ELEMATIC®

Fixing solutions

Update 04/2015

ELEMATIC®

www.elematic.it

As a producer of **cabling** and **fixing systems**, we are present in the market since 1977, becoming a leading company in our field. Able to anticipate the trends of the market with innovative spirit and a service constantly oriented to the needs of the customer, we have been achieving market share through our partners all over the world.

PRODUCTS AND SOLUTIONS

We supply added-value products and innovative solutions to our customers. Our goal is:

- **focused product range**
- **quality and certification**
- **innovation, research & development**
- **customer satisfaction**
- **service & flexibility**

ITW (Illinois Tool Works) is a leading diversified manufacturing company, based in Glenview, Illinois (USA). ITW designs and manufactures highly engineered fasteners and components, equipment and consumable systems, and a high variety of specialty products and equipment for customers around the world.

THE STRENGTH OF A BIG GROUP WITH A COMMON GOAL

Since 1998, Elematic belongs to ITW Group: service, innovation and technology.

100 years of history
65.000 people
58 countries around the world
3 geography areas: North America, Asia-Pacific, Europe

ELEMATIC®

YOU CAN TRUST US...

13 working stations

71 injection molding machines

3 billion cable ties yearly produced

80 molds

7 extrusion lines

12 m height warehouse

15 packaging lines

20 million meters HST yearly produced

1.600 warehouse locations

500 million fixing yearly produced

6.000 m^2 warehouse

31.500 monthly order lines

...AND ON OUR QUALITY SYSTEM AND ENVIRONMENT

The company is certified **ISO 9001:2008** for the design and manufacturing of cable ties and fixing systems with engineering polymers. Trading of fixing, cabling systems and electrical power tools. This certification guarantees that all the steps of our company processes, from development to delivery, are controlled following detailed procedures.

Aware of the importance of our impact on the environment, we developed a certified environmental management system that leads us to reduce as much as possible this impact. All our Italian sites are certified according **ISO14001:2004** standard with the aim of design and manufacturing of cable ties and fixing systems through injection molding, design and manufacturing of our molds and, trading of cabling and fixing accessories.

CAZZAGO DI PIANIGA (VE) - ITALY

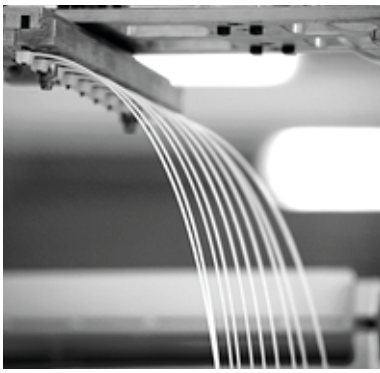
Head office
Commercial department
Logistic platform

