

T-FIXX® FIXING SYSTEMS

Product Information



T-FIXX® FIXING SYSTEMS

T-FIXX® 11-E

CONCRETE

T-FIXX® – The Revolution

The ultimate combination of bolt anchor and insert!



DEMU shows its versatile and innovative nature with a revolutionary world first: Our T-FIXX® range combines the best features of DEMU bolt anchors and inserts. Available in 20 standard versions in electro-galvanized or stainless steel, T-FIXX® products can be used as fixing anchors, construction anchors or lifting anchors. Lean production methods also enable the efficient supply of customer-specific products. The T-FIXX® range replaces numerous inserts and bolt anchors, doing more or less. Made in our high-quality Dutch factory.

Economical

- Ultimate price/performance ratio
- Mostly cheaper than a bolt anchor
- One piece
- Combines the best features of DEMU bolt anchors and inserts
- Replaces numerous inserts and bolt anchors, doing more for less

Optimum performance

- Stronger than an insert
- Shaped internal thread
- Patent pending
- Calculable in accordance with CEN/TS 1992-4-1/2
- Made in high-quality Dutch factory
- Available in 20 standard versions in electro-galvanized or stainless steel
- Can be used as fixing anchors, construction anchors or lifting anchors
- Efficient supply of customer-specific products

FIXING SYSTEMS T-FIXX®

Content



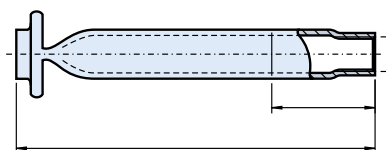
General Technical information

- T-FIXX® a new and innovative, home-grown product	4
- T-FIXX® benefits	4
- Electrolytically galvanized (EV)	5
- Visual distinction EV and Stainless Steel	5
- Stainless Steel (SS A4)	5
- Weldability	5



Assembly instructions

- Thread quality	6
- Screw-in length bolt at least 1.5 d _{nom}	6
- Determination bolt length	6



Specifications T-FIXX®

- Table standard sizes	7
- Design load	7

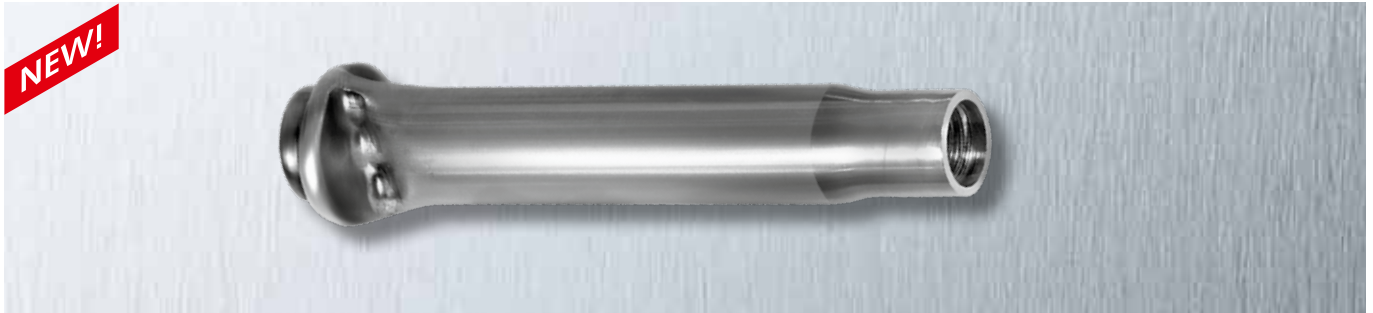


The most up-to-date information is available at www.T-FIXX.com

FIXING SYSTEMS T-FIXX®

General Technical Information

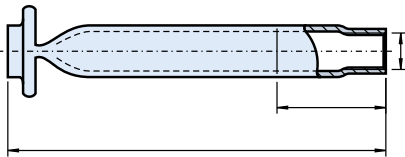
T-FIXX® a new innovative, home-grown product



DEMU is proud to present the T-FIXX®, DEMU's new anchor which will bring you many benefits. It is a strong anchor with a calculable load-taking capacity at a reasonable price!

Innovative

It is neither an insert nor a bolt anchor. It is the ultimate smart combination of both. Because of its multifunctional character T-FIXX® can be applied as a fixing anchor, construction anchor and lifting anchor. The load-taking capacity of the T-FIXX® is higher than that of an insert. And because of the efficient production method T-FIXX® is mostly cheaper than a bolt anchor. DEMU has deliberately chosen to develop a high quality product. Engineering and manufacturing are also home-grown.



