM-060814-12	6,0	8,0	14,0	12,0	1,0
GFM-060814-028	6,0	8,0	14,0	2,8	1,0
GFM-0708-03	7,0	8,0	12,0	3,0	0,5
GFM-0708-08	7,0	8,0	12,0	8,0	0,5
GFM-0709-06	7,0	9,0	15,0	6,0	1,0
GFM-0709-10	7,0	9,0	15,0	10,0	1,0
GFM-0709-12	7,0	9,0	15,0	12,0	1,0
GFM-070919-10	7,0	9,0	19,0	10,0	1,0
GFM-0809-03	8,0	9,0	15,0	3,0	0,5
GFM-0809-055	8,0	9,0	13,0	5,5	0,5

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
GFM-0809-08	8,0	9,0	13,0	8,0	0,5
GFM-0809-12	8,0	9,0	13,0	12,0	0,5
GFM-0810-03	8,0	10,0	15,0	3,0	1,0
GFM-0810-04	8,0	10,0	15,0	4,0	1,0
GFM-0810-05	8,0	10,0	15,0	5,5	1,0
GFM-0810-065	8,0	10,0	15,0	6,5	0,5
GFM-0810-07	8,0	10,0	15,0	7,5	1,0
GFM-0810-09	8,0	10,0	15,0	9,5	1,0
GFM-0810-10	8,0	10,0	15,0	10,0	1,0
GFM-0810-15	8,0	10,0	15,0	15,0	1,0
GFM-0810-25	8,0	10,0	15,0	25,0	1,0
GFM-0810-30	8,0	10,0	15,0	30,0	1,0
GFM-081012-125	8,0	10,0	12,0	12,5	1,0
GFM-081013-08	8,0	10,0	13,0	8,0	1,0
GFM-081014-06	8,0	10,0	14,0	6,0	1,0
GFM-081014-08	8,0	10,0	14,0	8,0	1,0
GFM-081014-10	8,0	10,0	14,0	10,0	1,0
GFM-081016-11	8,0	10,0	16,0	11,5	1,5
GFM-081016-15	8,0	10,0	16,0	15,5	1,5
GFM-081017-15	8,0	10,0	17,0	15,0	1,0
GFM-0910-17	9,0	10,0	15,0	17,5	0,5
GFM-0910-065	9,0	10,0	15,0	6,5	0,5
GFM-1011-026	10,0	11,0	15,0	2,6	0,5
GFM-1011-044	10,0	11,0	15,0	4,4	0,5
GFM-1011-10	10,0	11,0	15,0	10,0	0,5
GFM-1012-035	10,0	12,0	18,0	3,5	1,0
GFM-1012-04	10,0	12,0	18,0	4,0	1,0
GFM-1012-05	10,0	12,0	18,0	5,0	1,0
GFM-1012-06	10,0	12,0	18,0	6,0	1,0
GFM-1012-07	10,0	12,0	18,0	7,0	1,0
GFM-1012-09	10,0	12,0	18,0	9,0	1,0
GFM-1012-10	10,0	12,0	18,0	10,0	1,0
GFM-1012-12	10,0	12,0	18,0	12,0	1,0
GFM-1012-15	10,0	12,0	18,0	15,0	1,0
GFM-1012-17	10,0	12,0	18,0	17,0	1,0
GFM-101214-07	10,0	12,0	14,0	7,0	1,0
GFM-101215-12	10,0	12,0	15,0	12,0	1,0
GFM-101216-06	10,0	12,0	16,0	6,0	1,0
GFM-101216-09	10,0	12,0	16,0	9,0	1,0
GFM-101216-15	10,0	12,0	16,0	15,0	1,0
GFM-1213-03	12,0	13,0	17,0	3,0	0,5
GFM-1213-12	12,0	13,0	17,0	12,0	0,5
GFM-1214-03	12,0	14,0	20,0	3,0	1,0
GFM-1214-06	12,0	14,0	20,0	6,0	1,0
GFM-1214-07	12,0	14,0	20,0	7,0	1,0

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

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iglidur® G – Flange Bearing – Type F

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
GFM-1214-09	12,0	14,0	20,0	9,0	1,0
GFM-1214-10	12,0	14,0	20,0	10,0	1,0
GFM-1214-11	12,0	14,0	20,0	11,0	1,0
GFM-1214-12	12,0	14,0	20,0	12,0	1,0
GFM-1214-15	12,0	14,0	20,0	15,0	1,0
GFM-1214-17	12,0	14,0	20,0	17,0	1,0
GFM-1214-20	12,0	14,0	20,0	20,0	1,0
GFM-1214-24	12,0	14,0	20,0	24,0	1,0
GFM-121418-04	12,0	14,0	18,0	4,0	1,0
GFM-121418-08	12,0	14,0	18,0	8,0	1,0
GFM-121418-10	12,0	14,0	18,0	10,0	1,0
GFM-121418-12	12,0	14,0	18,0	12,0	1,0
GFM-121418-15	12,0	14,0	18,0	15,0	1,0
GFM-121418-20	12,0	14,0	18,0	20,0	1,0
GFM-1315-06	13,0	15,0	22,0	6,0	1,0
GFM-1416-03	14,0	16,0	22,0	3,0	1,0
GFM-1416-04	14,0	16,0	22,0	4,0	1,0
GFM-1416-06	14,0	16,0	22,0	6,0	1,0
GFM-1416-08	14,0	16,0	22,0	8,0	1,0
GFM-1416-10	14,0	16,0	22,0	10,0	1,0
GFM-1416-12	14,0	16,0	22,0	12,0	1,0
GFM-1416-17	14,0	16,0	22,0	17,0	1,0
GFM-1416-21	14,0	16,0	22,0	21,0	1,0
GFM-1516-02	15,0	16,0	20,0	2,0	0,5
GFM-1516-025	15,0	16,0	20,0	2,5	0,5
GFM-1516-03	15,0	16,0	20,0	3,0	0,5
GFM-1516-15	15,0	16,0	20,0	15,0	0,5
GFM-1517-04	15,0	17,0	23,0	4,0	1,0
GFM-1517-045	15,0	17,0	23,0	4,5	1,0
GFM-1517-05	15,0	17,0	23,0	5,0	1,0
GFM-1517-09	15,0	17,0	23,0	9,0	1,0
GFM-1517-12	15,0	17,0	23,0	12,0	1,0
GFM-1517-17	15,0	17,0	23,0	17,0	1,0
GFM-1517-20	15,0	17,0	23,0	20,0	1,0
GFM-151824-32	15,0	18,0	24,0	32,0	1,5
GFM-1618-04	16,0	18,0	24,0	4,0	1,0
GFM-1618-06	16,0	18,0	24,0	6,0	1,0
GFM-1618-09	16,0	18,0	24,0	9,0	1,0
GFM-1618-12	16,0	18,0	24,0	12,0	1,0
GFM-1618-17	16,0	18,0	24,0	17,0	1,0
GFM-1618-21	16,0	18,0	24,0	21,0	1,0
GFM-1719-09	17,0	19,0	25,0	9,0	1,0
GFM-1719-25	17,0	19,0	25,0	25,0	1,0
GFM-1820-04	18,0	20,0	26,0	4,0	1,0
GFM-1820-06	18,0	20,0	26,0	6,0	1,0
GFM-1820-09	18,0	20,0	26,0	9,0	1,0
GFM-1820-11	18,0	20,0	26,0	11,0	1,0
GFM-1820-12	18,0	20,0	26,0	12,0	1,0
GFM-1820-17	18,0	20,0	26,0	17,0	1,0
GFM-1820-22	18,0	20,0	26,0	22,0	1,0
GFM-1820-30	18,0	20,0	26,0	30,0	1,0
GFM-1820-32	18,0	20,0	26,0	32,0	1,0
GFM-182022-06	18,0	20,0	22,0	6,0	1,0
GFM-1822-28	18,0	20,0	26,0	28,0	2,0

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
GFM-2021-20	20,0	21,0	25,0	20,0	0,5
GFM-2023-07	20,0	23,0	30,0	7,0	1,5
GFM-2023-11	20,0	23,0	30,0	11,5	1,5
GFM-2023-16	20,0	23,0	30,0	16,5	1,5
GFM-2023-21	20,0	23,0	30,0	21,5	1,5
GFM-202326-21	20,0	23,0	26,0	21,0	1,5
GFM-202328-15	20,0	23,0	28,0	15,0	1,5
GFM-222535-315	22,0	25,0	35,0	31,5	1,5
GFM-2427-07	24,0	27,0	32,0	7,0	1,5
GFM-2427-10	24,0	27,0	32,0	10,0	1,5
GFM-2526-25	25,0	26,0	30,0	25,0	0,5
GFM-2527-48	25,0	27,0	32,0	48,0	1,0
GFM-2528-11	25,0	28,0	35,0	11,5	1,5
GFM-2528-16	25,0	28,0	35,0	16,5	1,5
GFM-2528-21	25,0	28,0	35,0	21,5	1,5
GFM-2830-10	28,0	30,0	36,0	10,0	1,0
GFM-2830-36	28,0	30,0	35,0	36,0	1,0
GFM-283239-20	28,0	32,0	39,0	20,0	2,0
GFM-3031-20	30,0	31,0	36,0	20,0	0,5
GFM-3031-30	30,0	31,0	35,0	30,0	0,5
GFM-3032-04	30,0	32,0	37,0	4,0	1,0
GFM-3032-12	30,0	32,0	37,0	12,0	1,0
GFM-3032-17	30,0	32,0	37,0	17,5	1,0
GFM-3032-22	30,0	32,0	37,0	22,0	1,0
GFM-3034-09	30,0	34,0	42,0	9,0	2,0
GFM-3034-16	30,0	34,0	42,0	16,0	2,0
GFM-3034-20	30,0	34,0	42,0	20,0	2,0
GFM-3034-26	30,0	34,0	42,0	26,0	2,0
GFM-3034-37	30,0	34,0	42,0	37,0	2,0
GFM-3236-16	32,0	36,0	40,0	16,0	2,0
GFM-3236-26	32,0	36,0	40,0	26,0	2,0
GFM-343850-35	34,0	38,0	50,0	35,0	2,0
GFM-3539-058	35,0	39,0	47,0	5,8	2,0
GFM-3539-07	35,0	39,0	47,0	7,0	2,0
GFM-3539-16	35,0	39,0	47,0	16,0	2,0
GFM-3539-26	35,0	39,0	47,0	26,0	2,0
GFM-3539-36	35,0	39,0	47,0	36,0	2,0
GFM-3842-22	38,0	42,0	54,0	22,0	2,0
GFM-4044-07	40,0	44,0	52,0	77,0	2,0
GFM-4044-14	40,0	44,0	52,0	14,0	2,0
GFM-4044-20	40,0	44,0	52,0	20,0	2,0
GFM-4044-30	40,0	44,0	52,0	30,0	2,0
GFM-4044-40	40,0	44,0	52,0	40,0	2,0
GFM-4044-50	40,0	44,0	52,0	50,0	2,0
GFM-4246-19	42,0	46,0	53,0	19,0	2,0
GFM-4550-25	45,0	50,0	58,0	25,0	2,0
GFM-4550-30	45,0	50,0	58,0	30,0	2,0
GFM-4550-50	45,0	50,0	58,0	50,0	2,0
GFM-5055-07	50,0	55,0	63,0	7,0	2,0
GFM-5055-10	50,0	55,0	63,0	10,0	2,0
GFM-5055-25	50,0	55,0	63,0	25,0	2,0
GFM-5055-40	50,0	55,0	63,0	40,0	2,0
GFM-5055-50	50,0	55,0	63,0	50,0	2,0
GFM-6065-22	60,0	65,0	73,0	22,0	2,0

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

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mm

iglidur® G – Flange Bearing – Type F

Part No.	d1*		d2	d3	b1	b2
				d13	h13	-0,14
GFM-6065-30	60,0	65,0	73,0	30,0	2,0	
GFM-6065-50	60,0	65,0	73,0	50,0	2,0	
GFM-606580-62	60,0	65,0	80,0	62,0	2,0	
GFM-6570-50	65,0	70,0	78,0	50,0	2,0	
GFM-7075-50	70,0		75,0	83,0	50,0	2,0
GFM-7580-50	75,0		80,0	88,0	50,0	2,0
GFM-8085-100	80,0		85,0	93,0	100,0	2,5
GFM-8590-100	85,0		90,0	98,0	100,0	2,5
GFM-9095-100	90,0		95,0	103,0	100,0	2,5
GFM-95100-100	95,0		100,0	108,0	100,0	2,5
GFM-100105-100	100,0		105,0	113,0	100,0	2,5
GFM-100105-425	100,0		105,0	113,0	42,5	2,5
GFM-110115-100	110,0		115,0	123,0	100,0	2,5
GFM-120125-100	120,0		125,0	133,0	100,0	2,5
GFM-125130-100	125,0		130,0	138,0	100,0	2,5
GFM-130135-100	130,0		135,0	143,0	100,0	2,5
GFM-140145-100	140,0		145,0	153,0	100,0	2,5
GFM-150155-40	150,0		155,0	163,0	40,0	2,5
GFM-150155-100	150,0		155,0	163,0	100,0	2,5

* Standard tolerances for iglidur® G: E10; standard tolerances for wall thickness: F9

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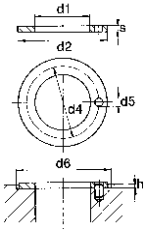
iglidur® G – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

** Design without fixation bore

Structure – Part No.

G T M-05 09 - 006

- s
- d2
- d1
- Metric
- Type
- Material

Part No.	d1 +0,25	d2 -0,25	s -0,05	d4 -0,12 +0,12	d5 +0,375 +0,125	h +0,2 -0,2	d6 +0,12
GTM-0509-006	5,0	9,5	0,6	**	**	0,3	9,5
GTM-0615-015	6,0	15,0	1,5	**	**	1,0	15
GTM-0620-015	6,0	20,0	1,5	13,0	1,5	1,0	20
GTM-0713-005	7,0	13,0	0,5	**	**	0,2	13
GTM-0815-005	8,0	15,0	0,5	**	**	0,2	15
GTM-0815-015	8,0	15,0	1,5	11,5	1,5	1,0	15
GTM-0818-010	8,0	18,0	1,0	**	**	0,7	18
GTM-0818-015	8,0	18,0	1,5	13,0	1,5	1,0	18
GTM-0918-015	9,0	18,0	1,5	13,5	1,5	1,0	18
GTM-1018-010	10,0	18,0	1,0	**	**	0,7	18
GTM-1018-020	10,0	18,0	2,0	**	**	1,5	18
GTM-1224-015	12,0	24,0	1,5	18,0	1,5	1,0	24
GTM-1420-015	14,0	20,0	1,5	**	**	1,0	20
GTM-1426-015	14,0	26,0	1,5	20,0	2,0	1,0	26
GTM-1522-008	15,0	22,0	0,8	**	**	0,5	22
GTM-1524-015	15,0	24,0	1,5	19,5	1,5	1,0	24
GTM-1524-0275	15,0	24,0	2,75	**	**	2,0	24
GTM-1630-015	16,0	30,0	1,5	23,0	2,0	1,0	30
GTM-1832-015	18,0	32,0	1,5	25,0	2,0	1,0	32
GTM-2036-015	20,0	36,0	1,5	28,0	3,0	1,0	36
GTM-2238-015	22,0	38,0	1,5	30,0	3,0	1,0	38
GTM-2442-015	24,0	42,0	1,5	33,0	3,0	1,0	42
GTM-2644-015	26,0	44,0	1,5	35,0	3,0	1,0	44
GTM-2835-005	28,5	35,8	0,5	**	**	0,2	35
GTM-2848-015	28,0	48,0	1,5	38,0	4,0	1,0	48
GTM-3254-015	32,0	54,0	1,5	43,0	4,0	1,0	54
GTM-3862-015	38,0	62,0	1,5	50,0	4,0	1,0	62
GTM-4266-015	42,0	66,0	1,5	54,0	4,0	1,0	66
GTM-4874-020	48,0	74,0	2,0	61,0	4,0	1,5	74
GTM-5278-020	52,0	78,0	2,0	65,0	4,0	1,5	78
GTM-6290-020	62,0	90,0	2,0	76,0	4,0	1,5	90
GTM-6881-020	68,0	81,0	2,0	**	**	1,5	81

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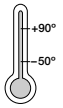
iglidur® J – The Fast and Slow Motion Specialist

The iglidur® J plain bearings are designed for the lowest coefficients of friction while running dry and their low stick slip tendency. With a maximum permissible surface pressure of 35 MPa iglidur® J plain bearings are not suitable for extreme loads.

Product range

- 3 Styles
- > 250 Dimensions
- Ø 2–100 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1,5	3
Oscillating	1,5	3
Linear	8	10

Price index

The absolute silence combined with maximum precision of these bearings are the decisive reasons for use of iglidur®J bearings. Moreover maximum resistance to wear is achieved in combination with VA shafts, practically eliminating maintenance completely

iglidur® J replace bronze bushings here. In addition to the extreme contamination with dirt, the bearings were subject to high concentrations of salt in the air in this application

When to use iglidur® J

- Low wear against different shaft up to 5 MPa
- Low coeffficient of friction in dry run
- Vibration dampening
- Good chemical resistance
- Best perfomance with soft shaft materials
- Low moisture absorption
- For high speeds

When not to use iglidur® J

- When high pressure loads occur ▶ **iglidur® G** page 1.28 **or W300** page 1.54
- When temperatures occur that are greater than 120 °C for a short term ▶ **iglidur® G** page 1.28

Material table

General properties	Unit	iglidur® J	Testing Method
Density	g/cm³	1,49	
Colour		yellow	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,3	DIN 53495
Max. moisture absorption	% weight	1,3	
Coefficient of sliding friction, dynamic against steel	µ	0,06 - 0,18	
p x v value, max. (dry)	MPa x m/s	0,34	
Mechanical properties			
Modulus of elasticity	MPa	2.400	DIN 53457
Tensile strength at 20°C	MPa	73	DIN 53452
Compressive strength	MPa	60	
Max. static surface pressure (20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m x K	0,25	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/j

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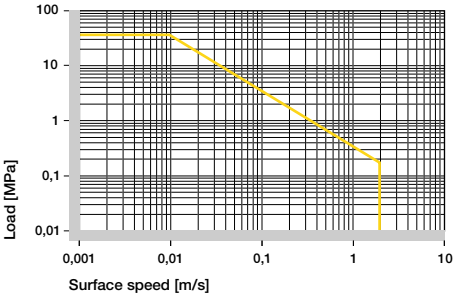
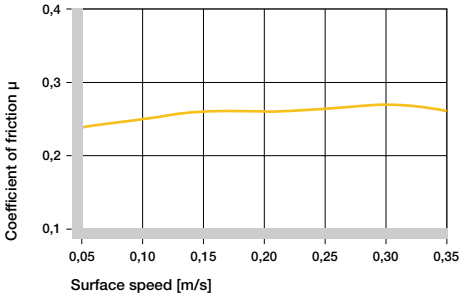
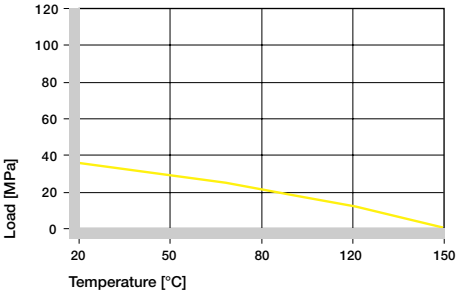
Permissible p x v values for iglidur® J running dry against a steel shaft, at 20°C



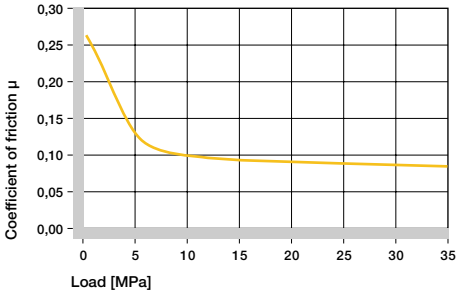
Coefficient of friction of iglidur® J as a function of the surface speed – p = 0.75 MPa



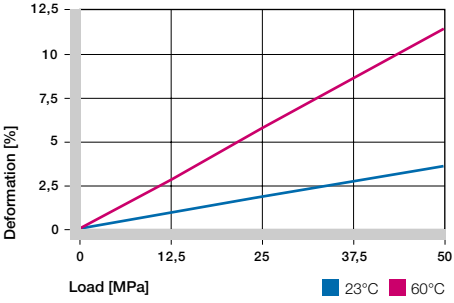
Recommended maximum surface pressure of iglidur® J as a function of temperature



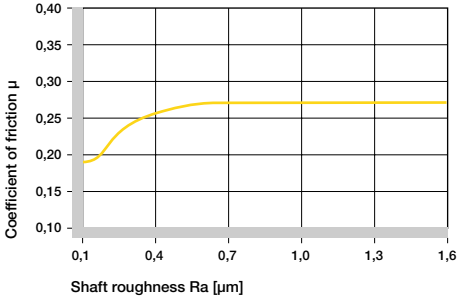
Coefficient of friction of iglidur® J as a function of the load, v = 0.01m/s



Deformation under load and temperature



Coefficient of friction of iglidur® J as function of the shaft surface (shaft – cold rolled steel)



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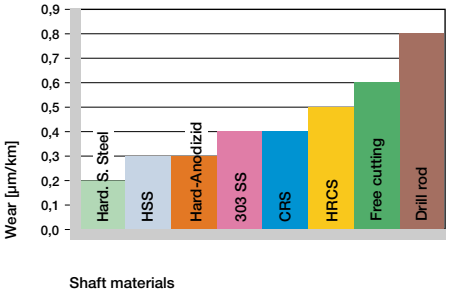
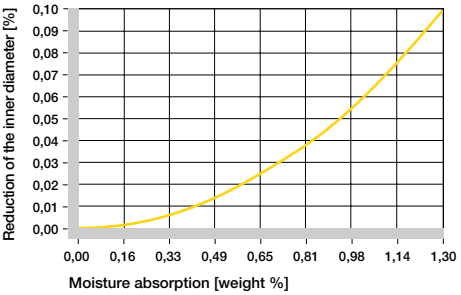
mm

iglidur® J – Information and Technical Data

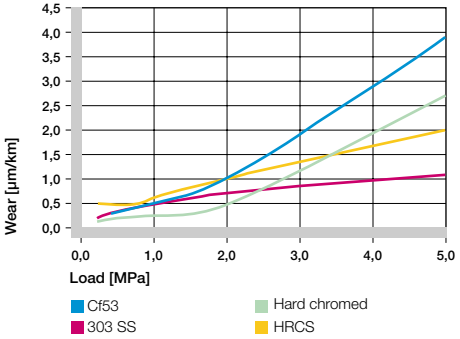
Wear of iglidur® J, rotating application with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® J plain bearings



Wear of iglidur® J, rotating application with different shaft materials according to the load



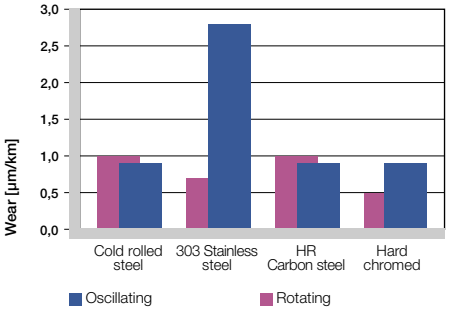
Electrical properties

iglidur® J	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® J plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150
> 50 to 80	0 - 0,074	+0,060 + 0,180

Wear for oscillating and rotating applications with different shaft materials under constant load, p = 2 MPa



Chemical resistance of iglidur® J

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

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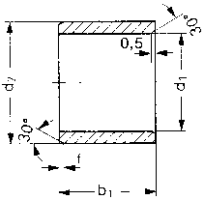
iglidur® J – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
J S M-02 03 - 07
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1 h13
JSM-0203-07	2,0	3,5	7,0
JSM-0205-03	2,0	5,0	2,5
JSM-0206-02	2,5	6,0	2,5
JSM-0304-05	3,0	4,5	5,0
JSM-0304-09	3,0	4,5	9,0
JSM-0305-04	3,0	5,0	4,0
JSM-0308-04	3,0	8,0	4,0
JSM-0405-04	4,0	5,5	4,0
JSM-0405-08	4,0	5,5	8,0
JSM-0507-046	5,0	7,0	4,6
JSM-0507-05	5,0	7,0	5,0
JSM-0507-10	5,0	7,0	10,0
JSM-0507-15	5,0	7,0	15,0
JSM-0607-08	6,0	7,0	8,0
JSM-0607-12.5	6,0	7,0	12,5
JSM-0607-14	6,0	7,0	14,0
JSM-0608-043	6,0	8,0	4,3
JSM-0608-06	6,0	8,0	6,0
JSM-0608-10	6,0	8,0	10,0
JSM-0609-06	6,0	9,0	6,0
JSM-0610-10	6,0	10,0	10,0
JSM-0709-09	7,0	9,0	9,0
JSM-0810-04	8,0	10,0	4,0
JSM-0810-06	8,0	10,0	6,0
JSM-0810-08	8,0	10,0	8,0
JSM-0810-10	8,0	10,0	10,0
JSM-0810-12	8,0	10,0	12,0
JSM-0810-16	8,0	10,0	16,0
JSM-0812-10	8,0	12,0	10,0
JSM-0812-12	8,0	12,0	12,0
JSM-1012-05	10,0	12,0	5,0
JSM-1012-06	10,0	12,0	6,0
JSM-1012-08	10,0	12,0	8,0
JSM-1012-10	10,0	12,0	10,0
JSM-1012-11	10,0	12,0	11,0
JSM-1012-12	10,0	12,0	12,0
JSM-1012-15	10,0	12,0	15,0
JSM-1012-20	10,0	12,0	20,0
JSM-1014-10	10,0	14,0	10,0
JSM-1014-16	10,0	14,0	16,0
JSM-1214-06	12,0	14,0	6,0
JSM-1214-08	12,0	14,0	8,0
JSM-1214-09	12,0	14,0	9,0
JSM-1214-10	12,0	14,0	10,0
JSM-1214-15	12,0	14,0	15,0
JSM-1216-12	12,0	16,0	12,0

Part No.	d1*	d2	b1 h13
JSM-1216-17	12,0	16,0	17,0
JSM-1416-05	14,0	16,0	5,0
JSM-1416-08	14,0	16,0	8,0
JSM-1416-10	14,0	16,0	10,0
JSM-1416-15	14,0	16,0	15,0
JSM-1416-20	14,0	16,0	20,0
JSM-1418-18	14,0	18,0	18,0
JSM-1517-12	15,0	17,0	12,0
JSM-1517-20	15,0	17,0	20,0
JSM-1618-10	16,0	18,0	10,0
JSM-1618-12	16,0	18,0	12,0
JSM-1618-15	16,0	18,0	15,0
JSM-1618-20	16,0	18,0	20,0
JSM-1620-16	16,0	20,0	16,0
JSM-1622-16	16,0	22,0	16,0
JSM-1622-20	16,0	22,0	20,0
JSM-1820-15	18,0	20,0	15,0
JSM-1820-20	18,0	20,0	20,0
JSM-1922-14	19,0	22,0	14,0
JSM-2022-20	20,0	22,0	20,0
JSM-2022-30	20,0	22,0	30,0
JSM-2023-15	20,0	23,0	15,0
JSM-2023-20	20,0	23,0	20,0
JSM-2026-06	20,0	26,0	6,0
JSM-2026-20	20,0	26,0	20,0
JSM-2026-25	20,0	26,0	25,0
JSM-2026-30	20,0	26,0	30,0
JSM-2427-25	24,0	27,0	25,0
JSM-2427-46	24,0	27,0	46,0
JSM-2528-12	25,0	28,0	12,0
JSM-2528-20	25,0	28,0	20,0
JSM-2528-30	25,0	28,0	30,0
JSM-2532-25	25,0	32,0	25,0
JSM-2532-32	25,0	32,0	32,0
JSM-2532-35	25,0	32,0	35,0
JSM-2630-20	26,0	30,0	20,0
JSM-3034-20	30,0	34,0	20,0
JSM-3034-25	30,0	34,0	25,0
JSM-3034-30	30,0	34,0	30,0
JSM-3038-40	30,0	38,0	40,0
JSM-3236-20	32,0	36,0	20,0
JSM-3236-30	32,0	36,0	30,0
JSM-3236-40	32,0	36,0	40,0
JSM-3539-20	35,0	39,0	20,0
JSM-3539-30	35,0	39,0	30,0
JSM-3539-40	35,0	39,0	40,0

* Standard tolerances for iglidur® J: E10

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iglidur® J – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
JSM-4044-35	40,0	44,0	35,0
JSM-4044-40	40,0	44,0	40,0
JSM-3640-45	36,0	40,0	45,0
JSM-4044-30	40,0	44,0	30,0
JSM-4246-73	42,0	46,0	73,0
JSM-5055-30	50,0	55,0	30,0
JSM-5055-50	50,0	55,0	50,0
JSM-5560-60	55,0	60,0	60,0
JSM-6065-60	60,0	65,0	60,0
JSM-7580-60	75,0	80,0	60,0
JSM-8085-100	80,0	85,0	100,0
JSM-100105-100	100,0	105,0	100,0

* Standard tolerances for iglidur® J: E10

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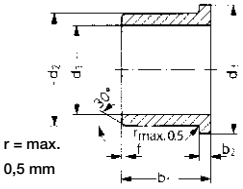
iglidur® J – Flange Bearing – Type F



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
J F M-03 04 - 05
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
JFM-0304-05	3,0	4,5	7,5	5,0	0,75
JFM-0306-10	3,0	6,0	9,0	10,0	1,5
JFM-0405-03	4,0	5,5	9,5	3,0	0,75
JFM-0405-06	4,0	5,5	9,5	6,0	0,75
JFM-0507-05	5,0	7,0	11,0	5,0	1,0
JFM-0608-04	6,0	8,0	12,0	4,0	1,0
JFM-0608-06	6,0	8,0	12,0	6,0	1,0
JFM-0608-08	6,0	8,0	12,0	8,0	1,0
JFM-0608-10	6,0	8,0	12,0	10,0	1,0
JFM-0610-10	6,0	10,0	14,0	10,0	2,0
JFM-0810-038	8,0	10,0	15,0	3,8	1,0
JFM-0810-05	8,0	10,0	15,0	5,0	1,0
JFM-0810-06	8,0	10,0	15,0	6,0	1,0
JFM-0810-07	8,0	10,0	15,0	7,0	1,0
JFM-0810-08	8,0	10,0	15,0	8,0	1,0
JFM-0810-10	8,0	10,0	15,0	10,0	1,0
JFM-0810125-10	8,0	10,0	12,5	10,0	1,0
JFM-081014-10	8,0	10,0	14,0	10,0	1,0
JFM-081016-11	8,0	10,0	16,0	11,0	1,0
JFM-0812-06	8,0	12,0	16,0	6,0	2,0
JFM-1012-05	10,0	12,0	18,0	5,0	1,0
JFM-1012-09	10,0	12,0	18,0	9,0	1,0
JFM-1012-10	10,0	12,0	18,0	10,0	1,0
JFM-1012-12	10,0	12,0	18,0	12,0	1,0
JFM-1012-15	10,0	12,0	18,0	15,0	1,0
JFM-1012-18	10,0	12,0	18,0	18,0	1,0
JFM-101215-035	10,0	12,0	15,0	3,5	1,0
JFM-1113-05	11,0	13,0	18,0	5,0	1,0
JFM-1214-05	12,0	14,0	20,0	5,0	1,0
JFM-1214-07	12,0	14,0	20,0	7,0	1,0
JFM-1214-09	12,0	14,0	20,0	9,0	1,0
JFM-1214-12	12,0	14,0	20,0	12,0	1,0
JFM-1214-15	12,0	14,0	20,0	15,0	1,0
JFM-121418-045	12,0	14,0	18,0	4,5	1,0
JFM-121418-10	12,0	14,0	18,0	10,0	1,0
JFM-1218-08	12,0	18,0	24,0	8,0	3,0
JFM-1218-12	12,0	18,0	24,0	12,0	3,0
JFM-1218-20	12,0	18,0	22,0	20,0	3,0
JFM-1416-03	14,0	16,0	22,0	3,0	1,0
JFM-1416-10	14,0	16,0	22,0	10,0	1,0
JFM-1416-12	14,0	16,0	22,0	12,0	1,0
JFM-1416-17	14,0	16,0	22,0	17,0	1,0
JFM-141822-20	14,0	18,0	22,0	20,0	2,0
JFM-1517-09	15,0	17,0	23,0	9,0	1,0
JFM-1517-12	15,0	17,0	23,0	12,0	1,0
JFM-1517-17	15,0	17,0	23,0	17,0	1,0
JFM-1521-20	15,0	21,0	27,0	20,0	3,0
JFM-1618-17	16,0	18,0	24,0	17,0	1,0
JFM-1622-12	16,0	22,0	28,0	12,0	3,0
JFM-1622-15	16,0	22,0	28,0	15,0	3,0
JFM-1719-09	17,0	19,0	25,0	9,0	1,0
JFM-1719-21	17,0	19,0	25,0	21,0	1,0
JFM-1820-04	18,0	20,0	26,0	4,0	1,0
JFM-1820-12	18,0	20,0	26,0	12,0	1,0
JFM-1820-22	18,0	20,0	26,0	22,0	1,0
JFM-1922-36	19,0	22,0	26,0	36,0	1,0
JFM-2023-11	20,0	23,0	30,0	11,5	1,5
JFM-2023-15.5	20,0	23,0	30,0	15,5	1,5
JFM-2023-21	20,0	23,0	30,0	21,5	1,5
JFM-202530-15	20,0	25,0	30,0	15,0	2,5
JFM-2026-15	20,0	26,0	32,0	15,0	3,0
JFM-2026-20	20,0	26,0	32,0	20,0	3,0
JFM-2026-25	20,0	26,0	32,0	25,0	3,0
JFM-222532-08	22,0	25,0	32,0	8,0	1,5
JFM-2430-30	24,0	30,0	36,0	30,0	3,0
JFM-2528-06	25,0	28,0	35,0	6,0	1,5
JFM-2528-14.5	25,0	28,0	35,0	14,5	1,5
JFM-2528-21	25,0	28,0	35,0	21,5	1,5
JFM-252839-075	25,0	28,0	39,0	7,5	1,5
JFM-2532-20	25,0	32,0	38,0	20,0	4,0
JFM-2532-25	25,0	32,0	38,0	25,0	4,0
JFM-283235-07	28,0	32,0	35,0	7,0	2,0
JFM-3034-20	30,0	34,0	42,0	20,0	2,0
JFM-3034-26	30,0	34,0	42,0	26,0	2,0
JFM-3038-30	30,0	38,0	44,0	30,0	4,0
JFM-3539-12	35,0	39,0	47,0	12,0	2,0
JFM-3539-16	35,0	39,0	47,0	16,0	2,0
JFM-3539-26	35,0	39,0	47,0	26,0	2,0
JFM-4044-20	40,0	44,0	52,0	20,0	2,0
JFM-4044-30	40,0	44,0	52,0	30,0	2,0
JFM-4044-40	40,0	44,0	52,0	40,0	2,0
JFM-4550-20	45,0	50,0	58,0	20,0	2,0
JFM-4550-50	45,0	50,0	58,0	50,0	2,0
JFM-5055-50	50,0	55,0	63,0	50,0	2,0
JFM-5560-50	55,0	60,0	68,0	50,0	2,0
JFM-6065-50	60,0	65,0	73,0	50,0	2,5
JFM-7075-50	70,0	75,0	83,0	50,0	2,0

* Standard tolerances for iglidur® J: E10

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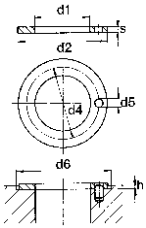
mm

iglidur® J – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

J T M-12 24 - 015

- s
- d2
- d1
- Metric
- Type
- Material

Part No.	d1 +0,3	d2 -0,3	s -0,05	d4 - 0,12 +0,12	d5 +0,375 +0,125	h +0,2 - 0,2	d6 +0,12
JTM-1224-015	12,0	24,0	1,5	18,0	1,5	1,0	24,0
JTM-2036-015	20,0	36,0	1,5	28,0	3,0	1,0	36,0

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iglidur® M250

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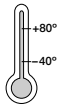
iglidur® M250 – Thick and Robust

The self-lubricating plain bearings made of iglidur® M250 are defined by their impact strength, vibration dampening, and wear resistant properties. They excel in applications in which vibration dampening is necessary, for example, in fitness and packaging machines.

