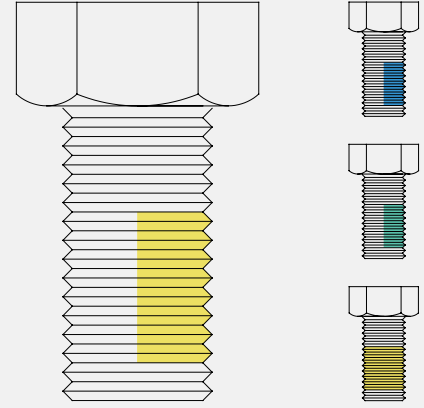


# TECNOFREN®

## The Pre-applied Self-locking Agent

TECNOFREN® is a polyamide based system designed to take advantage of its natural elastic deformation to make the product self-locking, adjustable and reusable.



## GENERAL DESCRIPTION

Chemical type	Semi-crystalline natural polyamide
Solvent base	H2O
Appearance	Yellow/blue/green - customizable
Viscosity	Low
Application	Self-locking / Sealant
Components	Polyamide
Local distribution	Partial angular distribution (90°/120°) Total angular distribution (360°)

TECNOFREN® prevents loosening through vibration and if applied over 360° may provide a slight sealing capability through mechanical braking (adjustable several times).

TECNOFREN® covers the environmental, mechanical, functional, physical, regulatory and durability requirements.

TECNOFREN® is distributed over the threads eliminating the engagement gap, creating greater metal-to-metal contact and exerting long-lasting resistance to loosening and vibrations.

TECNOFREN® allows good self-locking, repeatedly adjustability and excellent chemical resistance.

TECNOFREN® is applied by means of controlled deposit using a special system studied and designed by TECNOLOGIC 3®.

## INDUSTRIAL AND SECTOR OF USE

The coating can be used in all kinds of assembly procedures, particularly for serial production. Actual main areas of application are automotive industry, electronics, motorcycles, household appliances, office machines, computer industry, electric motors and batteries, robotics and assembling industries, earthmoving and excavating machinery and constructions - farming industry - energetic industries - sportive, furniture and fixture sectors. TECNOFREN® system can also be used for medical and in-contact application with organic tissues by virtue of its composition.

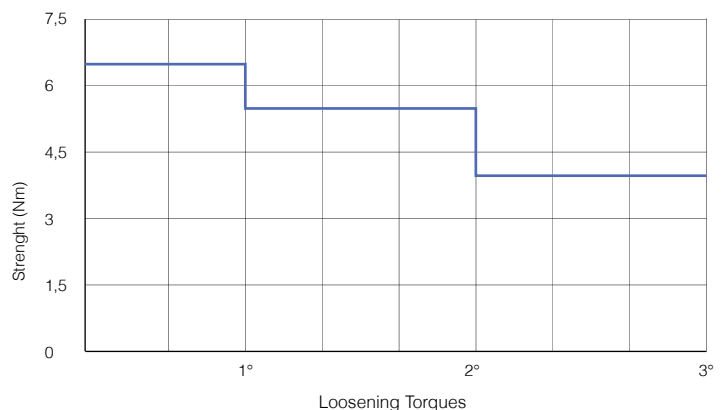
## TECHNICAL DATA PERFORMANCE

<b>Response Time</b>	Instantaneous
<b>Solvent content</b>	None
<b>Operating temperature range</b>	min -55°C max 120°C - with peaks of 150°C (min -70°F max 250°F - with peaks of 300°F)
<b>Coefficient of friction (CoF)</b>	0,10÷0,16
<b>Prevailing torque*</b>	< 10,5Nm
<b>Prevailing torque* at 1rd unscrewing operation</b>	> 1,5Nm
<b>Prevailing torque* at 3rd unscrewing operation</b>	> 0,75Nm
[Chart 1: Performance Results Overview]	
<b>Re-use</b>	To be defined pre-series
<b>Storage</b>	Max 4 years T+5°C T+28°C kept in a dry place

\*Values for the use of hexagonal headed screws, M 10 in, class 10.9, with normal finish. On Fastener lubricated, with lubricant integrated, and/or added, needs test before the application They can be used on all types of external and internal threads, with suitable tolerance e.g.6g-6H Unless otherwise expressly required by the customer, TECNOLOGIC 3® applies TECNOFREN® in line with the DIN 267 p28.