Lean production method

For the manufacture of the T-FIXX®, DEMU invested in a new CNC machine. This allows production of the T-FIXX® on a 24/7 continuous, lean and mean basis from one piece. The product range consists of approximately 20 standard versions. In addition, there will be room for customer-specific versions. Due to its lean production method, DEMU is able to manufacture the T-FIXX® in almost any length.

Standard sizes T-FIXX®

Diameter	Length in steel (EV)	Length in stainless steel (A4)
M10	50 mm and 75 mm	50 mm and 65 mm
M12	50 mm, 70 mm and 95 mm	50 mm, 70 mm and 115 mm
M16	60 mm, 100 mm and 125 mm	60 mm, 80 mm and 110 mm
M20	70 mm, 100 mm and 145 mm	70 mm, 100 mm and 125 mm

General benefits of T-FIXX®

- The T-FIXX® price/performance ratio is optimal thanks to the combination of Dutch quality, production method and its unique patented anchor head.
- Also available with (assembled) thin plastic nailing plate.
- Due to the shaped internal thread, the wall thickness can be fully exploited.

Benefits of T-FIXX® with respect to an insert

- The performance of the T-FIXX® may be calculated according to the Dutch CUR25 and CEN/TS 1992-4-1/2. This is consistent with a strong development that is going on among modern designers. They wish to and can better calculate the capacity of anchors by means of specific software. Based on the above norms, DEMU has updated its own calculation software, with which also the T-FIXX® can be calculated. You can download this software from www.t-fixx.com.
- Thanks to its unique patented anchor head, T-FIXX® is stronger than an insert. The head guarantees a greater holding load in concrete.
- For a given load the T-FIXX® required is mostly smaller (M-size) than an equivalent standard insert. As a consequence the bolt which is then used will be thinner, so the complete fixing will turn out more advantageous.
- The approximately 20 standard T-FIXX® versions, replace over 100 insert varieties. As a result you can save on inventory costs and warehouse space.
- The electrolytically galvanized (EV) version of the T-FIXX® is yellow galvanized (Chromium VI-free) and therefore visually distinguishable from the stainless steel (SS A4) types. The conventional EV inserts do not feature the distinguishing colour. Also see page 4.

Benefits T-FIXX® with respect to a bolt anchor

- The T-FIXX® is mostly cheaper than a bolt anchor because it can be produced faster, more efficient and 'hands free', from one piece.
- The stainless steel version of the T-FIXX® is from front to rear made out of stainless steel.
- Especially in situations where the concrete is decisive, e.g. near an edge or with thin elements, T-FIXX® has appeared to be an attractive alternative.

Documentation

Nearly all actual information is available on our special websites: www.T-FIXX.nl (NL) en www.T-FIXX.com (UK).

FIXING SYSTEMS T-FIXX®

General Technical Information

T-FIXX® in EV (Electrolytically Galvanized)

During electrolytically galvanizing, a system of electrolytically drum zinc plating with passivation treatment is applied. The zinc layer thickness is approximately 5-8 µ.

After galvanization, the products are dipped in a bichromate solution for passivation. Corrosion resistance is limited and strongly dependent on the environment.

Mechanical properties of M10, M12, M16 and M20 are:

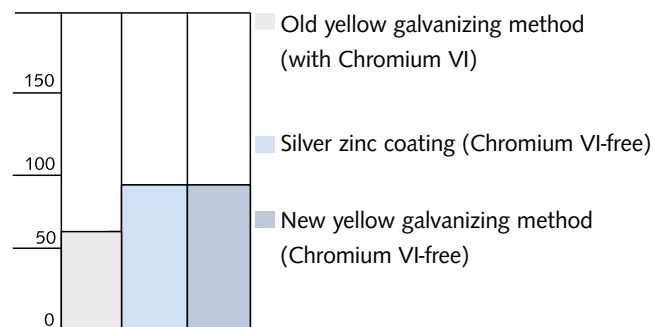
Yield strength 235 N/mm² and tensile strength 340 N/mm².

Visual distinction EV and Stainless Steel (SS A4)

Electrolytically galvanized T-FIXX® products have a yellow colour. Hence, the anchors are easily to visually distinguish from stainless steel anchors.

In the past, DEMU produced yellow galvanized products. Due to the European requirement to passivate 'Chromium VI-free', this was no longer possible. DEMU then switched to silver zinc coating, which is visually very similar to stainless steel. Nowadays it is possible to apply yellow passivation 'Chromium VI-free', after electrolytic galvanizing. The anti-corrosiveness of the yellow 'Chromium VI-free' galvanized products is equal to that of the silver zinc coating. Compared with the former method of yellow zinc coating it even works better. Evidence for this comes from the salt spray tests done. See chart below.