Product range

- 3 Styles
- > 450 Dimensions
- Ø 1–75 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	0,8	2
Oscillating	0,8	2
Linear	2,5	5

Price index

Precision mechanical gears need plain bearings with especially universal properties

In this analytical pump, sewage water is tested with chemicals and floating particles

iglidur® M250 as a wheel bearing in lawn mowers – corrosion resistant and vibration damped

When to use iglidur® M250

- Excellent vibration dampening
- Resistant to edge loading
- High impact resistance
- Thick walled according to DIN 1850
- When the bearings are exposed to high amounts of dirt (dirt can become embedded for shaft protection)
- For low to average speeds
- When mechanical reaming of the wall surface is necessary

When not to use iglidur® M250

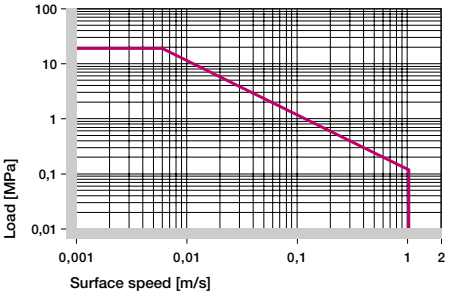
- When very high precision is necessary
  ▶ **iglidur® P** page 1.106
- For underwater use
  ▶ **iglidur® H** page 1.90
- For very smooth shafts
  ▶ **iglidur® J** page 1.38
- When the bearings are exposed to high amounts of dirt
  ▶ **iglidur® R** page 1.114

Material table

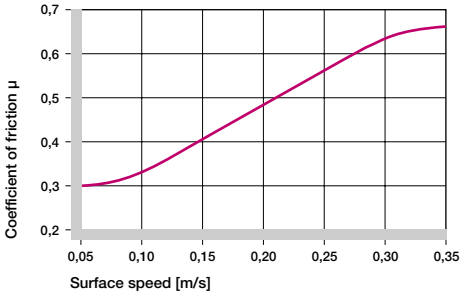
General properties	Unit	iglidur® M250	Testing Method
Density	g/cm³	1,14	
Colour		charcoal	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,4	DIN 53495
Max. moisture absorption	% weight	7,6	
Coefficient of sliding friction, dynamic against steel	µ	0,1 - 0,3	
p x v value, max. (dry)	MPa x m/s	0,12	
Mechanical properties			
Modulus of elasticity	MPa	2.700	DIN 53457
Tensile strength at 20°C	MPa	112	DIN 53452
Compressive strength	MPa	52	
Max. static surface pressure (20°C)	MPa	20	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	80	
Max. short term application temperature	°C	170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/m250**

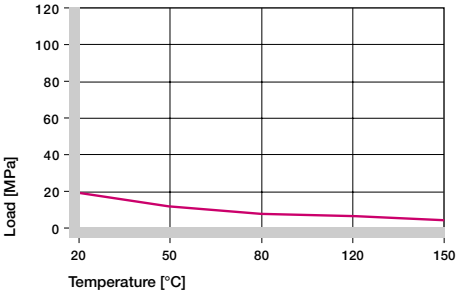
Permissible p x v values for iglidur® M250 running dry against a steel shaft, at 20°C



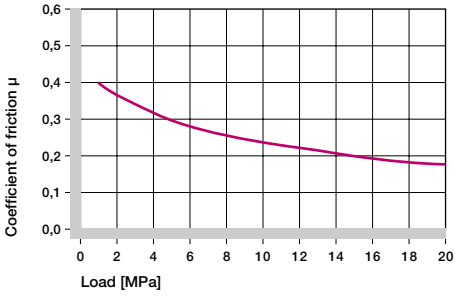
Coefficient of friction of iglidur® M250 as a function of the surface speed, p = 0.75 MPa



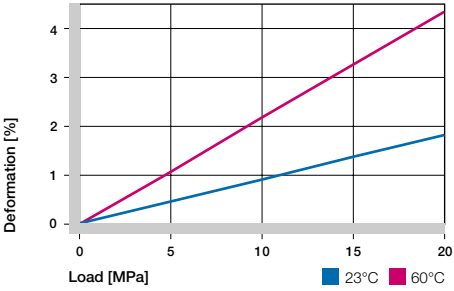
Recommended maximum surface pressure of iglidur® M250 as a function of temperature



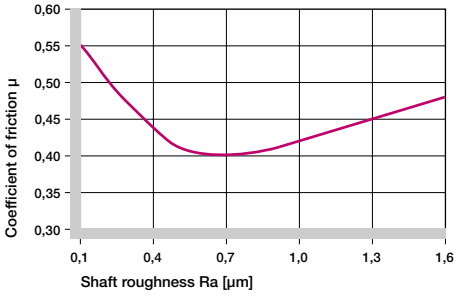
Coefficient of friction of iglidur® M250 as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficient of friction as function of the shaft surface (shaft – cold rolled steel)



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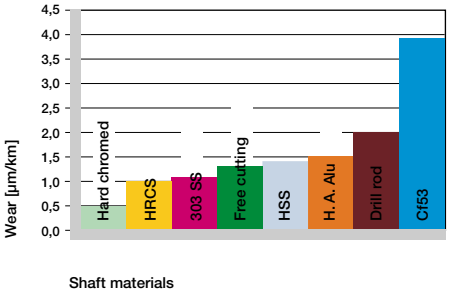
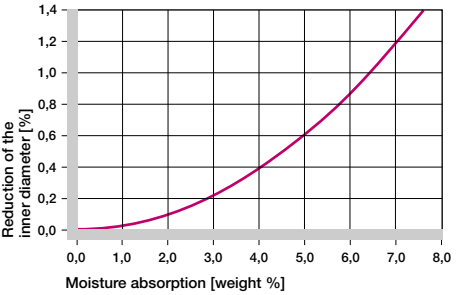
iglidur® M250 – Information and Technical Data

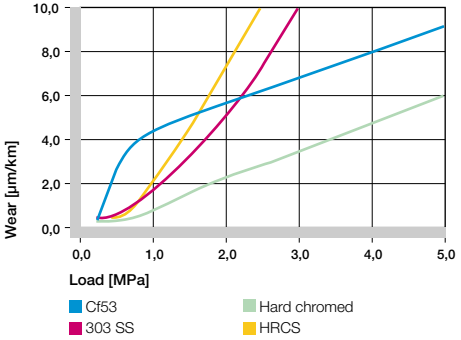
Wear of iglidur® M250, rotating with different shaft materials, load p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® M250 plain bearings



Wear of iglidur® M250 with different shaft materials in rotational operation



Electrical properties

iglidur® M250	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{11} Ω

Essential tolerances for iglidur® M250 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® M250 D11 [mm]
up to 3	0 - 0,025	+0,020 + 0,080
> 3 to 6	0 - 0,030	+0,030 + 0,105
> 6 to 10	0 - 0,036	+0,040 + 0,130
> 10 to 18	0 - 0,043	+0,050 + 0,160
> 18 to 30	0 - 0,052	+0,065 + 0,195
> 30 to 50	0 - 0,062	+0,080 + 0,240

Wear for oscillating and rotating applications with different shaft materials at p = 2 MPa

Chemical resistance of iglidur® M250

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

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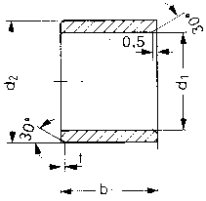
iglidur® M250 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to DIN 1850 and special dimensions

Structure – Part No.
M S M-01 03 - 02
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
MSM-0103-02	1,0	3,0	2,0
MSM-0104-02	1,5	4,0	2,0
MSM-0205-01	2,0	5,0	1,0
MSM-0205-02	2,0	5,0	2,0
MSM-0205-03	2,0	5,0	3,0
MSM-0206-03	2,5	6,0	3,0
MSM-0305-03	3,0	5,0	3,0
MSM-0305-04	3,0	5,0	4,0
MSM-0306-03	3,0	6,0	3,0
MSM-0306-04	3,0	6,0	4,0
MSM-0407-03	4,0	7,0	3,0
MSM-0407-04	4,0	7,0	4,0
MSM-0407-06	4,0	7,0	6,0
MSM-0408-04	4,0	8,0	4,0
MSM-0408-06	4,0	8,0	6,0
MSM-0508-04	5,0	8,0	4,0
MSM-0508-05	5,0	8,0	5,0
MSM-0508-08	5,0	8,0	8,0
MSM-0509-05	5,0	9,0	5,0
MSM-0509-08	5,0	9,0	8,0
MSM-0608-10	6,0	8,0	10,0
MSM-0609-06	6,0	9,0	6,0
MSM-0610-02	6,0	10,0	2,5
MSM-0610-04	6,0	10,0	4,0
MSM-0610-06	6,0	10,0	6,0
MSM-0610-08	6,0	10,0	8,0
MSM-0610-10	6,0	10,0	10,0
MSM-0611-04	6,0	11,0	4,0
MSM-0612-06	6,0	12,0	6,0
MSM-0612-10	6,0	12,0	10,0
MSM-0710-05	7,0	10,0	5,0
MSM-0710-08	7,0	10,0	8,0
MSM-0710-10	7,0	10,0	10,0
MSM-0711-16	7,0	11,0	16,0
MSM-0810-06	8,0	10,0	6,0
MSM-0810-08	8,0	10,0	8,0
MSM-0810-10	8,0	10,0	10,0
MSM-0811-06	8,0	11,0	6,0
MSM-0811-08	8,0	11,0	8,0
MSM-0811-12	8,0	11,0	12,0
MSM-0812-04	8,0	12,0	4,0
MSM-0812-06	8,0	12,0	6,0
MSM-0812-08	8,0	12,0	8,0
MSM-0812-10	8,0	12,0	10,0
MSM-0812-12	8,0	12,0	12,0
MSM-0814-06	8,0	14,0	6,0

Part No.	d1*	d2	b1 h13
MSM-0814-10	8,0	14,0	10,0
MSM-0912-14	9,0	12,0	14,0
MSM-1014-06	10,0	14,0	6,0
MSM-1014-08	10,0	14,0	8,0
MSM-1014-10	10,0	14,0	10,0
MSM-1014-16	10,0	14,0	16,0
MSM-1016-06	10,0	16,0	6,0
MSM-1016-08	10,0	16,0	8,0
MSM-1016-10	10,0	16,0	10,0
MSM-1016-16	10,0	16,0	16,0
MSM-1016-50	10,0	16,0	50,0
MSM-1214-15	12,0	14,0	15,0
MSM-1214-20	12,0	14,0	20,0
MSM-1216-15	12,0	16,0	15,0
MSM-1216-20	12,0	16,0	20,0
MSM-1218-08	12,0	18,0	8,0
MSM-1218-10	12,0	18,0	10,0
MSM-1218-15	12,0	18,0	15,0
MSM-1218-20	12,0	18,0	20,0
MSM-1416-085	14,0	16,0	8,5
MSM-1416-10	14,0	16,0	10,0
MSM-1416-15	14,0	16,0	15,0
MSM-1416-20	14,0	16,0	20,0
MSM-1416-29	14,0	16,0	29,0
MSM-1418-20	14,0	18,0	20,0
MSM-1420-10	14,0	20,0	10,0
MSM-1420-15	14,0	20,0	15,0
MSM-1420-20	14,0	20,0	20,0
MSM-1517-10	15,0	17,0	10,0
MSM-1517-15	15,0	17,0	15,0
MSM-1521-10	15,0	21,0	10,0
MSM-1521-15	15,0	21,0	15,0
MSM-1521-20	15,0	21,0	20,0
MSM-1521-23	15,0	21,0	23,0
MSM-1618-12	16,0	18,0	12,0
MSM-1618-20	16,0	18,0	20,0
MSM-1620-20	16,0	20,0	20,0
MSM-1620-25	16,0	20,0	25,0
MSM-1620-30	16,0	20,0	30,0
MSM-1622-12	16,0	22,0	12,0
MSM-1622-15	16,0	22,0	15,0
MSM-1622-16	16,0	22,0	16,0
MSM-1622-20	16,0	22,0	20,0
MSM-1622-25	16,0	22,0	25,0
MSM-1626-30	16,0	26,0	30,0
MSM-1824-12	18,0	24,0	12,0

* Standard tolerances for iglidur® M250: D11

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iglidur® M250 – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
MSM-1824-20	18,0	24,0	20,0
MSM-1824-30	18,0	24,0	30,0
MSM-2023-15	20,0	23,0	15,0
MSM-2023-20	20,0	23,0	20,0
MSM-2025-14	20,0	25,0	14,0
MSM-2025-20	20,0	25,0	20,0
MSM-2025-30	20,0	25,0	30,0
MSM-2026-15	20,0	26,0	15,0
MSM-2026-20	20,0	26,0	20,0
MSM-2026-30	20,0	26,0	30,0
MSM-2226-15	22,0	26,0	15,0
MSM-2228-10	22,0	28,0	10,0
MSM-2228-15	22,0	28,0	15,0
MSM-2228-20	22,0	28,0	20,0
MSM-2228-30	22,0	28,0	30,0
MSM-2430-15	24,0	30,0	15,0
MSM-2430-20	24,0	30,0	20,0
MSM-2430-30	24,0	30,0	30,0
MSM-2528-12	25,0	28,0	12,0
MSM-2528-20	25,0	28,0	20,0
MSM-2530-20	25,0	30,0	20,0
MSM-2530-30	25,0	30,0	30,0
MSM-2530-40	25,0	30,0	40,0
MSM-2532-12	25,0	32,0	12,0
MSM-2532-20	25,0	32,0	20,0
MSM-2532-30	25,0	32,0	30,0
MSM-2532-35	25,0	32,0	35,0
MSM-2532-40	25,0	32,0	40,0
MSM-2630-20	26,0	30,0	20,0
MSM-2632-30	26,0	32,0	30,0
MSM-2734-20	27,0	34,0	20,0
MSM-2734-30	27,0	34,0	30,0
MSM-2734-40	27,0	34,0	40,0
MSM-2833-20	28,0	33,0	20,0
MSM-2836-20	28,0	36,0	20,0
MSM-2836-30	28,0	36,0	30,0
MSM-2836-40	28,0	36,0	40,0
MSM-3035-20	30,0	35,0	20,0
MSM-3035-40	30,0	35,0	40,0
MSM-3038-20	30,0	38,0	20,0
MSM-3038-30	30,0	38,0	30,0
MSM-3038-40	30,0	38,0	40,0
MSM-3040-40	30,0	40,0	40,0
MSM-3240-20	32,0	40,0	20,0
MSM-3240-30	32,0	40,0	30,0
MSM-3240-40	32,0	40,0	40,0
MSM-3540-25	35,0	40,0	25,0
MSM-3542-50	35,0	42,0	50,0
MSM-4046-20	40,0	46,0	20,0
MSM-7580-60	75,0	80,0	60,0

* Standard tolerances for iglidur® M250: D11

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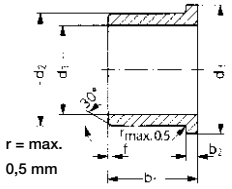
iglidur® M250 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to DIN 1850 and special dimensions

Structure – Part No.

M F M-01 03 - 02
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
MFM-0103-02	1,0	3,0	5,0	2,0	1,0
MFM-0104-02	1,5	4,0	6,0	2,0	1,0
MFM-0205-03	2,0	5,0	8,0	3,0	1,5
MFM-0206-03	2,5	6,0	9,0	3,0	1,5
MFM-0306-04	3,0	6,0	9,0	4,0	1,5
MFM-0408-04	4,0	8,0	12,0	4,0	2,0
MFM-0408-06	4,0	8,0	12,0	6,0	2,0
MFM-0408-08	4,0	8,0	12,0	8,0	2,0
MFM-0509-05	5,0	9,0	13,0	5,0	2,0
MFM-0509-06	5,0	9,0	13,0	6,0	2,0
MFM-0509-08	5,0	9,0	13,0	8,0	2,0
MFM-0610-04	6,0	10,0	14,0	4,0	2,0
MFM-0610-06	6,0	10,0	14,0	6,0	2,0
MFM-0610-10	6,0	10,0	14,0	10,0	2,0
MFM-0612-06	6,0	12,0	14,0	6,0	3,0
MFM-0612-10	6,0	12,0	14,0	10,0	3,0
MFM-0711-08	7,0	11,0	15,0	8,0	2,0
MFM-0811-05	8,0	11,0	13,0	5,0	2,0
MFM-0811-08	8,0	11,0	13,0	8,0	2,0
MFM-0812-06	8,0	12,0	16,0	6,0	2,0
MFM-0812-08	8,0	12,0	16,0	8,0	2,0
MFM-0812-12	8,0	12,0	16,0	12,0	2,0
MFM-0814-06	8,0	14,0	18,0	6,0	3,0
MFM-0814-10	8,0	14,0	18,0	10,0	3,0
MFM-081416-06	8,0	14,0	16,0	6,0	3,0
MFM-081416-10	8,0	14,0	16,0	10,0	3,0
MFM-082426-078	12,0	18,0	22,0	15,0	3,0
MFM-0914-06	9,0	14,0	19,0	6,0	2,0
MFM-0914-10	9,0	14,0	19,0	10,0	2,0
MFM-0914-14	9,0	14,0	19,0	14,0	2,0
MFM-1014-10	10,0	14,0	19,0	10,0	2,0
MFM-1014-14	10,0	14,0	17,5	14,0	1,0
MFM-1014-19	10,0	14,0	17,5	19,0	1,0
MFM-1014-24	10,0	14,0	17,5	24,0	1,0
MFM-1014-34	10,0	14,0	17,5	34,0	1,0
MFM-101420-12	10,0	14,0	20,0	12,0	2,0
MFM-1016-08	10,0	16,0	22,0	8,0	3,0
MFM-1016-10	10,0	16,0	22,0	10,0	3,0
MFM-1016-16	10,0	16,0	22,0	16,0	3,0
MFM-101620-06	10,0	16,0	20,0	6,0	3,0
MFM-101620-10	10,0	16,0	20,0	10,0	3,0
MFM-1216-10	12,0	16,0	22,0	10,0	2,0
MFM-1216-20	12,0	16,0	22,0	20,0	2,0
MFM-1218-08	12,0	18,0	24,0	8,0	3,0
MFM-1218-10	12,0	18,0	22,0	10,0	3,0

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
MFM-1218-12	12,0	18,0	24,0	12,0	3,0
MFM-1218-15	12,0	18,0	22,0	15,0	3,0
MFM-1218-20	12,0	18,0	22,0	20,0	3,0
MFM-1420-07	14,0	20,0	25,0	7,0	3,0
MFM-1420-10	14,0	20,0	25,0	10,0	3,0
MFM-1420-15	14,0	20,0	25,0	15,0	3,0
MFM-1420-20	14,0	20,0	25,0	20,0	3,0
MFM-1521-10	15,0	21,0	27,0	10,0	3,0
MFM-1521-15	15,0	21,0	27,0	15,0	3,0
MFM-1521-20	15,0	21,0	27,0	20,0	3,0
MFM-1521-25	15,0	21,0	27,0	25,0	3,0
MFM-1618-12	16,0	18,0	24,0	12,0	1,0
MFM-1622-12	16,0	22,0	28,0	12,0	3,0
MFM-1622-15	16,0	22,0	28,0	15,0	3,0
MFM-1622-20	16,0	22,0	28,0	20,0	3,0
MFM-1622-25	16,0	22,0	28,0	25,0	3,0
MFM-1824-08	18,0	24,0	30,0	8,0	3,0
MFM-1824-12	18,0	24,0	30,0	12,0	3,0
MFM-1824-18	18,0	24,0	30,0	18,0	3,0
MFM-1824-20	18,0	24,0	30,0	20,0	3,0
MFM-1824-30	18,0	24,0	30,0	30,0	3,0
MFM-182426-078	18,0	24,0	26,0	7,8	3,0
MFM-192427-12	19,0	24,0	27,0	12,0	2,0
MFM-2026-15	20,0	26,0	32,0	15,0	3,0
MFM-2026-20	20,0	26,0	32,0	20,0	3,0
MFM-202628-12	20,0	26,0	28,0	12,0	3,0
MFM-2026-30	20,0	26,0	32,0	30,0	3,0
MFM-2228-15	22,0	28,0	34,0	15,0	3,0
MFM-2228-20	22,0	28,0	34,0	20,0	3,0
MFM-2228-30	22,0	28,0	34,0	30,0	3,0
MFM-2430-15	24,0	30,0	36,0	15,0	3,0
MFM-2430-20	24,0	30,0	36,0	20,0	3,0
MFM-2430-30	24,0	30,0	36,0	30,0	3,0
MFM-2532-12	25,0	32,0	38,0	12,0	4,0
MFM-2532-15	25,0	32,0	38,0	12,0	4,0
MFM-2532-20	25,0	32,0	38,0	20,0	4,0
MFM-2532-30	25,0	32,0	38,0	30,0	4,0
MFM-2532-40	25,0	32,0	38,0	40,0	4,0
MFM-2734-20	27,0	34,0	40,0	20,0	4,0
MFM-2734-30	27,0	34,0	40,0	30,0	4,0
MFM-2734-40	27,0	34,0	40,0	40,0	4,0
MFM-2836-20	28,0	36,0	42,0	20,0	4,0
MFM-2836-30	28,0	36,0	42,0	30,0	4,0
MFM-2836-40	28,0	36,0	42,0	40,0	4,0
MFM-3035-20	30,0	35,0	44,0	20,0	4,0

* Standard tolerances for iglidur® M250: D11

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/m250

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mm

iglidur® M250 – Flange Bearing – Type F

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
MFM-3038-20	30,0	38,0	44,0	20,0	4,0
MFM-3038-30	30,0	38,0	44,0	30,0	4,0
MFM-3038-40	30,0	38,0	44,0	40,0	4,0
MFM-3240-20	32,0	40,0	46,0	20,0	4,0
MFM-3240-30	32,0	40,0	46,0	30,0	4,0
MFM-3240-40	32,0	40,0	46,0	40,0	4,0

* Standard tolerances for iglidur® M250: D11

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iglidur® W300

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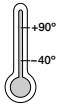
iglidur® W300 – The Marathon Runner

High wear resistance, even in harsh environments or in connection with rough shafts, characterizes the iglidur® W300 material. Of all iglidur® materials, this material is the most resistant to these types of external effects.

Product range

- 3 Styles
- > 400 Dimensions
- Ø 2–120 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1,5	2,5
Oscillating	2	3
Linear	5	6

Price index

With iglidur® W300 the life of the bearing on this machine could be increased five times

Highest wear resistance even in those places where abrasive media contact the bearing

iglidur® W300 allowed to be eliminated gaskets in the motor completely

When to use iglidur® W300

- For especially high service life
- Low coefficient of friction
- Extremely high wear resistance
- Also suitable for soft shafts
- Economical all-round performance bearing
- For use on 303 stainless steel shafts
- For harsh environments and very rough shafts
- Dirt resistant

When not to use iglidur® W300

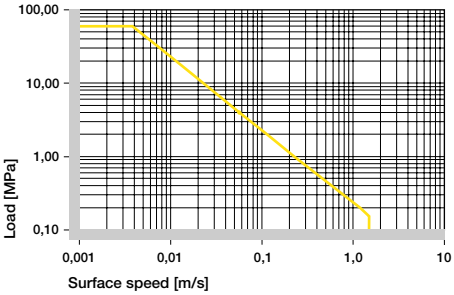
- For high loads starting at 50 MPa ▶ **iglidur® Q** page 1.110
- When temperatures are constantly above 130 °C ▶ **iglidur® H** page 1.90, **X** page 1.62
- When an especially economical bearing is desired ▶ **iglidur® G** page 1.28

Material table

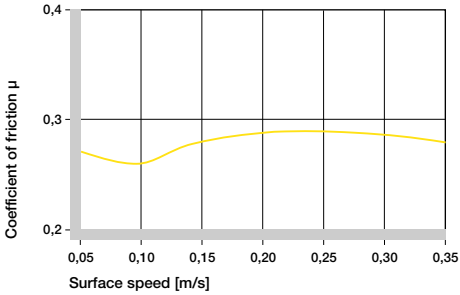
General properties	Unit	iglidur® W300	Testing method
Density	g/cm³	1,24	
Colour		yellow	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,3	DIN 53495
Max. moisture absorption	% weight	6,5	
Coefficient of sliding friction, dynamic against steel	µ	0,08 - 0,23	
p x v value, max. (dry)	MPa x m/s	0,23	
Mechanical properties			
Modulus of elasticity	MPa	3.500	DIN 53457
Tensile strength at 20°C	MPa	125	DIN 53452
Compressive strength	MPa	61	
Max. static surface pressure (20°C)	MPa	60	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	9	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/w300**

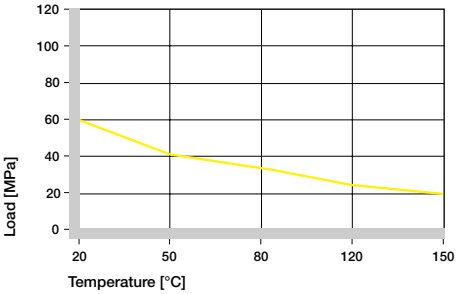
Permissible p x v values for iglidur® W300 running dry against a steel shaft, at 20°C



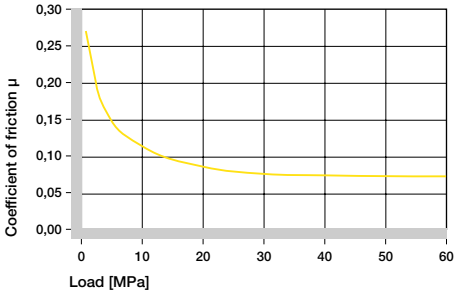
Coefficient of friction as a function of the surface speed, p = 0.75 MPa, (shaft – cold rolled steel)



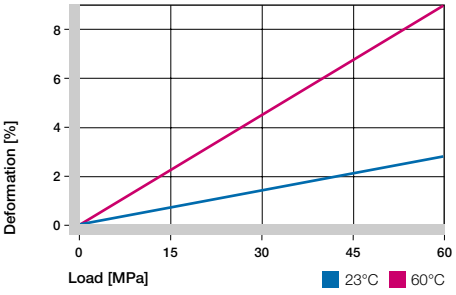
Recommended maximum surface pressure of iglidur® W300 as a function of temperature



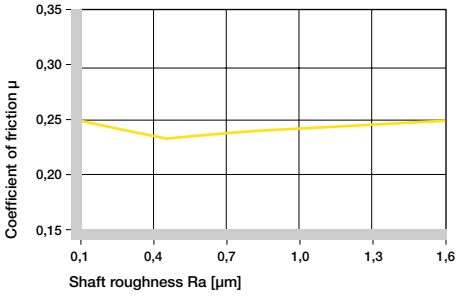
Coefficient of friction of iglidur® W300 as a function of the load, v = 0.01 m/s



Deformation under load and temperature



Coefficient of friction as function of the shaft surface (shaft – cold rolled steel)



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iglidur® W300 – Information and Technical Data

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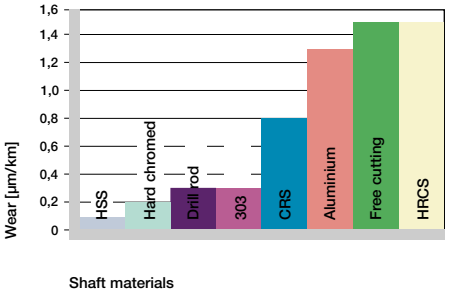
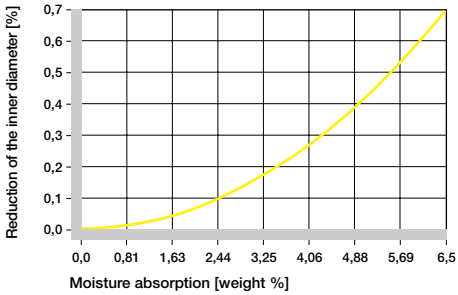
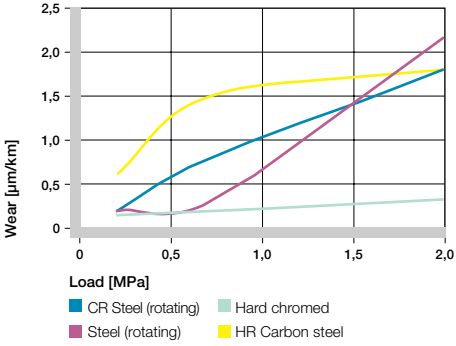
Wear of iglidur® W300, with different shaft materials, p = 0.75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® W300 plain bearings



Wear with different shaft materials in rotational operation, as a function of the load



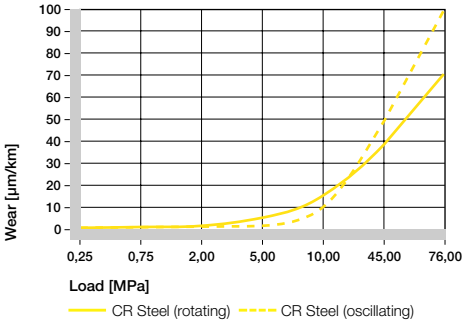
Electrical properties

iglidur® W300	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® W300 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® W300 E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150
> 50 to 80	0 - 0,074	+0,060 + 0,180
> 80 to 120	0 - 0,087	+0,072 + 0,212
> 120	0 - 0,100	+0,085 + 0,245

Wear for oscillating and rotating applications with shaft material cold rolled steel, as a function of the load



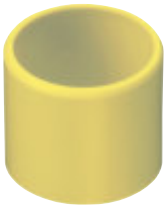
Chemical resistance of iglidur® W300

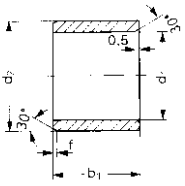
Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/w300**

iglidur® W300 – Sleeve Bearing – Type S





f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
W S M-02 03 - 03
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
WSM-0203-03	2,0	3,5	3,0
WSM-0204-03	2,5	4,0	3,0
WSM-0304-03	3,0	4,5	3,0
WSM-0304-05	3,0	4,5	5,0
WSM-0304-06	3,0	4,5	6,0
WSM-0405-04	4,0	5,5	4,0
WSM-0405-06	4,0	5,5	6,0
WSM-0405-08	4,0	5,5	8,0
WSM-0405-10	4,0	5,5	10,0
WSM-0507-05	5,0	7,0	5,0
WSM-0507-08	5,0	7,0	8,0
WSM-0507-10	5,0	7,0	10,0
WSM-0608-06	6,0	8,0	6,0
WSM-0608-08	6,0	8,0	8,0
WSM-0608-09	6,0	8,0	9,5
WSM-0608-10	6,0	8,0	10,0
WSM-0608-11	6,0	8,0	11,8
WSM-0608-13	6,0	8,0	13,8
WSM-0709-09	7,0	9,0	9,0
WSM-0709-12	7,0	9,0	12,0
WSM-0709-125	7,0	9,0	12,5
WSM-0810-06	8,0	10,0	6,0
WSM-0810-08	8,0	10,0	8,0
WSM-0810-10	8,0	10,0	10,0
WSM-0810-12	8,0	10,0	12,0
WSM-0810-13	8,0	10,0	13,8
WSM-0810-15	8,0	10,0	15,0
WSM-0810-16	8,0	10,0	16,0
WSM-0810-20	8,0	10,0	20,0
WSM-0810-21	8,0	10,0	21,0
WSM-0911-06	9,0	11,0	6,0
WSM-1012-04	10,0	12,0	4,0
WSM-1012-06	10,0	12,0	6,0
WSM-1012-08	10,0	12,0	8,0
WSM-1012-09	10,0	12,0	9,0
WSM-1012-10	10,0	12,0	10,0
WSM-1012-12	10,0	12,0	12,0
WSM-1012-15	10,0	12,0	15,0
WSM-1012-17	10,0	12,0	17,0
WSM-1012-20	10,0	12,0	20,0
WSM-1012-25.5	10,0	12,0	25,5
WSM-1113-08	11,0	13,0	8,0
WSM-1214-04	12,0	14,0	4,0
WSM-1214-05	12,0	14,0	5,0
WSM-1214-06	12,0	14,0	6,0
WSM-1214-08	12,0	14,0	8,0

Part No.	d1*	d2	b1 h13
WSM-1214-10	12,0	14,0	10,0
WSM-1214-12	12,0	14,0	12,0
WSM-1214-15	12,0	14,0	15,0
WSM-1214-20	12,0	14,0	20,0
WSM-1214-25	12,0	14,0	25,0
WSM-1315-07	13,0	15,0	7,0
WSM-1315-10	13,0	15,0	10,0
WSM-1315-15	13,0	15,0	15,0
WSM-1315-20	13,0	15,0	20,0
WSM-1416-07	14,0	16,0	7,25
WSM-1416-10	14,0	16,0	10,0
WSM-1416-15	14,0	16,0	15,0
WSM-1416-20	14,0	16,0	20,0
WSM-1416-25	14,0	16,0	25,0
WSM-1416-33	14,0	16,0	33,0
WSM-1517-10	15,0	17,0	10,0
WSM-1517-15	15,0	17,0	15,0
WSM-1517-20	15,0	17,0	20,0
WSM-1517-25	15,0	17,0	25,0
WSM-1618-07	16,0	18,0	7,0
WSM-1618-08	16,0	18,0	8,0
WSM-1618-11	16,0	18,0	11,5
WSM-1618-12	16,0	18,0	12,0
WSM-1618-15	16,0	18,0	15,0
WSM-1618-20	16,0	18,0	20,0
WSM-1618-25	16,0	18,0	25,0
WSM-1820-12	18,0	20,0	12,0
WSM-1820-15	18,0	20,0	15,0
WSM-1820-20	18,0	20,0	20,0
WSM-1820-25	18,0	20,0	25,0
WSM-1820-33	18,0	20,0	33,0
WSM-1820-35	18,0	20,0	35,0
WSM-1922-28	19,0	22,0	28,0
WSM-2022-11	20,0	22,0	11,5
WSM-2022-12	20,0	22,0	12,0
WSM-2022-15	20,0	22,0	15,0
WSM-2022-20	20,0	22,0	20,0
WSM-2022-30	20,0	22,0	30,0
WSM-2023-08	20,0	23,0	8,0
WSM-2023-12	20,0	23,0	12,0
WSM-2023-15	20,0	23,0	15,0
WSM-2023-20	20,0	23,0	20,0
WSM-2023-23	20,0	23,0	23,0
WSM-2023-25	20,0	23,0	25,0
WSM-2023-30	20,0	23,0	30,0
WSM-2224-15	22,0	24,0	15,0

* Standard tolerances for iglidur® W300: E10

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/w300

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iglidur® W300 – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
WSM-2224-20	22,0	24,0	20,0
WSM-2224-30	22,0	24,0	30,0
WSM-2224-35	22,0	24,0	35,0
WSM-2225-15	22,0	25,0	15,0
WSM-2225-20	22,0	25,0	20,0
WSM-2225-25	22,0	25,0	25,0
WSM-2225-30	22,0	25,0	30,0
WSM-2427-15	24,0	27,0	15,0
WSM-2427-20	24,0	27,0	20,0
WSM-2427-25	24,0	27,0	25,0
WSM-2427-30	24,0	27,0	30,0
WSM-2528-12	25,0	28,0	12,0
WSM-2528-14	25,0	28,0	14,0
WSM-2528-15	25,0	28,0	15,0
WSM-2528-20	25,0	28,0	20,0
WSM-2528-25	25,0	28,0	25,0
WSM-2528-30	25,0	28,0	30,0
WSM-2630-16	26,0	30,0	16,0
WSM-2630-25	26,0	30,0	25,0
WSM-2830-10	28,0	30,0	10,0
WSM-2831-10	28,0	31,0	10,0
WSM-2832-20	28,0	32,0	20,0
WSM-2832-25	28,0	32,0	25,0
WSM-2832-30	28,0	32,0	30,0
WSM-3034-16	30,0	34,0	16,0
WSM-3034-20	30,0	34,0	20,0
WSM-3034-24	30,0	34,0	24,0
WSM-3034-25	30,0	34,0	25,0
WSM-3034-30	30,0	34,0	30,0
WSM-3034-36	30,0	34,0	36,0
WSM-3034-38	30,0	34,0	38,0

Part No.	d1*	d2	b1 h13
WSM-3034-40	30,0	34,0	40,0
WSM-3034-45	30,0	34,0	45,0
WSM-3236-20	32,0	36,0	20,0
WSM-3236-25	32,0	36,0	25,0
WSM-3236-30	32,0	36,0	30,0
WSM-3236-40	32,0	36,0	40,0
WSM-3539-20	35,0	39,0	20,0
WSM-3539-30	35,0	39,0	30,0
WSM-3539-40	35,0	39,0	40,0
WSM-3539-50	35,0	39,0	50,0
WSM-3540-07	35,0	40,0	7,0
WSM-4044-20	40,0	44,0	20,0
WSM-4044-30	40,0	44,0	30,0
WSM-4044-40	40,0	44,0	40,0
WSM-4044-50	40,0	44,0	50,0
WSM-4550-30	45,0	50,0	30,0
WSM-4550-50	45,0	50,0	50,0
WSM-5055-20	50,0	55,0	20,0
WSM-5055-30	50,0	55,0	30,0
WSM-5055-40	50,0	55,0	40,0
WSM-5055-50	50,0	55,0	50,0
WSM-5560-40	55,0	60,0	40,0
WSM-5560-60	55,0	60,0	60,0
WSM-6065-30	60,0	65,0	30,0
WSM-6065-60	60,0	65,0	60,0
WSM-6570-60	65,0	70,0	60,0
WSM-7075-60	70,0	75,0	60,0
WSM-8085-100	80,0	85,0	100,0
WSM-9095-100	90,0	95,0	100,0
WSM-100105-100	100,0	105,0	100,0

* Standard tolerances for iglidur® W300: E10

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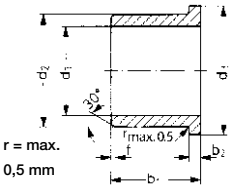
iglidur® W300 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
W F M-03 04 - 03
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
WFM-0304-03	3,0	4,5	7,5	3,0	0,75
WFM-0304-05	3,0	4,5	7,5	5,0	0,75
WFM-0405-03	4,0	5,5	9,5	3,0	0,75
WFM-0405-04	4,0	5,5	9,5	4,0	0,75
WFM-0405-06	4,0	5,5	9,5	6,0	0,75
WFM-0506-08	5,0	6,0	10,0	8,0	0,50
WFM-0507-04	5,0	7,0	11,0	4,0	1,00
WFM-0507-05	5,0	7,0	11,0	5,0	1,00
WFM-0608-04	6,0	8,0	12,0	4,0	1,00
WFM-0608-06	6,0	8,0	12,0	6,0	1,00
WFM-0608-08	6,0	8,0	12,0	8,0	1,00
WFM-0608-10	6,0	8,0	12,0	10,0	1,00
WFM-0608-15	6,0	8,0	12,0	15,0	1,00
WFM-0709-12	7,0	9,0	15,0	12,0	1,00
WFM-0810-02	8,0	10,0	15,0	2,7	1,00
WFM-0810-05	8,0	10,0	15,0	5,5	1,00
WFM-0810-07	8,0	10,0	15,0	7,5	1,00
WFM-0810-09	8,0	10,0	15,0	9,5	1,00
WFM-0810-10	8,0	10,0	15,0	10,0	1,00
WFM-0810-23	8,0	10,0	15,0	23,0	1,00
WFM-0810-30	8,0	10,0	15,0	30,0	1,00
WFM-081015-05	8,0	10,0	15,0	5,0	1,00
WFM-1012-04	10,0	12,0	18,0	4,0	1,00
WFM-1012-05	10,0	12,0	18,0	5,0	1,00
WFM-1012-06	10,0	12,0	18,0	6,0	1,00
WFM-1012-07	10,0	12,0	18,0	7,0	1,00
WFM-1012-09	10,0	12,0	18,0	9,0	1,00
WFM-1012-10	10,0	12,0	18,0	10,0	1,00
WFM-1012-12	10,0	12,0	18,0	12,0	1,00
WFM-1012-15	10,0	12,0	18,0	15,0	1,00
WFM-1012-17	10,0	12,0	18,0	17,0	1,00
WFM-1214-04	12,0	14,0	20,0	4,0	1,00
WFM-1214-044	12,0	14,0	20,0	4,4	1,00
WFM-1214-06	12,0	14,0	20,0	6,0	1,00
WFM-1214-07	12,0	14,0	20,0	7,0	1,00
WFM-1214-09	12,0	14,0	20,0	9,0	1,00
WFM-1214-10	12,0	14,0	20,0	10,0	1,00
WFM-1214-11	12,0	14,0	20,0	11,0	1,00
WFM-1214-12	12,0	14,0	20,0	12,0	1,00
WFM-1214-15	12,0	14,0	20,0	15,0	1,00
WFM-1214-17	12,0	14,0	20,0	17,0	1,00
WFM-1214-20	12,0	14,0	20,0	20,0	1,00
WFM-1315-06	13,0	15,0	22,0	6,0	1,00
WFM-1416-04	14,0	16,0	22,0	4,0	1,00
WFM-1416-05	14,0	16,0	22,0	5,0	1,00

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
WFM-1416-08	14,0	16,0	22,0	8,0	1,00
WFM-1416-12	14,0	16,0	22,0	12,0	1,00
WFM-1416-17	14,0	16,0	22,0	17,0	1,00
WFM-1416-29	14,0	16,0	22,0	29,0	1,00
WFM-1517-09	15,0	17,0	23,0	9,0	1,00
WFM-1517-12	15,0	17,0	23,0	12,0	1,00
WFM-1517-17	15,0	17,0	23,0	17,0	1,00
WFM-1517-20	15,0	17,0	23,0	20,0	1,00
WFM-1618-09	16,0	18,0	24,0	9,0	1,00
WFM-1618-12	16,0	18,0	24,0	12,0	1,00
WFM-1618-17	16,0	18,0	24,0	17,0	1,00
WFM-1719-12	17,0	19,0	25,0	12,0	1,00
WFM-1719-18	17,0	19,0	25,0	18,0	1,00
WFM-1719-25	17,0	19,0	25,0	25,0	1,00
WFM-1820-12	18,0	20,0	26,0	12,0	1,00
WFM-1820-17	18,0	20,0	26,0	17,0	1,00
WFM-1820-22	18,0	20,0	26,0	22,0	1,00
WFM-2023-11	20,0	23,0	30,0	11,5	1,50
WFM-2023-14	20,0	23,0	30,0	14,0	1,50
WFM-2023-16	20,0	23,0	30,0	16,0	1,50
WFM-2023-21	20,0	23,0	30,0	21,5	1,50
WFM-2427-10	24,0	27,0	32,0	10,0	1,50
WFM-2528-11	25,0	28,0	35,0	11,0	1,50
WFM-2528-16	25,0	28,0	35,0	16,0	1,50
WFM-2528-21	25,0	28,0	35,0	21,0	1,50
WFM-2528-30	25,0	28,0	35,0	30,0	1,50
WFM-252831-13	25,0	28,0	31,0	13,0	1,50
WFM-2830-36	28,0	30,0	35,0	36,0	1,00
WFM-3034-10	30,0	34,0	42,0	10,0	2,00
WFM-3034-16	30,0	34,0	42,0	16,0	2,00
WFM-3034-26	30,0	34,0	42,0	26,0	2,00
WFM-3034-37	30,0	34,0	42,0	37,0	2,00
WFM-3236-16	32,0	36,0	40,0	16,0	2,00
WFM-3236-26	32,0	36,0	40,0	26,0	2,00
WFM-3539-16	35,0	39,0	47,0	16,0	2,00
WFM-3539-26	35,0	39,0	47,0	26,0	2,00
WFM-353950-35	35,0	39,0	50,0	35,0	2,00
WFM-3842-22	38,0	42,0	50,0	22,0	2,00
WFM-4044-30	40,0	44,0	52,0	30,0	2,00
WFM-4044-40	40,0	44,0	52,0	40,0	2,00
WFM-4550-50	45,0	50,0	58,0	50,0	2,00
WFM-5055-40	50,0	55,0	63,0	40,0	2,00
WFM-5055-50	50,0	55,0	63,0	50,0	2,00
WFM-5560-60	55,0	60,0	68,0	60,0	2,00
WFM-5762-40	57,0	62,0	67,0	40,0	2,00

* Standard tolerances for iglidur® W300: E10

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iglidur® W300 – Flange Bearing – Type F

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
WFM-6065-60	60,0	65,0	73,0	60,0	2,00
WFM-6570-60	65,0	70,0	78,0	60,0	2,00
WFM-7075-100	70,0	75,0	83,0	100,0	2,00
WFM-7580-1000	75,0	80,0	88,0	100,0	2,50
WFM-8085-100	80,0	85,0	93,0	100,0	2,50
WFM-9095-100	90,0	95,0	103,0	100,0	2,50
WFM-100105-100	100,0	105,0	113,0	100,0	2,50
WFM-120125-100	120,0	125,0	133,0	100,0	2,50

* Standard tolerances for iglidur® W300: E10

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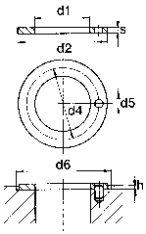
iglidur® W300 – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

** Design without fixation bore

Structure – Part No.