CADONEGHE (PD) - ITALY

Cable ties & accessories production
Packaging Center

PADOVA Z.I. - ITALY

Light-duty anchors production
Research & Development

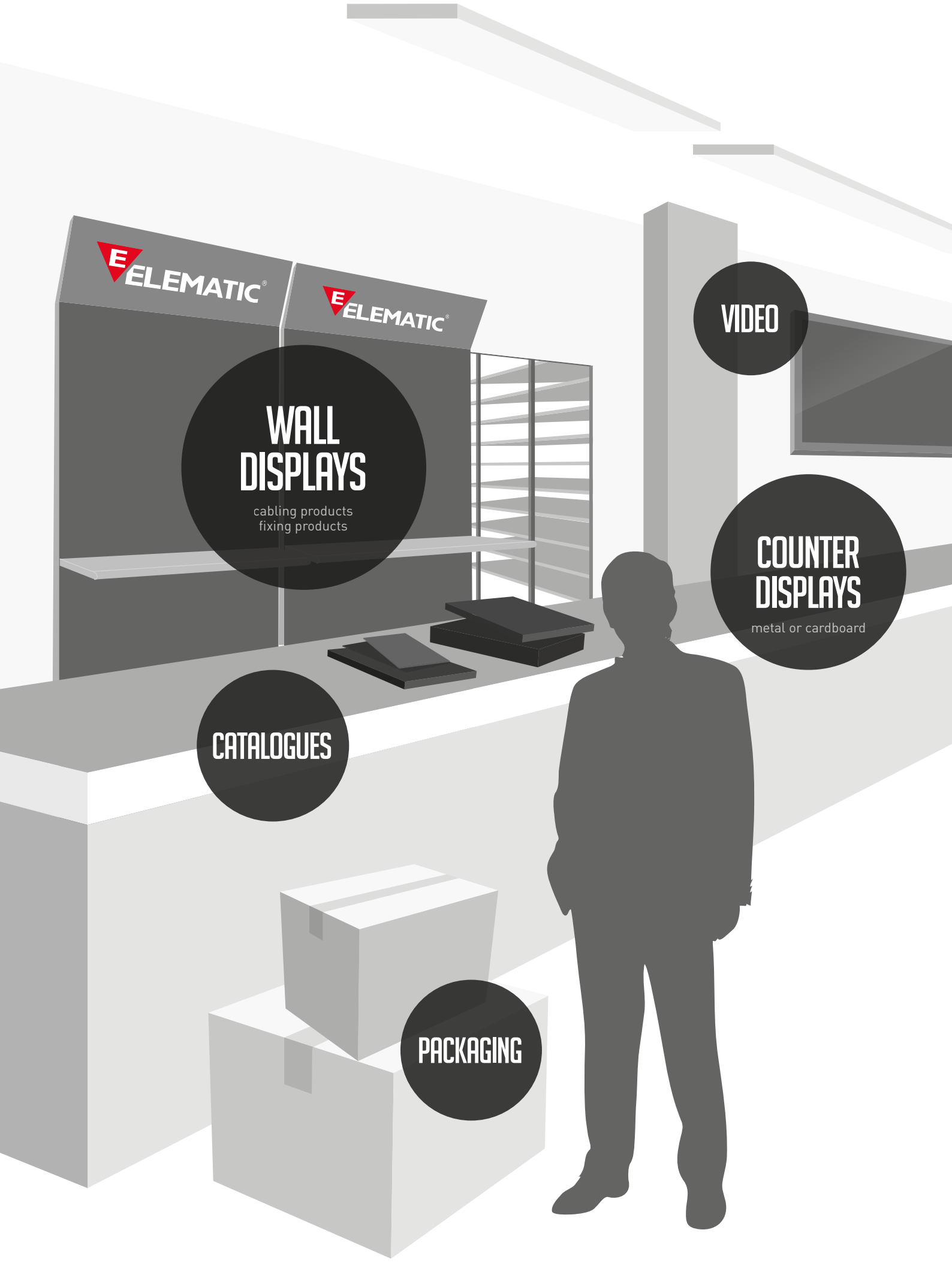


BUJE - CROATIA

Cable ties & accessories production
Packaging Center

INOWROCLAW - POLAND

R&D & production "Cable protection"
Logistic platform & Packaging Center "Cable protection"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cabling products
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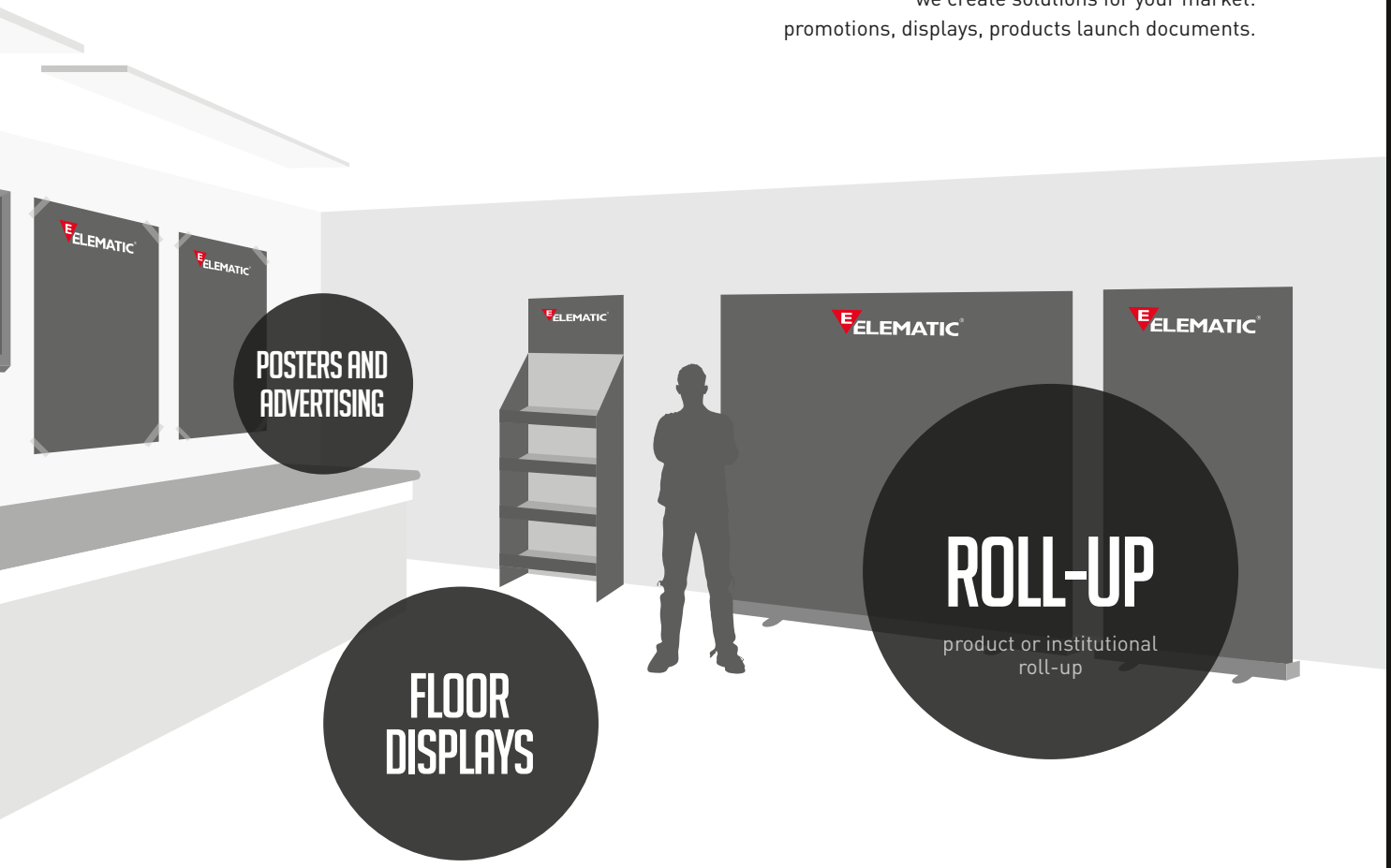

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FASTENING GUIDE

FASTENING TECHNICAL GUIDE

Introduction

In the choice of a post-installed anchor it is necessary to know and manage a large range of information, leading to an adequate design and installation. This choice shall be taken carefully as the importance of the installation grows in order to guarantee safety and functionality in a building.

Therefore both light-duty and heavy-duty anchors represent a critical topic in the realization of a construction that requires a performance assessment of products and a constant control of the manufacturing quality and of the installation procedure. **ELEMATIC** is more and more focused on the product certification in addition to the Research & Development activities, with the target of providing the Customer with innovative and reliable technical solutions. Concerning the scientific research a cooperation with the Department of Civil, Architectural and Environmental Engineering of the University of Padua has been activated.