Hours of salt spray till first white corrosion 'drum zinc plating'



Stainless Steel (SS A4)

The table below provides an overview of types of Stainless Steel for the T-FIXX®.

SS A4	EN Nr.	USA	Denotation
Austenitic	1.4401	AISI 316	A4
	1.4404	AISI 316L	A4
	1.4571	AISI 316 Ti	A4

T-FIXX® in A4

The stainless steel (SS A4) T-FIXX® is made of A4-50 material.

Mechanical properties of M10, M16 and M20 are:

Yield strength 190 N/mm² and tensile strength 490 N/mm².

Mechanical properties of M12 are:

Yield strength 215 N/mm² and tensile strength 500 N/mm².

Weldability

All T-FIXX® products are weldable. Welding, including tack welding, DEMU products may negatively influence the mechanical properties of these products. This could affect the load-taking capacity and other properties (such as the accessibility of the internal thread) of the product.

Welding DEMU products in general:

If welding DEMU products is unavoidable, take into account:

- A possible reduction in load-carrying capacity and possible change in properties.
- The need to remove any existing zinc layer before a weld is made, or to properly extract welding fumes.
- To use the prescribed personal protective equipment.
- To strictly comply with the applicable instructions for welding. This is the responsibility of the building supervisor.

DEMU rejects all liability for any damage caused to or by DEMU products on which welding has been performed.

Abbreviations

EV Electrolytically Galvanized

A4 Stainless Steel A4-50, SS 316, 316L, 316 Ti, strength classification 50

FIXING SYSTEMS T-FIXX®

Assembly Instructions

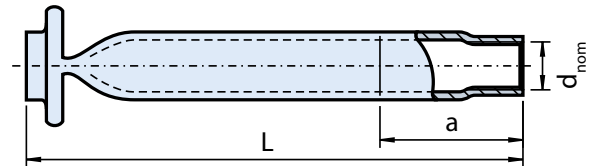
Thread quality

The fixing products that will be screwed-in, have to have an ISO-Metric thread form. These bolts / wire ends are commercially available. Bolt quality has to be at least 8.8.

Screw-in length bolt at least $1.5 d_{nom}$

The bolt should be screwed-in through the neck, meaning that they have to be screwed-in over a minimum length of $1.5 * d_{nom}$.

A screw-in length of the bolt below $1.5 d_{nom}$, decreases the T-FIXX® load-taking capacity of steel failure by 25%



Sizes

All listed values are in mm, unless otherwise specified. Screw-in length (a) of non-standard products on request.

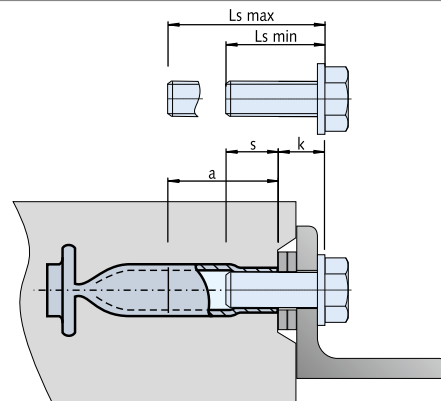
Determination bolt length T-FIXX®

- k = clamp thickness
- s = minimum screw-in length = $1.5 * d_{nom}$
- a = maximum screw-in length

Determination bolt length (Ls)

$$Ls \text{ min.} = s + k$$

$$Ls \text{ max.} = a + k$$



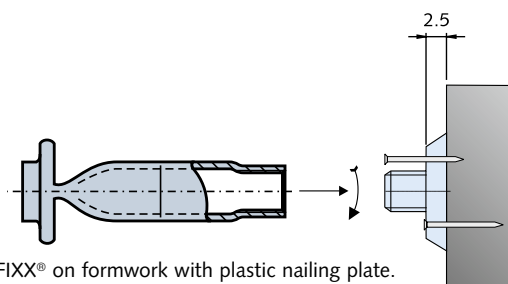
Example determination bolt length T-FIXX®

Deeply inserted T-FIXX® M12x70

Fixing on formwork with plastic nailing plate (type 2275).

$$Ls \text{ min.} = 1.5 \times d_{nom} + 17 = 18 + 17 = 35$$

$$Ls \text{ max.} = a \text{ measure T-FIXX®} + 17 = 36 + 17 = 53$$



Fixing T-FIXX® on formwork with plastic nailing plate.

