

TACO

Denomination: **NYLON PLUG**Codes: **TN4S, TACOL, TACON**Reference: **FT TACO-en**Date: **03/12/18**Revision: **6**Page: **1 of 10****TN4S****TACOL****TACON**

CHARACTERISTICS

Plugs made of polyamide 6.

Recommended to be used with our countersunk screws, TPPO (Pz recess), TPTO (Tx recess) or TB coach wood screws.

Service temperature: -40 + 70 °C.

Use: Fixing of gates, railings, supports, shelves, signs, toilets, etc. both in hollow and solid materials.

INDIVIDUAL CHARACTERISTICS

TN4S:

- Recommended either for solid base material (concrete, stone, solid bricks, etc.) or hollow base material (hollow bricks, concrete blocks, drywalls, etc.).
- With flared lip, to keep the plug from sliding into the base material during the installation.
- Anti-spin side wings in order to fix it to any kind of base material.
- Expand in 4 directions
- Installation data marked on the plug itself: drill diameter, drill depth y screw diameter to use.

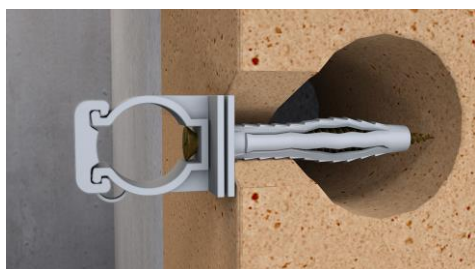
TACOL:

- Anti-spin side wings to prevent the plug from turning while the knot is forming.
- With flared lip, to keep the plug from sliding into the base material during the installation.
- Recommended mainly for solid base material (concrete, stone, solid brick, etc.).

TACON:

- Anti-spin side wings to prevent the plug from turning while the knot is forming.
- Recommended mainly for solid base material (concrete, stone, solid brick, etc.).

APPLICATION EXAMPLES



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BASE MATERIAL SELECTION TABLE

MATERIALS		TN4S	TACOL	TACON		
Concrete						
Stone						
Aerated concrete						
Drywall						
Solid brick						
Adobe brick						
Concrete block						
Hollow brick						
PERFORMANCES	High		Medium		Low	

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1. GAMA

ITEM	CODE	SIZES	PHOTO	MATERIAL
1	TN4S	$\varnothing 5 \times 25$ to $\varnothing 14 \times 70$		POLYAMIDE 6
2	TACOL	$\varnothing 5 \times 25$ to $\varnothing 12 \times 60$		
3	TACON	$\varnothing 4 \times 20$ to $\varnothing 16 \times 80$		