The following technical guide consists in an overview on the anchorage topic, first of all by presenting base materials and anchor typologies. Besides a panorama of guidelines and regulations for the design and the assessment of anchors is reported at a later stage, together with the explanation of some of the most significant applications:

1. **Base materials**
2. **Functioning principles of the anchorage**
3. **Anchor types**
4. **Installation**
5. **Performance and design**
6. **Application in constructions**
7. **Regulations and Certification**
8. **ITW and scientific research**

Base materials

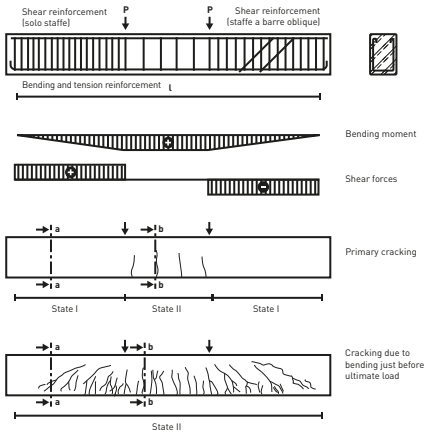
Concrete

Concrete is the most common building material used in new or recent constructions. It is obtained by a semi-solid mixture made of sand and aggregate (gravel), cement (as binder), water and eventual suitable additives, being all casted in formwork. The curing of this compost, which completes conventionally within 28 days from the day of pouring, gives as result a type of substrate characterized by high homogeneity and excellent compressive strength. Concrete is classified in proportion to this value, named f_{ck}. Furthermore, concrete varies as per the way it is manufactured:

Concrete classification according to the harmonized standard EN 206-1

Class	Characteristic resistance F_{ck}	
	Cylinder 16x32 cm	Cube 15x15x15 cm
C 16/20	16 Mpa	20 Mpa
C 20/25	20 Mpa	25 Mpa
C 25/30	25 Mpa	30 Mpa
C 30/37	30 Mpa	37 Mpa
C 35/45	35 Mpa	45 Mpa
C 40/50	40 Mpa	50 Mpa
C 45/55	45 Mpa	55 Mpa
C 50/60	50 Mpa	60 Mpa

- **Casted in formwork:** obtained directly at job site.
- **Pre-fabricated concrete:** manufactured in workshop and subsequently assembled at building yard, what gives good homogeneity, best superficial finish and, in general, high compressive strength.
- **Pre-stressed concrete:** with beams or pillars longitudinally reinforced with bars in pre-stressed steel for the best elastic return - able therefore to stand high loads with low deformations. The resistance of the pre-stressed concrete is generally very high and in accordance with the class C40/50 or superior.



In structures subjected to bending or combined compression and bending, concrete is coupled with steel bars (reinforcement bars) which provide the element with the property of withstanding tensional forces. Hence typically the R.C. bent section shows, beyond a certain tension limit, an area subjected to compression force absorbed mainly by concrete and a tense area in which rebars work. The concrete part included between the neutral axis (null force line) and the bars barycentre, although it is cracked, is fundamental in order to guarantee the transfer of actions to bars. Cracks distance depends mainly on the adhesion properties between steel bars and concrete, which are also related to the mechanical properties of the concrete its-self.

Solid bricks

Solid bricks are in different dimensions and shapes, obtained from a paste of clay. They are commonly used for the construction of masonry bearing walls or masonry infill walls. Bricks are considered as solid if made with up to 15% of hollow ratio. The compressive strength of the brickwork is mostly lower in comparison to concrete. The chemical anchors, used with wired sleeves in case of partially perforated material and the mechanical anchors with sleeve for a great expansion as well as the plastic anchors are the most suitable fixing solutions for this kind of material.

Perforated bricks

For dimensions and shapes similar to the previous ones, but provided with cavities (percentage of holes up to 70-75%). They are commonly used for the construction of internal and perimetral infill walls. The chemical anchors with wired sleeves are highly recommended for applications in this type of brick. The choice of heavy duty anchors should be limited to the ones with sleeve able to perform a big expansion force, taking care not to exaggerate with the clamping, because exaggerate expansions could cause cracks seriously compromising the fixing. Among the plastic

light duty anchors, products performing undercut anchoring should be preferred. The excellent resistance refers to the point of crack of the substrate.

Lightweight clay units

Characterized by the presence in their paste of light aggregates and of very many pores as well as by a vertically perforated structure. Because of their reduced weight and of properties as soundproofing and thermal insulation they are mostly used for the construction of dividing brickwork or of masonry infill walls. The choice of light duty anchors with a large expansion surface, of chemical anchors or of undercut fasteners is recommended for this type of brick.