Hexagon bolt M12 x Ls

Ring 2,5

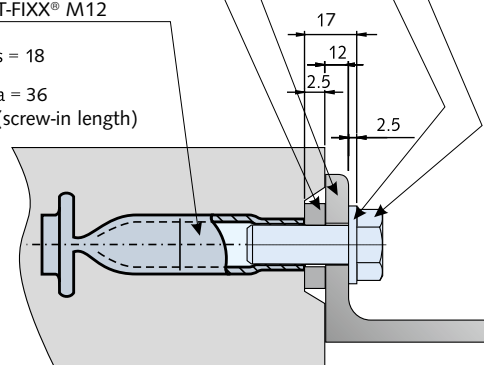
Steel angle support, as example 12,0

1 ring 1 x 2,5

T-FIXX® M12

s = 18

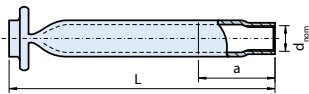
a = 36
(screw-in length)



FIXING SYSTEMS T-FIXX®

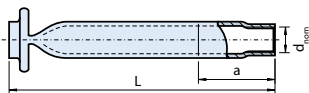
Specifications T-FIXX®

Sizes and loads EV



Article no.	d _{nom}	L	a		Pack.	kg/100		Den.
200.10.0050	M10	50	30		500	2,8	②	EV
200.10.0075	M10	75	30		250	3,9	②	EV
200.12.0050	M12	50	28		250	4,8	②	EV
200.12.0070	M12	70	36		250	6,3	②	EV
200.12.0095	M12	95	36		200	8,2	②	EV
200.16.0060	M16	60	30		100	9,2	②	EV
200.16.0100	M16	100	48		100	14,0	②	EV
200.16.0125	M16	125	48		100	17,0	②	EV
200.20.0070	M20	70	42		100	13,9	②	EV
200.20.0100	M20	100	60		50	18,6	②	EV
200.20.0145	M20	145	60		50	25,6	②	EV

Sizes and loads A4 (RVS)



Article no.	d _{nom}	L	a		Pack.	kg/100		Den.
400.10.0050	M10	50	30		500	2,8	②	A4
400.10.0065	M10	65	30		500	3,4	②	A4
400.12.0050	M12	50	28		250	4,9	②	A4
400.12.0070	M12	70	36		250	6,4	②	A4
400.12.0115	M12	115	36		100	9,8	②	A4
400.16.0060	M16	60	30		100	9,2	②	A4
400.16.0080	M16	80	48		100	11,6	②	A4
400.16.0110	M16	110	48		100	15,2	②	A4
400.20.0070	M20	70	42		100	13,9	②	A4
400.20.0100	M20	100	60		50	18,6	②	A4
400.20.0125	M20	125	60		50	22,5	②	A4

Designload T-FIXX® EV in kN	C20 / 25		C45 / 55	
	CEN/TS 1992-4-1/2	CUR 25	CEN/TS 1992-4-1/2	CUR 25
M10 x 50	5,2	4,3	7,8	6,5
M10 x 75	10,0	10,0	10,0	10,0
M12 x 50	5,0	4,1	7,4	6,1
M12 x 70	10,4	8,7	15,4	12,9
M12 x 95	16,8	16,8	16,8	16,8
M16 x 60	7,1	5,9	10,6	8,8
M16 x 100	22,1	18,4	27,2	27,2
M16 x 125	27,2	27,2	27,2	27,2
M20 x 70	10,0	8,3	14,8	12,3
M20 x 100	22,0	18,3	32,7	27,2
M20 x 145	33,2	33,2	33,2	33,2

Designload T-FIXX® SS A4 in kN	C20 / 25		C45 / 55	
	CEN/TS 1992-4-1/2	CUR 25	CEN/TS 1992-4-1/2	CUR 25
M10 x 50	5,2	4,3	7,8	6,5
M10 x 65	7,8	7,6	7,8	7,8
M12 x 50	5,0	4,1	7,4	6,1
M12 x 70	10,3	8,6	15,4	12,8
M12 x 115	15,5	15,5	15,5	15,5
M16 x 60	7,1	5,9	10,6	8,8
M16 x 80	13,4	11,2	19,9	16,6
M16 x 110	22,0	22,0	22,0	22,0
M20 x 70	10,0	8,3	14,8	12,3
M20 x 100	22,0	18,3	26,9	26,9
M20 x 125	26,9	26,9	26,9	26,9

* Calculation value of normal force in plain concrete without limitation of centre to centre distances, edge distances and element height! The above calculation values are valid for (construction) fixings and are not allowed to be used for lifting!

