

## TECAMID 12

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Chemical Designation: Polyamide 12  
( Nylon 12 )

DIN Abbreviation: PA 12

Colour, Filler: Opaque

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TECAMID 12 is a semi-crystalline engineering plastic with very high toughness and good chemical resistance for varied applications

Main characteristics:

- Extremely tough
- Good sliding properties
- Abrasion resistant
- Good chemical resistance to many oils, greases, diesel, petrol, cleaning fluids
- Low density
- Low water absorption
- Good electrical insulation
- Easily machined
- Dimensionally stable
- Easily welded and bonded

Preferred fields: Transport and conveyor technology, food technology, textile packaging and paper processing machinery, printing and drinks dispensing machinery, household articles, electrical engineering, precision engineering, automotive engineering

Applications:

- Conveyor screw sleeves
- Friction strips
- Gear wheels
- Fan impellers
- Castors
- Impact plates
- Cutting pads
- Friction bearings
- Housing parts
- Switch parts
- Plug parts
- Damping plates

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Ensinger Ltd  
Wilfried Way  
Tonyrefail  
Mid Glam CF39 8JQ

Tel: 01443 678400  
Fax: 01443 675777  
Web: [www.ensinger.ltd.uk](http://www.ensinger.ltd.uk)  
Email: [sales@ensinger.ltd.uk](mailto:sales@ensinger.ltd.uk)

## TECAMID 12

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. Unless otherwise stated, these values represent averages taken from injection moulding samples. We reserve the right of technical alterations.

Properties	Unit	Test method DIN EN ISO / ASTM	Dry / Wet*
<b>Mechanical</b>			
Density	g/cm <sup>3</sup>	527 / D 792	1.01
Tensile strength at yield	MPa	527 / D 638	40
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	240
Modulus of elasticity in tension	MPa	527 / D 638	1200
Modulus of elasticity in flexure	MPa	178 / D 790	
Hardness Shore D	MPa	2039 /1	72
Impact strength	kJ/m <sup>2</sup>	179 / D 256	no. br.,
Creep rupture strength after 1000 hrs with static load	MPa		23
Time yield limit for 1% elongation after 1000 hrs.	MPa		3.5
Coefficient of friction against hardened and ground steel $\rho = 0,05 \text{ N/mm}^2, v = 0,6 \text{ m/s}$	–		0.32 - 0.38
Wear conditions as above	$\mu\text{m/km}$		0.8
<b>Thermal</b>			
Crystalline melting point	°C	DIN 53 736	175
Glass transition temperature	°C	DIN 53 736	45
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	50 140

Properties	Unit	Test method DIN EN 150 / ASTM	Dry / Wet*
<b>Thermal</b>			
Max. service temperature short term long term	°C °C		150 110
Coefficient of thermal conductivity	W/(m · K)		0.23
Specific heat	J/(g · K)		2.1
Coefficient of thermal expansion	10 <sup>-5</sup> /K	DIN 53 483 / D 696	10
<b>Electrical</b>			
Dielectric constant at 10 <sup>5</sup> Hz		DIN 53 483	3.1 - 3.6
Dielectric loss factor at 10 <sup>5</sup> Hz		DIN 53 483	0.03 – 0.04
Specific volume resistance	$\Omega \cdot \text{cm}$	DIN 60093	10 <sup>14</sup>
Surface resistance	$\Omega$	DIN 60093	10 <sup>14</sup>
Dielectric strength 1 mm	kV/mm	ASTM 149	30 - 33
Tracking resistance		53 480	KB 38 CTI 600
<b>Miscellaneous</b>			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	0.7
Water absorption at saturation at 23 °C	%	62	1.6
Resistance to hot water, washing soda			Resistant
Flammability according to UL standard 94			V2
Resistance to weathering			not resistant

\* after storage in a standard 23/50 atmosphere (DIN 50 014) to equilibrium

ENSINGER: Production and stock programme

- Semi-finished product, finished parts, injection moulded parts and profiles in more than 500 materials and modifications.
- Engineering plastics: PA extruded or cast, POM, PC, PET, PBT, PPE, PP, PE
- High temperature plastics: PI, TPI, PEEK, PPS, PES, PPSU, PEI, PSU, PVDF, PCTFE, PTFE
- Stock length: Standard 3 metres. Cast rod and sheet 2 mts. Tube up to 3.5 mts. PE, PP, PVC, and PTFE 2 mts
- Pressed/sintered semi-finished product: PI, PEEK, PPS, PTFE/PI and modifications, as well as PCTFE in special sizes ie, large discs, tubes and rings with diameters up to about 1400 mm
- Material modifications: eg. glass, carbon and aramid fibre, talc, MoS<sub>2</sub>, graphite, PTFE, PE, silicone oil, internal lubrication