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2. INSTALLATION DATA

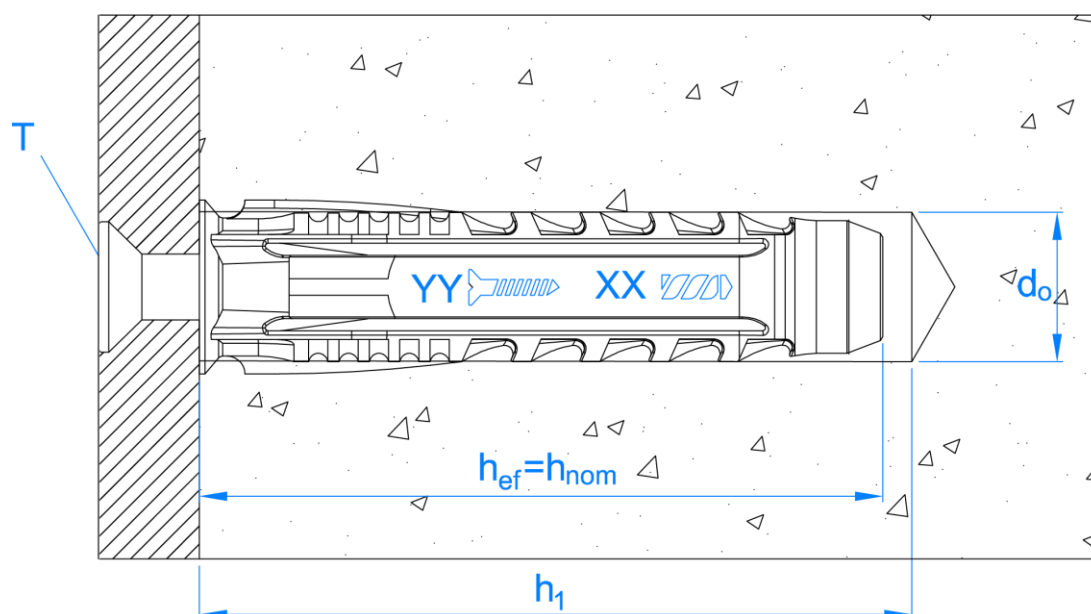
2.1 TN4S

4 Segments nylon plug



Installation data

CODE		TN4S05	TN4S06	TN4S08	TN4S10	TN4S12	TN4S14
General dimensions	[mm]	5x25	6x30	8x40	10x50	12x60	14x70
d _o : drill diameter	[mm]	5	6	8	10	12	14
h _{ef} = h _{nom} : effective depth	[mm]	25	30	40	50	60	70
h ₁ : minimum drill hole depth	[mm]	30	40	50	60	70	80
Recommended screw		TPPO 2,5-4	TPPO 3,5-4	TPPO 4,5 TB 5-6	TB 6-8	TB 8-10	TB 10-12

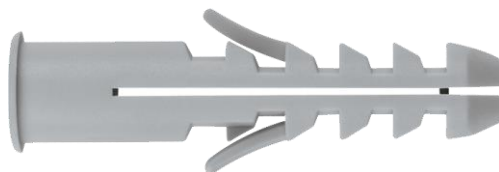


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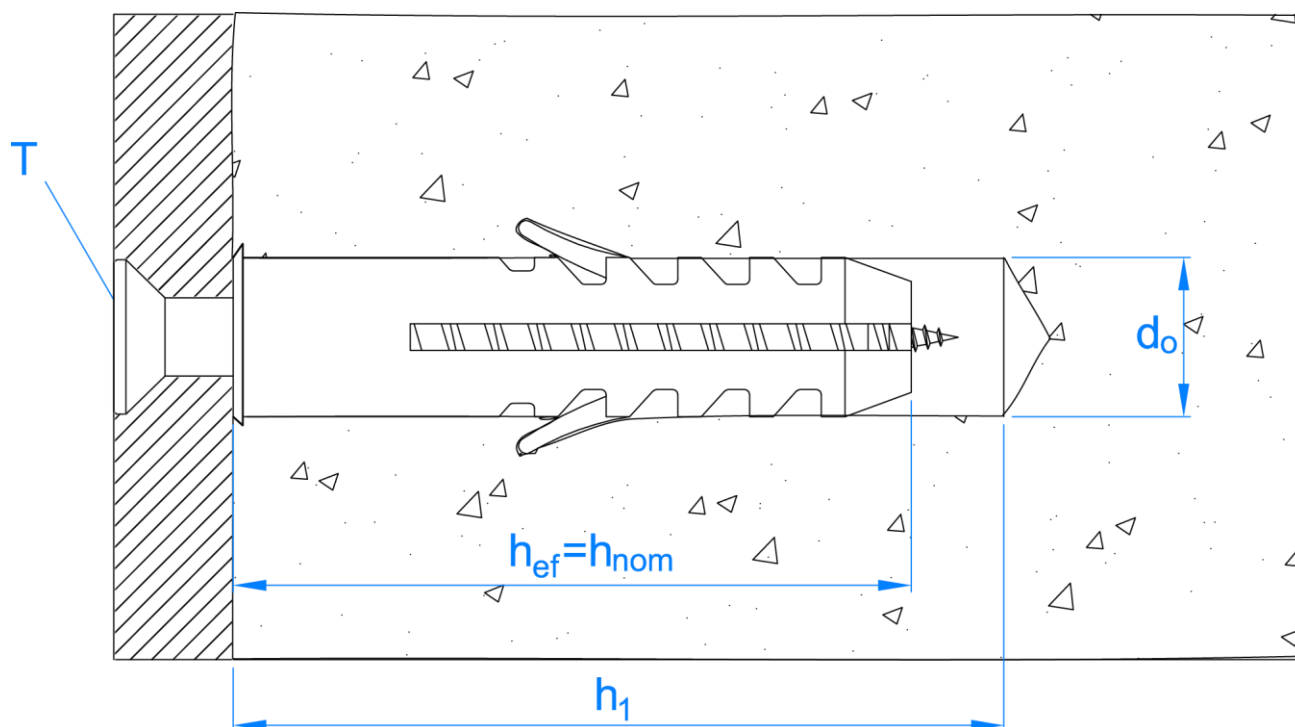
2.2 TACOL