W T M-05 09 - 006

- s
- d2
- d1
- Metric
- Type
- Material

Part No.	d1 +0,25	d2 -0,25	s -0,05	d4 -0,12 +0,12	d5 +0,375 +0,125	h +0,2 -0,2	d6 +0,12
WTM-0509-006	5,0	9,5	0,6	**	**	0,3	9,5
WTM-0620-015	6,0	20,0	1,5	13,0	1,5	1,0	20,0
WTM-0818-015	8,0	18,0	1,5	13,0	1,5	1,0	18,0
WTM-1018-010	10,0	18,0	1,0	14,0	1,5	0,7	18,0
WTM-1224-015	12,0	24,0	1,5	18,0	1,5	1,0	24,0
WTM-1426-015	14,0	26,0	1,5	20,0	2,0	1,0	26,0
WTM-1524-015	15,0	24,0	1,5	19,5	1,5	1,0	24,0
WTM-1630-015	16,0	30,0	1,5	23,0	2,0	1,0	30,0
WTM-1832-015	18,0	32,0	1,5	25,0	2,0	1,0	32,0
WTM-2036-015	20,0	36,0	1,5	28,0	3,0	1,0	36,0
WTM-2238-015	22,0	38,0	1,5	30,0	3,0	1,0	38,0
WTM-2442-015	24,0	42,0	1,5	33,0	3,0	1,0	42,0
WTM-2644-015	26,0	44,0	1,5	35,0	3,0	1,0	44,0
WTM-2848-015	28,0	48,0	1,5	38,0	4,0	1,0	48,0
WTM-3254-015	32,0	54,0	1,5	43,0	4,0	1,0	54,0
WTM-3862-015	38,0	62,0	1,5	50,0	4,0	1,0	62,0
WTM-4266-015	42,0	66,0	1,5	54,0	4,0	1,0	66,0
WTM-4874-020	48,0	74,0	2,0	61,0	4,0	1,5	74,0
WTM-5278-020	52,0	78,0	2,0	65,0	4,0	1,5	78,0
WTM-6290-020	62,0	90,0	2,0	76,0	4,0	1,5	90,0
WTM-82110-020	82,0	110,0	2,0	**	**	1,5	110,0
WTM-102130-020	102,0	130,0	2,0	**	**	1,5	130,0
WTM-120150-020	120,0	150,0	2,0	**	**	1,5	150,0

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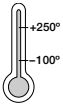
iglidur® X – The High-Tech Problem Solver

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

Product range

- 3 Styles
- > 250 Dimensions
- Ø 2–75 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1,5	3,5
Oscillating	3	4
Linear	5	6

Price index

Intake control device with iglidur® X, high temperature

Flaps, valves with iglidur® X, high temperatures

The availability of various maintenance-free bearings with extremely high resistance to chemicals in small quantities was decisive for using iglidur® X in virtually all its flanged and compact flanged ball cocks

When to use iglidur® X

● Temperature resistant from -100 °C to +250 °C in continuous operation (short term to + 315 °C) ● Universal resistance to chemicals ● High compressive strength ● Very low moisture absorption ● High wear resistance through the entire temperature range ● For pressure loads up to 150 MPa ● For linear movements with stainless steel and for linear movements, especially at high temperatures

When not to use iglidur® X

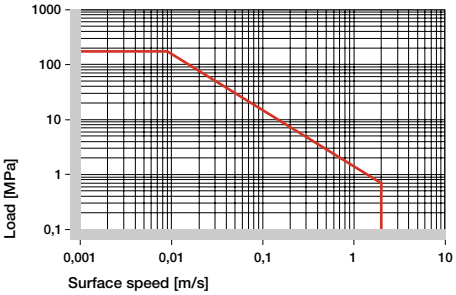
- For very low wear at high loads
  ▶ **iglidur® Q** page 1.110, **Z** page 1.126
- For economical underwater applications
  ▶ **iglidur® H** page 1.90, **H370** page 1.98
- For edge pressure
  ▶ **iglidur® Z** page 1.126

Material table

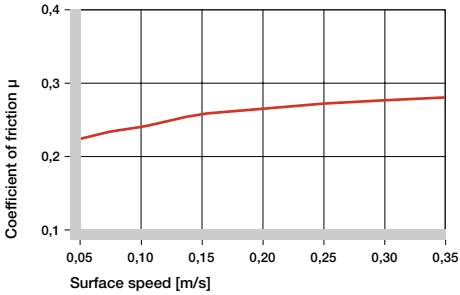
General properties	Unit	iglidur® X	Testing method
Density	g/cm³	1,44	
Colour		black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,1	DIN 53495
Max. moisture absorption	% weight	0,5	
Coefficient of sliding friction, dynamic against steel	μ	0,09 - 0,27	
p x v value, max. (dry)	MPa x m/s	1,32	
Mechanical properties			
Modulus of elasticity	MPa	8.100	DIN 53457
Tensile strength at 20°C	MPa	170	DIN 53452
Compressive strength	MPa	100	
Max. static surface pressure (20°C)	MPa	150	
Shore D hardness		85	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	250	
Max. short term application temperature	°C	315	
Min. application temperature	°C	-100	
Thermal conductivity	W/m x K	0,6	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	5	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$< 10^{13}$	DIN IEC 93
Surface resistance	Ω	$< 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/x**

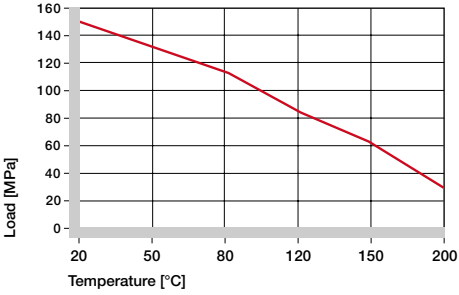
Permissible p x v values for iglidur® X running dry against a steel shaft, at 20°C



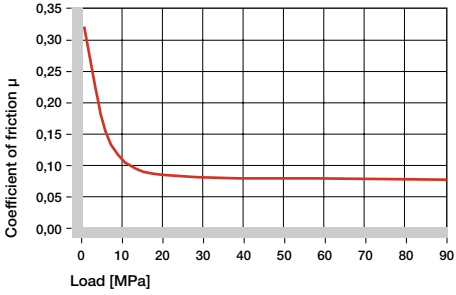
Coefficient of friction as a function of the running speed, p = 0.75 MPa, shaft cold rolled steel



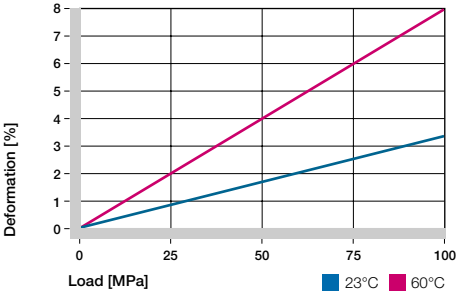
Recommended maximum surface pressure of iglidur® X as a function of temperature



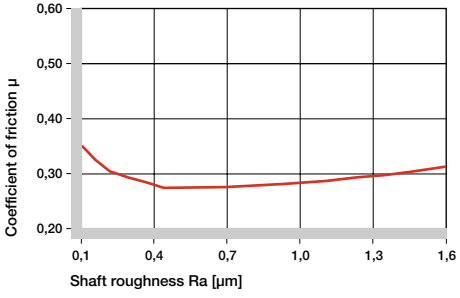
Coefficient of friction for iglidur® X as a function of the load, v = 0.01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft – cold rolled steel)



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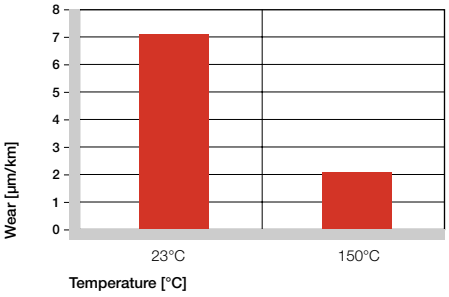
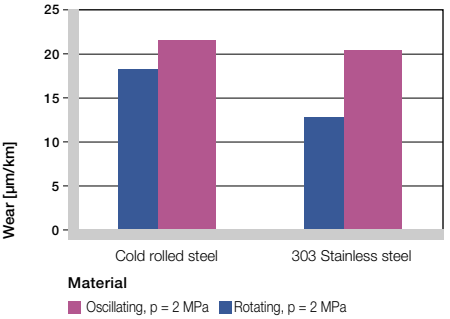
iglidur® X – Information and Technical Data

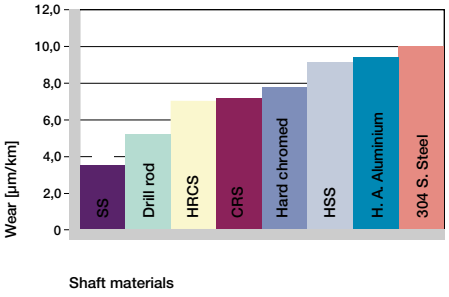
Wear of iglidur® X, Rotation with p = 0.75 MPa, v = 0.5 m/s, shaft made of cold rolled steel



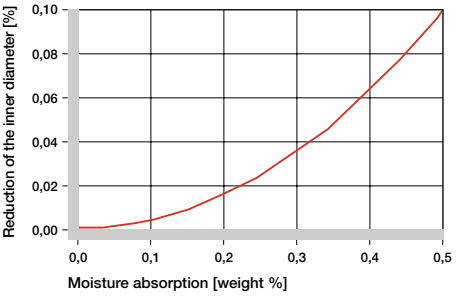
Wear for oscillating and rotating applications with different shaft materials



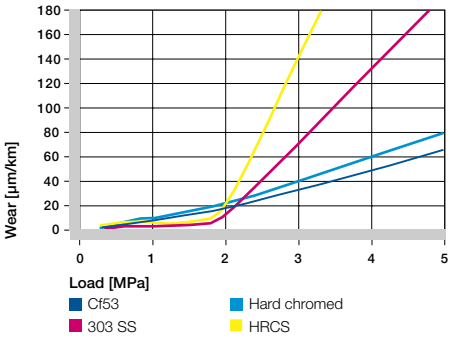
Wear of iglidur® X with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® X plain bearings



Wear of iglidur® X with different shaft materials



Electrical properties

iglidur® X	
Specific volume resistance	< 10^5 Ωcm
Surface resistance	< 10^2 Ω

Essential tolerances for iglidur® X plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® X F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,025 + 0,125
> 50 to 80	0 - 0,074	+0,030 + 0,150

Chemical resistance of iglidur® X

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

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

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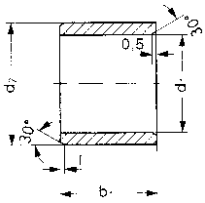
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/x**

iglidur® X – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
X S M-02 03 - 03
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
XSM-0203-03	2,0	3,5	3,0
XSM-0304-03	3,0	4,5	3,0
XSM-0304-06	3,0	4,5	6,0
XSM-0405-04	4,0	5,5	4,0
XSM-0507-035	5,0	7,0	3,5
XSM-0507-05	5,0	7,0	5,0
XSM-0507-08	5,0	7,0	8,0
XSM-0608-06	6,0	8,0	6,0
XSM-0608-08	6,0	8,0	8,0
XSM-0608-10	6,0	8,0	10,0
XSM-0608-13	6,0	8,0	13,8
XSM-0709-12	7,0	9,0	12,0
XSM-0810-06	8,0	10,0	6,0
XSM-0810-08	8,0	10,0	8,0
XSM-0810-10	8,0	10,0	10,0
XSM-0810-12	8,0	10,0	12,0
XSM-0810-15	8,0	10,0	15,0
XSM-1012-06	10,0	12,0	6,0
XSM-1012-08	10,0	12,0	8,0
XSM-1012-10	10,0	12,0	10,0
XSM-1012-20	10,0	12,0	20,0
XSM-1214-035	12,0	14,0	3,5
XSM-1214-06	12,0	14,0	6,0
XSM-1214-08	12,0	14,0	8,0
XSM-1214-10	12,0	14,0	10,0
XSM-1214-12	12,0	14,0	12,0
XSM-1214-15	12,0	14,0	15,0
XSM-1214-20	12,0	14,0	20,0
XSM-1416-12	14,0	16,0	12,0
XSM-1416-15	14,0	16,0	15,0
XSM-1416-20	14,0	16,0	20,0
XSM-1517-10	15,0	17,0	10,0
XSM-1517-15	15,0	17,0	15,0
XSM-1517-20	15,0	17,0	20,0
XSM-1618-10	16,0	18,0	10,0
XSM-1618-12	16,0	18,0	12,0
XSM-1618-15	16,0	18,0	15,0
XSM-1618-20	16,0	18,0	20,0
XSM-1618-35	16,0	18,0	35,0
XSM-1719-20	17,0	19,0	20,0
XSM-1820-15	18,0	20,0	15,0
XSM-1820-20	18,0	20,0	20,0
XSM-2022-140	20,0	22,0	14,0
XSM-2022-145	20,0	22,0	14,5

Part No.	d1*	d2	b1 h13
XSM-2022-18	20,0	22,0	18,0
XSM-2022-20	20,0	22,0	20,0
XSM-2023-07	20,0	23,0	7,0
XSM-2023-10	20,0	23,0	10,0
XSM-2023-15	20,0	23,0	15,0
XSM-2023-20	20,0	23,0	20,0
XSM-2023-25	20,0	23,0	25,0
XSM-2023-30	20,0	23,0	30,0
XSM-2225-15	22,0	25,0	15,0
XSM-2225-20	22,0	25,0	20,0
XSM-2426-20	24,0	26,0	20,0
XSM-2427-20	24,0	27,0	20,0
XSM-2528-077	25,0	28,0	7,7
XSM-2528-09	25,0	28,0	9,0
XSM-2528-12	25,0	28,0	12,0
XSM-2528-13	25,0	28,0	13,0
XSM-2528-15	25,0	28,0	15,0
XSM-2528-20	25,0	28,0	20,0
XSM-2528-30	25,0	28,0	30,0
XSM-2730-05	27,0	30,0	5,7
XSM-2832-20	28,0	32,0	20,0
XSM-2832-30	28,0	32,0	30,0
XSM-3034-20	30,0	34,0	20,0
XSM-3034-25	30,0	34,0	25,0
XSM-3034-30	30,0	34,0	30,0
XSM-3034-40	30,0	34,0	40,0
XSM-3236-25	32,0	36,0	25,0
XSM-3236-30	32,0	36,0	30,0
XSM-3539-20	35,0	39,0	20,0
XSM-3539-30	35,0	39,0	30,0
XSM-3539-40	35,0	39,0	40,0
XSM-3539-50	35,0	39,0	50,0
XSM-4044-30	40,0	44,0	30,0
XSM-4044-40	40,0	44,0	40,0
XSM-4044-50	40,0	44,0	50,0
XSM-4550-50	45,0	50,0	50,0
XSM-5055-30	50,0	55,0	30,0
XSM-5055-40	50,0	55,0	40,0
XSM-5055-60	50,0	55,0	60,0
XSM-5560-50	55,0	60,0	50,0
XSM-6065-45	60,0	65,0	45,0
XSM-6570-50	65,0	70,0	50,0
XSM-7075-70	70,0	75,0	70,0

* Standard tolerances for iglidur® X: F10

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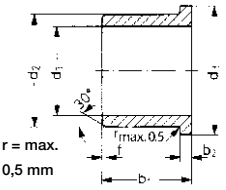
mm

iglidur® X – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

X F M-03 04 - 05

- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
XFM-020406-06	2,0	4,0	6,0	3,0	1,0
XFM-0304-05	3,0	4,5	7,5	5,0	0,75
XFM-0405-04	4,0	5,5	9,5	4,0	0,75
XFM-0405-06	4,0	5,5	9,5	6,0	0,75
XFM-040508-06	4,0	5,5	8,0	6,0	0,75
XFM-0507-05	5,0	7,0	11,0	5,0	1,0
XFM-0608-08	6,0	8,0	12,0	8,0	1,0
XFM-0608-10	6,0	8,0	12,0	10,0	1,0
XFM-060812-20	6,0	8,0	12,0	20,0	1,0
XFM-0810-05	8,0	10,0	15,0	5,5	1,0
XFM-0810-075	8,0	10,0	15,0	7,5	1,0
XFM-0810-08	8,0	10,0	15,0	8,0	1,0
XFM-0810-09	8,0	10,0	15,0	9,0	1,0
XFM-081012-04	8,0	10,0	12,0	4,0	1,0
XFM-081014-31	8,0	10,0	14,0	31,5	1,0
XFM-1012-06	10,0	12,0	18,0	6,0	1,0
XFM-1012-08	10,0	12,0	15,0	8,0	1,0
XFM-1012-09	10,0	12,0	18,0	9,0	1,0
XFM-1012-15	10,0	12,0	18,0	15,0	1,0
XFM-1012-18	10,0	12,0	18,0	18,0	1,0
XFM-1012-22	10,0	12,0	18,0	22,0	1,0
XFM-1214-055	12,0	14,0	20,0	5,5	1,0
XFM-1214-059	12,0	14,0	18,0	5,5	1,0
XFM-1214-09	12,0	14,0	20,0	9,0	1,0
XFM-1214-12	12,0	14,0	20,0	12,0	1,0
XFM-1214-15	12,0	14,0	20,0	15,0	1,0
XFM-121418-039	12,0	14,0	18,0	3,9	1,0
XFM-1416-10	14,0	16,0	22,0	10,0	1,0

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
XFM-1416-12	14,0	16,0	22,0	12,0	1,0
XFM-1416-17	14,0	16,0	22,0	17,0	1,0
XFM-1517-12	15,0	17,0	23,0	12,0	1,0
XFM-1517-17	15,0	17,0	23,0	17,0	1,0
XFM-1618-12	16,0	18,0	24,0	12,0	1,0
XFM-1618-17	16,0	18,0	24,0	17,0	1,0
XFM-1820-12	18,0	20,0	26,0	12,0	1,0
XFM-1820-17	18,0	20,0	26,0	17,0	1,0
XFM-2023-075	20,0	23,0	30,0	7,5	1,5
XFM-2023-11	20,0	23,0	30,0	11,0	1,5
XFM-2023-16	20,0	23,0	30,0	16,5	1,5
XFM-2023-21	20,0	23,0	30,0	21,5	1,5
XFM-2528-13	25,0	28,0	35,0	13,5	1,5
XFM-2528-21	25,0	28,0	35,0	21,0	1,5
XFM-252833-08	25,0	28,0	33,0	8,0	1,0
XFM-2730-20	27,0	30,0	38,0	20,0	1,5
XFM-3034-16	30,0	34,0	42,0	16,0	2,0
XFM-3034-26	30,0	34,0	42,0	26,0	2,0
XFM-3034-40	30,0	34,0	42,0	40,0	2,0
XFM-3236-15	32,0	36,0	45,0	15,0	2,0
XFM-3236-26	32,0	36,0	45,0	26,0	2,0
XFM-3539-26	35,0	39,0	47,0	26,0	2,0
XFM-4044-30	40,0	44,0	52,0	30,0	2,0
XFM-4044-40	40,0	44,0	52,0	40,0	2,0
XFM-4550-50	45,0	50,0	58,0	50,0	2,0
XFM-5055-40	50,0	55,0	63,0	40,0	2,0
XFM-6065-40	60,0	65,0	73,0	40,0	2,0
XFM-7075-40	70,0	75,0	83,0	40,0	2,0
XFM-7580-50	75,0	80,0	88,0	50,0	2,0

* Standard tolerances for iglidur® X: F10

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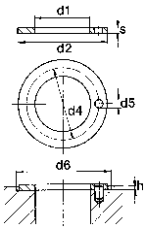
iglidur® X – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

** Design without fixation bore

Structure – Part No.

XTM-06 20 - 015

- s
- d2
- d1
- Metric
- Type
- Material

Part No.	d1 +0,25	d2 -0,25	s -0,05	d4 -0,12 +0,12	d5 +0,375 +0,125	h +0,2 -0,2	d6 +0,12
XTM-0620-015	6,0	20,0	1,5	13,0	1,5	1,0	20,0
XTM-0818-015	8,0	18,0	1,5	13,0	1,5	1,0	18,0
XTM-1018-010	10,0	18,0	1,0	**	**	0,7	18,0
XTM-1224-015	12,0	24,0	1,5	18,0	1,5	1,0	24,0
XTM-1426-015	14,0	26,0	1,5	20,0	2,0	1,0	26,0
XTM-1524-015	15,0	24,0	1,5	19,5	1,5	1,0	24,0
XTM-1630-015	16,0	30,0	1,5	22,0	2,0	1,0	30,0
XTM-1832-015	18,0	32,0	1,5	25,0	2,0	1,0	32,0
XTM-2036-015	20,0	36,0	1,5	28,0	3,0	1,0	36,0
XTM-2238-015	22,0	38,0	1,5	30,0	3,0	1,0	38,0
XTM-2442-015	24,0	42,0	1,5	33,0	3,0	1,0	42,0
XTM-2644-015	26,0	44,0	1,5	35,0	3,0	1,0	44,0
XTM-3254-015	32,0	54,0	1,5	38,0	4,0	1,0	54,0
XTM-3862-015	38,0	62,0	1,5	50,0	4,0	1,0	62,0
XTM-4266-015	42,0	66,0	1,5	54,0	4,0	1,0	66,0
XTM-4874-020	48,0	74,0	2,0	61,0	4,0	1,5	74,0
XTM-5278-020	52,0	78,0	2,0	65,0	4,0	1,5	78,0
XTM-6290-020	62,0	90,0	2,0	76,0	4,0	1,5	90,0

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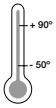
iglidur® A180 – Very appetising

Products of iglidur® A180 comply with the requirements of the FDA for repeated contact with food. The iglidur® A180 bearings are an ideal solution for bearing applications on machines that manufacture consumables, pharmaceuticals, medical devices, small household appliances, etc.

Product range

- 2 Styles
- > 15 Dimensions
- Ø 6–34 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	0,8	1,2
Oscillating	0,6	1
Linear	3,5	5

Price index

Products of iglidur® A180 comply with the requirements of the FDA for repeated contact with food

When to use iglidur® A180?

- If my bearings have direct contact with food
- If FDA-compliance is required
- If quiet operation is important
- If low water absorbtion is needed

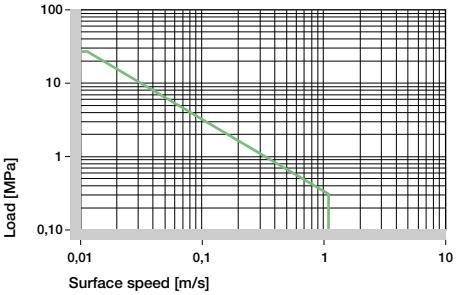
When not to use iglidur® A180?

- When the maximum abrasion resistance is necessary ▶ **iglidur® W300** page 1.54
- When temperatures are continously greater than 80°C ▶ **iglidur® A290** page 1.78, **A500** page 1.82
- When a cost-effective universal bearing is desired ▶ **iglidur® G** page 1.28

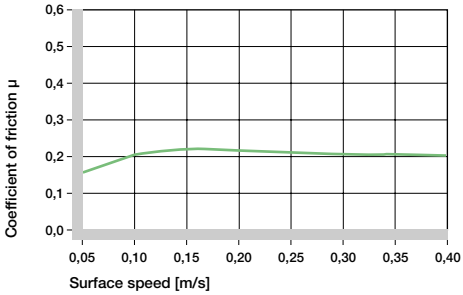
Material table

General properties	Unit	iglidur® A180	Testing method
Density	g/cm³	1,46	
Colour		withe	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,2	DIN 53495
Max. moisture absorption	% weight	1,3	
Coefficient of sliding friction, dynamic against steel	µ	0,05 - 0,23	
p x v value, max. (dry)	MPa x m/s	0,31	
Mechanical properties			
Modulus of elasticity	MPa	2.300	DIN 53457
Tensile strength at 20°C	MPa	88	DIN 53452
Compressive strength	MPa	54	
Max. static surface pressure (20°C)	MPa	28	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m x K	0,25	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	11	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

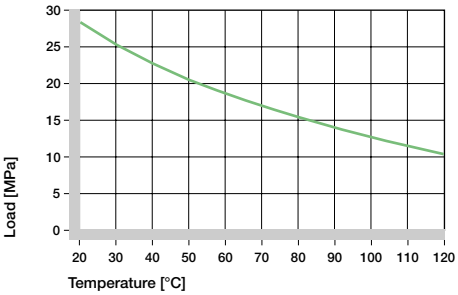
Permissible p x v values for iglidur® A180 running dry against a steel shaft, at 20°C



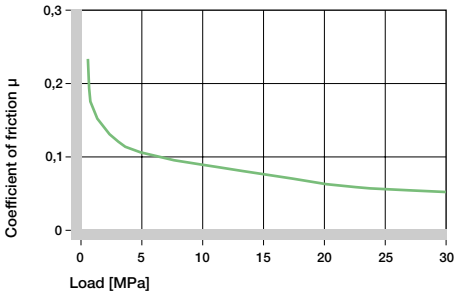
Coefficient of friction of iglidur® A180 as a function of the running speed, p = 0.75 MPa



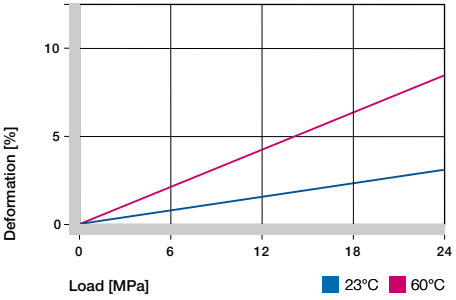
Recommended maximum surface pressure of iglidur® A180 as a function of temperature



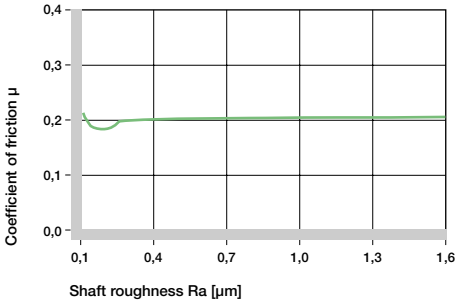
Coefficient of friction of iglidur® A180 as a function of the load, v = 0.01m/s



Deformation under load and temperature



Coefficients of frictionas a function of the shaft surface (shaft – cold rolled steel)



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mm

iglidur® A180 – Information and Technical Data

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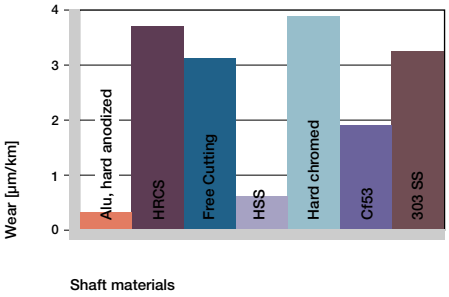
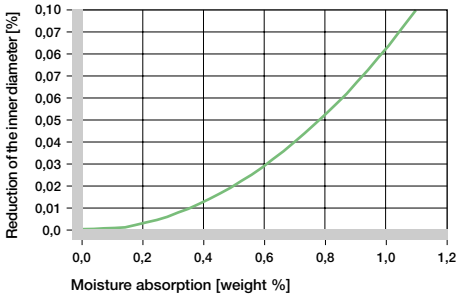
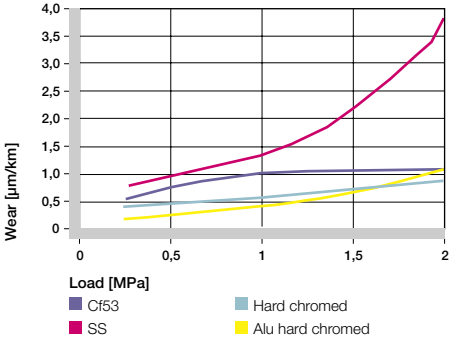
Wear of iglidur® A180, rotating application with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® A180 plain bearings



Wear of iglidur® A180 with different shaft materials in rotating applications



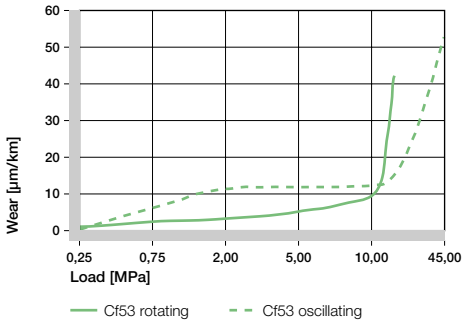
Electrical properties

iglidur® A180	
Specific volume resistance	> 10^{12} Ωcm
Surface resistance	> 10^{11} Ω

Essential tolerances for iglidur® A180 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A180 D11 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Wear of iglidur® A180 with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



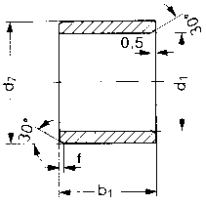
Chemical resistance of iglidur® A180

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ bis 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/a180**

iglidur® A180 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to DIN 1850 and special dimensions

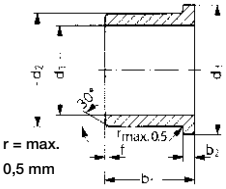
Structure – Part No.
A180 S M-06 08 - 10
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
A180SM-0608-10	6	8	10
A180SM-0810-10	8	10	10
A180SM-1012-10	10	12	10
A180SM-1214-15	12	14	15

Part No.	d1*	d2	b1 h13
A180SM-1618-15	16	18	15
A180SM-2023-20	20	23	20
A180SM-2528-30	25	28	30
A180SM-3034-20	30	34	20

* Standard tolerances for iglidur® A180: E10

iglidur® A180 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to DIN 1850 and special dimensions

Structure – Part No.
A180 FM-06 08 - 06
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1 h13	b2
A180FM-0608-06	6	8	12	6	1
A180FM-0810-10	8	10	15	10	1
A180FM-1012-10	10	12	18	10	1
A180FM-1214-15	12	14	20	15	1

Part No.	d1*	d2	d3	b1 h13	b2
A180FM-1618-17	16	18	24	17	1
A180FM-2023-21	20	23	30	21,5	1,5
A180FM-2528-21	25	28	35	21,5	1,5
A180FM-3034-26	30	34	42	26	2

* Standard tolerances for iglidur® A180: E10

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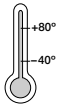
iglidur® A200 – Very Appetising

Products of iglidur® A200 comply with the requirements of the FDA for repeated contact with food. The iglidur® A200 bearings are an ideal solution for bearing applications in machines that manufacture consumables, pharmaceuticals, medical devices, small household appliances, etc.

Product range

- 3 Styles
- > 200 Dimensions
- Ø 1–32 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	0,8	1,5
Oscillating	0,8	1,5
Linear	2	3

Price index

Products of iglidur® A200 comply with the requirements of the FDA for repeated contact with food

When to use iglidur® A200

- Suitable for direct contact with food
- When quiet operation is important
- When dirt needs to become embedded
- iglidur® A200 material is made according to the requirements of the American Food and Drugs Administration (FDA)
- Good abrasion resistance
- For low speed, rotational, oscillating and linear movements

When not to use iglidur® A200

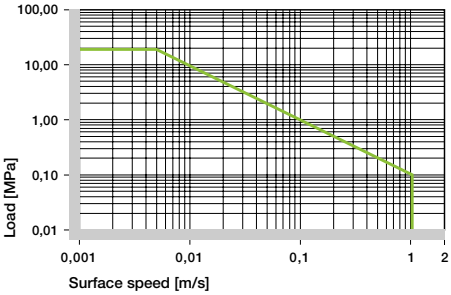
- When the maximum abrasion resistance is necessary ▶ **iglidur® W300** page 1.54
- When temperatures are continuously greater than 80 °C ▶ **iglidur® A290** page 1.78 **or A500** page 1.82
- When a cost-effective universal bearings is desired ▶ **iglidur® G** page 1.28

Material table

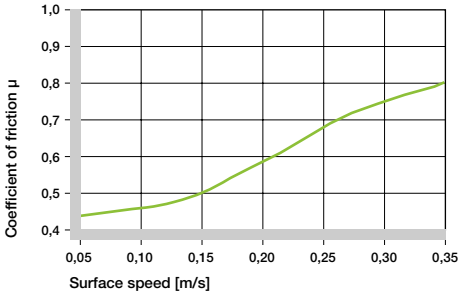
General properties	Unit	iglidur® A200	Testing method
Density	g/cm³	1,14	
Colour		white	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,5	DIN 53495
Max. moisture absorption	% weight	7,6	
Coefficient of sliding friction, dynamic against steel	µ	0,10 - 0,40	
p x v value, max. (dry)	MPa x m/s	0,09	
Mechanical properties			
Modulus of elasticity	MPa	2.500	DIN 53457
Tensile strength at 20°C	MPa	116	DIN 53452
Compressive strength	MPa	54	
Max. static surface pressure (20°C)	MPa	18	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	80	
Max. short term application temperature	°C	170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	> 10^{13}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/a200

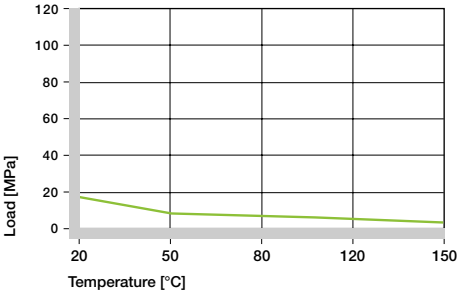
Permissible p x v values for iglidur® A200 running dry against a steel shaft, at 20°C



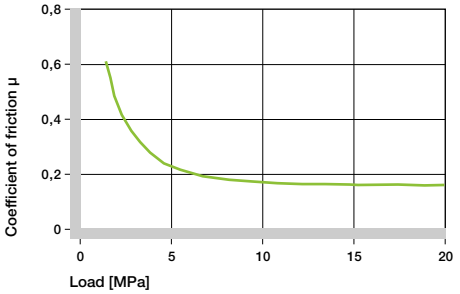
Coefficient of friction of iglidur® A200 as a function of the running speed, p = 0.75 MPa



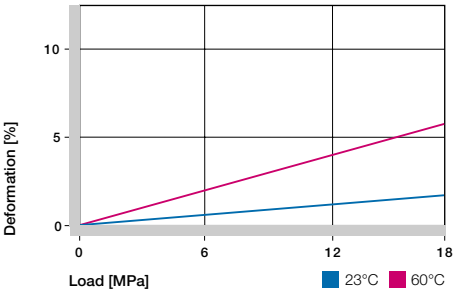
Recommended maximum surface pressure of iglidur® A200 as a function of temperature



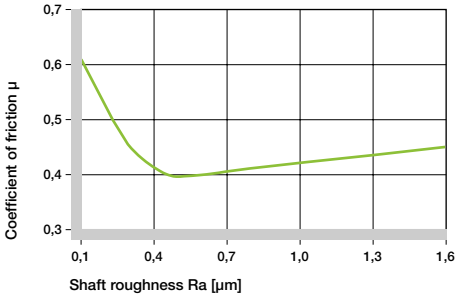
Coefficient of friction of iglidur® A200 as a function of the load, v = 0.01m/s



Deformation under load and temperature



Coefficients of frictionas a function of the shaft surface (shaft – cold rolled steel)



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mm

iglidur® A200 – Information and Technical Data

iglidur® A200
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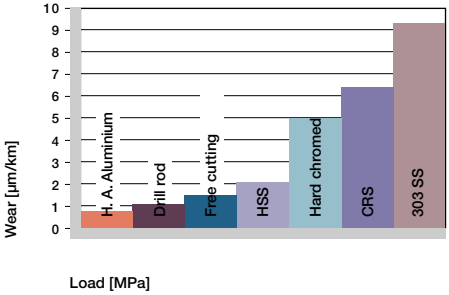
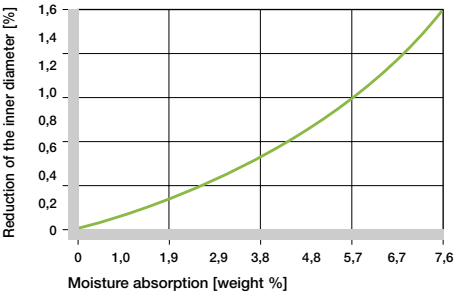
E-mail: info@igus.de

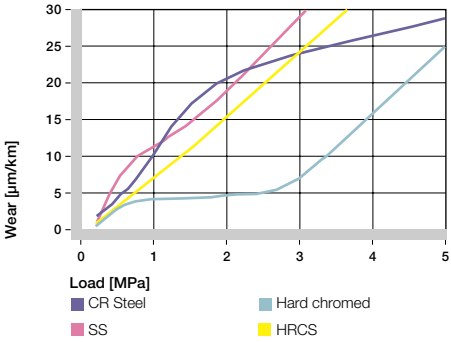
Rotating applications with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® A200 plain bearings



Wear with different shaft materials in rotational operation, as a function of the load



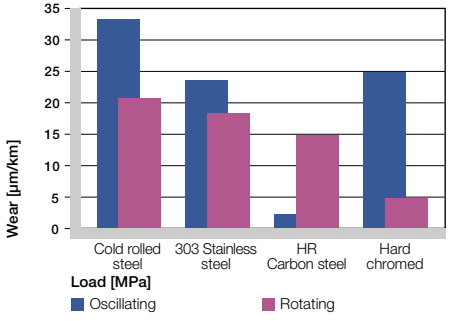
Electrical properties

iglidur® A200	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® A200 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A200 D11 [mm]
up to 3	0 - 0,025	+0,020 + 0,080
> 3 to 6	0 - 0,030	+0,030 + 0,105
> 6 to 10	0 - 0,036	+0,040 + 0,130
> 10 to 18	0 - 0,043	+0,050 + 0,160
> 18 to 30	0 - 0,052	+0,065 + 0,195
> 30 to 50	0 - 0,062	+0,080 + 0,240

Wear with different shaft materials, oscillating and rotating movement, p = 2 MPa



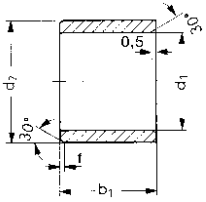
Chemical resistance of iglidur® A200

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/a200**

iglidur® A200 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to DIN 1850 and special dimensions

Structure – Part No.
A S M-01 03 - 02
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
ASM-0103-02	1,0	3,0	2,0
ASM-0104-02	1,5	4,0	2,0
ASM-0205-02	2,0	5,0	2,0
ASM-0205-03	2,0	5,0	3,0
ASM-0206-03	2,5	6,0	3,0
ASM-0305-03	3,0	5,0	3,0
ASM-0305-04	3,0	5,0	4,0
ASM-0306-03	3,0	6,0	3,0
ASM-0306-04	3,0	6,0	4,0
ASM-0407-03	4,0	7,0	3,0
ASM-0407-04	4,0	7,0	4,0
ASM-0407-06	4,0	7,0	6,0
ASM-0408-06	4,0	8,0	6,0
ASM-0508-04	5,0	8,0	4,0
ASM-0508-05	5,0	8,0	5,0
ASM-0508-08	5,0	8,0	8,0
ASM-0509-05	5,0	9,0	5,0
ASM-0509-08	5,0	9,0	8,0
ASM-0608-10	6,0	8,0	10,0
ASM-0609-06	6,0	9,0	6,0
ASM-0610-04	6,0	10,0	4,0
ASM-0610-06	6,0	10,0	6,0
ASM-0610-10	6,0	10,0	10,0
ASM-0612-06	6,0	12,0	6,0
ASM-0612-10	6,0	12,0	10,0
ASM-0710-05	7,0	10,0	5,0
ASM-0710-08	7,0	10,0	8,0
ASM-0810-06	8,0	10,0	6,0
ASM-0810-08	8,0	10,0	8,0
ASM-0810-10	8,0	10,0	10,0
ASM-0811-08	8,0	11,0	8,0
ASM-0811-12	8,0	11,0	12,0
ASM-0812-06	8,0	12,0	6,0
ASM-0812-08	8,0	12,0	8,0
ASM-0812-10	8,0	12,0	10,0
ASM-0812-12	8,0	12,0	12,0
ASM-0814-06	8,0	14,0	6,0
ASM-0814-10	8,0	14,0	10,0
ASM-0912-14	9,0	12,0	14,0
ASM-1014-06	10,0	14,0	6,0
ASM-1014-08	10,0	14,0	8,0
ASM-1014-10	10,0	14,0	10,0
ASM-1014-16	10,0	14,0	16,0
ASM-1016-06	10,0	16,0	6,0
ASM-1016-10	10,0	16,0	10,0
ASM-1016-16	10,0	16,0	16,0

Part No.	d1*	d2	b1 h13
ASM-1214-20	12,0	14,0	20,0
ASM-1216-15	12,0	16,0	15,0
ASM-1216-20	12,0	16,0	20,0
ASM-1218-08	12,0	18,0	8,0
ASM-1218-10	12,0	18,0	10,0
ASM-1218-15	12,0	18,0	15,0
ASM-1218-20	12,0	18,0	20,0
ASM-1416-10	14,0	16,0	10,0
ASM-1416-15	14,0	16,0	15,0
ASM-1416-20	14,0	16,0	20,0
ASM-1420-10	14,0	20,0	10,0
ASM-1420-15	14,0	20,0	15,0
ASM-1420-20	14,0	20,0	20,0
ASM-1517-10	15,0	17,0	10,0
ASM-1517-15	15,0	17,0	15,0
ASM-1521-10	15,0	21,0	10,0
ASM-1521-15	15,0	21,0	15,0
ASM-1521-20	15,0	21,0	20,0
ASM-1618-12	16,0	18,0	12,0
ASM-1618-20	16,0	18,0	20,0
ASM-1620-20	16,0	20,0	20,0
ASM-1620-25	16,0	20,0	25,0
ASM-1622-12	16,0	22,0	12,0
ASM-1622-15	16,0	22,0	15,0
ASM-1622-16	16,0	22,0	16,0
ASM-1622-20	16,0	22,0	20,0
ASM-1622-25	16,0	22,0	25,0
ASM-1824-12	18,0	24,0	12,0
ASM-1824-20	18,0	24,0	20,0
ASM-1824-30	18,0	24,0	30,0
ASM-2023-15	20,0	23,0	15,0
ASM-2023-20	20,0	23,0	20,0
ASM-2025-20	20,0	25,0	20,0
ASM-2025-30	20,0	25,0	30,0
ASM-2026-15	20,0	26,0	15,0
ASM-2026-20	20,0	26,0	20,0
ASM-2026-30	20,0	26,0	30,0
ASM-2226-15	22,0	26,0	15,0
ASM-2228-10	22,0	28,0	10,0
ASM-2228-15	22,0	28,0	15,0
ASM-2228-20	22,0	28,0	20,0
ASM-2228-30	22,0	28,0	30,0
ASM-2430-15	24,0	30,0	15,0
ASM-2430-20	24,0	30,0	20,0
ASM-2430-30	24,0	30,0	30,0
ASM-2528-12	25,0	28,0	12,0

* Standard tolerances for iglidur® A200: D11

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/a200

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mm

iglidur® A200 – Sleeve Bearing – Type S

Part No.	d1*	d2	b1 h13
ASM-2528-20	25,0	28,0	20,0
ASM-2530-20	25,0	30,0	20,0
ASM-2530-30	25,0	30,0	30,0
ASM-2530-40	25,0	30,0	40,0
ASM-2532-20	25,0	32,0	20,0
ASM-2532-30	25,0	32,0	30,0
ASM-2532-40	25,0	32,0	40,0
ASM-2630-20	26,0	30,0	20,0
ASM-2632-30	26,0	32,0	30,0
ASM-2734-20	27,0	34,0	20,0
ASM-2734-30	27,0	34,0	30,0
ASM-2734-40	27,0	34,0	40,0
ASM-2833-20	28,0	33,0	20,0
ASM-2836-20	28,0	36,0	20,0
ASM-2836-30	28,0	36,0	30,0
ASM-2836-40	28,0	36,0	40,0
ASM-3038-20	30,0	38,0	20,0
ASM-3038-30	30,0	38,0	30,0
ASM-3038-40	30,0	38,0	40,0
ASM-3240-20	32,0	40,0	20,0
ASM-3240-30	32,0	40,0	30,0
ASM-3240-40	32,0	40,0	40,0

* Standard tolerances for iglidur® A200: D11

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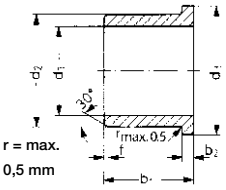
iglidur® A200 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30

Chamfer in relation to the d1.