Concrete hollow blocks

Hollow blocks are manufactured in cementation agglomerates. The thickness of the wall is of few centimetres and as the blocks are completely hollow, they grant a good thermal and sound insulation linked to a good mechanical resistance. The choice of chemical anchors with wired sleeves or of heavy duty anchors with a large expansion surface is recommended for this kind of substrate, taking particular care not to exceed with the tightening torque, since overdone expansions could cause cracked areas in the base material seriously compromising the fixing. Among the plastic light duty anchors, fasteners functioning by mechanical interlock should be preferred.

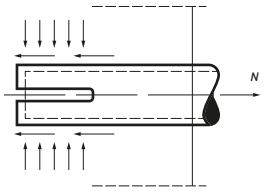
Bricks and elements in cellular concrete

The cellular concrete is a paste made with special additives to create elements of porous and friable consistence. Because of its reduced weight and excellent properties of thermal and sound insulation it is used for the quick construction of both not bearing parametric or dividing brickwork. It has a relative low compressive strength. In case of light loads it is advised to use self-drilling anchors for friable materials. In case of heavy loads it is possible to use chemical anchors.

Plasterboard panels

These panels are obtained by coupling layers of paper to a paste made of pressed gypsum. The so called "dry walls" are mostly used in buildings destined to offices or in industrial constructions. But their quick shaping and setting together with their good insulating properties are making them largely used also in buildings destined to habitation. Frequently they are also used for the creation of suspended ceilings. Walls are composed of a metallic framework on which, on both sides, panels are fixed. Insulating materials are usually set in the hollow space among the layers. The thickness of every single panel varies from 10 to 13 mm. Sometimes, for a better insulation, walls are composed of two, even three panels.

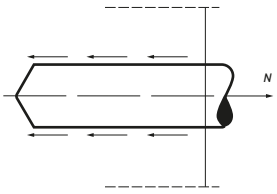
Functioning principles of the anchorage



Friction

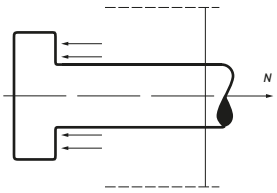
A first anchoring methodology is based on transferring the external load by means of friction generated between the hole surfaces in the base material and the anchorage element. In this case the functioning of the anchor is obtained through the push of an expansion sleeve against the hole surfaces.

This load transfer principle induces hence a pre-stressing state in the base material, also when the anchor is not loaded yet.



Chemical bond

Another load transfer mode is represented by chemical bond between anchoring system and base material. Differently to the previous principle, the adhesion involves the whole embedment depth and does not induce pre-stressing states in the base material. This behaviour is generally obtained by means of various composition resins.



Mechanical interlock

The third mode of transferring the load consists of the mechanical interlock between anchor and base material. In this mechanism the external load transfer is located in certain limited parts of the anchor, usually in the inner end of the fastener. This can lead to relevant localized states of stress in the base material.

Generally shaped anchors coupled with the hole surfaces in the base material, which can contrast by geometry the actions applied on the fixing point, use this principle.

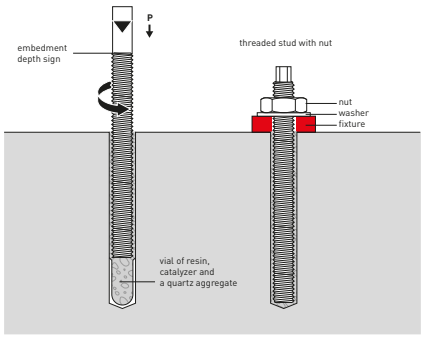
Anchor types

Chemical anchor

One first typology of high duty and versatile anchoring systems, is represented by chemical anchors. This category is based on the use of two-component resins which polymerize as the catalyzer is mixed, bonding usually a steel threaded bar to the base material.