Flared lip nylon plug



Installation data

CODE		TACOL05	TACOL06	TACOLA06	TACOL08	TACOL10	TACOL12
General dimensions	[mm]	5X25	6X30	6X30	8X40	10X50	12X60
d_o : drill diameter	[mm]	5	6	6	8	10	12
$h_{ef} = h_{nom}$: effective depth	[mm]	25	30	30	40	50	60
h_1 : minimum drill hole depth	[mm]	35	40	40	50	65	75
Recommended screw		TPPO 2,5-4	TPPO 3,5-4	TPPO 3,5-4	TPPO 4,5 TB 5-6	TB 6-8	TB 8-10



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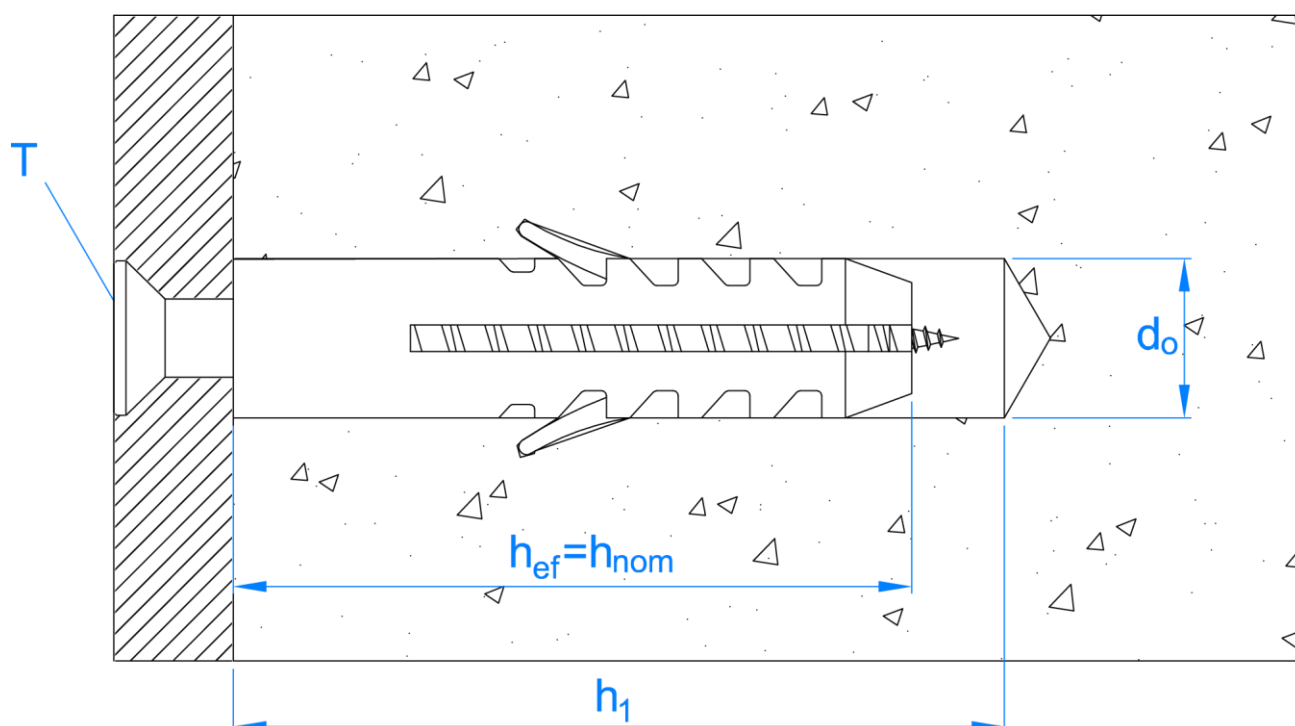
2.3 TACON