Dimensions according to DIN 1850 and special dimensions

Structure – Part No.

A F M-01 03 - 02

- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
AFM-0103-02	1,0	3,0	5,0	2,0	1,0
AFM-0104-02	1,5	4,0	6,0	2,0	1,0
AFM-0205-03	2,0	5,0	8,0	3,0	1,5
AFM-0206-03	2,5	6,0	9,0	3,0	1,5
AFM-0306-04	3,0	6,0	9,0	4,0	1,5
AFM-0408-04	4,0	8,0	12,0	4,0	2,0
AFM-0408-06	4,0	8,0	12,0	6,0	2,0
AFM-0507-05	5,0	7,0	11,0	5,0	1,0
AFM-0509-05	5,0	9,0	13,0	5,0	2,0
AFM-0509-06	5,0	9,0	13,0	6,0	2,0
AFM-0509-08	5,0	9,0	13,0	8,0	2,0
AFM-0610-04	6,0	10,0	14,0	4,0	2,0
AFM-0610-06	6,0	10,0	14,0	6,0	2,0
AFM-0610-10	6,0	10,0	14,0	10,0	2,0
AFM-0612-06	6,0	12,0	14,0	6,0	3,0
AFM-0612-10	6,0	12,0	14,0	10,0	3,0
AFM-0711-08	7,0	11,0	15,0	8,0	2,0
AFM-0811-08	8,0	11,0	13,0	8,0	2,0
AFM-0812-06	8,0	12,0	16,0	6,0	2,0
AFM-0812-08	8,0	12,0	16,0	8,0	2,0
AFM-0812-12	8,0	12,0	16,0	12,0	2,0
AFM-0812-22	8,0	12,0	16,0	22,0	2,0
AFM-0814-06	8,0	14,0	18,0	6,0	3,0
AFM-0814-10	8,0	14,0	18,0	10,0	3,0
AFM-0914-06	9,0	14,0	19,0	6,0	2,0
AFM-0914-10	9,0	14,0	19,0	10,0	2,0
AFM-0914-14	9,0	14,0	19,0	14,0	2,0
AFM-1016-06	10,0	16,0	22,0	6,0	3,0
AFM-1016-08	10,0	16,0	22,0	8,0	3,0
AFM-1016-10	10,0	16,0	22,0	10,0	3,0
AFM-1016-16	10,0	16,0	22,0	16,0	3,0
AFM-101620-10	10,0	16,0	20,0	10,0	3,0
AFM-1218-08	12,0	18,0	24,0	8,0	3,0
AFM-1218-10	12,0	18,0	22,0	10,0	3,0
AFM-1218-12	12,0	18,0	24,0	12,0	3,0
AFM-1218-15	12,0	18,0	22,0	15,0	3,0
AFM-1218-20	12,0	18,0	22,0	20,0	3,0
AFM-1420-10	14,0	20,0	25,0	10,0	3,0

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
AFM-1420-15	14,0	20,0	25,0	15,0	3,0
AFM-1420-20	14,0	20,0	25,0	20,0	3,0
AFM-1521-10	15,0	21,0	27,0	10,0	3,0
AFM-1521-15	15,0	21,0	27,0	15,0	3,0
AFM-1521-20	15,0	21,0	27,0	20,0	3,0
AFM-1521-25	15,0	21,0	27,0	25,0	3,0
AFM-1622-12	16,0	22,0	28,0	12,0	3,0
AFM-1622-15	16,0	22,0	28,0	15,0	3,0
AFM-1622-20	16,0	22,0	28,0	20,0	3,0
AFM-1622-25	16,0	22,0	28,0	25,0	3,0
AFM-1824-12	18,0	24,0	30,0	12,0	3,0
AFM-1824-18	18,0	24,0	30,0	18,0	3,0
AFM-1824-20	18,0	24,0	30,0	20,0	3,0
AFM-1824-30	18,0	24,0	30,0	30,0	3,0
AFM-2026-15	20,0	26,0	32,0	15,0	3,0
AFM-2026-20	20,0	26,0	32,0	20,0	3,0
AFM-2026-30	20,0	26,0	32,0	30,0	3,0
AFM-2228-15	22,0	28,0	34,0	15,0	3,0
AFM-2228-20	22,0	28,0	34,0	20,0	3,0
AFM-2228-30	22,0	28,0	34,0	30,0	3,0
AFM-2430-15	24,0	30,0	36,0	15,0	3,0
AFM-2430-20	24,0	30,0	36,0	20,0	3,0
AFM-2430-30	24,0	30,0	36,0	30,0	3,0
AFM-2532-20	25,0	32,0	38,0	20,0	4,0
AFM-2532-30	25,0	32,0	38,0	30,0	4,0
AFM-2532-40	25,0	32,0	38,0	40,0	4,0
AFM-2734-20	27,0	34,0	40,0	20,0	4,0
AFM-2734-30	27,0	34,0	40,0	30,0	4,0
AFM-2734-40	27,0	34,0	40,0	40,0	4,0
AFM-2836-20	28,0	36,0	42,0	20,0	4,0
AFM-2836-30	28,0	36,0	42,0	30,0	4,0
AFM-2836-40	28,0	36,0	42,0	40,0	4,0
AFM-3038-20	30,0	38,0	44,0	20,0	4,0
AFM-3038-30	30,0	38,0	44,0	30,0	4,0
AFM-3038-40	30,0	38,0	44,0	40,0	4,0
AFM-3240-20	32,0	40,0	46,0	20,0	4,0
AFM-3240-30	32,0	40,0	46,0	30,0	4,0
AFM-3240-40	32,0	40,0	46,0	40,0	4,0

* Standard tolerances for iglidur® A200: D11

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iglidur® A290 – Very Appetising

iglidur® A290 bearings are a further development for use in the food and pharmaceutical industry. Compared to bearings made of the material iglidur® A200 the tribological properties are considerably improved.

Product range

- 2 Styles
- > 25 Dimensions
- Ø 3–50 mm

+140°
-40°

Max. running speed

[m/s]	Continuous	Short term
Rotating	0,8	1,5
Oscillating	1	1,5
Linear	3	4

Price index

BfR (Bundesinstitut für Risikobewertung, Allemagne)

The material iglidur® A290 complies with the requirements of the BfR for contact with food

When to use iglidur® A290

- In direct contact with foodstuffs
- At low speeds
- When silent running is important
- When the bearing must be physiologically harmless
- For good abrasion resistance
- For very good tribological properties

When not to use iglidur® A290

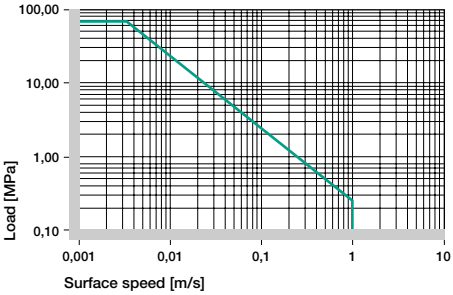
- When FDA compliance is required ▶ **iglidur® A200** page 1.72, **A500** page 1.82
- When the highest wear resistance is required ▶ **iglidur® W300** page 1.54
- When continuous temperatures of over 140°C are required ▶ **iglidur® H** page 1.90, **X** page 1.62, **A500** page 1.82
- When a low cost universal bearing is required ▶ **iglidur® G** page 1.28

Material table

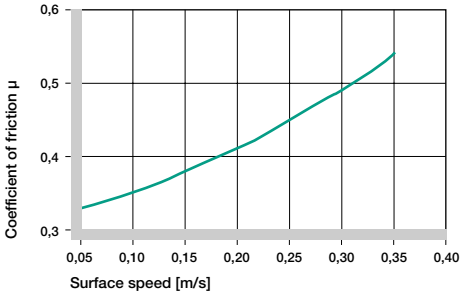
General properties	Unit	iglidur® A290	Testing method
Density	g/cm³	1,41	
Colour		white	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,7	DIN 53495
Max. moisture absorption	% weight	7,3	
Coefficient of sliding friction, dynamic against steel	µ	0,13 - 0,40	
p x v value, max. (dry)	MPa x m/s	0,23	
Mechanical properties			
Modulus of elasticity	MPa	8.800	DIN 53457
Tensile strength at 20°C	MPa	250	DIN 53452
Compressive strength	MPa	91	
Max. static surface pressure (20°C)	MPa	70	
Shore D hardness		88	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	140	
Max. short term application temperature	°C	180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	7	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$> 10^{11}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/a290

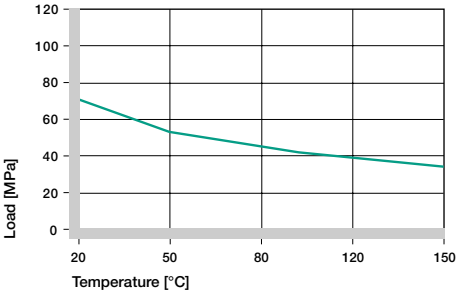
Permissible p x v values for iglidur® A290 running dry against a steel shaft at 20°C



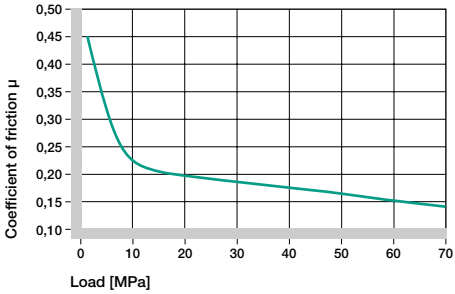
Coefficients of friction for iglidur® A290 as a function of the surface speed, p = 0.75 MPa



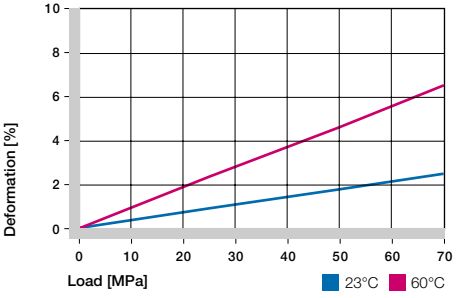
Recommended maximum surface pressure of iglidur® A290 as a function of temperature



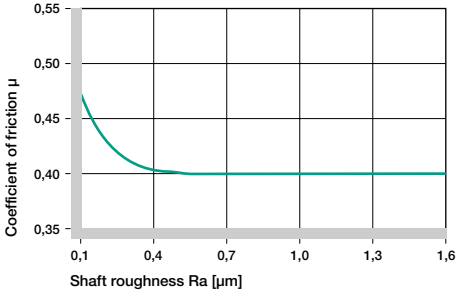
Coefficients of friction of iglidur® A290 as a function of the load, v = 0.01 m/s



Deformation under load and temperature

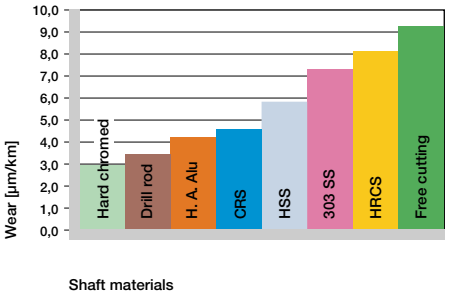


Coefficients of friction as a function of the shaft surface (shaft – cold rolled steel)

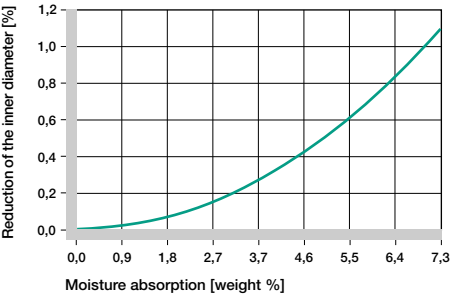


iglidur® A290 – Information and Technical Data

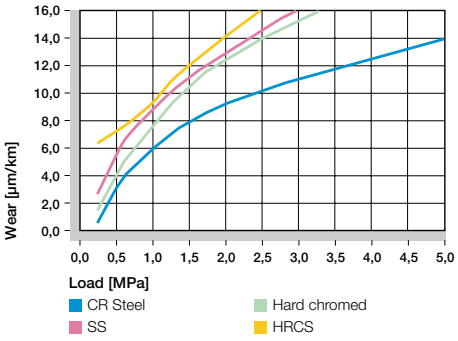
Rotating application with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® A290 plain bearings



Wear of iglidur® A290 with different shaft materials in rotating applications



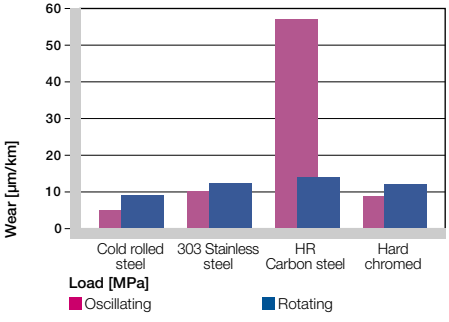
Electrical properties

iglidur® A290	
Specific volume resistance	> 10^{11} Ωcm
Surface resistance	> 10^{11} Ω

Essential tolerances for iglidur® A290 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A290 D11 [mm]
up to 3	0 - 0,025	+0,020 + 0,080
> 3 to 6	0 - 0,030	+0,030 + 0,105
> 6 to 10	0 - 0,036	+0,040 + 0,130
> 10 to 18	0 - 0,043	+0,050 + 0,160
> 18 to 30	0 - 0,052	+0,065 + 0,195
> 30 to 50	0 - 0,062	+0,080 + 0,240

Wear with different shaft materials, oscillating and rotating



Chemical resistance of iglidur® A290

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

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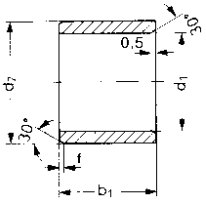
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/a290**

iglidur® A290 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

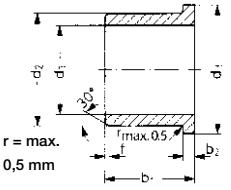
Structure – Part No.
A290 S M-03 04 - 03
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
A290SM-0304-03	3,0	4,5	3,0
A290SM-0405-04	4,0	5,5	4,0
A290SM-0507-05	5,0	7,0	5,0
A290SM-0608-06	6,0	8,0	6,0
A290SM-0810-08	8,0	10,0	8,0
A290SM-1012-10	10,0	12,0	10,0
A290SM-1214-15	12,0	14,0	15,0
A290SM-1517-15	15,0	17,0	15,0

Part No.	d1*	d2	b1 h13
A290SM-1618-15	16,0	18,0	15,0
A290SM-1820-15	18,0	20,0	15,0
A290SM-2023-20	20,0	23,0	20,0
A290SM-2528-20	25,0	28,0	20,0
A290SM-3034-30	30,0	34,0	30,0
A290SM-3539-40	35,0	39,0	40,0
A290SM-4044-50	40,0	44,0	50,0
A290SM-5055-40	50,0	55,0	40,0

* Standard tolerances for iglidur® A290: D11

iglidur® A290 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
A290 FM-04 05 - 04
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
A290FM-0405-04	4,0	5,5	9,5	4	0,75
A290FM-0507-05	5,0	7,0	11,0	5	1,00
A290FM-0608-08	6,0	8,0	12,0	8	1,00
A290FM-0810-09	8,0	10,0	15,0	9	1,00
A290FM-1012-09	10,0	12,0	18,0	9	1,00
A290FM-1214-12	12,0	14,0	20,0	12	1,00
A290FM-1517-17	15,0	17,0	23,0	17	1,00
A290FM-1618-17	16,0	18,0	24,0	17	1,00

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
A290FM-1820-17	18,0	20,0	26,0	17	1,00
A290FM-2023-21	20,0	23,0	30,0	21	1,50
A290FM-2528-21	25,0	28,0	35,0	21	1,50
A290FM-3034-26	30,0	34,0	42,0	26	2,00
A290FM-3539-26	35,0	39,0	47,0	26	2,00
A290FM-4044-40	40,0	44,0	52,0	40	2,00
A290FM-5055-40	50,0	55,0	63,0	40	2,00

* Standard tolerances for iglidur® A290: D11

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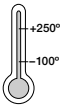
mm

iglidur® A500 – Very Appetising

Polymer bearings made from iglidur® A500 can be exposed to extremely high temperatures. Products of iglidur® A500 comply with the requirements of the FDA for repeated contact with food. They have an exceptional resistance to chemicals and are therefore appropriate for medical equipment.

Product range

- 1 Style (more upon request)
- > 5 Dimensions
- Ø 4–30 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	0,6	1
Oscillating	0,6	1
Linear	1	2

Price index

Pneumatic lifting device for aseptic filling machines. Bearing materials with special properties like low friction in dry operation, chemical resistance and low humidity absorbtion at the same time are perfectly suitable for the use in high-tech filling machines

The material iglidur® A500 complies with the requirements of the FDA for repeated contact with food

When to use iglidur® A500

- Suitable for direct contact with food and pharmaceuticals
- Resistant to high temperatures
- Good resistance to chemicals

When not to use iglidur® A500

- When the material's FDA-approval is not necessary ▶ **iglidur® X** page 1.62
- When temperatures are continously not greats than 80°C ▶ **iglidur® A200** page 1.72
- If temperatures permanently exceed 140°C ▶ **iglidur® H** page 1.90, **X** page 1.62 **or F** page 1.86

Material table

General properties	Unit	iglidur® A500	Testing method
Density	g/cm³	1,28	
Colour		brown	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,3	DIN 53495
Max. moisture absorption	% weight	0,5	
Mechanical properties			
Modulus of elasticity	MPa	3.600	DIN 53457
Tensile strength at 20°C	MPa	140	DIN 53452
Max. static surface pressure (20°C)	MPa	120	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	250	
Max. short term application temperature	°C	300	
Min. application temperature	°C	-100	
Electrical properties			
Specific volume resistance	Ω cm	> 10⁹	DIN IEC 93
Surface resistance	Ω	> 10⁹	DIN 53482

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/a500**

iglidur® A500
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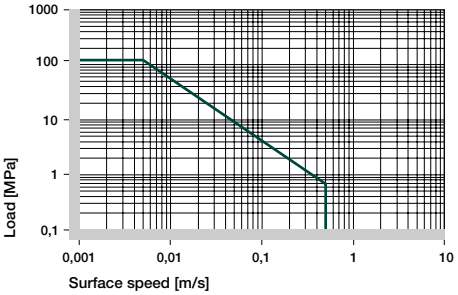
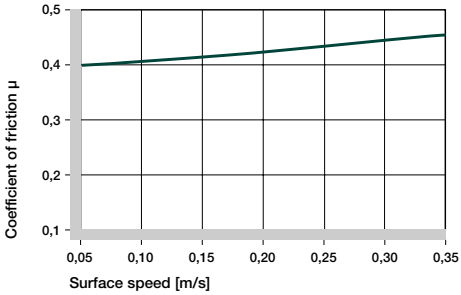
igus® GmbH
51147 Cologne
Internet: www.igus.de
E-mail: info@igus.de

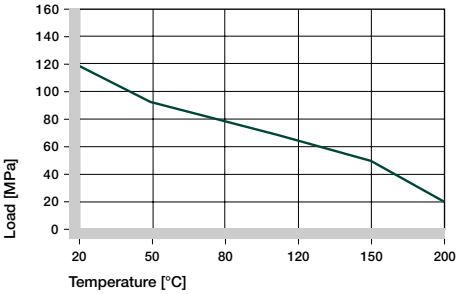
Permissible p x v values for iglidur® A500 running dry against a steel shaft at 20°C



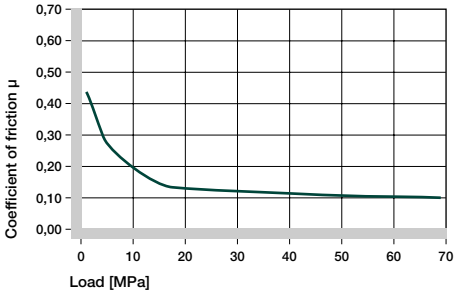
Coefficients of friction for iglidur® A500 as a function of the surface speed, p = 0.75 MPa



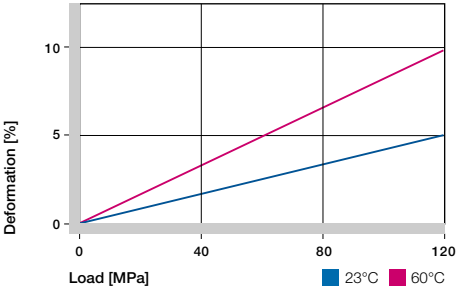
Recommended maximum surface pressure of iglidur® A500 as a function of temperature



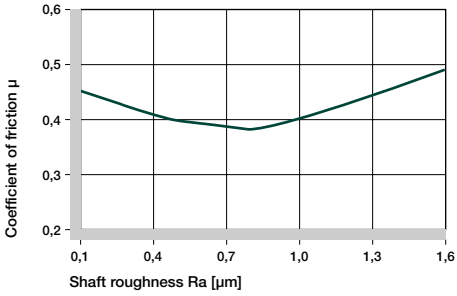
Coefficients of friction of iglidur® A500 as a function of the load, v = 0.01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft – cold rolled steel)



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mm

iglidur® A500 – Information and Technical Data

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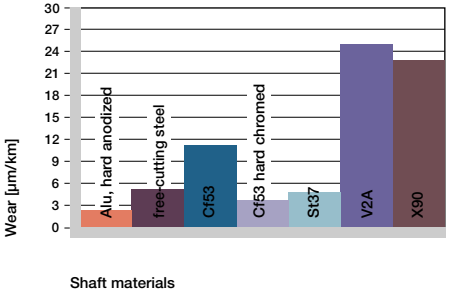
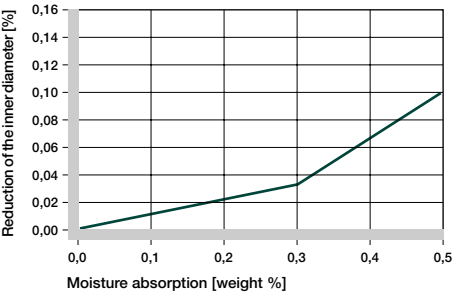
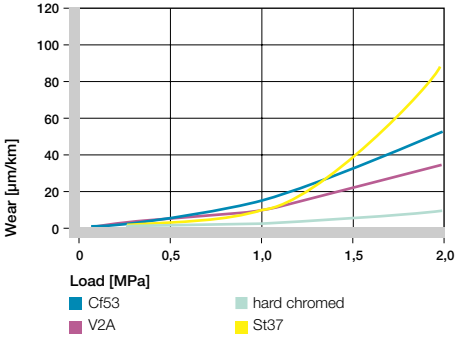
Wear of iglidur® A500, rotating application with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Effect of moisture absorption on iglidur® A500 plain bearings



Wear of iglidur® A500 with different shaft materials in rotating applications



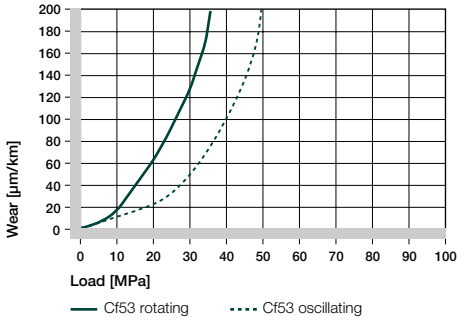
Electrical properties

iglidur® A500	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® A500 bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A500 F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,030 + 0,150

Wear of iglidur® A500 with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



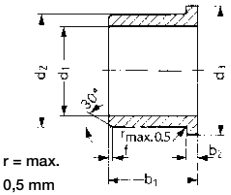
Chemical resistance of iglidur® A500

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

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20 °C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/a500**

iglidur® A500 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

A500 F M-04 05 - 04

- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
A500FM-0405-04	4,0	5,0	9,5	4,0	0,75
A500FM-0608-06	6,0	8,0	12,0	6,0	1,0
A500FM-0810-10	8,0	10,0	15,0	10,0	1,0
A500FM-1012-15	10,0	12,0	18,0	15,0	1,0
A500FM-1214-15	12,0	14,0	20,0	15,0	1,0
A500FM-1517-17	15,0	17,0	23,0	17,0	1,0
A500FM-1618-17	16,0	18,0	24,0	17,0	1,0
A500FM-2023-21	20,0	23,0	30,0	21,0	1,5
A500FM-3034-40	30,0	34,0	42,0	40,0	2,0
A500FM-3539-40	35,0	39,0	47,0	40,0	2,0

* Standard tolerances for iglidur® A500: F10

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iglidur® F – The Lightning Conductor

When the electrical conductivity of plain bearings is important, i.e. applications in which electrostatic charging must not occur iglidur® F is the right choice. In addition, plain bearings made from iglidur® F are very resistant to pressure.

Product range

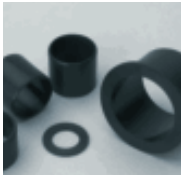
- 2 Styles
- > 150 Dimensions
- Ø 2–70 mm

+140°
-40°

Max. running speed

[m/s]	Continuous	Short term
Rotating	0,8	1,5
Oscillating	1	1,5
Linear	3	4

Price index



When to use iglidur® F

● When the electrical conductivity is especially important ● Good resistance to chemicals ● For high static loads ● For low to average speeds

When not to use iglidur® F

- When mechanical reaming of the wall surface is necessary ▶ **iglidur® M250** page 1.46
- When the highest wear resistance is required ▶ **iglidur® W300** page 1.54
- When very low coefficients of friction in the dry run are needed ▶ **iglidur® J** page 1.38 **or iglidur® X** page 1.62
- For underwater applications ▶ **iglidur® H370** page 1.98

Material table

General properties	Unit	iglidur® F	Testing method
Density	g/cm³	1,25	
Colour		black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,8	DIN 53495
Max. moisture absorption	% weight	8,4	
Coefficient of sliding friction, dynamic against steel	µ	0,10 - 0,39	
p x v value, max. (dry)	MPa x m/s	0,34	
Mechanical properties			
Modulus of elasticity	MPa	11.600	DIN 53457
Tensile strength at 20°C	MPa	260	DIN 53452
Compressive strength	MPa	98	
Max. static surface pressure (20°C)	MPa	105	
Shore D hardness		84	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	140	
Max. short term application temperature	°C	180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,65	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	12	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$< 10^3$	DIN IEC 93
Surface resistance	Ω	$< 10^2$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/f

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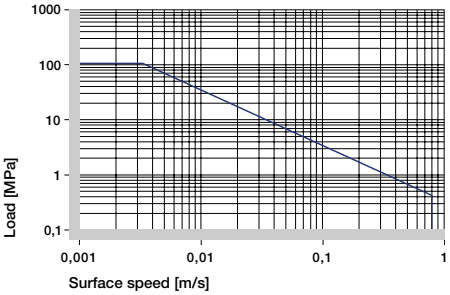
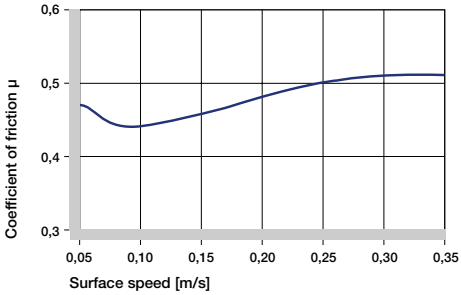
E-mail: info@igus.de

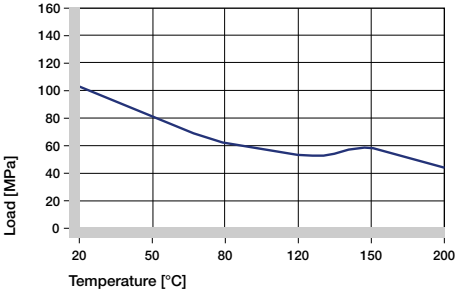
Permissible p x v values for iglidur® F running dry against a steel shaft, at 20°C



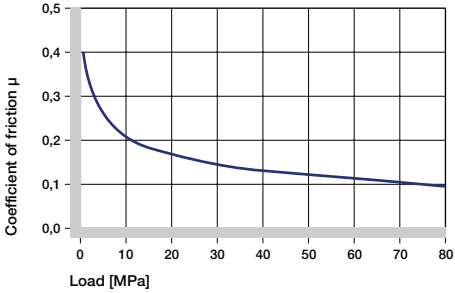
Coefficient of friction of iglidur® F as a function of the surface speed, p = 0,75 MPa



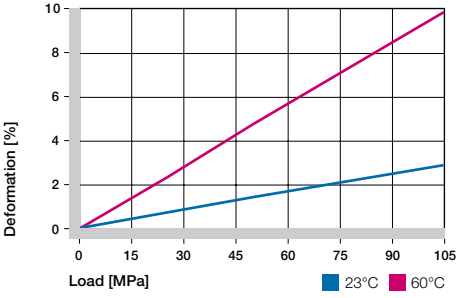
Recommended maximum surface pressure of iglidur® F as a function of temperature



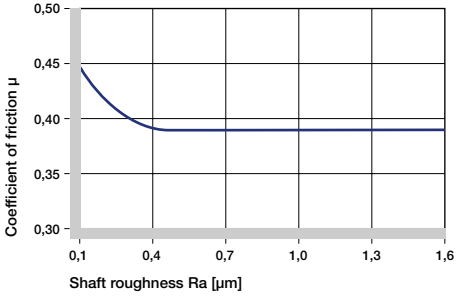
Coefficient of friction of iglidur® F as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficients of friction of iglidur® F as a function of the shaft surface (shaft cold rolled steel)



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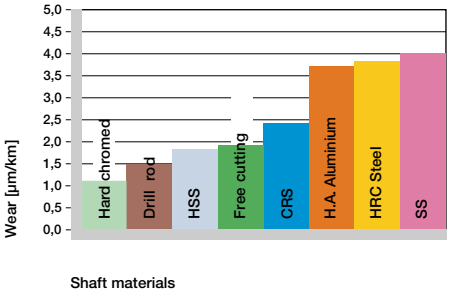
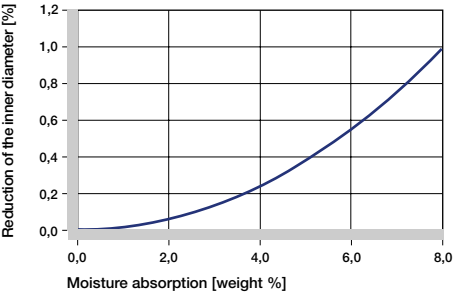
iglidur® F – Information and Technical Data

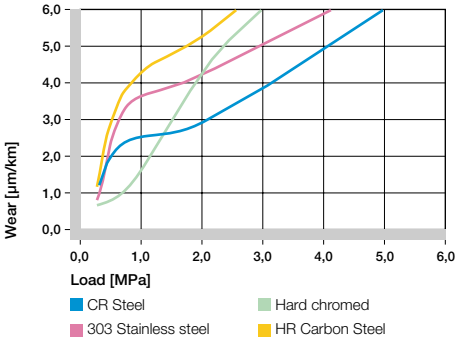
Wear – rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® F plain bearings



Wear of iglidur® F with different shaft materials in rotating applications



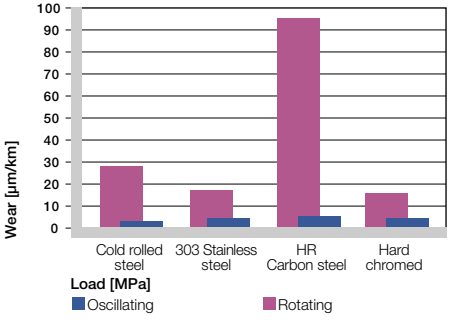
Electrical properties

iglidur® F	
Specific volume resistance	< 10^{11} Ωcm
Surface resistance	< 10^{11} Ω

Essential tolerances for iglidur® F plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® F D11 [mm]
up to 3	0 - 0,025	+0,020 + 0,080
> 3 to 6	0 - 0,030	+0,030 + 0,105
> 6 to 10	0 - 0,036	+0,040 + 0,130
> 10 to 18	0 - 0,043	+0,050 + 0,160
> 18 to 30	0 - 0,052	+0,065 + 0,195
> 30 to 50	0 - 0,062	+0,080 + 0,240

Wear of iglidur® F, with different shaft materials, oscillating and rotating, p = 2 MPa



Chemical resistance of iglidur® F

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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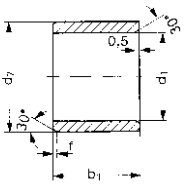
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/f**

iglidur® F – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

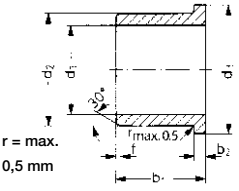
Structure – Part No.
F S M-02 03 - 03
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1 h13
FSM-0203-03	2,0	3,5	3,0
FSM-0304-03	3,0	4,5	3,0
FSM-0405-04	4,0	5,5	4,0
FSM-0507-05	5,0	7,0	5,0
FSM-0507-08	5,0	7,0	8,0
FSM-0608-06	6,0	8,0	6,0
FSM-0608-08	6,0	8,0	8,0
FSM-0608-10	6,0	8,0	10,0
FSM-0608-13	6,0	8,0	13,8
FSM-0709-10	7,0	9,0	10,0
FSM-0709-12	7,0	9,0	12,0
FSM-0810-10	8,0	10,0	10,0
FSM-0810-15	8,0	10,0	15,0
FSM-1012-06	10,0	12,0	6,0
FSM-1012-10	10,0	12,0	10,0
FSM-1214-10	12,0	14,0	10,0
FSM-1214-15	12,0	14,0	15,0
FSM-1416-15	14,0	16,0	15,0
FSM-1517-15	15,0	17,0	15,0
FSM-1517-20	15,0	17,0	20,0
FSM-1618-15	16,0	18,0	15,0
FSM-1820-15	18,0	20,0	15,0

Part No.	d1*	d2	b1 h13
FSM-1820-20	18,0	20.0	20,0
FSM-2022-14	20,0	22,0	14,5
FSM-2022-20	20,0	22,0	20,0
FSM-2023-15	20,0	23,0	15,0
FSM-2023-20	20,0	23,0	20,0
FSM-2225-15	22,0	25,0	15,0
FSM-2528-20	25,0	28,0	20,0
FSM-2832-20	28,0	32,0	20,0
FSM-2832-30	28,0	32,0	30,0
FSM-3034-20	30,0	34,0	20,0
FSM-3034-30	30,0	34,0	30,0
FSM-3034-40	30,0	34,0	40,0
FSM-3236-30	32,0	36,0	30,0
FSM-3539-30	35,0	39,0	30,0
FSM-3539-40	35,0	39,0	40,0
FSM-4044-30	40,0	44,0	30,0
FSM-4044-50	40,0	44,0	50,0
FSM-4550-50	45,0	50,0	50,0
FSM-5055-40	50,0	55,0	40,0
FSM-5560-50	55,0	60,0	50,0
FSM-6065-60	60,0	65,0	60,0

* Standard tolerances for iglidur® F: D11

iglidur® F – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
F F M-04 05 - 04
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
FFM-0405-04	4,0	5,5	9,5	4,0	0,75
FFM-0405-06	4,0	5,5	9,5	6,0	0,75
FFM-0507-05	5,0	7,0	11,0	5,0	1,0
FFM-0608-08	6,0	8,0	12,0	8,0	1,0
FFM-0810-06	8,0	10,0	15,0	6,0	1,0
FFM-0810-09	8,0	10,0	15,0	9,0	1,0
FFM-1012-06	10,0	12,0	18,0	6,0	1,0
FFM-1012-08	10,0	12,0	15,0	8,0	1,0
FFM-1012-09	10,0	12,0	18,0	9,0	1,0
FFM-1012-15	10,0	12,0	18,0	15,0	1,0
FFM-1012-18	10,0	12,0	18,0	18,0	1,0
FFM-1214-09	12,0	14,0	20,0	9,0	1,0
FFM-1214-12	12,0	14,0	20,0	12,0	1,0
FFM-1416-12	14,0	16,0	22,0	12,0	1,0
FFM-1416-17	14,0	16,0	22,0	17,0	1,0
FFM-1517-12	15,0	17,0	23,0	12,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
FFM-1517-17	15,0	17,0	23,0	17,0	1,0
FFM-1618-17	16,0	18,0	24,0	17,0	1,0
FFM-1820-12	18,0	20,0	26,0	12,0	1,0
FFM-1820-17	18,0	20,0	26,0	17,0	1,0
FFM-2023-21	20,0	23,0	30,0	21,0	1,5
FFM-2528-21	25,0	28,0	35,0	21,0	1,5
FFM-3034-26	30,0	34,0	42,0	26,0	2,0
FFM-3236-26	32,0	36,0	45,0	26,0	2,0
FFM-3539-26	35,0	36,0	47,0	26,0	2,0
FFM-4044-30	40,0	44,0	52,0	30,0	2,0
FFM-4044-40	40,0	44,0	52,0	40,0	2,0
FFM-4550-50	45,0	50,0	58,0	50,0	2,0
FFM-5055-40	50,0	55,0	63,0	40,0	2,0
FFM-6065-40	60,0	65,0	73,0	40,0	2,0
FFM-7075-40	70,0	75,0	83,0	40,0	2,0

* Standard tolerances for iglidur® F: D11

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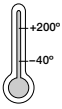
mm

iglidur® H – For Wet Environments

iglidur® H is a fibres reinforced thermoplastic material that was developed especially for applications in high humidity or underwater. Plain bearings made from iglidur® H can be used completely lubricant free. In wet areas, the surrounding medium functions as an additional lubricant.

