xiros® polymer ball bearings | Technical data

Material properties and chemical resistance

		xirodur®				igumid
General properties	**Unit**	**B180**	**S180**	**C160**	**A500**	**G**
Density	g/cm³	1.41	1.40	1.11	1.30	1.37
Colour		white	black	opaque	brown	black
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	0.2	0.1	0.1	1.4
Max. total moisture absorption	% weight	0.7	0.7	0.2	0.4	5.6
Mechanical properties						
Flexural modulus	MPa	2,500	2,700	1,900	4,300	7,800
Flexural strength at +20°C	MPa	68	65	35	130	240
Shore D hardness		77	78	67	85	79
Electrical properties						
Specific volume resistance[1)]	Ωcm	> 10^{14}	> 10^{13}	> 10^{14}	> 10^{14}	> 10^{11}
Surface resistance[1)]	Ω	> 10^{14}	> 10^{13}	> 10^{14}	> 10^{14}	> 10^{11}
Thermal properties of xiros® polymer ball bearings[1)]						
Max. long-term application temperature	°C	+80	+80	+60	+150 (PEEK) +120 (PA)	+120
Min. long-term application temperatures (in combination with cage material)	°C	–40	–40	0	–100 (PEEK) –40 (PA)	–40

	xirodur®						igumid
F180	**F182**	**D180**	**M180**	**T220**	**G220**	**G**
1.36	1.42	1.22	1.67	1.28	1.14	1.37
black	black	blue	blue	beige	grey	black
0.2	0.2	0.5	0.2	0.3	2.1	1.4
1.3	0.7	1.4	0.6	0.5	8.9	5.6
1,600	3,000	135	2,500	1,800	3,000	7,800
70	95	n.a.	68	65	n.a.	240
79	79	48	77	76	n.a.	79
< 10^{12} [1)]	< 10^{4}	> 10^{14}	> 10^{9}	> 10^{10}	> 10^{13}	> 10^{11}
< 10^{12} [1)]	< 10^{4}	> 10^{14}	> 10^{9}	> 10^{10}	> 10^{12}	> 10^{11}
+80	+80	+80	+80	+100	+100	+120
–40	–40	–50	–40	–40	–40	–40

[1)] **Depending on the geometry**

Table 01: Material data

	xirodur®			
Medium	**B180**	**S180**	**C160**	**A500**
Alcohols	+	+	+	+
Greases, oils without additives	+	+	+	+
Hydrocarbons	+	+	+ up to 0	+
Fuels	+	+	+ up to 0	+
Strong alkali	+ up to 0	+ up to 0	+	+
Strong acid	–	-	+ up to 0	+
UV radiation	–	0	0	+
Diluted base	+	+	+	+
Diluted acid	0 to –	0 to –	+	+

	xirodur®						igumid
F180	**F182**	**D180**	**M180**	**T220**	**G220**	**G**
+	+	+ up to 0	+	+	0	+
+	+	+	+	+	+	+
+	+	+	+	+	+	+
+	+	+	+	+	+	+
+ up to 0	+ up to 0	+ up to 0	+ up to 0	+ up to 0	+ up to 0	–
–	–	0	–	–	–	+ up to 0
0	0	–	–	+	–	–
+	+	+ up to 0	+	+	+	0 to –
0 to –	0 to –	+ up to 0	0 to –	0 to –	0 to –	+

+ resistant 0 conditionally resistant – non-resistant

Table 02: Chemical resistance of xiros® materials

Detailed chemicals resistance table for xiros® products ▶ From page 1636

Recommended tolerances

Fitting	Housing hole	Shaft
Standard: Press-fit	H7	h6

For further questions about the dimensioning of the hole and the shaft please contact us.

Ball materials

Description	Specification
ES: Stainless steel	1.4401
GL: glass	Soda-lime glass or borosilicate glass
PAI: plastic	Polyamide-imide
PP: plastic	Polypropylene

xiros® polymer ball bearings | Selection guide

According to material properties

xirodur®	B180					S180	C160	
Cage material	PA		B180		PE	PA	PP	
Ball material	ES	GL	ES	GL	ES	ES	ES	GL
Descriptive technical specifications								
Smooth running	●	●	●	●	●	●	●	●
Low moisture absorption	●	●	●	●	●	●	●	●
Chemical resistance			●	●	●		●	●
Seawater-resistant			●	●			●	●
Dirt-resistant	●	●	●	●	●	●	●	●
Higher temperatures								
Higher speeds								
Cost-effective			●	●				
Approvals and standards								
For contact with food			●		●			
Antistatic								
Conductive								
Non-metallic		●		●				●
Detectable								
Availabilities / variants								
Radial deep groove ball bearings	●	●	●	●	●	●	●	●
Radial deep groove ball bearings with flange	●	●	●	●				
End cap	●	●						
Spherical outer diameter	●	●						
Double row	●	●						
Slewing ring ball bearings			●					
Thrust bearing			●	●				

A500					F180		F182	D180	M180	T220	G220
PA		PEEK			PA	PE	PA	PA	M180	PP	PA
ES	GL	ES	GL	PAI	ES	ES	ES	ES	ES	ES	ES
●	●	●	●	●	●	●	●		●	●	
●	●	●	●	●	●	●	●		●	●	
		●	●	●							
		●	●								
●	●	●	●	●	●	●	●		●	●	
●	●	●	●	●							●
								●			
		●				●			●		
					●	●					
							●				
	●		●	●							
									●		
●	●	●	●	●	●	●	●	●	●	●	●
					●						
									●		