Nylon plug



Installation data

CODE		TACON04	TACON05	TACON06	TACON07	TACON08	TACON10	TACON12	TACON14	TACON16
General dimensions	[mm]	4X20	5X25	6X30	7X35	8X40	10X50	12X60	14X70	16X80
d_o : drill diameter	[mm]	4	5	6	7	8	10	12	14	16
$h_{ef} = h_{nom}$: effective depth	[mm]	20	25	30	35	40	50	60	70	80
h_1 : minimum drill hole depth	[mm]	25	35	40	40	50	65	75	90	95
Recommended screw		TPPO 2,5-3	TPPO 2,5-4	TPPO 3,5-4	TPPO 4-4,5	TPPO 4,5 TB 5-6	TB 6-8	TB 8-10	TB 10-12	TB 12-14

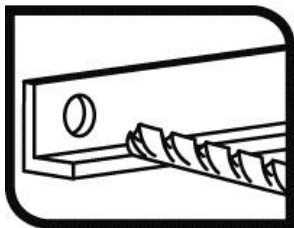


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3. INSTALLATION PROCEDURE

3.1. Woodscrew installation



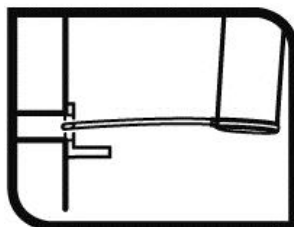
1. DRILL

Check concrete is well compacted and porosity insignificant.

Drilling must be performed at the specified minimum depth and diameter in the previous table. Switch drill to hammer mode in case of drilling in concrete.

In case of hollow materials do not use the hammer mode to avoid damaging the base material interior. Reduce drilling speed when we are about to finish the hole.

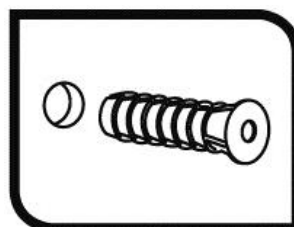
Suitable for dry and wet drill holes.



2. BLOW AND CLEAN

Clean hole of dust and debris.

Use blow-pump and cleaning brushes.

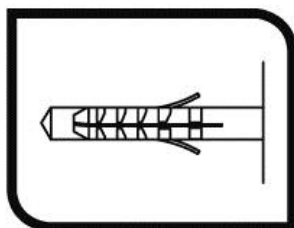


3. INSTALL

Insert the plug through base material. Have to be done till the edge, in case of having flared lip

4. APPLY TORQUE

Screw the bolt without applying an excessive tightening torque that may cause the plug to become over threaded. This is important when it comes to hollow materials, because due to the expansion of the block requires a greater number of turns of the screws.



5. INFO TO BE CONSIDERED

- For screw diameter $\emptyset$ selection apply this approximated rule*:

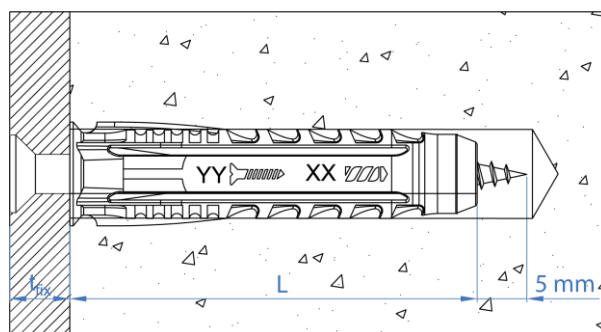
$$\emptyset_{\text{screw}} = \frac{\emptyset_{\text{plug}}}{2} + 1$$