Product range

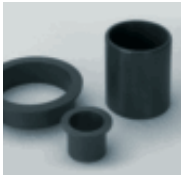
- 2 Styles
- > 50 Dimensions
- Ø 3–70 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1	1,5
Oscillating	1,5	2
Linear	3	4

Price index



When to use iglidur® H

- Ability to perform underwater
- For high temperatures
- Resistant to chemicals

When not to use iglidur® H

- When high wear resistance is required ▶ **iglidur® H370** page 1.98
- When highest universal resistance to chemicals is needed ▶ **iglidur® X** page 1.62
- For the maximum pressure at higher temperatures ▶ **iglidur® X** page 1.62 **or Z** page 1.126

Material table

General properties	Unit	iglidur® H	Testing method
Density	g/cm³	1,64	
Colour		grey	
Max. moisture absorption at 23°C / 50% r.F.	% weight	< 0,1	DIN 53495
Max. moisture absorption	% weight	0,3	
Coefficient of sliding friction, dynamic against steel	µ	0,07 - 0,20	
p x v value, max. (dry)	MPa x m/s	1,37	
Mechanical properties			
Modulus of elasticity	MPa	12.500	DIN 53457
Tensile strength at 20°C	MPa	175	DIN 53452
Compressive strength	MPa	81	
Max. static surface pressure (20°C)	MPa	90	
Shore D hardness		87	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	200	
Max. short term application temperature	°C	240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,6	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	4	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$< 10^{6}$	DIN IEC 93
Surface resistance	Ω	$< 10^{2}$	DIN 53482

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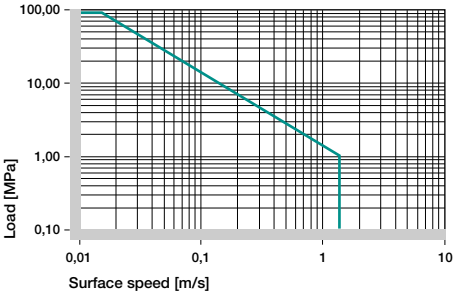
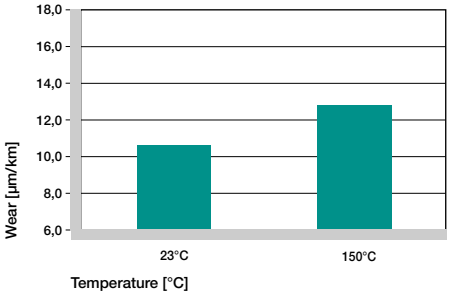
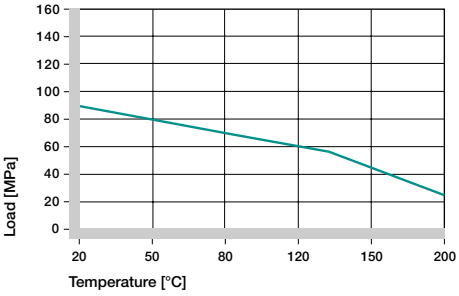
Permissible p x v values for iglidur® H running dry against a steel shaft, at 20°C



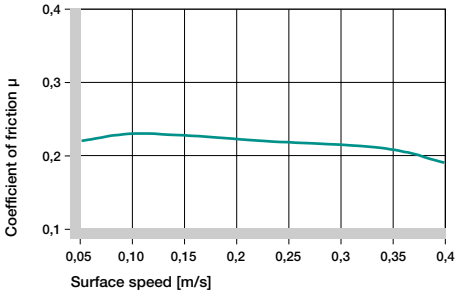
Wear as a function of the temperature; rotation with p = 0,75 MPa and v = 0,5 m/s



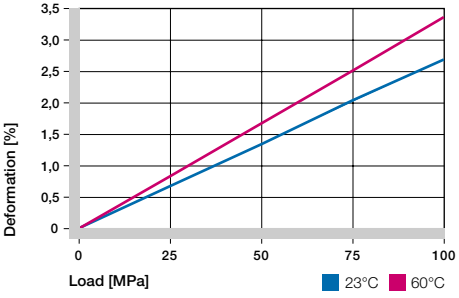
Recommended maximum surface pressure of iglidur® H as a function of temperature



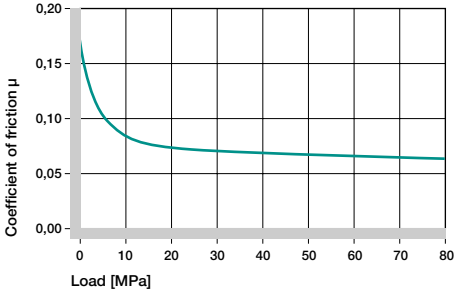
Coefficients of friction as a function of the surface speed, p = 0,75 MPa



Deformation under load and temperature



Coefficients of friction as a function of the load, v = 0,01 m/s



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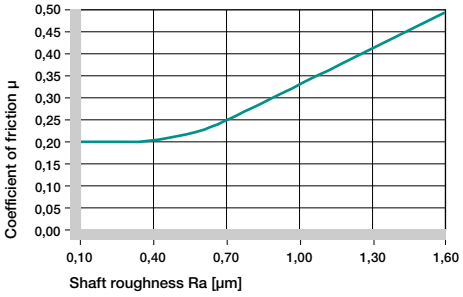
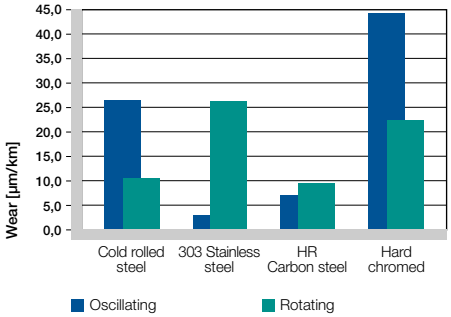
iglidur® H – Information and Technical Data

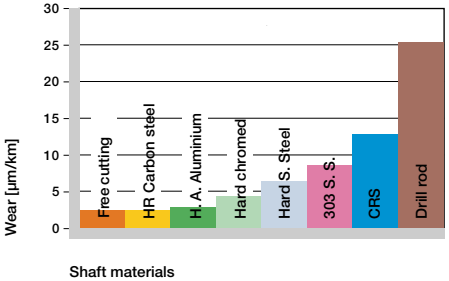
Coefficient of friction of iglidur® H as a function of the shaft surface



Wear of iglidur® H for oscillating and rotating applications with different shaft materials



Wear of iglidur® H, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



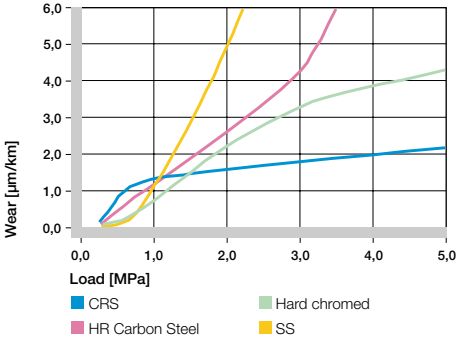
Electrical properties

iglidur® H	
Specific volume resistance	< 10^{5} Ωcm
Surface resistance	< 10^{2} Ω

Essential tolerances for iglidur® H plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,025 + 0,125
> 50 to 80	0 - 0,074	+0,030 + 0,150

Wear of iglidur® H with different shaft materials in rotating applications



Chemical resistance of iglidur® H

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	+ to 0
Strong acids	+ to –
Weak alkaline	+
Strong alkaline	+

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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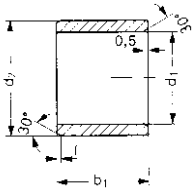
iglidur® H – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

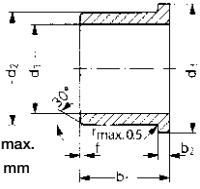
Structure – Part No.
H S M-03 04 - 03
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
HSM-0304-03	3,0	4,5	3,0
HSM-0405-04	4,0	5,5	4,0
HSM-0507-05	5,0	7,0	5,0
HSM-0608-03	6,0	8,0	3,0
HSM-0608-06	6,0	8,0	6,0
HSM-0810-08	8,0	10,0	8,0
HSM-0810-10	8,0	10,0	10,0
HSM-1012-06	10,0	12,0	10,0
HSM-1012-10	10,0	12,0	10,0
HSM-1214-10	12,0	14,0	10,0
HSM-1214-15	12,0	14,0	15,0
HSM-1214-20	12,0	14,0	20,0
HSM-1416-20	14,0	16,0	20,0
HSM-1517-15	15,0	17,0	15,0
HSM-1618-15	16,0	18,0	15,0
HSM-1618-20	16,0	18,0	20,0
HSM-1618-25	16,0	18,0	25,0
HSM-1820-15	18,0	20,0	15,0

Part No.	d1*	d2	b1 h13
HSM-1820-25	18,0	20,0	25,0
HSM-2023-20	20,0	23,0	20,0
HSM-2225-20	22,0	25,0	20,0
HSM-2528-15	25,0	28,0	15,0
HSM-2528-20	25,0	28,0	20,0
HSM-3034-20	30,0	34,0	20,0
HSM-3034-30	30,0	34,0	30,0
HSM-3034-40	30,0	34,0	40,0
HSM-3236-30	32,0	36,0	30,0
HSM-3539-40	35,0	39,0	40,0
HSM-4044-20	40,0	44,0	20,0
HSM-4044-50	40,0	44,0	50,0
HSM-4550-30	45,0	50,0	30,0
HSM-5055-40	50,0	55,0	40,0
HSM-5560-26	55,0	60,0	26,0
HSM-6065-60	60,0	65,0	60,0
HSM-7075-50	70,0	70,0	50,0

* Standard tolerances for iglidur® H: F10

iglidur® H – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
H F M-04 05 - 04
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
HFM-0405-04	4,0	5,5	9,5	4,0	0,75
HFM-0507-05	5,0	7,0	11,0	5,0	1,0
HFM-0507-08	5,0	7,0	11,0	8,0	1,0
HFM-0608-04	6,0	8,0	12,0	4,0	1,0
HFM-0608-06	6,0	8,0	12,0	6,0	1,0
HFM-0810-07	8,0	10,0	15,0	7,0	1,0
HFM-0810-10	8,0	10,0	15,0	10,0	1,0
HFM-0810-15	8,0	10,0	15,0	15,0	1,0
HFM-1012-04	10,0	12,0	18,0	4,0	1,0
HFM-1012-09	10,0	12,0	18,0	9,0	1,0
HFM-1012-15	10,0	12,0	18,0	15,0	1,0
HFM-1012-20	10,0	12,0	18,0	20,0	1,0
HFM-1214-07	12,0	14,0	20,0	7,0	1,0
HFM-1214-10	12,0	14,0	20,0	10,0	1,0
HFM-1214-15	12,0	14,0	20,0	15,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
HFM-1416-12	14,0	16,0	22,0	12,0	1,0
HFM-1517-17	15,0	17,0	23,0	17,0	1,0
HFM-1618-17	16,0	18,0	24,0	17,0	1,0
HFM-1820-17	18,0	20,0	26,0	17,0	1,0
HFM-2023-16	20,0	23,0	30,0	16,5	1,5
HFM-2023-30	20,0	23,0	30,0	30,0	1,5
HFM-2528-30	25,0	28,0	35,0	30,0	1,5
HFM-2730-20	27,0	30,0	38,0	20,0	1,5
HFM-3034-40	30,0	34,0	42,0	40,0	2,0
HFM-3438-13	34,0	38,0	46,0	13,0	2,0
HFM-3539-26	35,0	39,0	47,0	26,0	2,0
HFM-4044-40	40,0	44,0	52,0	40,0	2,0
HFM-5055-50	50,0	55,0	63,0	50,0	2,0
HFM-6065-50	60,0	65,0	73,0	50,0	2,0
HFM-7075-50	70,0	75,0	83,0	50,0	2,0

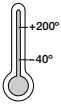
* Standard tolerances for iglidur® H: F10

iglidur® H4 – For Under Bonnet Applications

iglidur® H4 bearings show high static load acceptance, good wear resistance and good acceptance of high temperatures. At the same time, they are a cost effective solution for these challenges.

Product range

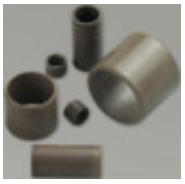
- 1 Style (more upon request)
- > 12 Dimensions
- Ø 6–40 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1	1,5
Oscillating	1	1,5
Linear	1	2

Price index



When to use iglidur® H4

- Applications with fuels, oils etc.
- If the temperature resistance of iglidur® G is not sufficient
- When high wear resistance is required

When not to use iglidur® H4

- When the highest wear resistance is required ▶ **iglidur® W300** page 1.54
- When a cost-effective universal bearing is required ▶ **iglidur® G** page 1.28
- Underwater use ▶ **iglidur® H370** page 1.98

Material table

General properties	Unit	iglidur® H4	Testing method
Density	g/cm³	1,79	
Colour		brown	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,1	DIN 53495
Max. moisture absorption	% weight	0,2	
Mechanical properties			
Modulus of elasticity	MPa	7.500	DIN 53457
Tensile strength at 20°C	MPa	120	DIN 53452
Max. static surface pressure (20°C)	MPa	65	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	200	
Max. short term application temperature	°C	240	
Max. short term ambient temperature[1)]	°C	260	
Min. application temperature	°C	-40	
Electrical properties			
Specific volume resistance	Ω cm	> 10^{13}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/h4

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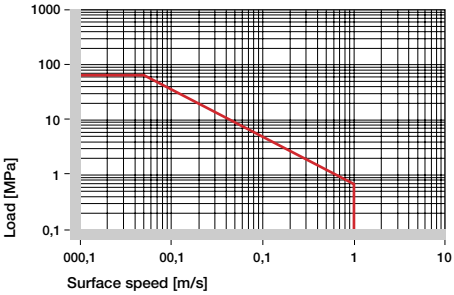
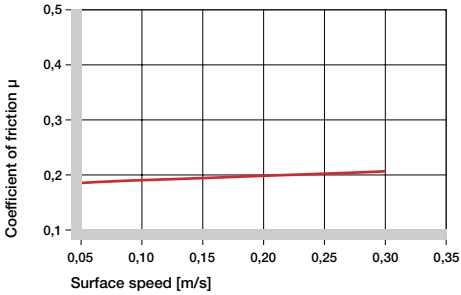
E-mail: info@igus.de

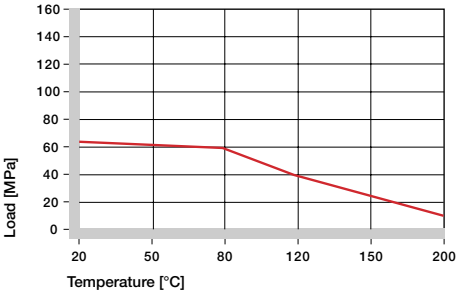
Permissible p x v values for iglidur® H4 running dry against a steel shaft at 20°C



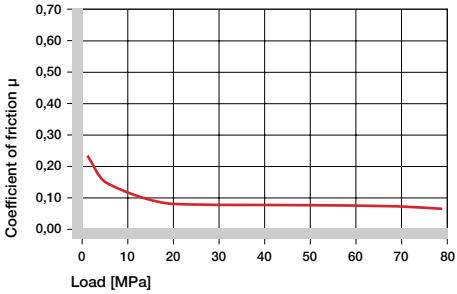
Coefficients of friction for iglidur® H4 as a function of the surface speed, p = 0,75 MPa



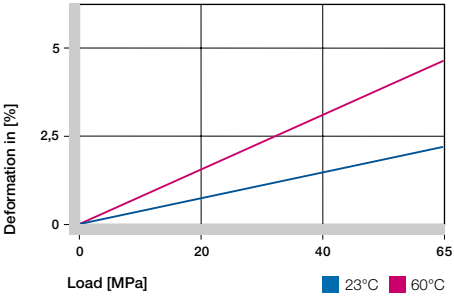
Recommended maximum surface pressure of iglidur® H4 as a function of temperature



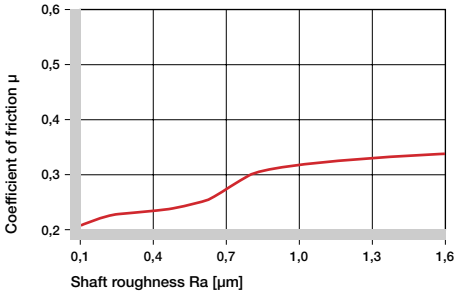
Coefficients of friction of iglidur® H4 as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft cold rolled steel)



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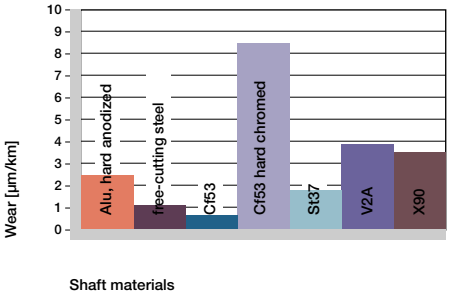
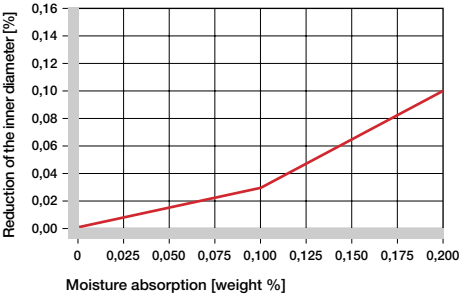
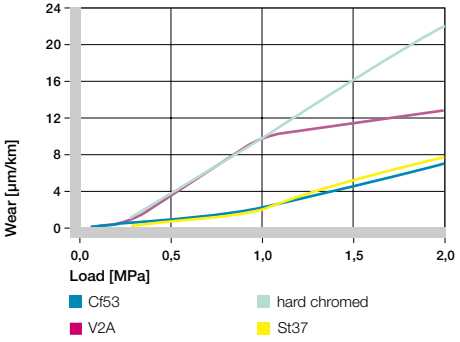
Wear of iglidur® H4, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® H4 plain bearings



Wear of iglidur® H4 with different shaft materials in rotating applications



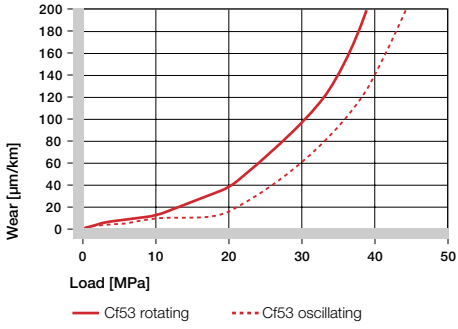
Electrical properties

iglidur® H4	
Specific volume resistance	> 10^{5} Ωcm
Surface resistance	> 10^{2} Ω

Essential tolerances for iglidur® H4 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H4 F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,030 + 0,150

Wear with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



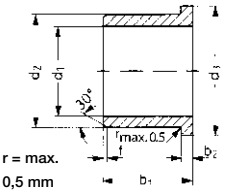
Chemical resistance of iglidur® H4

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	+ to 0
Strong acids	+ to –
Weak alkaline	+
Strong alkaline	+

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/h4**

iglidur® H4 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
H4 F M-06 08 - 08
- b
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1 h13	b2
H4FM-0608-08	6,0	8,0	12,0	8,0	1,0
H4FM-0810-10	8,0	10,0	15,0	10,0	1,0
H4FM-1012-05	10,0	12,0	18,0	5,0	1,0
H4FM-1012-12	10,0	12,0	18,0	12,0	1,0
H4FM-1214-12	12,0	14,0	20,0	12,0	1,0
H4FM-1517-12	15,0	17,0	23,0	12,0	1,0
H4FM-1618-17	16,0	18,0	24,0	17,0	1,0
H4FM-1820-17	18,0	20,0	26,0	17,0	1,0
H4FM-2023-21	20,0	23,0	30,0	21,5	1,5
H4FM-2528-21	25,0	28,0	35,0	21,5	1,5
H4FM-3034-30	30,0	34,0	40,0	30,0	2,0
H4FM-4044-40	40,0	44,0	52,0	40,0	2,0

* Standard tolerances for iglidur® H4: F10

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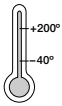
iglidur® H370 – High Perfomance for Wet Environments

iglidur® H370 is a further development of the iglidur® H-series. The material is characterized by very low water absorption and clearly improved wear resistance. In terms of the mechanical and thermal characteristic values, iglidur® H370 shows the same properties as iglidur® H.

Product range

- 2 Styles
- > 50 Dimensions
- Ø 3–75 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1	1,5
Oscillating	1,5	2
Linear	3	4

Price index

Robotics – High dynamic accuracy, low weight, high rigidity and high availability during 3-shift operations

When to use iglidur® H370

- Excellent for underwater applications
- No moisture absorption
- Maintenance-free
- Chemical resistant
- For high temperatures
- When high mechanical loading and wear resistance is required

When not to use iglidur® H370

- When mechanical reaming of the wall surface is necessary ▶ **iglidur® M250,** page 1.46
- For use in dirty surroundings ▶ **iglidur® M250** page 1.46
- When a cost-effective bearing is necessary ▶ **iglidur® H2** page 1.133
- Wear electrical conductivity is required ▶ **iglidur® X** page 1.62, **H** page 1.90, **F** page 1.86

Material table

General properties	Unit	iglidur® H370	Testing method
Density	g/cm³	1,60	
Colour		grey	
Max. moisture absorption at 23°C / 50% r.F.	% weight	< 0,1	DIN 53495
Max. moisture absorption	% weight	< 0,1	
Coefficient of sliding friction, dynamic against steel	µ	0,07 - 0,17	
p x v value, max. (dry)	MPa x m/s	0,74	
Mechanical properties			
Modulus of elasticity	MPa	11.000	DIN 53457
Tensile strength at 20°C	MPa	135	DIN 53452
Compressive strength	MPa	79	
Max. static surface pressure (20°C)	MPa	75	
Shore D hardness		82	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	200	
Max. short term application temperature	°C	240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,5	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	5	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$< 10^{6}$	DIN IEC 93
Surface resistance	Ω	$< 10^{6}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/h370

iglidur® H370
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igus® GmbH
51147 Cologne
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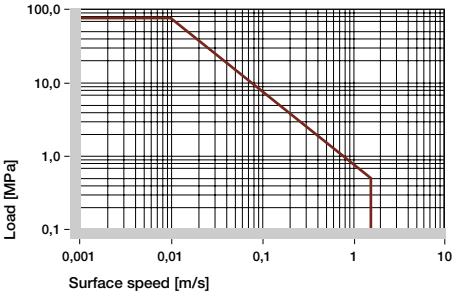
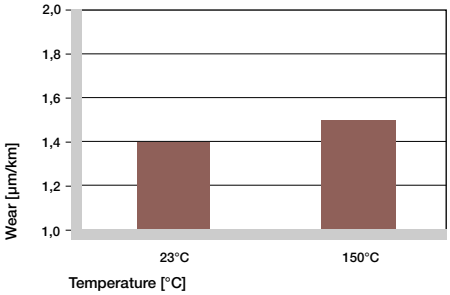
E-mail: info@igus.de

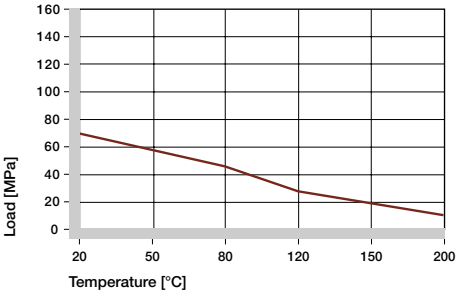
Permissible p x v values for iglidur® H370 running dry against a steel shaft, at 20°C



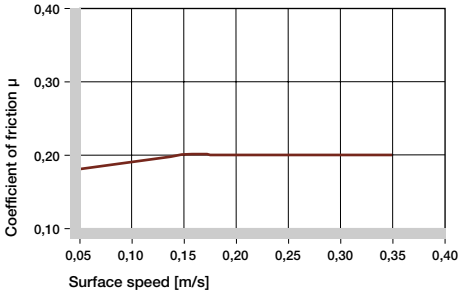
Wear as a function of the temperature, rotation with p = 0,75 MPa and v = 0,5 m/s



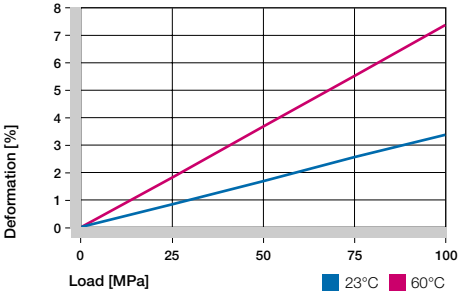
Recommended maximum surface pressure of iglidur® H370 as a function of temperature



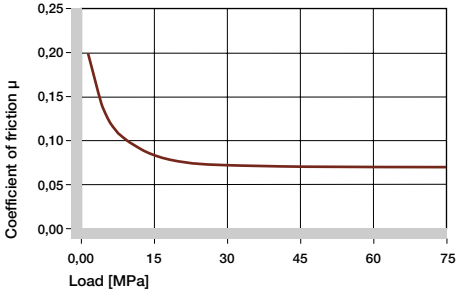
Coefficients of friction for iglidur® H370 as a function of the surface speed, p = 0,75 MPa



Deformation under load and temperature



Coefficients of friction for iglidur® H370 as a function of the load, v = 0,01 m/s



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mm

iglidur® H370 – Information and Technical Data

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51147 Cologne

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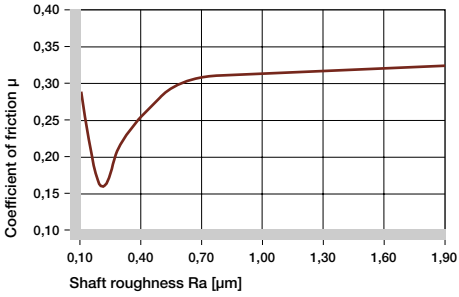
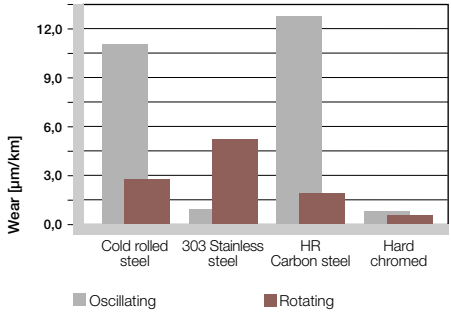
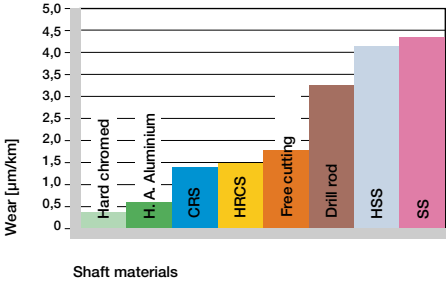
Coefficient of friction of iglidur® H370 as a function of the shaft surface (shaft cold rolled steel)



Wear for oscillating and rotating applications with different shaft materials, p = 2 MPa



Wear of iglidur® H370, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



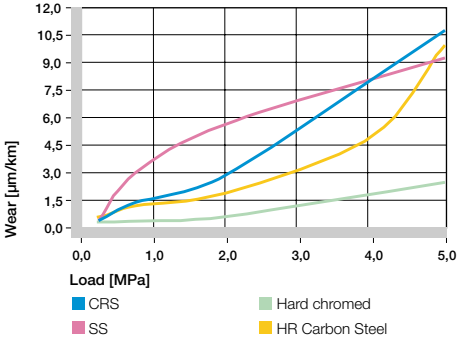
Electrical properties

iglidur® H370	
Specific volume resistance	< 10^{5} Ωcm
Surface resistance	< 10^{5} Ω

Essential tolerances for iglidur® H370 plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H370 F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,025 + 0,125
> 50 to 80	0 - 0,074	+0,030 + 0,150

Wear of iglidur® H370 with different shaft materials in rotating applications



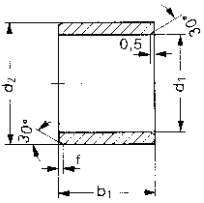
Chemical resistance of iglidur® H370

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	+ to 0
Strong acids	+ to –
Weak alkaline	+
Strong alkaline	+

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/h370**

iglidur® H370 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

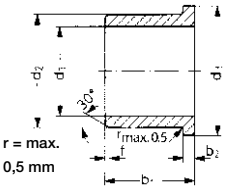
Structure – Part No.
H370 S M-03 04 - 03
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
H370SM-0304-03	3,0	4,5	3,0
H370SM-0405-04	4,0	5,5	4,0
H370SM-0405-12	4,0	5,5	12,0
H370SM-0507-05	5,0	7,0	5,0
H370SM-0608-06	6,0	8,0	6,0
H370SM-0810-08	8,0	10,0	8,0
H370SM-1012-10	10,0	12,0	10,0
H370SM-1214-10	12,0	14,0	10,0
H370SM-1214-15	12,0	14,0	15,0
H370SM-1517-15	15,0	17,0	15,0
H370SM-1618-15	16,0	18,0	15,0

Part No.	d1*	d2	b1 h13
H370SM-1618-20	16,0	18,0	20,0
H370SM-1820-15	18,0	20,0	15,0
H370SM-2023-20	20,0	23,0	20,0
H370SM-2528-20	25,0	28,0	20,0
H370SM-3034-30	30,0	34,0	30,0
H370SM-3539-40	35,0	39,0	40,0
H370SM-4044-50	40,0	44,0	50,0
H370SM-5055-40	50,0	55,0	40,0
H370SM-5560-26	55,0	60,0	26,0
H370SM-6065-60	60,0	65,0	60,0
H370SM-7580-60	75,0	80,0	60,0

* Standard tolerances for iglidur® H370: F10

iglidur® H370 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
H370 F M-04 05 - 04
- **b1**
- **d2**
- **d1**
- Metric
- Type
- Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
H370FM-0405-04	4,0	5,5	9,5	4,0	0,75
H370FM-0507-05	5,0	7,0	11,0	5,0	1,0
H370FM-0608-06	6,0	8,0	12,0	6,0	1,0
H370FM-0810-06	8,0	10,0	15,0	6,0	1,0
H370FM-0810-15	8,0	10,0	15,0	15,0	1,0
H370FM-1012-10	10,0	12,0	18,0	10,0	1,0
H370FM-1012-20	10,0	12,0	18,0	20,0	1,0
H370FM-1012-145	10,0	12,0	18,0	14,5	1,0
H370FM-1214-07	12,0	14,0	20,0	7,0	1,0
H370FM-1214-12	12,0	14,0	20,0	12,0	1,0
H370FM-1214-15	12,0	14,0	20,0	15,0	1,0
H370FM-1416-12	14,0	16,0	22,0	12,0	1,0
H370FM-1517-17	15,0	17,0	23,0	17,0	1,0
H370FM-1618-10	16,0	18,0	24,0	10,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
H370FM-1618-17	16,0	18,0	24,0	17,0	1,0
H370FM-1820-12	18,0	20,0	26,0	12,0	1,0
H370FM-1820-17	18,0	20,0	26,0	17,0	1,0
H370FM-2023-16	20,0	23,0	30,0	16,0	1,5
H370FM-2023-21	20,0	23,0	30,0	21,5	1,5
H370FM-2023-30	20,0	23,0	30,0	30,0	1,5
H370FM-222532-215	22,0	25,0	32,0	21,5	1,5
H370FM-2528-30	25,0	28,0	35,0	30,0	1,5
H370FM-3034-40	30,0	34,0	42,0	40,0	2,0
H370FM-3539-26	35,0	39,0	47,0	26,0	2,0
H370FM-4044-40	40,0	44,0	52,0	40,0	2,0
H370FM-5055-50	50,0	55,0	63,0	50,0	2,0
H370FM-6065-50	60,0	65,0	73,0	50,0	2,0
H370FM-7075-50	70,0	75,0	83,0	50,0	2,0

* Standard tolerances for iglidur® H370: F10

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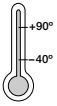
mm

iglidur® L250 – For Fast Rotations

Product range

- 2 Styles
- > 10 Dimensions
- Ø 6–20 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1	1,5
Oscillating	1	1,5
Linear	2	3

Price index

iglidur® L250 bearings have been developed for high speed rotation applications with low radial forces. Especially for fan- and motor-bearings extreme wear resistance is required.

When to use iglidur® L250

- For rotating applications at high speed
- If highest service life is required
- In combination with low loads
- If low noise level is mandatory

When not to use iglidur® L250

- If high pressures can occur ▶ **iglidur® Q** page 1.110, **W300** page 1.54
- When electrical conductivity is required ▶ **iglidur® F** page 1.86, **H** page 1.90, **X** page 1.62
- When a cost-effective universal bearing is required ▶ **iglidur® G** page 1.28, **J** page 1.38

Material table

General properties	Unit	iglidur® L250	Testing method
Density	g/cm³	1,50	
Colour		beige	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,7	DIN 53495
Max. moisture absorption	% weight	3,9	
Mechanical properties			
Modulus of elasticity	MPa	1.950	DIN 53457
Tensile strength at 20°C	MPa	67	DIN 53452
Max. static surface pressure (20°C)	MPa	45	
Shore D hardness		68	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	180	
Max. short term ambient temperature[1)]	°C	200	
Min. application temperature	°C	-40	
Electrical properties			
Specific volume resistance	Ω cm	> 10^{10}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/l250

iglidur® L250
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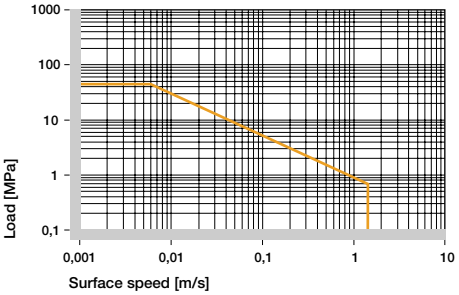
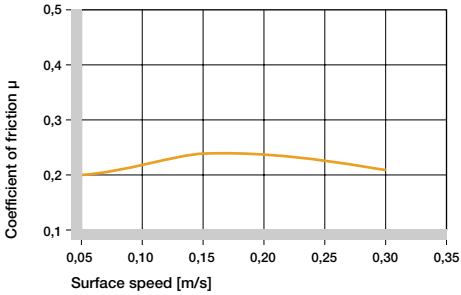
51147 Cologne
Internet: www.igus.de
E-mail: info@igus.de

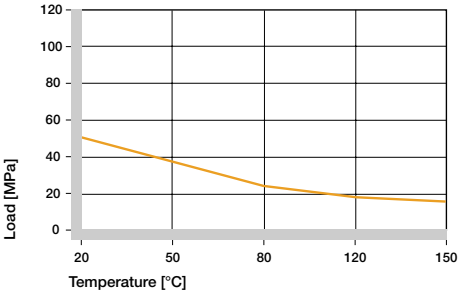
Permissible p x v values for iglidur® L250 running dry against a steel shaft at 20°C



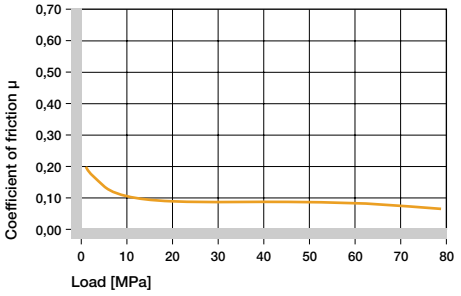
Coefficients of friction for iglidur® L250 as a function of the surface speed, p = 0,75 MPa



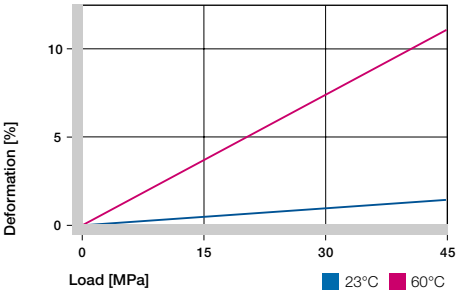
Recommended maximum surface pressure of iglidur® L250 as a function of temperature



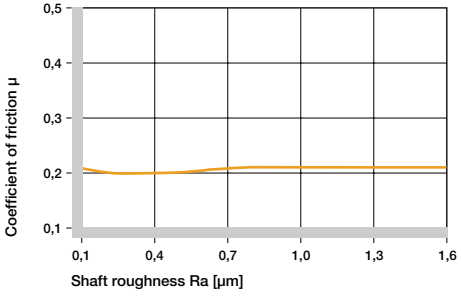
Coefficients of friction of iglidur® L250 as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft cold rolled steel)



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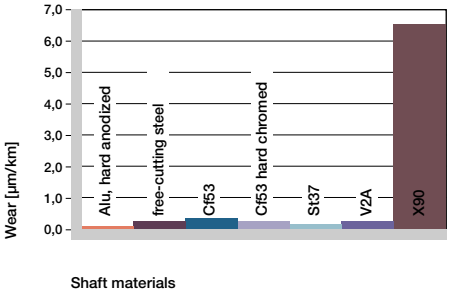
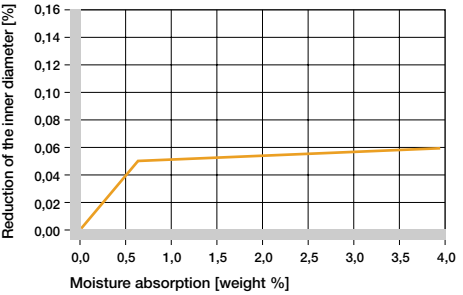
mm

iglidur® L250 – Information and Technical Data

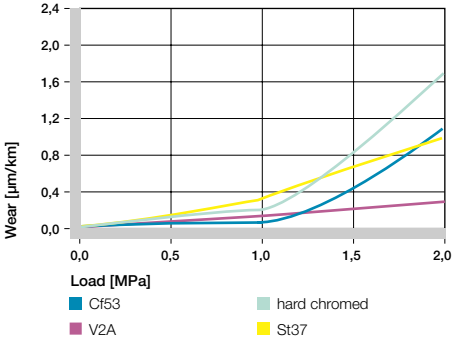
Wear of iglidur® L250, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® L250 plain bearings



Wear of iglidur® L250 with different shaft materials in rotating applications



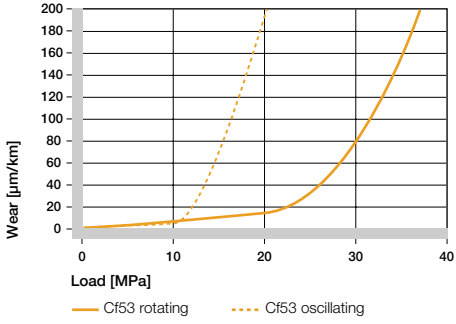
Electrical properties

iglidur® L250	
Specific volume resistance	> 10^{10} Ωcm
Surface resistance	> 10^{11} Ω

Essential tolerances for iglidur® L250 bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® L250 E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Wear with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



Chemical resistance of iglidur® L250

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

iglidur® L250
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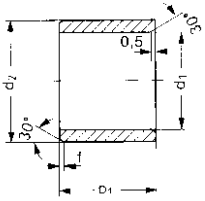
igus® GmbH
51147 Cologne
Internet: www.igus.de
E-mail: info@igus.de

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/l250**

iglidur® L250 – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

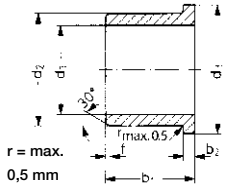
Structure – Part No.
L250 S M-06 08 - 06
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
L250SM-0608-06	6,0	8,0	6,0
L250SM-0810-10	8,0	10,0	10,0
L250SM-1012-10	10,0	12,0	10,0
L250SM-1214-12	12,0	14,0	12,0

Part No.	d1*	d2	b1 h13
L250SM-1618-15	16,0	18,0	15,0
L250SM-2023-20	20,0	23,0	20,0

* Standard tolerances for iglidur® L250: E10

iglidur® L250 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
L250 F M-06 08 - 06
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
L250FM-0608-06	6,0	8,0	12,0	6,0	1,0
L250FM-0810-10	8,0	10,0	15,0	10,0	1,0
L250FM-1012-10	10,0	12,0	18,0	10,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
L250FM-1214-12	12,0	14,0	20,0	12,0	1,0
L250FM-1618-17	16,0	18,0	24,0	17,0	1,0
L250FM-2023-21	20,0	23,0	30,0	21,5	1,5

* Standard tolerances for iglidur® L250: E10

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mm

iglidur® P – Cost-Effective and Maintenance-Free

Product range

- 2 Styles
- > 50 Dimensions
- Ø 3–95 mm

+130°
-40°

Max. running speed

[m/s]	Continuous	Short term
Rotating	1	2
Oscillating	1,5	2,5
Linear	3	4

Price index

With the iglidur® P plain bearing, the user has a cost-effective, maintenance-free plain bearing. Compared to iglidur® G plain bearings made of iglidur® P are better suited to high humidity.

