

MATERIAL DATASHEET

ZX-200T10

Provisional Datasheet - 19.06.2024

Properties	Symbol	Unit	Standard	Parameter	Value
Information					
Material code	-	-	Internal standard	-	917
Standard / Sonder (STD/SO)	-	-	-	-	Sonder
Colour	-	-	-	-	Beige
Density	ρ	kg/dm ³	ISO 1183	-	1,21
Mechanical					
Compressive modulus	E _c	MPa	DIN EN ISO 604	1 mm/min; Test piece 50 x 10 x 4 mm	-
Eastic limit	S _{el}	MPa	Internal standard	5mm/min; 10 x 10 x 4 mm	-
Compressive stress at yield	S _y	MPa	DIN EN ISO 604		-
Compressive strength	S _M	MPa			-
Compressive stress at 1% strain	S _{1%}	MPa			-
Compressive stress at 2% strain	S _{2%}	MPa			-
Compressive stress at 3,5% strain	S _{3,5%}	MPa			-
Compressive strength (0,01 h)	S _M	MPa	Internal standard	3% Buckling	-
Compressive strength (100 h)	S _M	MPa			-
Compressive strength (10000 h)	S _M	MPa			-
Compressive stress at break	S _B	MPa	DIN EN ISO 604	5mm/min; 10 x 10 x 4 mm	-
Elastic compression limit	e _{el}	%	Internal standard		-
Nominal compressive yield strain	e _{cy}	%	DIN EN ISO 604		-
Nominal compressive strain at compressive strength	e _{cM}	%			-
Nominal compressive strain at break	e _{cB}	%			-
Modulus in tension (tensile modulus)	E _t	MPa	DIN EN ISO 527	1mm/min; Test piece 1A	1100
Elastic limit	S _{el}	MPa	Internal standard	5mm/min; Test piece 1A	18
Tensile stress at yield	s _y	MPa	DIN EN ISO 527		-
Tensile strength	S _M	MPa			46
Tensile stress at break	S _B	MPa			45
Elastic yield point	e _{el}	%	Internal standard		2,1
Yield strain	e _y	%	DIN EN ISO 527		2
Elongation at maximum force	e _M	%			211
Tensile elongation at break	e _B	%			250
Modulus in flexure	E _f	MPa	DIN EN ISO 178	2mm/min; 64 mm Width of support	1080
Outer fibre stress at 3,5% outer fibre strain	S _{0,5}	MPa			-
Flexural strength	S _{BM}	MPa			43
Flexural stress at break	S _{BB}	MPa			31
Elongation at flexural yield stress	e _M	%			2,5
Flexural elongation at break	e _B	%			8
Creep modulus at 1% deformation after 1000h	E	N/mm ²	DIN 53444	-	-
Stress at 1% deformation after 1000h	S _{1%}	N/mm ²		-	-
Creep resistance	-	-	Relative rating	-	-
Ball indentation hardness H358/30 (H132/30) [H49/30]	HB	N/mm ²	DIN 2039	Test piece Ø30 x 4 mm	-
Shore A hardness	-	Shore	DIN 53505	Ø30 x 6 mm	-
Shore D hardness	-	Shore		Ø30 x 3 mm	-
Impact strength Charpy not notched	-	kJ/m ²	EN ISO 179/1eU	Width of support 64mm, Standard test piece	-
Impact strength Charpy notched	-	kJ/m ²	EN ISO 179/1eA		-
Loss tangent (1Hz)	tand	1	Internal standard	-	-
Fatigue strength at 20°C, 106 stress cycles, 1 Hz	-	MPa		-	-
Poisson's ratio, 20°C	ν	MPa		-	-
Thermal					
Max. continuous operating	DGMX	°C	RTI Index	-	100
Temperature stationary	KGMX	°C	ErfahrungsValue	-	150
Max. short-term op. temp. transient (3h)	DGMIN	°C	ASTM D746 ISO 974	Brittleness Temperaturee	-30
Min. Continuous operating	KGMIN	°C	Internal standard	-	-
Max.continuous operating temp. for bushings when pressed	-	°C		-	-
Melting Temperaturee	T _m	°C		-	198
Glass transition Temperaturee	T _g	°C	DIN EN ISO 11357-1	-	14
Coefficient of thermal expansion	α	10 ⁻⁵ /°C	ISO E 830	Heating rate 3°C/min, Static force 110mN	7
up to 100°C, longitudinal	α	10 ⁻⁵ /°C	ISO E 831		8
Heat distortion Temperaturee	HDT(A)	°C	DIN EN ISO 75	Heating rate 120°C/Std, Width of support 65mm, Test piece 80 x 10 x 4	-
HDT/A 1,8 Mpa	HDT(B)	°C		Heating rate 120°C/Std, Width of support 65mm	-
Thermal conductivity	l	W/(m*K)	DIN 52612	Test piece Ø6 x 10 mm	0,2
Specific heat capacity	c _p	kJ/(kg*K)	DSC	-	-
Fire behavior (3.2mm) UL94	-	-	UL 94 HB	-	-
Limiting oxygen index	%	LOI	DIN EN ISO 4589	-	-
Electrical					
Volume resistivity	R _D	Ω*cm	IEC 60093	-	-
Surface resistance	R _O	Ω	IEC 60093	-	-
Penetration resistance	E	kV/mm	IEC 243	-	-
Tracking resistance	-	V	IEC 112	-	-
Dielectric constant (110Hz)	-	1	IEC 250	-	-
Dissipation factor (110Hz)	tanδ	1	IEC 112	-	-
PV-values					
Max. surface pressure v=1m/min	P _{zul}	N/mm ²	Internal standard Gleitlager radial	Translation; Intermediate medium: Air; Test piece Ø16 / 12 x 9mm; Counterpart: X5CrNi189	-
Max. surface pressure v=10m/min	P _{zul}	N/mm ²			-
Max. surface pressure v=100m/min	P _{zul}	N/mm ²			-
Max. surface pressure v=200m/min	P _{zul}	N/mm ²			-
Evolution of heat with v=1m/min	-	°C			-
Evolution of heat with v=10m/min	-	°C			-
Evolution of heat with v=100m/min	-	°C			-
Evolution of heat with v=200m/min	-	°C	-		
Friction					
μ static 20° C dry operation	μ _{stat.}	1	Internal standard schiefe Ebene	Internal standard schiefe Ebene Counterpart: X5CrNi189; Hard chrome-plated Rz 2μm; Surface pressure 0,3-4,7MPa	-
μ dynamic 20° C dry operation	μ _{dyn.}	1			-
μ dynamic 100° C dry operation	μ _{dyn.}	1			-