- In order to select screw length apply this approximated rule:

$$\text{Screw length} = t_{\text{fix}} + L + 5\text{mm}^{**}$$

*Do not apply this rule from $\geq \emptyset 12\text{mm}$ to higher diameters

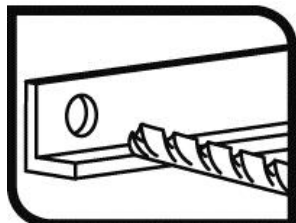
**Due to the peak angle of the screw



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3.2. Woodscrew installation



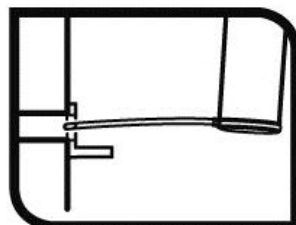
1. DRILL

Check concrete is well compacted and porosity insignificant.

Drilling must be performed at the specified minimum depth and diameter in the previous table. Switch drill to hammer mode in case of drilling in concrete.

In case of hollow materials do not use the hammer mode to avoid damaging the base material interior. Reduce drilling speed when we are about to finish the hole.

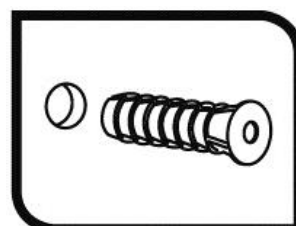
Suitable for dry and wet drill holes.



2. BLOW AND CLEAN

Clean hole of dust and debris.

Use blow-pump and cleaning brushes.



3. INSTALL

Insert the plug through base material. Have to be done till the edge, in case of having flared lip

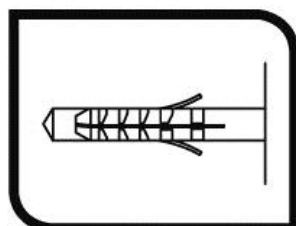
4. APPLY TORQUE

Screw the bolt without applying an excessive tightening torque that may cause the plug to become over threaded. This is important when it comes to hollow materials, because due to the expansion of the block requires a greater number of turns of the screws.

5. INFO TO BE CONSIDERED

- It is recommended to use woodscrews in order to perform correct installation. In case of using threaded rod, it is particularly recommended to do it at low revolutions and use the next metric and lengths for each nylon plug size:

PLUG	THREADED ROD	MINIMUM LENGTH [mm]
TN4S05	NOT VALID	NOT VALID
TN4S06	M4	45
TN4S08	M5	50
TN4S10	M6	65
TN4S12	M8	80
TN4S14	M10	90



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4. RESISTANCES

The characteristic resistances in C20/25 concrete or in masonry for an isolated anchor (without spacing and edge distance effects) are specified in the following tables:

- 4.1: TN4S Characteristic resistance all load directions (F_{Rk})
- 4.2: TN4S Maximum load recommended all load directions (F_{rec})
- 4.3: TACON/TACOL Characteristic resistance all load directions (F_{Rk})
- 4.4: TACON/TACOL Maximum load recommended all load directions (F_{rec})

4.1. TN4S - CHARACTERISTIC RESISTANCE ALL LOAD DIRECTIONS F_{Rk} [kN]

NYLON PLUG CODE	TN4S05		TN4S06			TN4S08			TN4S10			TN4S12			TN4S14		
SCREW CODE	TPPO30040	TPPO40035	TPPO40040	TPPO50040	THREADED ROD M4	TPPO45050	TPPO60050	THREADED ROD M5	TB06060	TB08060	THREADED ROD M6	TB08070	TB10070	THREADED ROD M8	TB10080	TB12080	THREADED ROD M10
MATERIAL																	
NON-CRACKED CONCRETE	0.52	0.70	0.50	0.82	0.39	1.39	4.20	0.68	3.99	5.69	1.54	3.71	9.73	1.67	6.63	15.53	2.21
CRACKED CONCRETE	0.12	0.18	0.13	0.24	--	0.66	1.17	--	0.85	2.34	--	1.41	4.28	--	3.36	6.99	--
SOLID BRICK	0.36	0.66	0.44	0.58	--	2.40	3.56	--	3.24	5.51	--	2.14	3.57	--	3.80	7.68	--
HOLLOW BRICK	0.64	0.44	0.36	0.52	--	0.75	0.70	--	1.03	1.64	--	1.81	1.85	--	2.16	2.57	--