When to use iglidur® P

● Low water absorption ● Low wear rates, high load capacity ● Cost-effective, maintenance-free ● Low wear rates ● For rotating movements under high loads

When not to use iglidur® P

- When the maximum application temperature is above 120°C ▶ **iglidur® G** page 1.28
- When mechanical reaming of the wall surface is necessary ▶ **iglidur® M250** page 1.46
- When the highest wear resistance is required ▶ **iglidur® W300** page 1.54

Material table

General properties	Unit	iglidur® P	Testing method
Density	g/cm³	1,58	
Colour		black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	< 0,2	DIN 53495
Max. moisture absorption	% weight	0,4	
Coefficient of sliding friction, dynamic against steel	µ	0,06 - 0,21	
p x v value, max. (dry)	MPa x m/s	0,39	
Mechanical properties			
Modulus of elasticity	MPa	5.300	DIN 53457
Tensile strength at 20°C	MPa	120	DIN 53452
Compressive strength	MPa	66	
Max. static surface pressure (20°C)	MPa	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	130	
Max. short term application temperature	°C	200	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,25	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	4	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	> 10^{13}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/p

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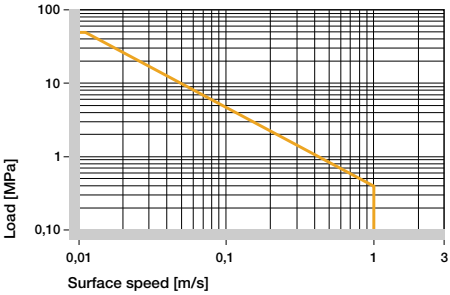
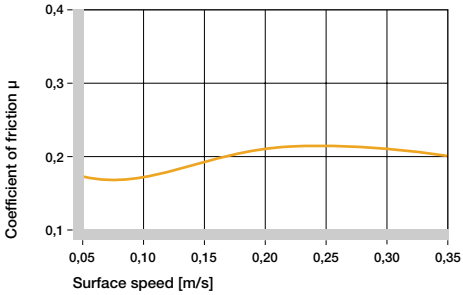
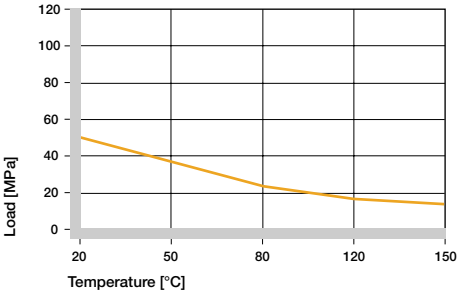
Permissible p x v values for iglidur® P running dry against a steel shaft, at 20°C



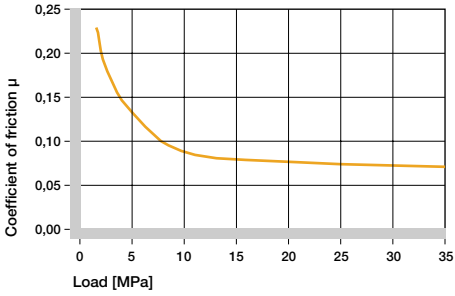
Coefficient of friction of iglidur® P as a function of the surface speed, p = 0,75 MPa



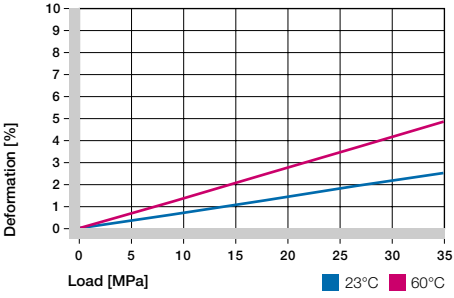
Recommended maximum surface pressure of iglidur® P as a function of temperature



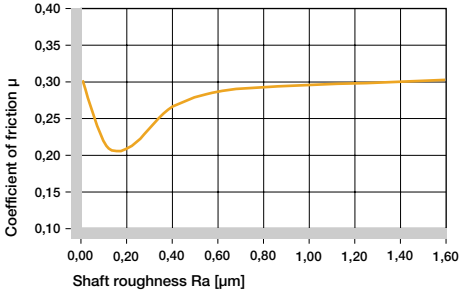
Coefficients of friction of iglidur® P as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficient of friction as function of the shaft surface (shaft – cold rolled steel)



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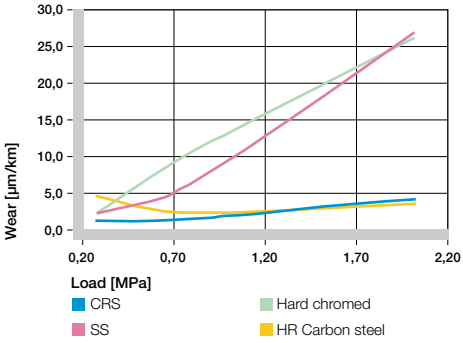
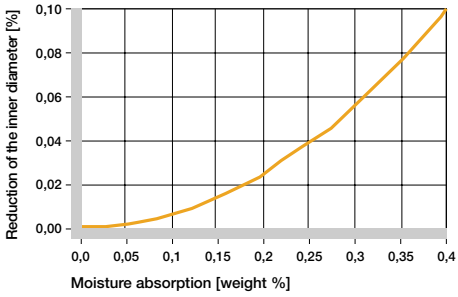
mm

iglidur® P – Information and Technical Data

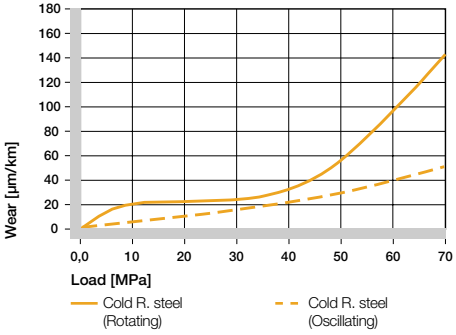
Wear of iglidur® P with different shaft materials in rotating applications



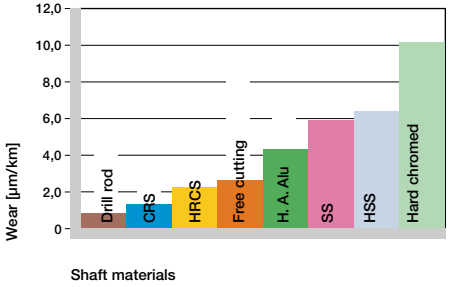
Effect of moisture absorption on iglidur® P plain bearings



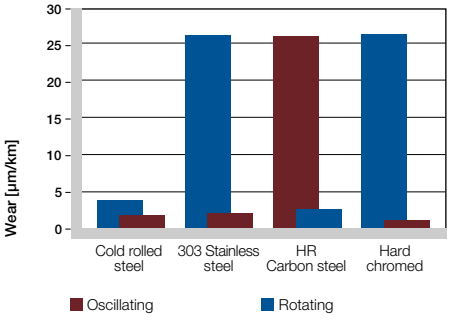
Wear of iglidur® P with different shaft materials in rotating applications



Wear of iglidur® P, with different shaft materials in rotating applications, p = 0,75 MPa, v = 0,5 m/s



Wear with different shaft materials in oscillating and rotating applications, p = 2 MPa



Electrical properties

iglidur® P	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® P plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® P E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Chemical resistance of iglidur® P

Medium	Resistance
Alcohol	+
Hydrocarbon	–
Greases, oils without additives	+
Fuels	+
Weak acids	0
Strong acids	–
Weak alkaline	–
Strong alkaline	–

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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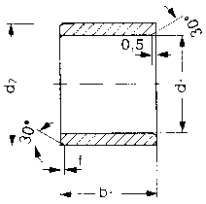
Lifetime calculation, CAD files and much more support ► **www.igus.de/en/p**

iglidur® P – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

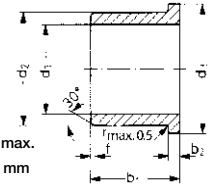
Structure – Part No.
P S M-03 04 - 03
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
PSM-0304-03	3,0	4,5	3,0
PSM-0405-04	4,0	5,5	4,0
PSM-0507-05	5,0	7,0	5,0
PSM-0608-06	6,0	8,0	6,0
PSM-0810-08	8,0	10,0	8,0
PSM-0810-11	8,0	10,0	11,5
PSM-0810-12	8,0	10,0	12,0
PSM-1012-10	10,0	12,0	10,0
PSM-1214-15	12,0	14,0	15,0
PSM-1214-25	12,0	14,0	25,0
PSM-1517-15	15,0	17,0	15,0
PSM-1618-20	16,0	18,0	20,0
PSM-1618-42	16,0	18,0	42,0
PSM-1820-15	18,0	20,0	15,0
PSM-2022-22	20,0	22,0	22,0
PSM-2022-30	20,0	22,0	30,0
PSM-2023-15	20,0	23,0	15,0
PSM-2023-30	20,0	23,0	30,0
PSM-2224-45	22,0	24,0	45,0

Part No.	d1*	d2	b1 h13
PSM-2225-15	22,0	25,0	15,0
PSM-2225-45	22,0	25,0	45,0
PSM-2528-30	25,0	28,0	30,0
PSM-2528-35	25,0	28,0	35,0
PSM-2630-25	26,0	30,0	25,0
PSM-2832-20	28,0	32,0	25,0
PSM-2832-25	28,0	32,0	25,0
PSM-3034-20	30,0	34,0	20,0
PSM-3034-40	30,0	34,0	40,0
PSM-3034-45	30,0	34,0	45,0
PSM-3539-40	35,0	39,0	40,0
PSM-4044-50	40,0	44,0	50,0
PSM-4044-58	40,0	44,0	58,0
PSM-5055-40	50,0	55,0	40,0
PSM-6065-60	60,0	65,0	60,0
PSM-7580-80	75,0	80,0	80,0
PSM-9095-100	90,0	95,0	100,0
PSM-95100-100	95,0	100,0	100,0

* Standard tolerances for iglidur® P: E10

iglidur® P – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
P F M-04 05 - 04
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
PFM-0405-04	4,0	5,5	9,5	4,0	0,75
PFM-0507-05	5,0	7,0	11,0	5,0	1,0
PFM-0608-04	6,0	8,0	12,0	4,0	1,0
PFM-0810-10	8,0	10,0	15,0	10,0	1,0
PFM-0810-15	8,0	10,0	15,0	15,0	1,0
PFM-1012-17	10,0	12,0	18,0	17,0	1,0
PFM-1214-10	12,0	14,0	20,0	10,0	1,0
PFM-1214-15	12,0	14,0	20,0	15,0	1,0
PFM-121418-08	12,0	14,0	18,0	8,0	1,0
PFM-1416-08	14,0	16,0	22,0	8,0	1,0
PFM-1416-12	14,0	16,0	22,0	12,0	1,0
PFM-151824-32	15,0	18,0	24,0	32,0	1,5
PFM-1618-12	16,0	18,0	24,0	12,0	1,0
PFM-1618-17	16,0	18,0	24,0	17,0	1,0
PFM-1719-25	17,0	19,0	25,0	25,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
PFM-1820-17	18,0	20,0	26,0	17,0	1,0
PFM-2023-16	20,0	23,0	30,0	16,5	1,5
PFM-202328-15	20,0	23,0	28,0	15,0	1,5
PFM-2023-30	20,0	23,0	30,0	30,0	1,5
PFM-2528-21	25,0	28,0	35,0	21,5	1,5
PFM-3034-16	30,0	32,0	42,0	16,0	2,0
PFM-3034-37	30,0	34,0	42,0	37,0	2,0
PFM-3539-26	35,0	39,0	47,0	26,0	2,0
PFM-4044-40	40,0	44,0	52,0	40,0	2,0
PFM-5055-50	50,0	55,0	63,0	60,0	2,0
PFM-6065-50	60,0	65,0	73,0	50,0	2,0
PFM-7075-50	70,0	75,0	83,0	50,0	2,0
PFM-8085-100	80,0	85,0	93,0	100,0	2,5

* Standard tolerances for iglidur® P: E10

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mm

iglidur® Q – High Strength for High Loads

iglidur® Q plain bearings were developed especially for extreme loads. At high loads, iglidur® Q ranks among the best iglidur® materials for wear resistance. Under extreme radial loads iglidur® Q plain bearings can achieve the highest p x v values for plain bearings running dry.

Product range

- 2 Styles
- > 75 Dimensions
- Ø 6–80 mm

+135°
-40°

Max. running speed

[m/s]	Continuous	Short term
Rotating	1	2
Oscillating	1	2
Linear	5	6

Price index

"Complete exchange of all needle and bronze bearings for polymer bearings. Higher lifetme, no maintenance and reduction of costs."

When to use iglidur® Q

- Excellent wear resistance, especially for extreme loads
- Recommended for extreme p x v values
- Maintenance-free dry running
- Resistant to dirt
- For shock and impact loads
- For oscillating applications

When not to use iglidur® Q

- For underwater applications ▶ **iglidur® H370** page 1.98
- When temperatures are continuously greater than 135°C ▶ **iglidur® H** page 1.90, **X** page 1.62
- When electrically conductive bearings are needed ▶ **iglidur® F** page 1.86, **H** page 1.90, **Z** page 1.126

Material table

General properties	Unit	iglidur® Q	Testing method
Density	g/cm³	1,40	
Colour		black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,9	DIN 53495
Max. moisture absorption	% weight	4,9	
Coefficient of sliding friction, dynamic against steel	µ	0,05 - 0,15	
p x v value, max. (dry)	MPa x m/s	0,55	
Mechanical properties			
Modulus of elasticity	MPa	4.500	DIN 53457
Tensile strength at 20°C	MPa	120	DIN 53452
Compressive strength	MPa	89	
Max. static surface pressure (20°C)	MPa	100	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	135	
Max. short term application temperature	°C	155	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,23	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	5	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{15}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/q

iglidur® Q
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igus® GmbH
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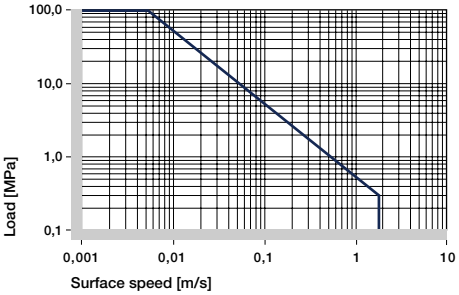
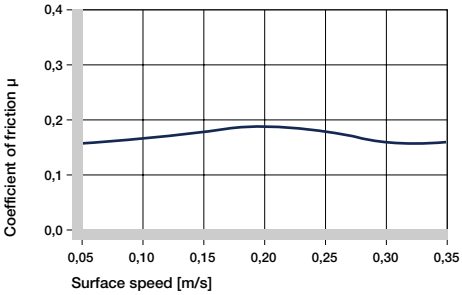
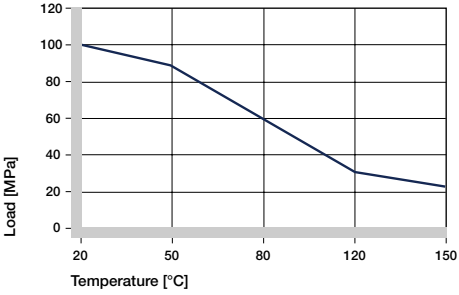
Permissible p x v values for iglidur® Q running dry against a steel shaft, at 20°C



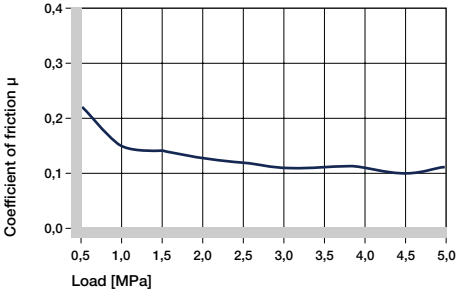
Coefficient of friction as a function of the surface speed, p = 0,75 MPa constant



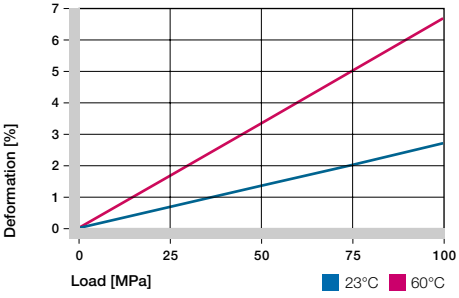
Recommended maximum surface pressure of iglidur® Q as a function of temperature



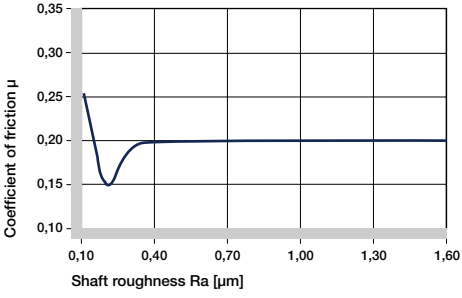
Coefficient of friction as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficient of friction as a function of the shaft surface



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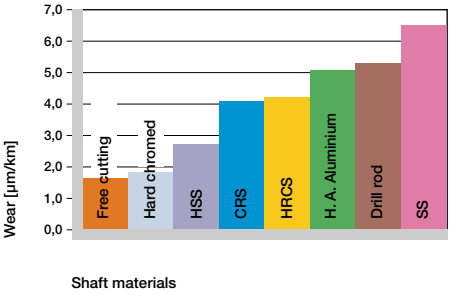
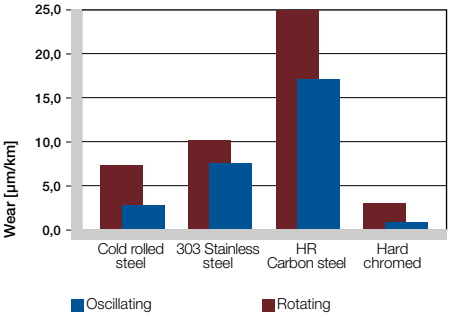
iglidur® Q – Information and Technical Data

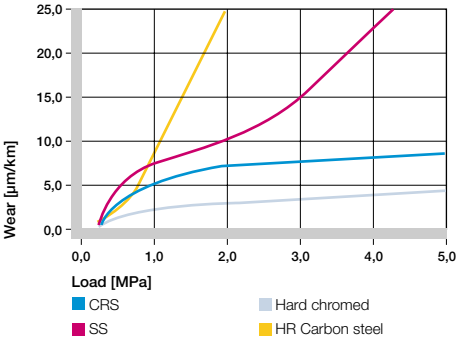
Wear of iglidur® Q, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



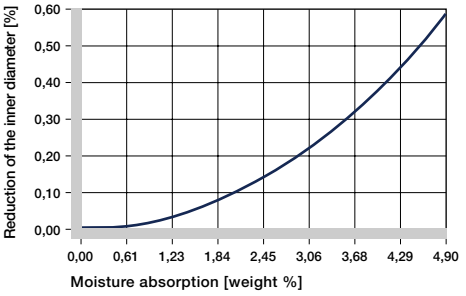
Wear for oscillating and rotating applications with different shaft materials at p = 2 MPa



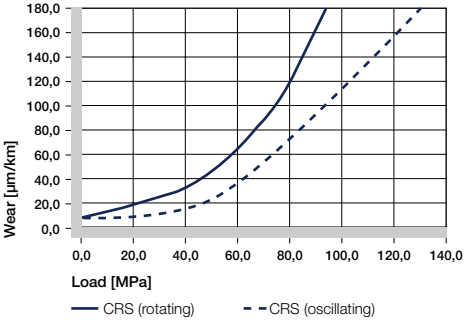
Wear with different shaft materials for rotating applications



Effect of moisture absorption on iglidur® Q plain bearings



Wear for oscillating and rotating applications with a cold rolled steel shaft



Electrical properties

iglidur® Q	
Specific volume resistance	> 10^{15} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® Q plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® Q E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150
> 50 to 80	0 - 0,074	+0,060 + 0,180

Chemical resistance of iglidur® Q

Medium	Resistance
Alcohol	+ to 0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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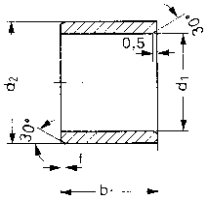
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/q**

iglidur® Q – Sleeve/Flange Bearing – Type S/F



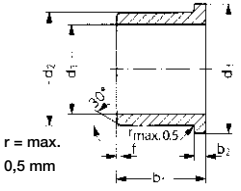
f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
Q S M-06 08 - 10
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1 h13
QSM-0608-10	6,0	8,0	10,0
QSM-0810-08	8,0	10,0	8,0
QSM-1012-10	10,0	12,0	10,0
QSM-1214-10	12,0	14,0	10,0
QSM-1214-20	12,0	14,0	20,0
QSM-1618-08	16,0	18,0	8,0
QSM-1618-12	16,0	18,0	12,5
QSM-1618-20	16,0	18,0	20,0
QSM-1820-20	18,0	20,0	20,0
QSM-2022-15	20,0	22,0	15,0
QSM-2023-15	20,0	23,0	15,0
QSM-2023-20	20,0	23,0	20,0
QSM-2023-25	20,0	23,0	25,0
QSM-2023-30	20,0	23,0	30,0
QSM-2528-25	25,0	28,0	25,0
QSM-2528-48	25,0	28,0	48,0

Part No.	d1*	d2	b1 h13
QSM-3034-20	30,0	34,0	20,0
QSM-3034-40	30,0	34,0	40,0
QSM-3539-15	35,0	39,0	15,0
QSM-3539-30	35,0	39,0	30,0
QSM-3539-50	35,0	39,0	50,0
QSM-4044-40	40,0	44,0	40,0
QSM-4044-47	40,0	44,0	47,0
QSM-4550-252	45,0	50,0	25,2
QSM-4550-50	45,0	50,0	50,0
QSM-5055-50	50,0	55,0	50,0
QSM-5055-60	50,0	55,0	60,0
QSM-6065-50	60,0	65,0	50,0
QSM-6570-34	65,0	70,0	34,0
QSM-7075-50	70,0	75,0	50,0
QSM-8085-60	80,0	85,0	60,0

* Standard tolerances for iglidur® Q: E10



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

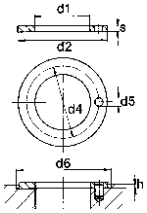
Structure – Part No.
Q F M-06 08 - 04
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
QFM-0608-04	6,0	8,0	12,0	4,0	1,0
QFM-0810-05	8,0	10,0	15,0	5,5	1,0
QFM-0810-06	8,0	10,0	15,0	6,0	1,0
QFM-1012-06	10,0	12,0	18,0	6,0	1,0
QFM-1012-10	10,0	12,0	18,0	10,0	1,0
QFM-101215-035	10,0	12,0	15,0	3,5	1,0
QFM-101215-08	10,0	12,0	15,0	8,0	1,0
QFM-1214-09	12,0	14,0	20,0	8,0	1,0
QFM-1214-12	12,0	14,0	20,0	12,0	1,0
QFM-1214-20	12,0	14,0	20,0	20,0	1,0
QFM-1416-12	14,0	16,0	22,0	12,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
QFM-1618-17	16,0	18,0	24,0	17,0	1,0
QFM-1820-12	18,0	20,0	26,0	12,0	1,0
QFM-2023-21	20,0	23,0	30,0	21,5	1,5
QFM-2528-21	25,0	28,0	35,0	21,5	1,5
QFM-2730-20	27,0	30,0	38,0	20,0	1,5
QFM-3034-37	30,0	34,0	42,0	37,0	2,0
QFM-3539-26	35,0	39,0	47,0	26,0	2,0
QFM-4044-40	40,0	44,0	52,0	40,0	2,0
QFM-5055-50	50,0	55,0	63,0	50,0	2,0
QFM-6065-50	60,0	65,0	78,0	50,0	2,0
QFM-7075-50	70,0	75,0	83,0	50,0	2,0

* Standard tolerances for iglidur® Q: E10

iglidur® Q – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
Q T M-28 42 - 015
b1
d2
d1
Metric
Type
Material

Part No.	d1 +0,3	d2 -0,3	s -0,05	d4 - 0,12/+0,12	d5 +0,375/+0,125	h +0,2/- 0,2	d6 +0,12
QTM-2842-015	28,0	42,0	1,5	35,0	4,0	1,0	42,0
QTM-3254-015	32,0	54,0	1,5	43,0	4,0	1,0	54,0
QTM-5278-020	52,0	78,0	2,0	65,0	4,0	1,5	78,0

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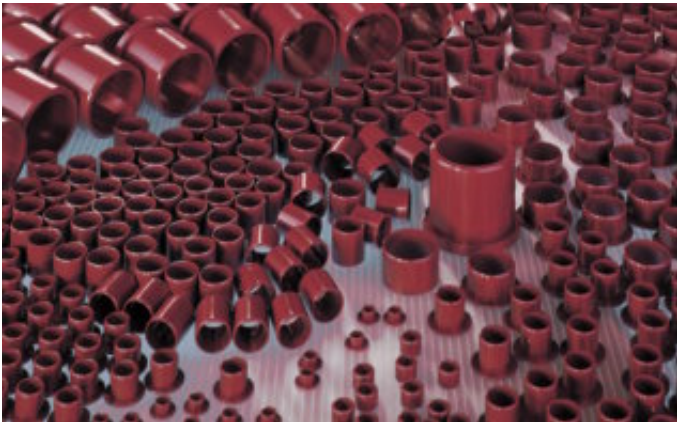
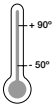
iglidur® R – Low friction, low cost

In the development of iglidur® R as a bearing material, high performance and a very low price were the top requirements. In particular, low coefficients of friction were needed at high speeds in the dry run.



Product range

- 2 Styles
- > 20 Dimensions
- Ø 6–20 mm



Max. running speed

[m/s]	Continuous	Short term
Rotatin	0,8	1,2
Oscillating	0,6	1
Linear	3,5	5

Price index

When to use iglidur® R

- if high wear resistance at low load is required
- if you are looking for a very cost-effective bearing
- if low friction at dry operation is needed
- if edge loads occur
- if you are looking for low water absorbtion
- if PTFE and silicone are prohibited in the application

When not to use iglidur® R

- if high pressure occurs ▶ **iglidur G** page 1.28
- if permanent temperatures exceed 90°C ▶ **iglidur G** page 1.28, **P** page 1.106
- if best wear resistance is required ▶ **iglidur® J** page 1.38

Material table

General properties	Unit	iglidur® R	Testing method
Density	g/cm³	1,39	
Colour		dark red	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,2	DIN 53495
Max. moisture absorption	% weight	1,1	
Coefficient of sliding friction, dynamic against steel	µ	0,09 - 0,25	
p x v value, max. (dry)	MPa x m/s	0,27	
Mechanical properties			
Modulus of elasticity	MPa	1.950	DIN 53457
Tensile strength at 20°C	MPa	70	DIN 53452
Compressive strength	MPa	75	
Max. static surface pressure (20°C)	MPa	23	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m x K	0,25	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	11	DIN 53753
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/r

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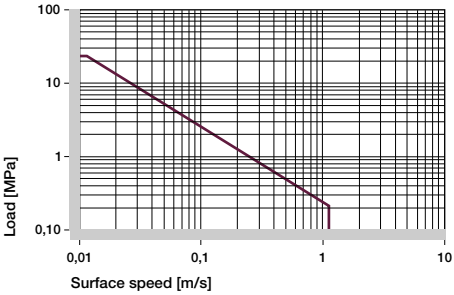
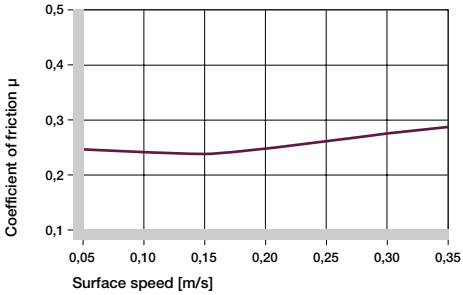
igus® GmbH
51147 Cologne
Internet: www.igus.de
E-mail: info@igus.de

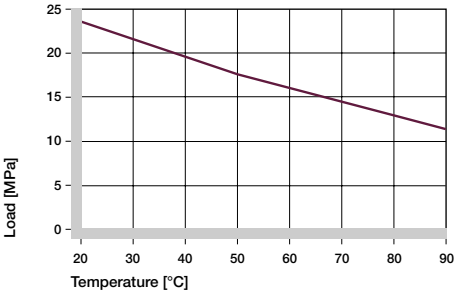
Permissible p x v values for iglidur® R running dry against a steel shaft, at 20°C



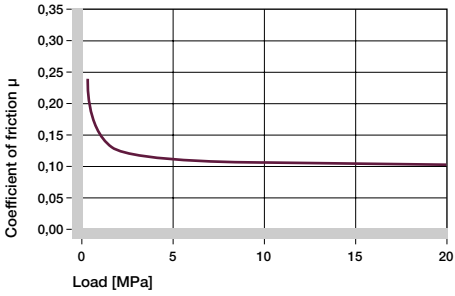
Coefficient of friction as a function of the surface speed, p = 0,75 MPa constant



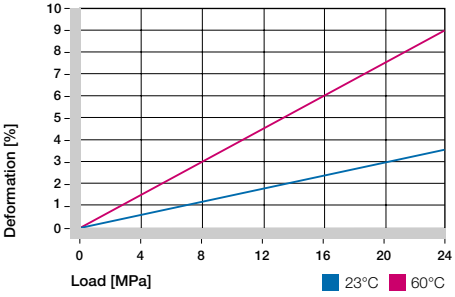
Recommended maximum surface pressure of iglidur® R as a function of temperature



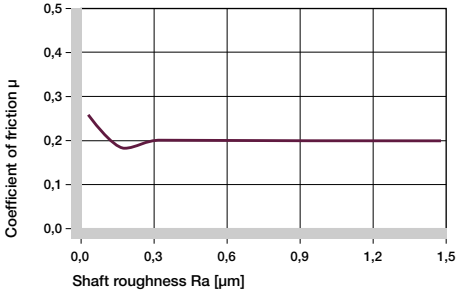
Coefficient of friction as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficient of friction as a function of the shaft surface



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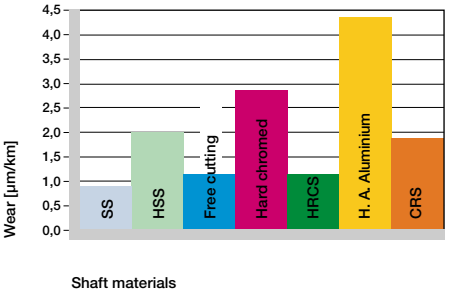
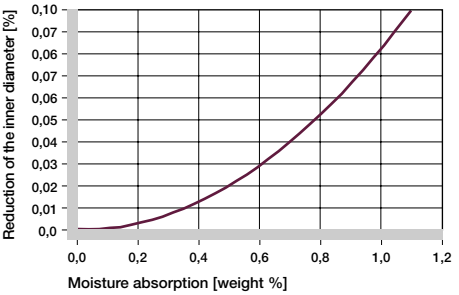
iglidur® R – Information and Technical Data

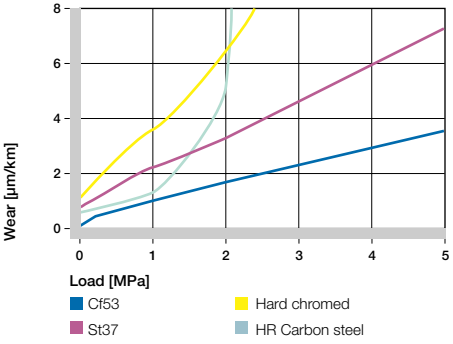
Wear of iglidur® R, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® R plain bearings



Wear with different shaft materials for rotating applications



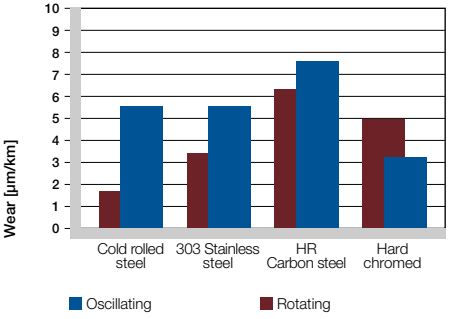
Electrical properties

iglidur® R	
Specific volume resistance	> 10^{12} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® R bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® R E10 [mm]
upt to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Wear for oscillating and rotating applications with different shaft materials at p = 2 MPa



Chemical resistance of iglidur® R

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

iglidur® R
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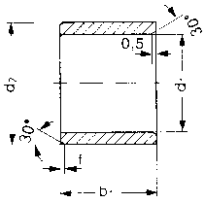
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/r**

iglidur® R – Sleeve Bearing – Type S



f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

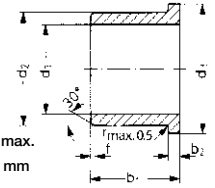
Structure – Part No.
R S M-06 08 - 06
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	b1 h13
RSM-0608-06	6	8	6
RSM-0810-10	8	10	10
RSM-1012-05	10	12	5
RSM-1012-10	10	12	10
RSM-1012-15	10	12	15
RSM-1214-12	12	14	12

Part No.	d1*	d2	b1 h13
RSM-1416-15	14	16	15
RSM-1618-15	16	18	15
RSM-2023-15	20	23	15
RSM-2023-20	20	23	20
RSM-3034-25	30	34	25
RSM-3539-30	35	39	30

* Standard tolerances for iglidur® R: E10

iglidur® R – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
R F M-04 05 - 04
- b1
- d2
- d1
- Metric
- Type
- Material

Part No.	d1*	d2	d3	b1	b2
				h13	
RFM-0608-06	6	8	12	6	1
RFM-0810-05	8	10	15	10	1
RFM-0810-10	8	10	15	10	1
RFM-1012-10	10	12	18	10	1
RFM-1012-18	10	12	18	18	1

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0.14
RFM-1214-12	12	14	20	12	1
RFM-1416-17	14	16	22	17	1
RFM-1618-17	16	18	24	17	1
RFM-2023-21	20	23	30	21,5	1,5

* Standard tolerances for iglidur® E: E10

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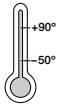
iglidur® UW – The Underwater Specialist

The best iglidur® polymer for underwater applications. Extremely wear resistant under water, tested, maintenance-free. With a predictable lifetime this is the polymer of choice for pumping applications.

Product range

- 2 Styles
- > 16 Dimensions
- Ø 3–20 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	0,5	1,5
Oscillating	0,5	1,5
Linear	2	3

Price index

When to use iglidur® UW

- Extremely wear-resistant under water
- Ideal for pump applications
- At high rotational speeds
- With low to medium loads

When not to use iglidur® UW

- When the bearing is used under water as well as in a dry environment ▶ **iglidur® H370** page 1.98
- When temperatures is continously higher than 90C° ▶ **iglidur® H370** page 1.98, **UW500** page 1.133
- When high loads ▶ **iglidur® H370** page 1.98, **UW500** page 1.133, **X** page 1.62

Material table

General properties	Unit	iglidur® UW	Testing method
Density	g/cm³	1,52	
Colour		black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,2	DIN 53495
Max. moisture absorption[3]	% weight	0,8	
Mechanical properties			
Modulus of elasticity	MPa	9.600	DIN 53457
Tensile strength at 20°C	MPa	90	DIN 53452
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	110	
Max. short term ambient temperature[1]	°C	140	
Min. application temperature	°C	-50	
Electrical properties[2]			
Specific volume resistance	Ω cm	< 10^5	DIN IEC 93
Surface resistance	Ω	< 10^6	DIN 53482

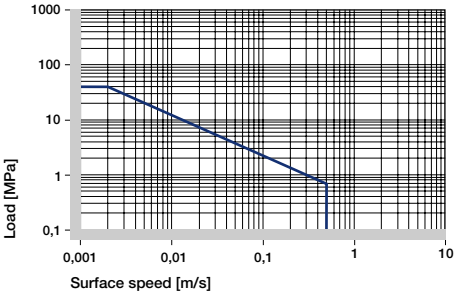
[1] Without additional load; no sliding movement; relaxation possible

[2] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact component.

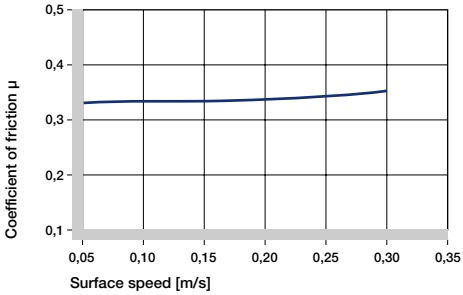
[3] With respect of the use to the material in direct contact with water, it has to be pointed out that all results have been attained under laboratory conditions DW (demineralised water). We therefore recommend custom-designed tests under real application conditions.