② Delivery time in consultation

EV Electrolytically Galvanized

A4 A4 class 50SS 316, 316L, 316Ti

CONTACT HALFEN WORLDWIDE

HALFEN is represented by subsidiaries in the following 14 countries, please contact us:

Austria	HALFEN Gesellschaft m.b.H. Leonard-Bernstein-Str. 10 1220 Wien	Phone: +43 - 1 - 259 6770 E-Mail: office@halfen.at Internet: www.halfen.at	Fax: +43 - 1 - 259 - 6770 99
Belgium/Luxembourg	HALFEN N.V. Borkelstraat 131 2900 Schoten	Phone: +32 - 3 - 658 07 20 E-Mail: info@halfen.be Internet: www.halfen.be	Fax: +32 - 3 - 658 15 33
China	HALFEN Construction Accessories Distribution Co.Ltd. Room 601 Tower D, Vantone Centre No.A6 Chao Yang Men Wai Street Chaoyang District Beijing · P.R. China 100020	Phone: +86 - 10 5907 3200 E-Mail: info@halfen.com Internet: www.halfen.cn	Fax: +86 - 10 5907 3218
Czech Republic	HALFEN-DEHA s.r.o. K Vypichu 986 · Komerční zóna Rudná, hala 6 25219 Rudná	Phone: +420 - 311 - 690 060 E-Mail: info@halfen-deha.cz Internet: www.halfen-deha.cz	Fax: +420 - 311 - 671 416
France	HALFEN S.A.S. 18, rue Goubet 75019 Paris	Phone: +33 - 1 - 445231 00 E-Mail: halfen@halfen.fr Internet: www.halfen.fr	Fax: +33 - 1 - 445231 52
Germany	HALFEN Vertriebsgesellschaft mbH Katzbergstraße 3 40764 Langenfeld	Phone: +49 - 2173 - 970 0 E-Mail: info@halfen.de Internet: www.halfen.de	Fax: +49 - 2173 - 970 225
Italy	HALFEN S.r.l. Soc. Unipersonale Via F.lli Bronzetti N° 28 24124 Bergamo	Phone: +39 - 035 - 0760711 E-Mail: info@halfen.it Internet: www.halfen.it	Fax: +39 - 035 - 0760799
Netherlands	HALFEN b.v. Postbus 1 7620 AA Borne	Phone: +31 - 074 - 267 14 49 E-Mail: info@halfen.nl Internet: www.halfen.nl	Fax: +31 - 074 - 267 26 59
Norway	HALFEN-FRIMEDA AS Postboks 2080 4095 Stavanger	Phone: +47 - 51 82 34 00 E-Mail: post@halfen.no Internet: www.halfen.no	Fax: +47 - 51 82 34 01
Poland	HALFEN Sp. z o.o. Ul. Obornicka 287 60-691 Poznan	Phone: +48 - 61 - 622 14 14 E-Mail: info@halfen.pl Internet: www.halfen.pl	Fax: +48 - 61 - 622 14 15
Spain	HALFEN S.L. c/ Fuente de la Mora 2, 2° D 28050 Madrid	Phone: +34 - 91 - 632 18 40 E-Mail: info@halfen.es Internet: www.halfen.es	Fax: +34 - 91 - 633 42 57
Sweden	HALFEN AB Box 150 435 23 Mölnlycke	Phone: +46 - 31 - 98 58 00 E-Mail: info@halfen.se Internet: www.halfen.se	Fax: +46 - 31 - 98 58 01
Switzerland	HALFEN Swiss AG Hertistrasse 25 8304 Wallisellen	Phone: +41 - 44 - 849 78 78 E-Mail: mail@halfen.ch Internet: www.halfen.ch	Fax: +41 - 44 - 849 78 79
United Kingdom / Ireland	HALFEN Ltd. Humphrys Road · Woodside Estate Dunstable LU5 4TP	Phone: +44 - 1582 - 47 03 00 E-Mail: info@halfen.co.uk Internet: www.halfen.co.uk	Fax: +44 - 1582 - 47 03 04

Furthermore HALFEN is represented with sales offices and distributors worldwide. Please contact us: www.halfen.com

NOTES REGARDING THIS CATALOGUE

Technical and design changes reserved. The information in this publication is based on state-of-the-art technology at the time of publication. We reserve the right to make technical and design changes at any time. HALFEN GmbH shall not accept liability for the accuracy of the information in this publication or for any printing errors.

The quality management system deployed by HALFEN GmbH is ISO 9001:2008, certified for the sites in Germany, Switzerland, Poland, Czech Republic and Austria, with certificate no. QS-281 HH.

