

TECASINT 2011 and 2021

Insulating part



Cover

TECASINT 2000 is an amorphous high-temperature polyimide. The material has an outstanding thermal long term durability and a high creep resistance under a mechanical load. Furthermore **TECASINT 2000** surpasses with its high impact resistance, low water absorption and a high modulus of elasticity. Parts produced with **TECASINT 2000** can be precision machined to very precise measurements and tight tolerances.

The type **TECASINT 2011** is very pure and low outgassing. For slide-friction applications ENSINGER offers the graphite modified **TECASINT 2021**.

Preferred fields

Mechanical engineering, automotive, conveyor technology, cryotechnology, aerospace, vacuum technology, precision engineering, hot glass technology, electronic, semiconductor

Applications

Sliding rails, chain guides, piston rings, bearing discs, bushes
 TECASINT 2011: static seal, insulator
 TECASINT 2021: valve seats, friction rings, hot glass grippers

Properties

- | High thermal-mechanical load. Non-sensitive under thermo-shock conditions.
- | Very high creep resistance
- | Outstanding sliding-properties and wear resistance
- | Resistant to high energy radiation
- | Low outgassing, high purity
- | Good chemical resistance
- | Inherently flame resistant according to UL94 V-0
- | Easily machinable to tight tolerances

TECASINT 2011 and 2021

Property values		semi-finished ⁽¹⁾		direct forming ⁽²⁾	
		TECASINT 2011	TECASINT 2021	TECASINT 2012	TECASINT 2022
Abbreviation		PI	PI CS15	PI	PI CS15
Density (ASTM D 792, DIN EN ISO 1183)	ρ g/cm ³	1,38	1,45	1,28	1,35
Tensile strength at break (DIN EN ISO 527)	σ_R MPa	118	101	88	77
Elongation at break (DIN EN ISO 527, 23 °C)	ϵ_R %	4,5	3,7	4,6	3,6
Modulus of elasticity after tensile test (DIN EN ISO 527)	E_z MPa	4700	4400	2600	3200
Flexural strength (DIN EN ISO 178)	σ_B MPa	177	143	125	105
Modulus of elasticity after flexural test (DIN EN ISO 178)	E_b MPa	3600	4050	3778	3353
Hardness (Shore D, DIN 53505)	H	90	87	85	84
Impact resistance (DIN EN ISO 179 (Charpy))	a_n kJ/m ²	87,9	20,6	24,7	23,6
Glass transition temperature (DIN EN ISO 3146)	T_g °C	370	370	370	370
Thermal conductivity (23°C)	λ W/(K·m)	0,22			
Specific heat (23 °C)	c J/(g·K)	0,925			
Coefficient of linear thermal expansion (50-200 °C, DIN 53752)	α 10 ⁻⁵ 1/K	5,4	4,1	5,3	4,0
Volume resistance (DIN IEC 60093, EC 93)	ρ_D Ω cm	8x10 ¹⁵			
Surface resistance (EC 93, DIN IEC 60093)	R_o Ω	5 x 10 ¹⁵			
Dielectric constant (10 ⁶ Hz, DIN 53 483, IE-250)	ϵ_r	4,2			
Dielectric loss factor (27 MHz, DIN 53 483, IE-250)	$\tan \delta$	3 x 10 ⁻³		3 x 10 ⁻³	
Dielectric strength (DIN ISO 60243-1)	E_d kV/mm	21,8			
Water absorption (24 h, 23 °C, in water, EN ISO 62)	W_s %	0,47	0,44	1,62	1,04
Flammability acc. to UL-Standard 94		V0	V0	V0	V0

(1) Testing on semi-finished products.

(2) Testing on form parts.

The information corresponds with current knowledge and indicates our products and possible applications. We cannot give you a legally binding guarantee of the physical properties or the suitability for a specific application. Existing commercial patents are to be taken in account.

Please find information concerning the exclusion of liability and Terms and Conditions of Delivery in our Semi-finished products catalogue or at www.ensinger-online.com.

All specification without guarantee.

Stock program



Rods

Tolerances: + 0,2 / + 0,8

Diameter: 6 - 100 mm

Stock length:

Ø 6-12 mm: 395 mm

Ø 12,7-15 mm: 395 mm, 795 mm

ab Ø 16 mm: 395 mm, 795 mm, 1000 mm.

Other delivery lengths possible, also available ground.



Plates

Tolerances:

Thickness 5-20 mm: 0 / + 0,8 mm

Thickness 20-60 mm: 0 / 1 mm

Thickness 65-100 mm: 0 / 1,5 mm.

Thickness: 5 - 100 mm

Widths:

Thickness 5-55 mm: 300 / 395 mm

from thickness 60 mm: 300 mm

Stock length:

Width 300 mm: stock length 1000 mm

Width 395 mm: stock length 795 mm

Other delivery lengths possible.



Tubes

Available on request.