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/uw

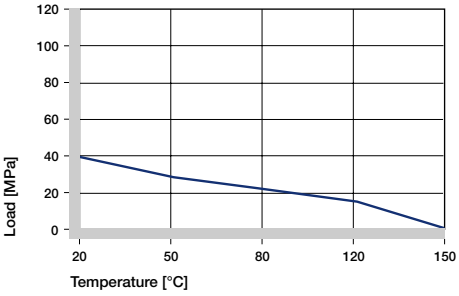
Permissible p x v values for iglidur® UW running dry against a steel shaft at 20°C



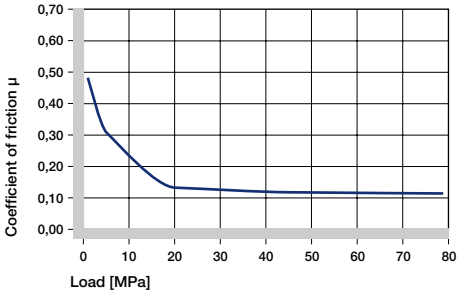
Coefficients of friction for iglidur® UW as a function of the surface speed, p = 0,75 MPa



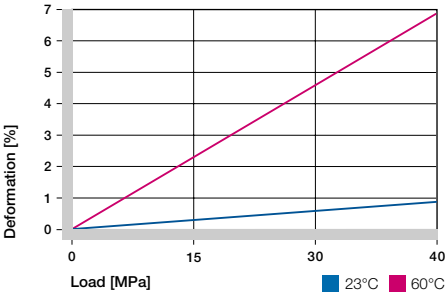
Recommended maximum surface pressure of iglidur® UW as a function of temperature



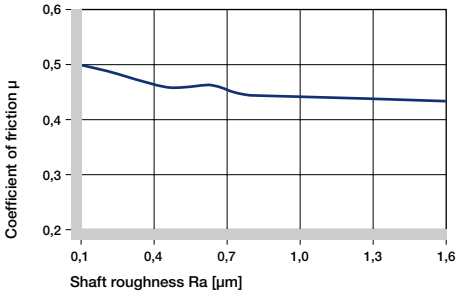
Coefficients of friction of iglidur® UW as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft cold rolled steel)



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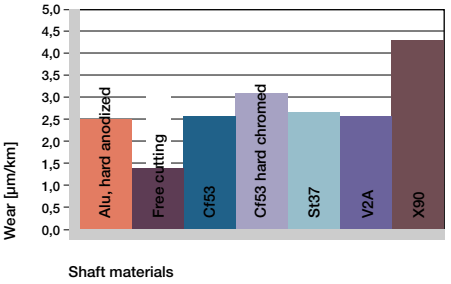
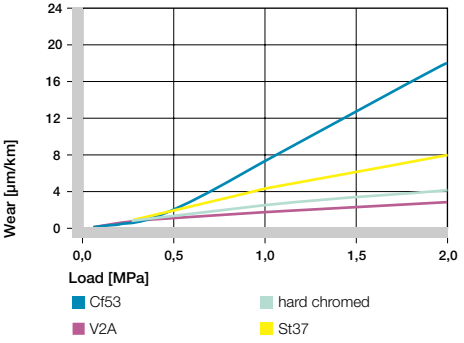
iglidur® UW – Information and Technical Data

Wear of iglidur® UW, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s

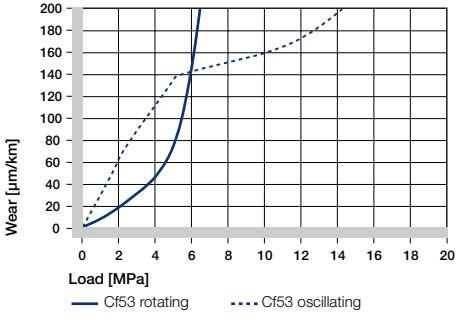


Shaft materials

Wear of iglidur® UW with different shaft materials in rotating applications



Wear with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



Electrical properties

iglidur® UW	
Specific volume resistance	< 10^5 Ωcm
Surface resistance	< 10^5 Ω

Essential tolerances for iglidur® UW bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® UW E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Chemical resistance of iglidur® UW

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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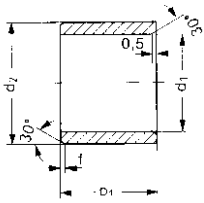
Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/uw**

iglidur® UW – Sleeve Bearing – Type S



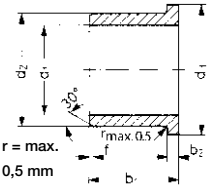
f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
UW S M-03 04 - 05
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1
			h13
UWSM-0304-05	3,0	4,5	5,0
UWSM-0405-06	4,0	5,5	6,0
UWSM-0507-08	5,0	7,0	8,0
UWSM-0608-08	6,0	8,0	8,0
UWSM-0810-10	8,0	10,0	10,0
UWSM-1012-10	10,0	12,0	10,0
UWSM-1214-12	12,0	14,0	12,0

* Standard tolerances for iglidur® UW: E10

iglidur® UW – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.
UW F M-03 04 - 05
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3	b1	b2
	h13		d13	h13	-0,14
UWFM-0304-05	3,0	4,5	7,5	5,0	0,75
UWFM-0405-06	4,0	5,5	9,5	6,0	0,75
UWFM-0507-05	5,0	7,0	11,0	5,0	1,0
UWFM-0608-06	6,0	8,0	12,0	6,0	1,0
UWFM-0810-10	8,0	10,0	15,0	10,0	1,0
UWFM-1012-10	10,0	12,0	18,0	10,0	1,0
UWFM-1214-12	12,0	14,0	20,0	12,0	1,0
UWFM-1618-17	16,0	18,0	24,0	17,0	1,0
UWFM-2023-21	20,0	23,0	30,0	21,5	1,5

* Standard tolerances for iglidur® UW: E10

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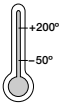
iglidur® V400 – Wear-Resistant at High Temperatures

Product range

- 2 Styles
- > 10 Dimensions
- Ø 6–20 mm

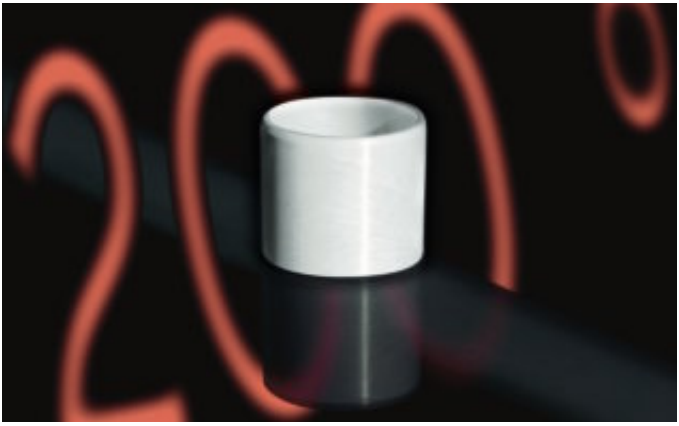


Max. running speed

[m/s]	Continuous	Short term
Rotating	0,9	1,3
Oscillating	0,8	1,0
Linear	2	3

Price index

This new material has a very good new resistance up to 200°C. Due to their high elasticity, the bearings are also suitable for vibrating applications and high edge pressures.



When to use iglidur® V400

- For not hardened shafts
- For applications with temperatures higher than 130°C
- If vibrations and edge pressure are present
- In dirty environments

When not to use iglidur® V400

- For hardened shafts
  ▶ **iglidur® W300** page 1.54
- For applications with normal temperatures
  ▶ **iglidur® G** page 1.28, **iglidur® J** page 1.38, **W300** page 1.54
- When a cost-effective universal bearing is required
  ▶ **iglidur® G** page 1.28

Material table

General properties	Unit	iglidur® V400	Testing method
Density	g/cm³	1,51	
Colour		white	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,1	DIN 53495
Max. moisture absorption	% weight	0,2	
Mechanical properties			
Modulus of elasticity	MPa	4.500	DIN 53457
Tensile strength at 20°C	MPa	95	DIN 53452
Max. static surface pressure (20°C)	MPa	45	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	200	
Max. short term application temperature	°C	240	
Max. short term ambient temperature[1)]	°C	250	
Min. application temperature	°C	-50	
Electrical properties			
Specific volume resistance	Ω cm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/v400

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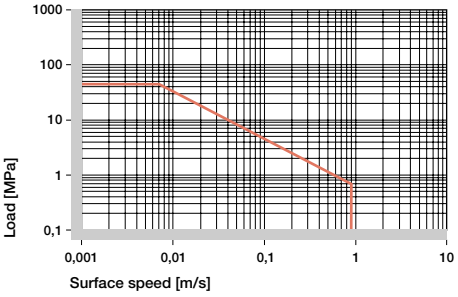
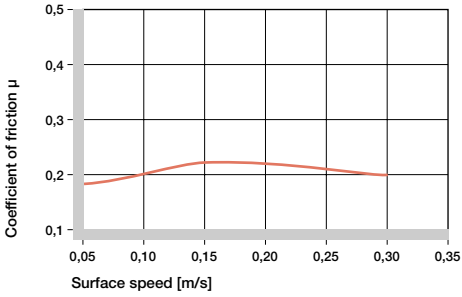
E-mail: info@igus.de

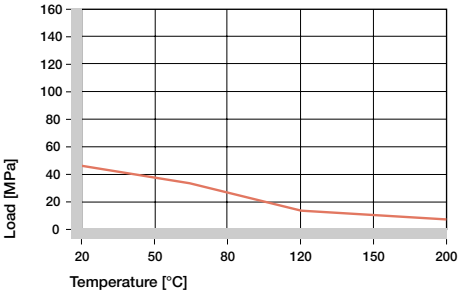
Permissible p x v values for iglidur® V400 running dry against a steel shaft at 20°C



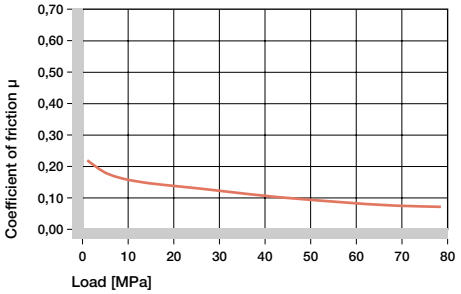
Coefficients of friction for iglidur® V400 as a function of the surface speed, p = 0,75 MPa



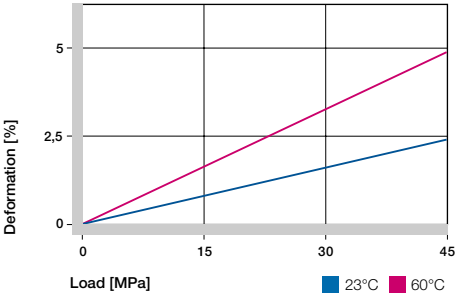
Recommended maximum surface pressure of iglidur® V400 as a function of temperature



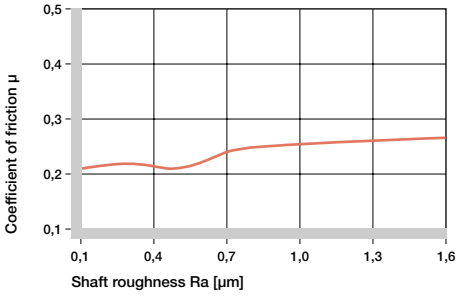
Coefficients of friction of iglidur® V400 as a function of the load, v = 0,01 m/s



Deformation under load and temperature



Coefficients of friction as a function of the shaft surface (shaft cold rolled steel)



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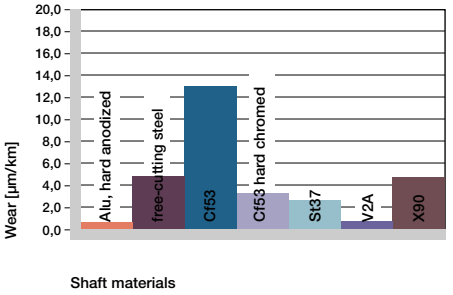
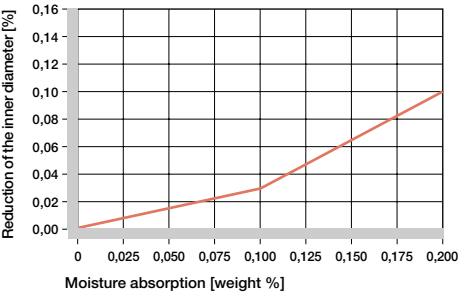
iglidur® V400 – Information and Technical Data

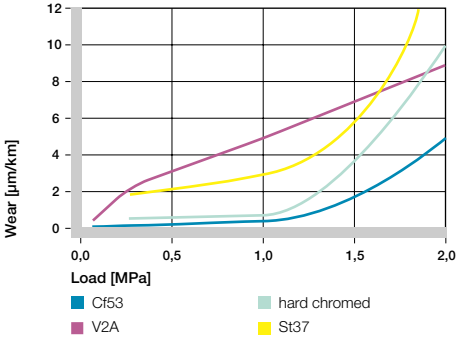
Wear of iglidur® V400, rotating application with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Effect of moisture absorption on iglidur® V400 plain bearings



Wear of iglidur® V400 with different shaft materials in rotating applications



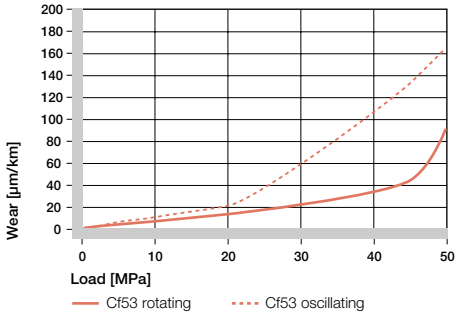
Electrical properties

iglidur® V400	
Specific volume resistance	> 10^{12} Ωcm
Surface resistance	> 10^{12} Ω

Essential tolerances for iglidur® V400 bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® V400 E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

Wear with shaft material Cf53, oscillating and rotating applications, p = 2 MPa



Chemical resistance of iglidur® V400

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

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

iglidur® V400
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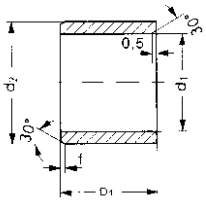
E-mail: info@igus.de

Lifetime calculation, CAD files and much more support ▶ **www.igus.de/en/v400**

iglidur® V400 – Sleeve Bearing – Type S



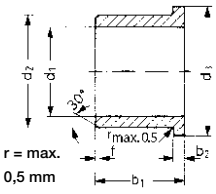
f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure - Part No.
V S M-06 08 - 06
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1
			h13
VSM-0608-06	6,0	8,0	6,0
VSM-0810-10	8,0	10,0	10,0
VSM-1012-10	10,0	12,0	10,0
VSM-1214-12	12,0	14,0	12,0
VSM-1618-15	16,0	18,0	15,0
VSM-2023-20	20,0	23,0	20,0

* Standard tolerances for iglidur® V400: E10

iglidur® V400 – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions

Structure - Part No.
V F M-06 08 - 06
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3	b1	b2
			d13	h13	-0,14
VFM-0608-06	6,0	8,0	12,0	6,0	1,0
VFM-0810-10	8,0	10,0	15,0	10,0	1,0
VFM-1012-10	10,0	12,0	18,0	10,0	1,0
VFM-1214-12	12,0	14,0	20,0	12,0	1,0
VFM-1618-17	16,0	18,0	24,0	17,0	1,0
VFM-2023-21	20,0	23,0	30,0	21,5	1,5

* Standard tolerances for iglidur® V400: E10

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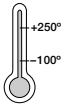
iglidur® Z – The High Temperature Material

iglidur® Z is a high temperature bearing material, which is suited for applications with very high specific loads. iglidur® Z is suited for both average and high speeds due to its high thermal resistance.

Product range

- 3 Styles
- > 50 Dimensions
- Ø 4–62 mm



Max. running speed

[m/s]	Continuous	Short term
Rotating	1,5	3,5
Oscillating	3	4
Linear	5	6

Price index

The continuous operating temperature in the bonding arms on a tubular bag machine frequently reach 160°C and higher. These requirments are fulfilled by iglidur® Z bearings which also offer particularly distinguished resistance to wear.

Here iglidur® Z bearings led to significant reduction of the costs. This was achieved by eliminating the maintenance work completely during the season. With iglidur® Z bearings it is not necessary to check or relubricate the mounts and shafts. Moreover it was possible to reduce the weight.

When to use iglidur® Z

- For extreme loads
- High thermal resistance, for continuous temperatures up to 250°C or 310°C short term
- For high temperature applications
- For high surface speeds
- For edge loading in connection with high surface pressures

When not to use iglidur® Z

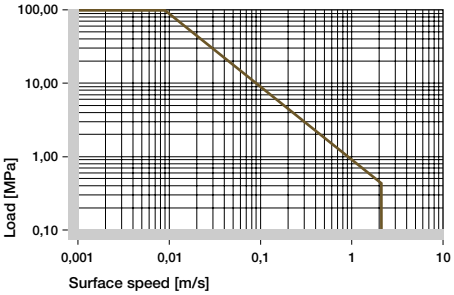
- For low loads and temperatures ▶ **iglidur® P** page 1.106
- When a cost-effective all around bearing is sought ▶ **iglidur® G** page 1.28
- When electrically conductive bearings are needed ▶ **iglidur® F** page 1.86, **H** page 1.90 **or H370** page 1.98

Material table

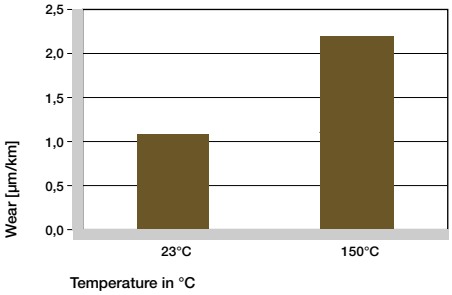
General properties	Unit	iglidur® Z	Testing method
Density	g/cm³	1,40	
Colour		brown	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,3	DIN 53495
Max. moisture absorption	% weight	1,1	
Coefficient of sliding friction, dynamic against steel	µ	0,06 - 0,14	
p x v value, max. (dry)	MPa x m/s	0,84	
Mechanical properties			
Modulus of elasticity	MPa	2.400	DIN 53457
Tensile strength at 20°C	MPa	95	DIN 53452
Compressive strength	MPa	65	
Max. static surface pressure (20°C)	MPa	100	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	250	
Max. short term application temperature	°C	310	
Min. application temperature	°C	-100	
Thermal conductivity	W/m x K	0,62	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	4	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$> 10^{11}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/z

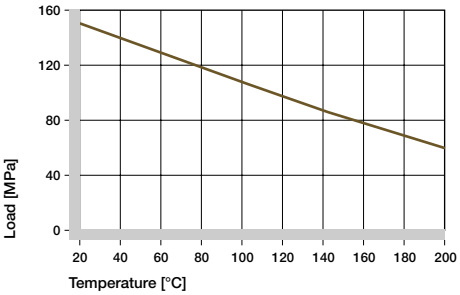
Permissible p x v values for iglidur® Z running dry against a steel shaft, at 20°C



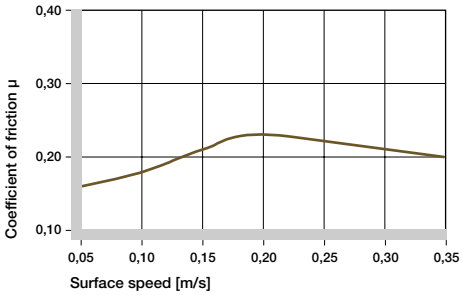
Wear as a function of temperature, rotation with p = 0,75 MPa, v = 0,5 m/s, (shaft cold rolled steel)



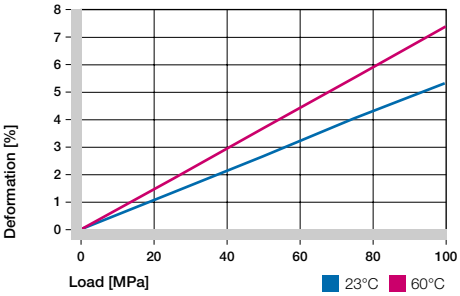
Recommended maximum surface pressure of iglidur® Z as a function of temperature



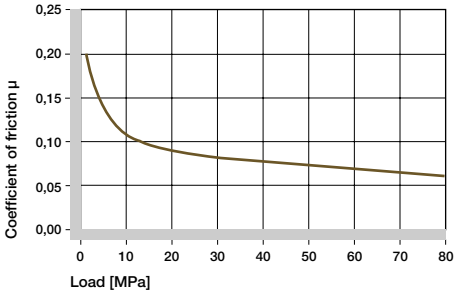
Coefficients of friction of iglidur® Z as a function of the running speed, p = 0,75 MPa



Deformation under load and temperature



Coefficients of friction of iglidur® Z as a function of the load, v = 0,01 m/s



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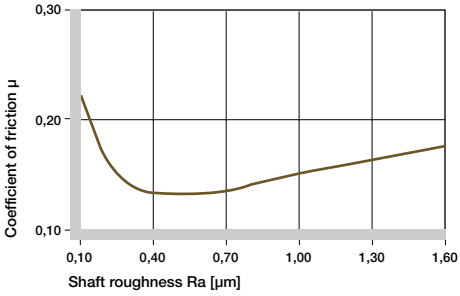
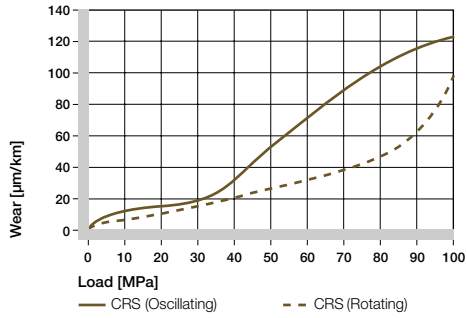
iglidur® Z – Information and Technical Data

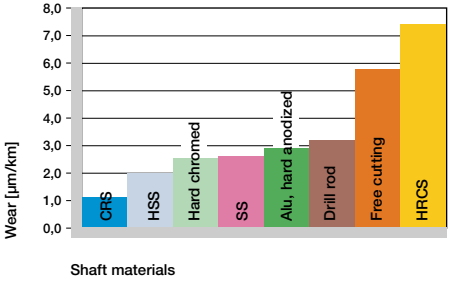
Coefficients of friction of iglidur® Z as a function of the shaft surface (shaft cold rolled steel)



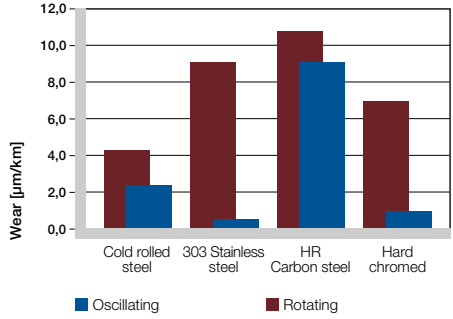
Wear for oscillating and rotating applications with a cold rolled steel shaft



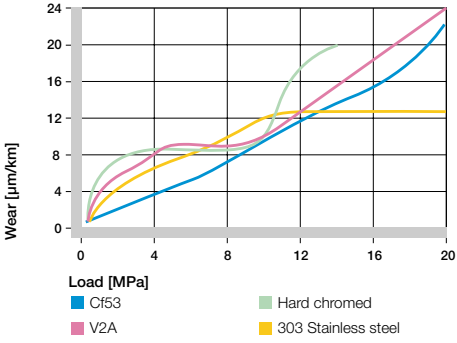
Wear of iglidur® Z, rotating applications with different shaft materials, p = 0,75 MPa, v = 0,5 m/s



Wear for oscillating and rotating applications with different shaft materials, p = 2 MPa



Wear of iglidur® Z with different shaft materials in rotating applications



Essential tolerances for iglidur® Z plain bearings after pressfit (only for plain bearings with diameter acc. ISO 3547-1)

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® Z F10 [mm]
up to 3	0 - 0,025	+0,006 + 0,046
> 3 to 6	0 - 0,030	+0,010 + 0,058
> 6 to 10	0 - 0,036	+0,013 + 0,071
> 10 to 18	0 - 0,043	+0,016 + 0,086
> 18 to 30	0 - 0,052	+0,020 + 0,104
> 30 to 50	0 - 0,062	+0,025 + 0,125

Electrical properties

iglidur® Z	
Specific volume resistance	> 10^{11} Ωcm
Surface resistance	> 10^{11} Ω

Chemical resistance of iglidur® Z

Medium	Resistance
Alcohol	0
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	+
Strong acids	–
Weak alkaline	+
Strong alkaline	–

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

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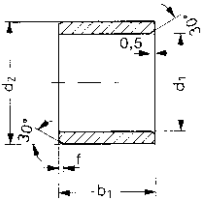
Lifetime calculation, CAD files and much more support ► www.igus.de/en/z

iglidur® Z – Sleeve Bearing – Type S



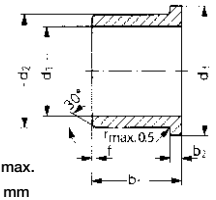
f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions
* Standard tolerances for iglidur® Z: F10

Structure – Part No.
Z S M-04 05 - 04
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	b1 h13
ZSM-0405-04	4,0	5,5	4,0
ZSM-0507-05	5,0	7,0	5,0
ZSM-0608-08	6,0	8,0	8,0
ZSM-0608-12	6,0	8,0	12,0
ZSM-0810-10	8,0	10,0	10,0
ZSM-1012-08	10,0	12,0	8,0
ZSM-1012-10	10,0	12,0	10,0
ZSM-1012-12	10,0	12,0	12,0
ZSM-1214-15	12,0	14,0	15,0
ZSM-1517-15	15,0	17,0	15,0
ZSM-1618-12	16,0	18,0	12,0
ZSM-1618-15	16,0	18,0	15,0
ZSM-1820-20	18,0	20,0	20,0
ZSM-2023-15	20,0	23,0	15,0

Part No.	d1*	d2	b1 h13
ZSM-2023-20	20,0	23,0	20,0
ZSM-2023-30	20,0	23,0	30,0
ZSM-2023-35	20,0	23,0	35,0
ZSM-2528-20	25,0	28,0	20,0
ZSM-2528-30	25,0	28,0	30,0
ZSM-2528-48	25,0	28,0	48,0
ZSM-3034-30	30,0	34,0	30,0
ZSM-3034-40	30,0	34,0	40,0
ZSM-3539-20	35,0	39,0	20,0
ZSM-4044-40	40,0	44,0	40,0
ZSM-4044-47	40,0	44,0	47,0
ZSM-5055-60	50,0	55,0	60,0
ZSM-6065-60	60,0	65,0	60,0

iglidur® Z – Flange Bearing – Type F



r = max. 0,5 mm

f = 0,3 ▶ d1 = 1–6
f = 0,5 ▶ d1 = 6–12
f = 0,8 ▶ d1 = 12–30
f = 1,2 ▶ d1 > 30
Chamfer in relation to the d1.
Dimensions according to ISO 3547-1 and special dimensions
* Standard tolerances for iglidur® Z: F10

Structure – Part No.
Z F M-04 05 - 04
b1
d2
d1
Metric
Type
Material

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
ZFM-0405-04	4,0	5,5	9,5	4,0	0,75
ZFM-0507-05	5,0	7,0	11,0	5,0	1,0
ZFM-0608-08	6,0	8,0	12,0	8,0	1,0
ZFM-0810-09	8,0	10,0	15,0	9,0	1,0
ZFM-1012-09	10,0	12,0	18,0	9,0	1,0
ZFM-1214-09	12,0	14,0	20,0	9,0	1,0
ZFM-1214-12	12,0	14,0	20,0	12,0	1,0
ZFM-1214-20	12,0	14,0	20,0	20,0	1,0
ZFM-1416-17	14,0	16,0	22,0	17,0	1,0
ZFM-1517-11	15,0	17,0	23,0	11,0	1,0
ZFM-1517-15	15,0	17,0	23,0	15,0	1,0
ZFM-1820-04	18,0	20,0	26,0	4,0	1,0
ZFM-1820-17	18,0	20,0	26,0	17,0	1,0
ZFM-2022-21	20,0	22,0	30,0	21,0	1,0

Part No.	d1*	d2	d3 d13	b1 h13	b2 -0,14
ZFM-2023-11	20,0	23,0	30,0	11,5	1,5
ZFM-2023-21	20,0	23,0	30,0	21,5	1,5
ZFM-2023-31	20,0	23,0	30,0	31,5	1,5
ZFM-2528-16	25,0	28,0	35,0	16,5	1,5
ZFM-2528-21	25,0	28,0	35,0	21,5	1,5
ZFM-2528-31	25,0	28,0	35,0	31,5	1,5
ZFM-3034-20	30,0	34,0	42,0	20,0	2,0
ZFM-3034-26	30,0	34,0	42,0	26,0	2,0
ZFM-3034-37	30,0	34,0	42,0	37,0	2,0
ZFM-3539-26	35,0	39,0	47,0	26,0	2,0
ZFM-4044-20	40,0	44,0	52,0	20,0	2,0
ZFM-4044-40	40,0	44,0	52,0	40,0	2,0
ZFM-7580-50	75,0	80,0	88,0	50,0	2,5

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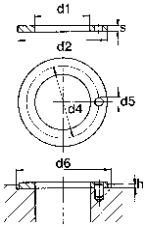
iglidur® Z – Thrust Washer – Type T



Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

Z T M-15 27 - 015

- s
- d2
- d1
- Metric
- Type
- Material

Part No.	d1 +0,25	d2 -0,25	s -0,05	d4 - 0,12/+0,12	d5 +0,375/+0,125	h +0,2/- 0,2	d6 +0,12
ZTM-1527-015	25,0	27,0	1,5	–	–	1,0	27,0
ZTM-1623-015	16,0	23,0	1,5	–	–	1,0	23,0
ZTM-2644-015	26,0	44,0	1,5	35,0	3,0	1,0	44,0
ZTM-3254-015	32,0	54,0	1,5	43,0	4,0	1,0	54,0
ZTM-4874-020	48,0	74,0	2,0	61,0	4,0	1,5	74,0
ZTM-6290-020	62,0	90,0	2,0	76,0	–	1,5	90,0

iglidur® Z

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iglidur® – Plain Bearings – Special Materials

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iglidur® B

Very Elastic

- Vibration dampening
- High wear resistance in combination with low loads
- Excellent performance in applications with edge pressure

Vibration dampening is main target in the development of elastic yet wear-resistant iglidur® B.

More Information to this special material:

► www.igus.de/en/B

iglidur® C

Free of PTFE and silicon

- With low speeds
- In applications where the use of PTFE or silicone is not permitted
- In dirty environments
- If low noise level is required

Plain bearings made from iglidur® C were specially developed for applications in which the use of PTFE (e.g. Teflon®) and silicone are not approved. Such applications can be found in electrical engineering, the tobacco-industry and in paint-shop-equipment.

More Information to this special material:

► www.igus.de/en/C

iglidur® D

Highly cost-effective

- Low coefficients of friction at high speeds
- Maintenance-free, self-lubricating
- Vibration dampening
- Very low moisture absorption
- For low loads
- When a highly cost-effective bearing is required

In the development of iglidur® D as a bearing material, high performance and a very low price were the top requirements. In particular, low coefficients of friction were needed at high speeds in the dry run.

More Information to this special material:

► www.igus.de/en/D

iglidur® GLW

Reasonably Priced

- Resistant to dirt and vibrations
- Economical all-around bearing for mass production
- For high, primarily static loads
- For low to medium speeds
- When the bearing should be suitable for different shafts

With plain bearings made of iglidur® GLW we can offer our customers an alternative to iglidur® G for mass-production applications. With similar characteristic values as iglidur® G iglidur® GLW plain bearings are recommended for primarily static loads.

More Information to this special material:

► www.igus.de/en/GLW

Material table

	iglidur® B	iglidur® C	iglidur® D	iglidur® GLW
Density:	1,15 g/cm³	1,10 g/cm³	1,40 g/cm³	1,36 g/cm³
Max. moisture absorption at 23°C / 50%r.F.:	1,0 % Weight	1,0 % Weight	0,3 % Weight	1,3 % Weight
Max. moisture absorption	6,3 % Weight	6,9 % Weight	1,1 % Weight	5,5 % Weight
Modulus of elasticy (DIN 53457):	1750 MPa	1900 MPa	2000 MPa	7700 MPa
Tensile strength at 20°C (DIN 53452):	55 MPa	60 MPa	72 MPa	235 MPa
Max. static surface pressure:	40 MPa	40 MPa	23 MPa	80 MPa
Shore D hardness (DIN 53505):	69	72	78	78
Max. long term application temperature:	100°C	90°C	90°C	100°C
Max. short term application temperature:	130°C	130°C	110°C	160°C
Min. application temperature:	-40°C	-40°C	-50°C	-40°C
Specific volume resistance:	$>10^{10}$ Ωcm	$>10^{10}$ Ωcm	$>10^{14}$ Ωcm	$>10^{11}$ Ωcm
Surface resistance:	$>10^{9}$ Ω	$>10^{9}$ Ω	$>10^{14}$ Ω	$>10^{11}$ Ω

Lifetime calculation, CAD files and much more support ► www.igus.de/en/iglidur

iglidur® – Plain Bearings – Special Materials

iglidur® H2

Automotive applications

- Maintenance-free
- Resistant to chemicals
- For contact with fuels, oils
- Cost-effective bearings for high temperatures

iglidur® H2 plain bearings are used mostly for economic reasons. iglidur® H2 plain bearings are self lubricating and suitable for low speed applications up to 200°C.

More Information to this special material:

► www.igus.de/en/H2

iglidur® J200

Linear movement

- For applications with anodized shafts
- When lowest friction values are required
- If highest lifetime is required

iglidur® J200 increases the application lifetime on anodized aluminium profiles compared to standard bearings by 34%. Simultaneously the friction values of the system are lowered (20%).

More Information to this special material:

► www.igus.de/en/J200

iglidur® T220

Tobacco industry

- When bearings need to be free of substances that are not permitted for applications of the tobacco industry

Plain bearings made from iglidur® T220 were specially developed to exclude substances that are not permitted in the tobacco industry. iglidur® T220 is used in tobacco manufacturing etc.

More Information to this special material:

► www.igus.de/en/T220

iglidur® UW500

Specialist for hot Water

- Extremely wear resistant under water
- High temperature resistance
- High chemical resistance

iglidur® UW500 was developed for underwater applications at temperatures up to 250°C. In addition, the bearings will run in chemicals which would act as a lubricant.

More Information to this special material:

► www.igus.de/en/UW500

Material table

	iglidur® H2	iglidur® J200	iglidur® T220	iglidur® UW500
Density:	1,69 g/cm³	1,72 g/cm³	1,28 g/cm³	1,49 g/cm³
Max. moisture absorption 23°C und 50%r.F.:	< 0,1 % Weight	0,2 % Weight	0,3 % Weight	0,1 % Weight
Max. moisture absorption	0,2 % Weight	0,7 % Weight	0,5 % Weight	0,5 % Weight
Modulus of elasticy (DIN 53457):	10300 MPa	n.d.	1800 MPa	n.d.
Tensile strength at 20°C (DIN 53452):	210 MPa	n.d.	65 MPa	n.d.
Max. static surface pressure:	110 MPa	23 MPa	45 MPa	140 MPa
Shore D hardness (DIN 53505):	88	70	76	86
Max. long term application temperature:	200°C	90°C	100°C	250°C
Max. short term application temperature:	240°C	120°C	160°C	315°C
Min. application temperature:	-40°C	-50°C	-40°C	-100°C
Specific volume resistance:	$>10^{15}$ Ωcm	$>10^{8}$ Ωcm	$>10^{10}$ Ωcm	$<10^{9}$ Ωcm
Surface resistance:	$>10^{14}$ Ω	$>10^{8}$ Ω	$>10^{10}$ Ω	$<10^{9}$ Ω

Lifetime calculation, CAD files and much more support ► www.igus.de/en/iglidur

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mm

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Product range

iglidur® Clips

iglidur® clip bearings are designed specifically for putting shafts through sheet metal. For this reason, the bearings have flanges located on both ends. The bearings are secured in the sheet metal plate on both sides after fitting.

- > 25 Dimensions
- Ø 3–25 mm

+80°
-40°

iglidur®-Clip bearing

Advantages

- Secured with the double flange design
- Maintenance-free and self-lubricating
- Good wear resistance
- Smooth operation
- Low noise
- Used for both rotational and linear movements
- Expansion possible due to slot design
- Material: iglidur® M250
  (for details on iglidur® M250 ▶ **page 1.46**)

Material table

General properties	Unit	iglidur® M250	Testing Method
Density	g/cm³	1,14	
Colour		charcoal	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,4	DIN 53495
Max. moisture absorption	% weight	7,6	
Coefficient of sliding friction, dynamic against steel	µ	0,1 - 0,3	
p x v value, max. (dry)	MPa x m/s	0,12	
Mechanical properties			
Modulus of elasticity	MPa	2.700	DIN 53457
Tensile strength at 20°C	MPa	112	DIN 53452
Compressive strength	MPa	52	
Max. static surface pressure (20°C)	MPa	20	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	80	
Max. short term application temperature	°C	170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/clips

iglidur® Clips

iglidur® clip bearings are designed specifically for putting shafts through sheet metal. For this reason, the bearings have flanges located on both ends. The bearings are secured in the sheet metal plate on both sides after fitting.
The clip bearings have an angled slot and as such installation of the bearings is possible from one side. After installation, the bearing widens and forms a lining for the bore in the metal plate. The shaft prevents the clip bearing from detaching from the housing. Even during axial movement, the bearing cannot slide out of the housing.
In addition, the lateral slot can compensate for bearing expansions due to temperature or moisture. During expansion, the slot width decreases, and changes to the bearing clearance are minimized.
The flange diameter on the smaller side is made in such a way that housings with larger tolerances can be properly secured.

Special Properties of the iglidur® Clip Bearing

iglidur® clip bearings are made of wear resistant material iglidur® M250. iglidur® M250 is a plain bearing material with strong wear resistance at average loads. The bearings are self-lubricating and can be used dry. The bearings can also be lubricated if desired. However iglidur® M250 material is resistant to all common lubricants. Other special materials are available upon request, please contact us for more details.

Compressive Strength

The permissible static pressure of iglidur® clip bearings at room temperature is 18 MPa. Due to the possibility of high tolerances in the housing bore, the clip bearing has a high compressive strength even for punched holes. For bearing surfaces that are very small, the vibration dampening properties and the resistance to edge loads are especially important.

Surface Speeds

Clip bearings are extremely wear resistant in slow rotating, oscillating, and linear movements. The maximum surface speeds for the different movements are the same as for the material M250 (Table page 1.134). With lubrication during installation or continuous lubrication, the permissible speeds can be increased.

Operating Temperatures

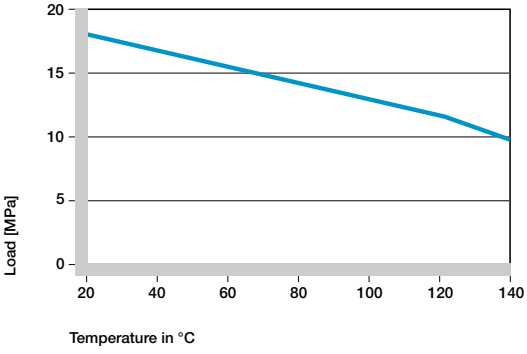
For operating temperatures up to 80 °C iglidur® clip bearings display high wear resistance. Even in the cold, the plain bearings remain elastic and resistant to wear.

Installation

For installation, the plain bearings are pressed together on the side with the large flange. The angled slot makes the bearing spiral shaped so that it can be placed easily into the metal plate. The slot also compensates for expansions of the circumference. In this way, a tight clearance is possible with the clip bearings. The recommended clearance allows a nominal size shaft to turn easily. The clip bearing can also rotate within the housing bore.

iglidur® Clip bearings are available in sizes from 3 to 25 mm from stock.

Recommended maximum surface pressure of iglidur® M250 as a function of temperature



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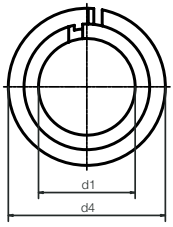

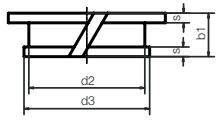

Structure - Part No.