Properties	Symbol	Unit	Standard	Parameter	Value
Wear					
Wear factor at 20 °C	-	mm/100 km	Internal standard periodisch translatorische Bewegung unter Last	Translation; Sliding speed: 10,3 m/min; Surface pressure 0,3 MPa; Counterpart: X5CrNi189	-
Wear factor at 100 °C	-	mm/100 km			-
Wear factor at 200 °C	-	mm/100 km			-
Wear factor at 240 °C	-	mm/100 km			-
Stationary wear coefficient	K	mm³/ Nm			-
Specific wear rate	-	10 ⁻⁶ mm³/N·m	ASTM G 99 - 95a: 2000	Pin on disc - Test; Sliding speed: 10,3 m/min; Surface pressure 5 MPa; Counterpart: 100Cr6; Temperature: 20°C; Trocken	1,9
Total wear rate	-	mm/100km			0,95
Coefficient of sliding friction	μ _G	-			0,57
Run-in wear rate	-	μ/km			12
Stationary wear rate	-	μ/km			8
Specific wear rate	-	10 ⁻⁶ mm³/N·m	ASTM G 99 - 95a: 2000	Pin on disc - Test; Sliding speed: 10,3 m/min; Surface pressure 5 MPa; Counterpart: 1.4301; Temperature: 20°C; Trocken	6,2
Total wear rate	-	mm/100km			3,1
Coefficient of sliding friction	μ _G	-			0,6
Run-in wear rate	-	μ/km			19
Stationary wear rate	-	μ/km			38
Delivery forms					
Tubes	-	-	-	-	✓
Sheets	-	-	-	-	✓
Rods	-	-	-	-	✓
Granules	-	-	-	-	✓
Injection moulded parts	-	-	-	-	-
Machined parts	-	-	-	-	✓
Welding rod	-	-	-	-	-
Filaments	-	-	-	1,75mm	✓
Printed parts using FDM	-	-	-	-	✓
Precision					
Dimensional stability with moisture absorption	-	-	Relative rating	-	-
Water absorption 23°C / RMC 93%	-	%	DIN EN ISO 62	-	0,5
Water absorption until an equilibrium moisture content	-	%		-	2,2
Dimensional stability with Temperaturee variation	-	-	Relative rating	-	-
High precision bushings (negative clearance)	-	-	-	-	-
Alignment adjustment	-	-	Relative rating	-	-
Enviornmental Influences					
Suitable for use in water	-	-	-	-	-
Resistance against hot water	-	°C	-	-	-
Resistance against dust, dirt, abrasive substances	-	-	Relative rating	-	-
UV rays resistance	-	-		-	-
Suitable for outdoor use	-	-		-	-
Resistance to chemicals	-	-		-	-
Suitable for vacuum	-	-		-	-
Rate of desorption	a _{th}	mbar·l / (s/cm ²)	-	-	-
Sterilization					
Resistant against disinfectant	-	-	-	-	-
Moist heat sterilization	-	-	Relative rating	-	-
Gamma-rays radiation sterilization	-	-		-	-
Chemical sterilization	-	-		-	-
UV-sterilization	-	-		-	-
Adhesiveness/Weldability					
Glueable	-	-	-	-	-
Weldable	-	-	-	-	✓
Wetting inhibiting substances					
Silicone-free	-	-	-	-	✓
PTFE-free	-	-	-	-	✓
PFAS-free	-	-	-	-	✓
Conformities					
ROHS / WEEE	-	-	-	-	✓
REACH	-	-	-	-	✓
EU Nr. 10/2011	-	-	-	-	-
FDA	-	-	-	-	-

Legends	
Ⓢ	High
✓	Applicable
×	Inapplicable
(✓)	Restricted
k.br.	No breakage
n.d.	Infeasible
-	Undetermined
n.v.	Unavailable

Legal information

All tests were carried out in a Standard environmental conditions (23°C) (unless another Temperature is specified). The stated values were determined as average values from many individual measurements and correspond to the state of our current knowledge. They are only intended to provide information about our products and to assist in the selection of materials. We do not guarantee certain properties or suitability for certain applications in a legally binding manner. The tests were carried out on test specimens made from extruded semi-finished products. As the properties of the plastics depend on the processing (extrusion, injection moulding) and also on the dimensions of the semi-finished products and the degree of crystallization, the actual property values of a particular product may deviate slightly from the specifications. We will be happy to provide you with information on deviating properties. For the design of constructions and the definition of material specifications, we will be happy to provide you with the relevant data for your application on request. Notwithstanding the above, the customer is solely responsible for thoroughly testing the suitability, performance, efficacy and safety of selected products in pharmaceutical, medical device or other end-use applications.