### Loosening Torque standard DIN 267 p.28

Tipycal performance screw M10



Threading	1° Screwing Torque Max Nm	Screwing Torque Set Nm			1° Loosening Torque Min Nm	3° Loosening Torque Min Nm
		5,6	5,8	8,8 10,9 12,9		
M3	0,43	0,6	1,2	0,1	0,08	
M4	0,9	1,3	2,8	0,12	0,1	
M5	1,6	2,6	5,5	0,18	0,15	
M6	3	4,5	9,5	0,35	0,23	
M8	6	11	23	0,85	0,45	
M10	10,5	22	46	1,5	0,75	
M12	15,5	38	79	2,3	1,6	
M14	24	60	125	3,3	2,3	
M16	32	90	195	4,0	2,8	
M18	45	128	280	4,7	3,2	

- Excellent self-locking and resistance to vibrations
- Reusable several times, adjustable, ideal for regulator screws
- The lightest thermoplastic techno-polymer produced from renewable sources
- Position and size as per requirements
- Outstanding metal to metal and metal to plastics properties
- Various torque levels available
- Excellent resistance to chemical products

## CUSTOMER BENEFITS

- Standardized application to reduce assembling time and processes
- Pre-applied self-locking compounds at the point of assembly
- Replace all other type of self-locking/sealant agents
- Eco-friendly Water-based solution
- Solvent free and dry to the touch
- Physiological and toxicological not harmful
- Color simply identifies presence, strength and function

## MANUFACTURER SPECS

TECNOFREN® satisfies and goes beyond the technical specifications and requirements of the following OEM's:

Stellantis, Caterpillar, Jcb, Dana, Ford, Volkswagen-Audi, GM, Renault, Mercedes, Cnh, Ducati, Lamborghini, Piaggio, Ferrari, Maserati, Iveco, Magneti Marelli, Cobo, Nissan, ABB, Merlo, Meritor, Bitron, Husqvarna, B&D, Solar Edge, MGMinigers, PSA, Lear, Getrag, Valeo, DIN 267/28, IFI 124-524

Note: the safety information can be found in the product safety schedule.

The information and technical data provided in this TDS, including advice and recommendations for the use and application of the product, are based on the knowledge and experience of the producer at the date of this TDS and are therefore purely indicative.

The product has a variety of applications that are outside the producer's control, as well as the conditions of use of the product in different environments cannot be foreseen and considered by the producer.

Product application should therefore not be started without prior independent tests and/or studies and adequacy evaluations by the customer.

For these reasons, the accuracy and exhaustiveness of the tests performed cannot be guaranteed by Tecnologic 3 S.r.l., which therefore expressly disclaims any liability deriving from the use of the product or the technical information provided herein.

The technical information provided in this document only refers to the product described and the use indicated and is not applicable if the product is used in combination with other materials or in other processes. The selection of unsuitable products and materials for use in combination with Tecnologic 3 S.r.l.'s product may cause damage and injury, therefore it is the customer's obligation to select suitable, adequate and compatible products, raw materials, components to be used in combination with Tecnologic 3 S.r.l.'s product.

The customer must take all necessary precautions because he is the exclusively responsible for goods and/or persons regarding any dangers that may arise from the use of the product.

The information and data contained in this document are subject to amendment without prior producer's notice.

Tecnologic 3 S.r.l. accepts no liability for any direct, indirect, or accidental damage resulting from misreading, misinterpretation or misusing of the information contained herein.