4.2. TN4S - MAXIMUM LOAD RECOMMENDED ALL LOAD DIRECTIONS F_{rec} [kN]

NYLON PLUG CODE	TN4S05		TN4S06			TN4S08			TN4S10			TN4S12			TN4S14		
SCREW CODE	TPPO30040	TPPO40035	TPPO40040	TPPO50040	THREADED ROD M4	TPPO45050	TPPO60050	THREADED ROD M5	TB06060	TB08060	THREADED ROD M6	TB08070	TB10070	THREADED ROD M8	TB10080	TB12080	THREADED ROD M10
MATERIAL																	
NON-CRACKED CONCRETE	0,15	0,20	0,14	0,23	0,15	0,40	1,20	0,27	1,14	1,63	0,61	1,06	2,78	0,66	1,89	4,44	0,88
CRACKED CONCRETE	0,03	0,05	0,04	0,07	--	0,19	0,33	--	0,24	0,67	--	0,40	1,22	--	0,96	2,00	--
SOLID BRICK	0,10	0,19	0,13	0,17	--	0,69	1,02	--	0,93	1,57	--	0,61	1,02	--	1,09	2,19	--
HOLLOW BRICK	0,18	0,13	0,10	0,15	--	0,21	0,20	--	0,29	0,47	--	0,52	0,53	--	0,62	0,73	--

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4.3. TACON/TACOL - CHARACTERISTIC RESISTANCE ALL LOAD DIRECTIONS F_{Rk} [kN]

NYLON PLUG CODE	TACON04	TACON05 TACOL05		TACON06 TACOL06 TACOLA06		TACON07	TACON08 TACOL08		TACON10 TACOL10		TACON12 TACOL12		TACON14		TACON16
SCREW CODE	TPPO30030	TPPO30040	TPPO40035	TPPO40040	TPPO50040	TPPO50045	TPPO45050	TPPO60050	TB06060	TB08060	TB08070	TB10070	TB10080	TB12080	TB14100
MATERIAL															
NON-CRACKED CONCRETE	0,2	0,23	0,49	0,35	0,57	0,38	0,40	0,91	2,10	4,38	2,60	6,02	5,75	8,25	8,70
SOLID BRICK	0,18	0,25	0,46	0,31	0,41	0,63	1,68	2,49	2,27	3,86	1,50	2,50	2,66	5,38	3,47
HOLLOW BRICK	0,21	0,45	0,31	0,25	0,36	0,42	0,53	0,49	0,72	1,15	1,27	1,30	1,51	1,80	2,03

4.4. TACON/TACOL - MAXIMUM LOAD RECOMMENDED ALL LOAD DIRECTIONS F_{rec} [kN]

NYLON PLUG CODE	TACON04	TACON05 TACOL05		TACON06 TACOL06 TACOLA06		TACON07	TACON08 TACOL08		TACON10 TACOL10		TACON12 TACOL12		TACON14		TACON16
SCREW CODE	TPPO30030	TPPO30040	TPPO40035	TPPO40040	TPPO50040	TPPO50045	TPPO45050	TPPO60050	TB06060	TB08060	TB08070	TB10070	TB10080	TB12080	TB14100
MATERIAL															
NON-CRACKED CONCRETE	0,06	0,07	0,14	0,10	0,16	0,11	0,11	0,26	0,60	1,25	0,74	1,72	1,64	2,36	2,49
SOLID BRICK	0,05	0,07	0,13	0,09	0,12	0,18	0,48	0,71	0,65	1,10	0,43	0,71	0,76	1,54	0,99
HOLLOW BRICK	0,06	0,13	0,09	0,07	0,10	0,12	0,15	0,14	0,21	0,33	0,36	0,37	0,43	0,51	0,58