M C M-03-02

- b1 - 2 x s
- d1
- Metric
- Type
- Material

Dimensions [mm]

Part No.	d1	d2	d3	d4	s	b1
	D11*				-0,10	+0,20
MCM-03-02	3	4,2	4,8	6	0,6	3,2
MCM-04-02	4	5,2	5,9	7	0,6	3,2
MCM-05-02	5	6,2	6,8	8	0,6	3,2
MCM-06-02	6	7,2	7,8	11	0,6	3,2
MCM-08-02	8	9,6	10,4	13	0,8	3,6
MCM-09-02	9	10,6	11,4	14	0,8	3,6
MCM-10-02	10	11,6	12,4	15	0,8	3,6
MCM-12-02	12	13,6	14,4	17	0,8	3,6
MCM-16-02	16	17,6	18,4	21	0,8	3,6
MCM-03-03	3	4,2	4,8	6	0,6	4,2
MCM-04-03	4	5,2	5,9	7	0,6	4,2
MCM-05-03	5	6,2	6,8	8	0,6	4,2
MCM-06-03	6	7,2	7,8	11	0,6	4,2
MCM-07-03	7	9	9,8	13	0,8	4,6
MCM-08-03	8	9,6	10,4	13	0,8	4,6
MCM-10-03	10	11,6	12,4	15	0,8	4,6
MCM-12-03	12	13,6	14,4	17	0,8	4,6
MCM-14-03	14	15,6	16,4	19	0,8	4,6
MCM-16-03	16	17,6	18,4	21	0,8	4,6
MCM-18-03	18	20	21	23	1,0	5,0
MCM-20-03	20	22	23	25	1,0	5,0
MCM-25-03	25	27	28	30	1,0	5,0
MCM-06-04	6	7,2	7,8	11	0,6	5,2
MCM-12-04	12	13,6	14,4	17	0,8	5,6

* d1 is checked using a cylinder gauge, fits/doesn't fit after insertion into test receptacle with d2 (+0.005)

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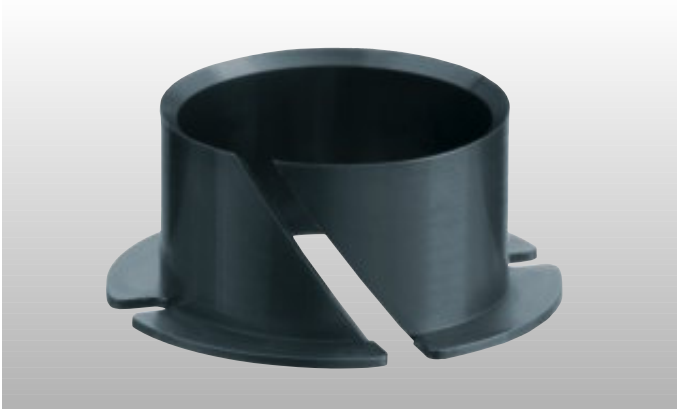
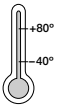
Product range

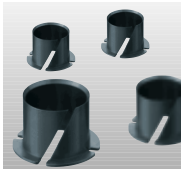
iglidur® Clips2

These self lubricating plain bearings made of iglidur® M250 are defined by their impact strength, vibration dampening, and wear resistant properties. They excel in applications in which vibration dampening is necessary, for example, in fitness and packaging machines.



- > 10 Dimensions
- Ø 4–25 mm





iglidur®-Clips2 bearing

Advantages

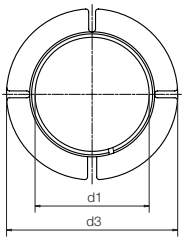
- Low bearing clearance, very precise
- Easy installation owing to angled slit
- Material: iglidur® M250
  (for details on iglidur® M250 ▶ **page 1.46**)
- Maintenance-free and predictable service life

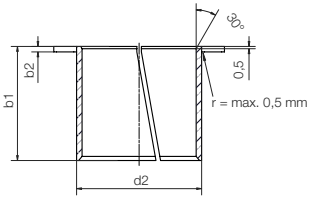
Material table

General properties	Unit	iglidur® M250	Testing method
Density	g/cm³	1,14	
Colour		charcoal	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,4	DIN 53495
Max. moisture absorption	% weight	7,6	
Coefficient of sliding friction, dynamic against steel	µ	0,1 - 0,3	
p x v value, max. (dry)	MPa x m/s	0,12	
Mechanical properties			
Modulus of elasticity	MPa	2.700	DIN 53457
Tensile strength at 20°C	MPa	112	DIN 53452
Compressive strength	MPa	52	
Max. static surface pressure (20°C)	MPa	20	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	80	
Max. short term application temperature	°C	170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/clips2

iglidur® Clips2 – Flange Bearing





Structure – Part No.

M Y M-04 - 04

- b1
- d1
- Metric
- Clips2
- Material

Dimensions [mm]

Part No.	d1*	d1-Tol.*	d2**	d3	d3-Tol.	b1	b1-Tol.	b2	b2-Tol.
MYM-04-04	4	+0,025/+0,075	5,20	7,00	+/-0,40	4,00	-0,40	0,60	-0,13
MYM-05-05	5	+0,025/+0,075	6,20	8,00	+/-0,40	5,00	-0,40	0,60	-0,13
MYM-06-06	6	+0,025/+0,075	7,20	9,50	+/-0,40	6,00	-0,40	0,60	-0,13
MYM-08-08	8	+0,025/+0,075	9,60	12,00	+/-0,40	8,00	-0,40	0,80	-0,13
MYM-10-10	10	+0,025/+0,075	11,60	15,00	+/-0,40	10,00	-0,40	0,80	-0,13
MYM-12-12	12	+0,025/+0,075	13,60	18,00	+/-0,40	12,00	-0,40	0,80	-0,13
MYM-14-14	14	+0,025/+0,075	15,60	21,00	+/-0,40	14,00	-0,40	0,80	-0,13
MYM-16-16	16	+0,025/+0,075	17,60	24,00	+/-0,40	16,00	-0,40	0,80	-0,13
MYM-20-20	20	+0,025/+0,075	21,60	30,00	+/-0,40	20,00	-0,40	0,80	-0,13
MYM-25-25	25	+0,025/+0,075	27,40	37,50	+/-0,40	25,00	-0,40	1,20	-0,13

* d1 is checked with go / nogo plug gauge after press-fitting in fixture d2

** Diameter of housing bore (tolerance +0.005 mm)

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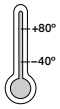
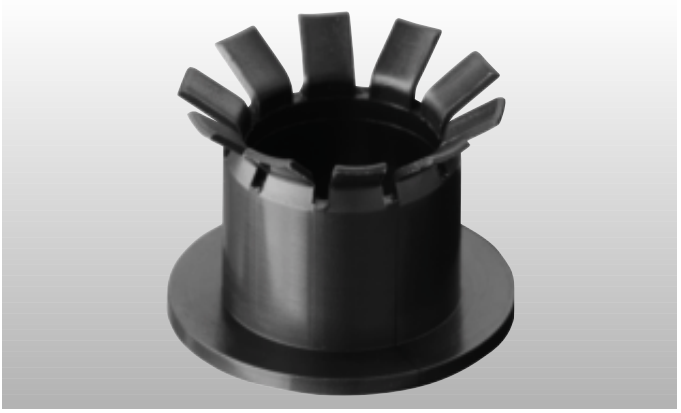
iglidur® MKM – Double Flange Bearing

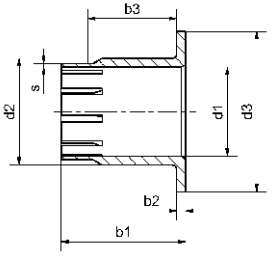
Bearing with flanges on both ends. Easy installation by pressing in and turning down the “second flange” in one step



Advantages

- Pressfit
- Axial load on both sides possible
- Compensation of tolerances of the sheet metal
- Easy assembly
- Axial pre-tension





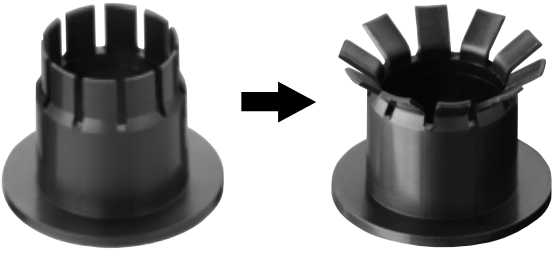
Structure - Part No.

M K M-1012-10

- Thickness
- d2
- d1
- Metric
- Type
- Material

Dimensions [mm]

Part No.	b1 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	b2 –0,14 [mm]	b3 ±0,5 [mm]	s ±0,1
MKM-1012-10	10	12	18	14	1	10	0,4



Press in, fold down, finished: flange on both sides

Lifetime calculation, CAD files and much more support ► www.igus.de/en/iglidur

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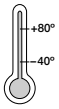
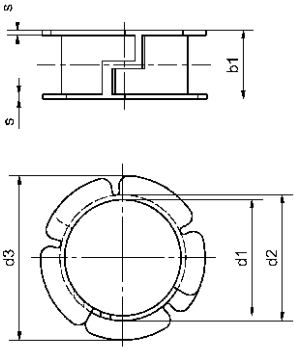
iglidur® MDM – Double Flange Bearing

Clip-on bearing with a symmetrical, double-collar. The large second collar allows the bearing to withstand high axial forces and ensures secure mounting even in the case of large tolerances.



Advantages

- big flange areas
- symmetrical flange
- easy assembly
- clips in easily
- cannot be lost in paintshop process



Structure - Part No.

M D M-1213-06

- Thickness
- d2
- d1
- Metric
- Type
- Material

Dimensions [mm]

Part No.	b1 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	s
MDM-1213-06	12	13	16,5	7	0,5

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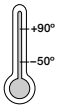
Product range

- 2 Styles
- > 15 Dimensions
- Ø 8–20 mm



iglidur® JVSM/JVFM – preloaded

iglidur® JVSM and JVFM bearings are free of clearance in unloaded state because of the pre-tension at the ends. The material iglidur® J is designed for the lowest coefficient of friction while running dry and for its low stick slip tendency.

JVFM flange version

Advantages

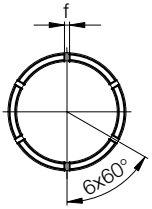
- Pre-tensioned bearing free of clearance
- Fully clearance free, when unloaded
- Material: iglidur® J ▶ **page 1.38**
- Maintenance-free
- Predictable service life

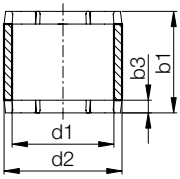
Material table

General properties	Unit	iglidur® J	Testing method
Density	g/cm³	1,49	
Colour		yellow	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,3	DIN 53495
Max. moisture absorption	% weight	1,3	
Coefficient of sliding friction, dynamic against steel	µ	0,08 - 0,18	
p x v value, max. (dry)	MPa x m/s	0,34	
Mechanical properties			
Modulus of elasticity	MPa	2.400	DIN 53457
Tensile strength at 20°C	MPa	73	DIN 53452
Compressive strength	MPa	60	
Max. static surface pressure (20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m x K	0,25	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/jvsm

iglidur® JVSM – Radial preloaded Bearings – Type S





Structure – Part No.

J V S M-08 10 - 08

- b1
- d2
- d1
- Metric
- Type
- Pre-ten.
- Material

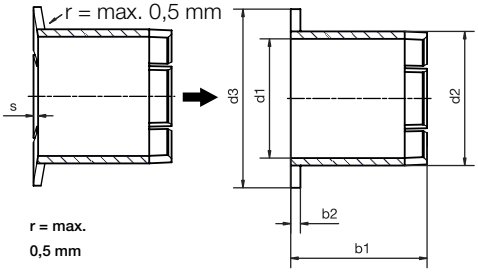
Dimensions [mm]

Part No	d1	d1-Tolerances E10	d2	b1 h13	b3	f
JVSM-0810-08	8	+0,083/+0,025	10	8	2,0	1
JVSM-1012-10	10	+0,083/+0,025	12	10	2,0	1
JVSM-1214-12	12	+0,102/+0,032	14	12	2,0	1
JVSM-1416-14	14	+0,102/+0,032	16	14	2,0	1
JVSM-1517-15	15	+0,102/+0,032	17	15	2,5	1
JVSM-1820-18	18	+0,102/+0,032	20	18	2,5	1
JVSM-2023-20	20	+0,124/+0,040	23	20	2,5	1

d1 measured after press-fitting in housing bore

d2 nominal dimension of H7

iglidur® JVFM – Radial and axial preloaded Bearings – Type F



r = max.
0,5 mm

Structure – Part No.

J V F M-08 10 - 10

- b2
- d2
- d1
- Metric
- Type
- Pre-ten.
- Material

Dimensions [mm]

Part No	d1 E10	d2	d3	b1	b2	s
JVFM-0810-10	8	10	15	10	1	0,44
JVFM-1012-10	10	12	18	10	1	0,53
JVFM-1214-12	12	14	20	12	1	0,53
JVFM-1416-12	14	16	22	12	1	0,53
JVFM-1517-15	15	17	23	15	1	0,53
JVFM-1820-18	18	20	26	18	1	0,53
JVFM-2023-20	20	23	30	20	1,5	0,62

Lifetime calculation, CAD files and much more support ► **www.igus.de/en/jvsm**

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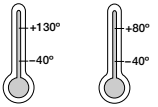
Product range

iglidur® – Flange Bearing

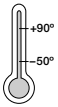
With this design it is possible to use iglidur® high performance plain bearings in locations where recommended housing bore tolerances are not possible.

- 4 Materials
- > 10 Dimensions
- Ø 10–35 mm

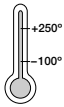


GFL

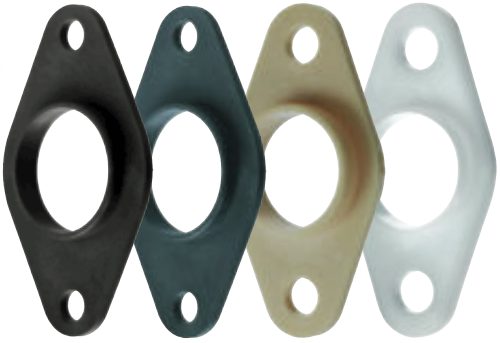
A180FL



JFL



XFL




iglidur®-Flange Bearing


Different materials and sizes available

Advantages

- Maintenance-free
- Very good wear resistance
- Very high temperature resistance
- Resistant to dirt, dust and lint
- Corrosion resistant
- Vibration dampening
- Suitable for rotating and linear movements
- Very light weight

Available materials

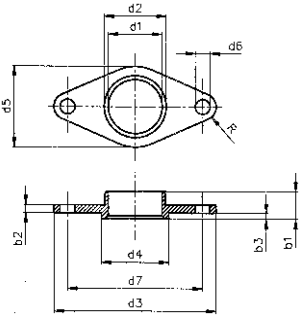
- iglidur® G ▶ **page 1.28**
- iglidur® A180 ▶ **page 1.68**
- iglidur® J ▶ **page 1.38**
- iglidur® X ▶ **page 1.62**

Material table, iglidur® G – the Allrounder

General properties	Unit	iglidur® G	Testing Method
Density	g/cm³	1,46	
Colour		dark gray	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,7	DIN 53495
Max. moisture absorption	% weight	4,0	
Coefficient of sliding friction, dynamic against steel	µ	0,08 - 0,15	
p x v value, max. (dry)	MPa x m/s	0,42	
Mechanical properties			
Modulus of elasticity	MPa	7,800	DIN 53457
Tensile strength at 20°C	MPa	210	DIN 53452
Compressive strength	MPa	78	
Max. static surface pressure (20°C)	MPa	80	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	130	
Max. short term application temperature	°C	220	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	9	DIN 53752
Electrical properties			
Specific volume resistance	Ω cm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/iglidur

iglidur® – Flange Bearings



Structure - Part No.

G FL -10

- d1
- Flange
- Material

Dimensions [mm]

iglidur® G	d1 [1]	d2 [2]	d3	d4	d5	d6	d7 (± 0,2)	b1	b2	b3	R
GFL-10	10	12	30	14	15	4,5	22	6	2	1	4
GFL-12	12	14	36	16	18	4,5	26	6	2	1	4,5
GFL-14	14	16	42	18	21	5,5	30	6	2	1	5
GFL-16	16	18	48	20	24	5,5	34	6	2	1	5,5
GFL-18	18	20	54	22	27	6,5	39	6	2	1	7
GFL-20	20	23	60	26	30	6,5	44	10	3	2	7
GFL-25	25	28	75	30	35	6,5	55	10	3	2	8,5
GFL-30	30	34	90	36	40	8,5	66	10	3	2	10
GFL-35	35	39	95	41	55	8,5	77	10	3	2	12

iglidur® A180	d1 [1]	d2 [2]	d3	d4	d5	d6	d7 (± 0,2)	b1	b2	b3	R
A180FL-10	10	12	30	14	15	4,5	22	6	2	1	4
A180FL-12	12	14	36	16	18	4,5	26	6	2	1	4,5
A180FL-16	16	18	48	20	24	5,5	34	6	2	1	5,5
A180FL-20	20	23	60	26	30	6,5	44	10	3	2	7
A180FL-25	25	28	75	30	35	6,5	55	10	3	2	8,5
A180FL-30	30	34	90	36	40	8,5	66	10	3	2	10
A180FL-35	35	39	95	41	55	8,5	77	10	3	2	12

iglidur® J	d1 [1]	d2 [2]	d3	d4	d5	d6	d7 (± 0,2)	b1	b2	b3	R
JFL-10	10	12	30	14	15	4,5	22	6	2	1	4
JFL-12	12	14	36	16	18	4,5	26	6	2	1	4,5
JFL-16	16	18	48	20	24	5,5	34	6	2	1	5,5
JFL-20	20	23	60	26	30	6,5	44	10	3	2	7
JFL-25	25	28	75	30	35	6,5	55	10	3	2	8,5
JFL-30	30	34	90	36	40	8,5	66	10	3	2	10
JFL-35	35	39	95	41	55	8,5	77	10	3	2	12

iglidur® X	d1 [1]	d2 [2]	d3	d4	d5	d6	d7 (± 0,2)	b1	b2	b3	R
XFL-10	10	12	30	14	15	4,5	22	6	2	1	4
XFL-12	12	14	36	16	18	4,5	26	6	2	1	4,5
XFL-16	16	18	48	20	24	5,5	34	6	2	1	5,5
XFL-20	20	23	60	26	30	6,5	44	10	3	2	7
XFL-25	25	28	75	30	35	6,5	55	10	3	2	8,5
XFL-30	30	34	90	36	40	8,5	66	10	3	2	10
XFL-35	35	39	95	41	55	8,5	77	10	3	2	12

1) Tolerance for d1: E10 (plug gauge measurement) 2) Pressfit in H7-tolerance housing bore

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iglidur® PEP

Maintenance-free plain bearings are generally able to slide on the shaft without any additional coating and/or lubrication. It is apparent that shaft materials are equally as important as the bearing itself. igus® is forging a new path with a plain bearing that is self contained and maintenance-free.

- > 10 Dimensions
- Ø 6–20 mm

iglidur®-PEP bearings are independent of the shaft material

Advantages

- Cost-effective polymer bearing system
- Independent of the shaft material
- Independent of the shaft surface
- Protection of expensive and sensitive shafts
- Excellent wear resistance for average loads
- Coefficients of friction remain constant
- Absolutely corrosion free
- Easy to install
- Available from stock

Maintenance-free plain bearings are generally described as being able to slide on the shaft without any additional coating and/or lubrication. It is evident that shaft materials are as important as the bearing itself. igus® is forging a new path with a plain bearing that is self-contained and maintenance-free.

iglidur® PEP is an innovative design for lubricant-free polymer plain bearing systems with an inner and outer ring. The special feature; the sliding surface is the inner ring, and for the first, time shaft materials and shaft surfaces are not a concern. Even threads, rust and scratches do not affect the performance or reliability. With the control over the sliding surface and through considerable testing, the long term behaviour of the bearing system can be predicted precisely. Similar to ball bearings, the inner ring turns with the shaft in the polymer PEP plain bearing. Relative movements of the shaft with respect to the bearing are eliminated. This protects the shaft surface from wear and saves costs. An additional benefit; even the most sensitive or unusual materials can be used as the rotating shaft with this new polymer plain bearing. Because of the bearing materials used, the PEP polymer bearing is absolutely corrosion-free.

iglidur® PEP
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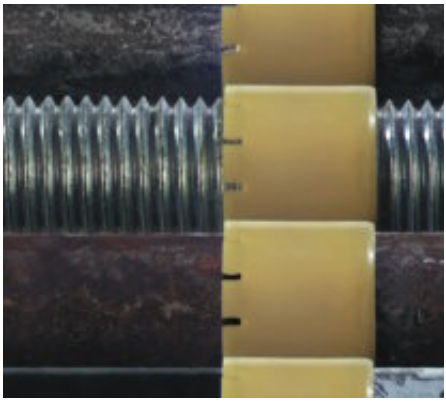
Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/pep

Wear Resistance

The wear resistance of PEP is of significant interest. For loads up to 5N/mm² the test results are compelling. Here PEP polymer bearings obtain values that are comparable to most wear resistant metal-backed bearing systems. This is a very positive result, when you consider the reduced costs compared with the otherwise necessary surface treatment of the shaft.The consistently low coefficient of friction is also an advantage to the user. Since the running surfaces are fixed, their tribological data can be calculated. The coefficients of friction of the PEP bearings are no longer based on the shaft materials or surface properties. If necessary, the coefficients of friction can be reduced further with a small amount of lubricant. Detailed test information is available with different lubricants and can be requested from igus®.

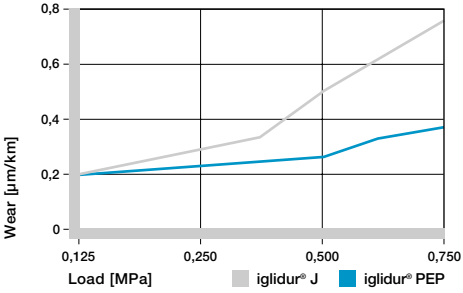
Installation

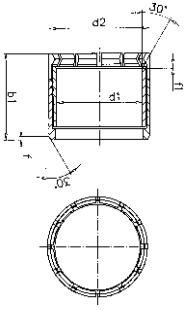
The installation of the PEP plain bearing could not be any easier and faster. The bearings are manufactured to be press fitted into a recommended housing bore. Then, the shaft is inserted and fits tightly onto the inner ring. The inner bearing is clipped into the outer ring. This design makes it possible to pull the shaft out without removing the inner ring.



iglidur® PEP bearings consist of an inner and outer bearing

Wear of iglidur® PEP bearings as a function of the load, v = 0,3 m/s





Dimensions according to ISO 3547-1 and special dimensions

Structure – Part No.

PEP S M-06 10-10

- b1
- d2
- d1
- Metric
- Type
- Polymer
- Encased
- Polymer

Dimensions [mm]

Part No.	d1	d2	b1
PEPSM-0610-10	6	10	10
PEPSM-0812-12	8	12	12
PEPSM-1014-12	10	14	12
PEPSM-1216-15	12	16	15
PEPSM-1620-20	16	20	20
PEPSM-2023-20	20	23	20

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mm

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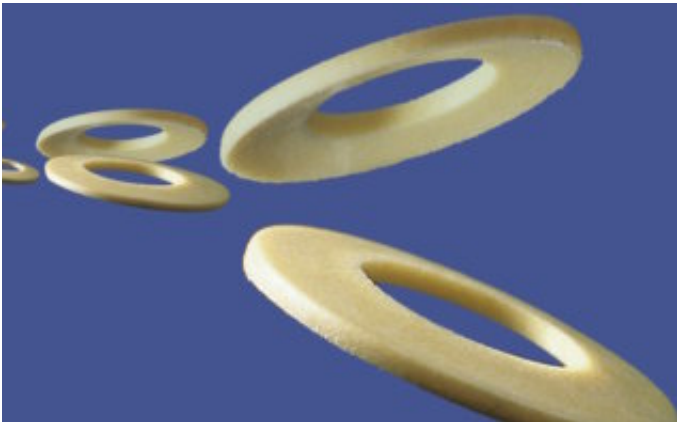
Polysorb – Polymer Disc Springs

Product range

- > 5 Dimensions
- Ø 5–40 mm

Spring washers are discs that can be axially loaded, which are concave in the axial direction on the plate surface. Polysorb® disc springs require less space than other spring types. They are especially suitable for designs that do not require a high spring length.



Polysorb-Disc Spring in Test-Situation

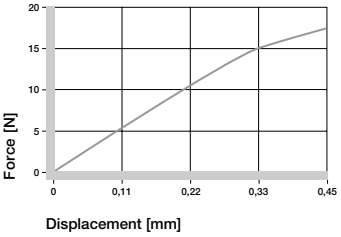
When to use Polysorb Disc Springs

- When an application requires flat spring characteristics which are only possible in metal at a considerable expense (slotted design)
- Compensation of axial clearances and manufacturing tolerances
- Vibration dampening
- Noise reduction
- Electrical and thermal insulation
- No lubrication necessary
- Light weight
- Low profile dimensions
- Non magnetic

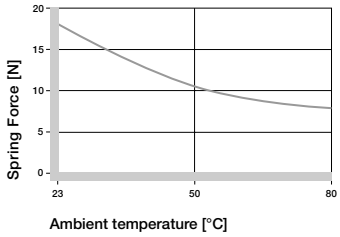
When not to use Polysorb Disc Springs

- When constant spring forces are necessary over wide temperature ranges
- When high spring forces are required

Experimental test results between the force ratio $F/F_{1.0}$ and the spring length ratio S/h_0 ($S_{1.0} = H_0$)

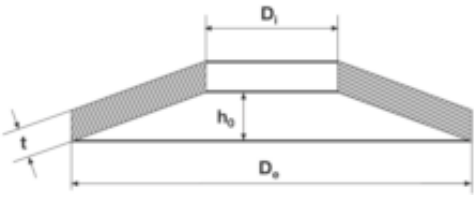


Effect of ambient temperature on the spring force



Lifetime calculation, CAD files and much more support ► **www.igus.de/en/polysorb**

Polysorb – Polymer Disc Springs



Dimensions based on DIN 2093

Part No.	Standard values: spring lengths and forces											
	D_e [mm]	D_i [mm]	t [mm]	h_0 [mm]	$S_{0,25}$ [mm]	$F_{0,25}$ [N]	$S_{0,5}$ [mm]	$F_{0,5}$ [N]	$S_{0,75}$ [mm]	$F_{0,75}$ [N]	$F_{1,0}$ [N]	M [g]
JTEM-05	10,0	5,2	0,5	0,25	0,06	1	0,13	2,4	0,19	3.6	5	0,04
JTEM-06	12,5	6,2	0,7	0,30	0,08	3	0,15	5,1	0,23	8	12	0,11
JTEM-08	16,0	8,2	0,9	0,35	0,09	4	0,18	8	0,28	11	12	0,20
JTEM-10	20,0	10,2	1,1	0,45	0,11	5	0,22	10	0,33	15	18	0,33
JTEM-12	25,0	12,2	1,5	0,55	0,14	9	0,28	18	0,42	27	35	0,85
JTEM-16	31,5	16,3	1,75	0,70	0,18	15	0,35	32	0,53	51	70	1,44
JTEM-20	40,0	20,4	2,25	0,90	0,23	35	0,45	70	0,68	110	140	3,10

The standard values for the spring lengths and forces represent rounded mean values

Chemical resistance of Polysorb® J

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant
All data given concerns the chemical resistance at room temp. [20°C]

Symbols and Units

F = Force
S = Spring length
D_e = Outside Diameter [mm]
D_i = Inside Diameter [mm]
t = Plate thickness [mm]
h_0 = Maximum spring displacement [mm]
$S_{0,25}$ = 25% of max. spring displacement [mm]
$F_{0,25}$ = Spring Force 25% displacement [N]
$S_{0,5}$ = 50% of max. spring displacement [mm]
$F_{0,5}$ = Spring Force 50% displacement [N]
$S_{0,75}$ = 75% of max. spring displacement [mm]
$F_{0,75}$ = Spring Force 75% displacement [N]
$F_{1,0}$ = Spring Force 100% displacement [N]
M = Mass of one disc spring [g]

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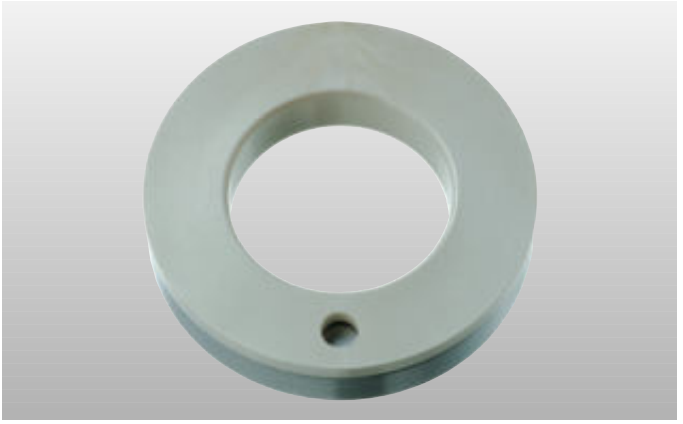
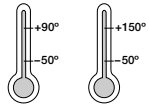
iglidur® JATM/VATM– Thrust Bearing

iglidur® JATM/VATM consists of an anodized aluminium ring combined with an iglidur® bearing ring. This combination of materials results in low friction values and high wear resistance – without lubrication.



- 2 Materials



JATM VATM

Two different iglidur® materials available

Advantages of iglidur® JATM/VATM

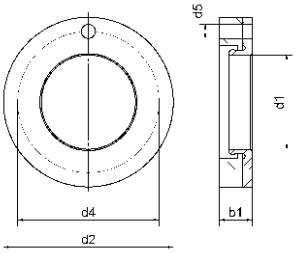
- Maintenance-free bearing system
- For high performance
- Corresponding sliding surfaces
- Predictable life time
- High rigidity
- Easy installation
- Dimensions and delivery on request
- Material: iglidur® J ▶ **page 1.38**
- High-temperature version available: VATM, iglidur® V400 ▶ **page 1.122**

Other dimensions on request

Structure – part no.

J A T M-2036-070

- Total height
- Outer diameter [mm]
- Inner Diameter [mm]
- Metric
- Thrust bearing
- Aluminium
- Material



Dimensions [mm]

Part No.	d1 [mm]	d2 [mm]	s [mm]	d4 [mm]	d5 [mm]
JATM-2036-070	20	36	7	30	3
VATM-2036-070	20	36	7	30	3

Lifetime calculation, CAD files and much more support ▶ www.igus.de/en/jatm

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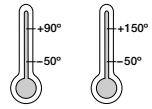
iglidur® Polymer Bearing with integrated Seal

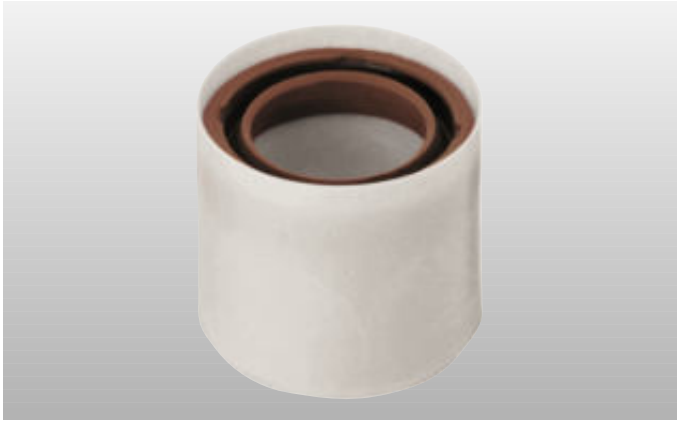
Product range

A quickly and easily mountable polymer bushing made of iglidur®; with clipped radial sealing rotating shafts. Insulates against dirt, dust and all unpressurized liquids.

- 2 Materials



JDSM VDSM



Advantages

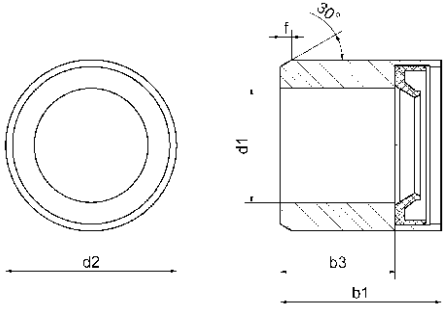
- Polymer plain bearing with incorporated radial sealing
- Seals towards the rotating shafts
- Coefficient of friction only 10% higher than iglidur® J
- Wear similarly excellent as a standard iglidur® bearing
- Reduced space requirement and easy and fast assembly
- High-temperature version up to 150°C available: VDSM with seal from fluorelastomer, iglidur® V400 ▶ **page 1.122**
- Can be realized with many different seal types

Other seals or bearing materials on request

Structure - Part No.

J D S M-1015-14

- b1
- d2
- d1
- Metric
- Type
- Seal
- Material



Dimensions [mm]

Part No.	d1 E11	d2 Ø	d4 Ø	d5 Ø	b1 h13	b3	f
JDSM-1015-14	10	15	13,8	14	14	10	1
VDSM-1015-14	10	15	13,8	14	14	10	1

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Product range

iglidur® PRT

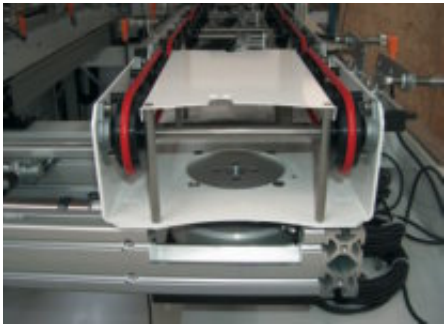
iglidur® PRT is a slewing ring bearing with the proven advantages of igus® polymer bearings. The iglidur® J sliding elements are completely maintenance-free and lubrication-free. All the housing components are made of aluminium, and all the parallel surfaces of iglidur® J sliding elements are hard anodized. All the fixing screws are made of stainless steel.

- 3 Dimensions
- Ø 60–200 mm

+90°
-50°

Advantages of iglidur® PRT Bearings

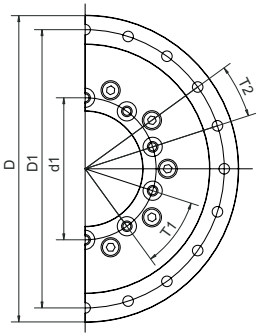
- Maintenance-free
- Low coefficients of friction
- Cost-effective
- Robust
- High rigidity
- Easy installation
- High wear resistance

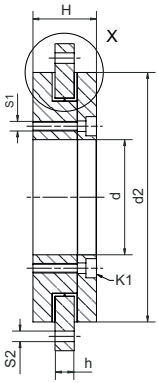


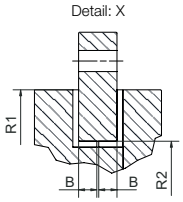
Handling- and transportsystem for Semiconductor-Carrier/-Box. The complete system is suitable for the use in cleanrooms, lubrication- and maintenance-free

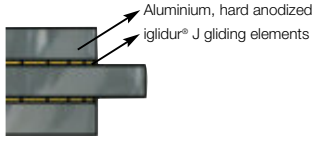
Properties	Unit	PRT-30	PRT-60	PRT-100	PRT-200
Weight	kg	0,4	1,1	1,3	3,2
Max. axial load, static	N	27000	50000	55000	100000
Max. axial load, dynamic	N	7000	15000	16000	30000
Max. radial load, static	N	5000	10000	16000	35000
Max. radial load, static, dynamic	N	1500	3000	5000	10000
Max. rotational speed, dry running	1/min.	250	200	150	80
Rigidity, axial	N/µm	–	300	400	500
Rigidity, radial	N/µm	–	65	65	65
Max. permissible tilting moment	Nm	200	800	1500	3800

Lifetime calculation, CAD files and much more support ► www.igus.de/en/prt



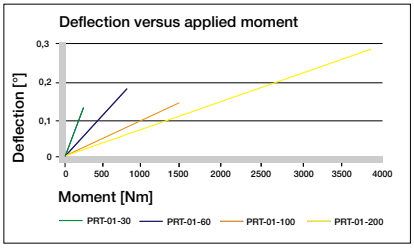




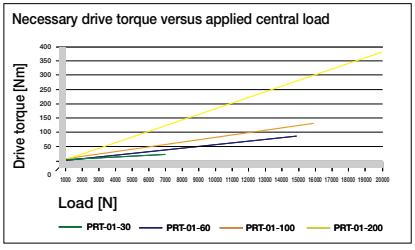


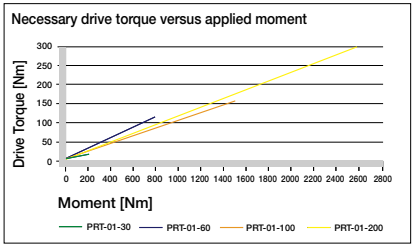
Dimensions [mm]

Part No.	D	D1	d1	d	d2	H	h	T1	T2	S1	S2	K1 for Screw	R1	R2	B
PRT-01-30	100	91	42,5	30	82	29	10	8 x 45°	8 x 45°	M4	4,5	DIN 7984 M4	41	29	4,5
PRT-01-60	160	145	74	60	130	33	10	10 x 36°	20 x 18°	M5	5,5	DIN 912 M5	65	51,5	4,5
PRT-01-100	185	170	112	100	160	34	12	12 x 30°	16 x 22,5°	M5	5,5	DIN 912 M5	80	69	5,5
PRT-01-200	300	285	215	200	274	38	15	12 x 30°	16 x 22,5°	M6	7,0	DIN 912 M6	137	124	7,0



All load values assume the PRT is assembled with socket head screws (strength class 8.8) on the outside pitch circle diameter.
For the assembly of the PRT the screws have to be inserted to a minimum thread depth of 10mm.
PRT-01-30: M4, min. 8 screws
PRT-01-60: M5, min. 10 screws
PRT-01-100: M5, min. 12 screws
PRT-01-200: M6, min. 12 screws
All data can be used for both lateral and horizontal assembly.





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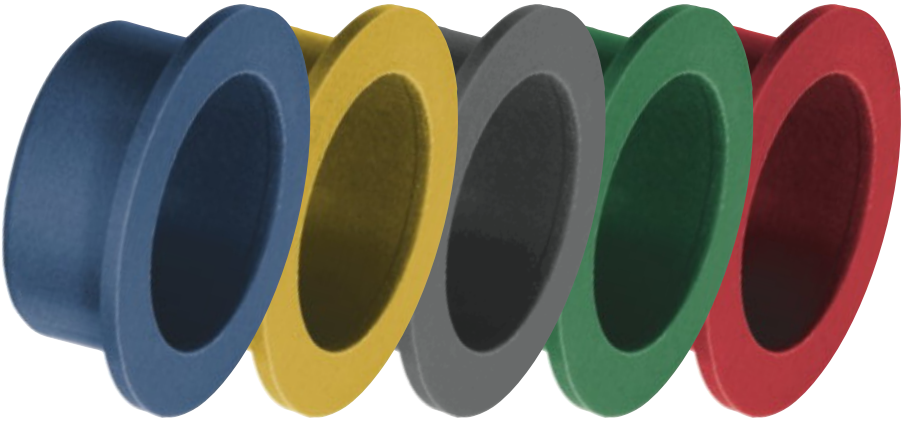
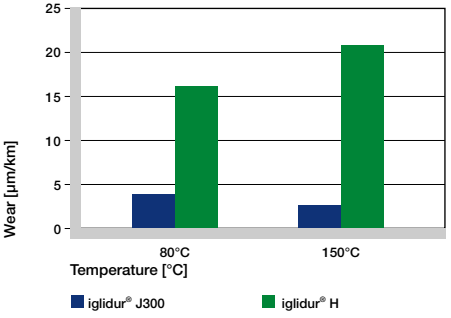
iglidur® Special Materials



For example: iglidur® J300

Wear in a high-temperature application, shaft: Cf53, rotation, with 0,3 m/s, and 2 MPa



We develop special materials with precisely the right range of properties for your application. Tell us your requirements. You will frequently be able to obtain initial samples within 2–4 weeks.

Advantages

- Individual iglidur® materials
- Optimized by value analysis
- Tested in the igus® laboratory
- Short development times

Material table

General properties	Unit	iglidur® J300	Testing method
Density	g/cm³	1,29	
Colour		mint	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,3	DIN 53495
Max. moisture absorption	% weight	0,7	
Mechanical properties			
Flexural Modulus	MPa	n.d.	DIN 53457
Flexural strength at 20 °C	MPa	n.d.	DIN 53452
Max. recommended pressure per unit area at room temperature	MPa	35	
Shore D hardness		75	DIN 53505
Thermal properties			
Max. long term application temperature	°C	150°C	
Max. short term application temperature	°C	180°C	
Min. application temperature	°C	-40°C	
Electrical properties			
Specific volume resistance	Ω cm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

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My Sketches

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