The use of such anchoring systems does not induce any stress in the base material at the moment of the installation, with the exception of the self-expanding resin which induces however lower stresses than mechanical expansion anchors.

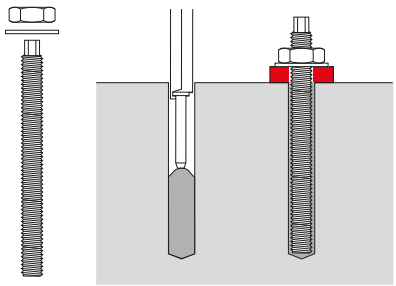
The installation of this anchoring system, including the hole clearance and the adequate curing time, can affect deeply the effective bearing capacity. If it is made not properly, according to guidelines and manufacturer instructions, the value of resistance of the system can be lower than the expected. Two typologies of chemical anchors can be distinguished by the installation methodology: vials type and injection type.



Vials type

This type of chemical anchor consists generally in a glass vials containing three different substances: the resin, the catalyzer and a quartz aggregate. The quantity of these substances is decided to facilitate the polymerization.

The vial has to be inserted inside the perforated hole in the base material. Subsequently, by means of a drilling hammer, a threaded bar provided with a dedicated end is screwed in causing the capsule breakage. The rotation of the bar inside the hole favours the right mix of the components and the presence of glass scraps can facilitate the adhesion to the support. Provided that curing time indicated by the manufacturer is observed and that provisions on installation procedure is followed, the fixture can be attached.



Injection type

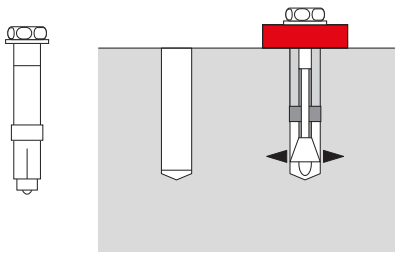
The installation of chemical anchors can be achieved also through the injection of the resin inside the hole. Usually the two-component resin is contained in a double room cartridge. The resin and the catalyzer, in pre-determined quantity, are mixed correctly by using a dedicated nozzle. The mixing is injected in the perforated hole in the base material paying attention not to create air bubbles, factor that can reduce significantly the ultimate resistance of the fixing. After the resin injection the threaded bar can be inserted rotating to facilitate the bonding of the resin to the bar and the base material.

A variation to this methodology is represented by the use of a plastic net or metal sleeve inserted in the hole before injection. In this case as the threaded bar is pushed inside the hole the resin leaves the sleeve. Such system, used in hollow material application, allows a partial filling of the brick holes assuring also a mechanical interlock between anchor and support.

Mechanical metal anchor

Metal expansion

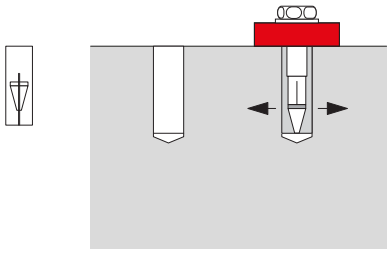
These anchors function by inducing pre-tensions on the hole surfaces by means of an expansion sleeve. The applied force generates the friction needed to contrast the stress acting on the anchor. In such classification two typologies of anchors can be distinguished by a different installation procedure, namely torque controlled and deformation controlled anchors.



Torque controlled

Torque controlled expansion anchors are installed through the application of a specific tightening torque to the anchoring bolt or screw. The tightening forces hence expand the metal sleeve against the hole lateral faces (first expansion). In this way a pre tension is induced on the support, which deformation depends on the acting forces and on the base material properties. The application of an external loading induces an additional expansion of the anchor, that is an increase of compression on the hole faces that causes consequently a greater friction force (secondary expansion). This further mechanism is possible only if the friction between expansive sleeve and the bolt is lower than the one operating between the anchor and the hole surfaces.

For the anchors belonging to this typology it is important to adopt the tightening provided by the manufacturer using a calibrated torque wrench. This allows a correct installation and safety level to be achieved.



Deformation controlled

Deformation controlled anchors are installed by percussion of a hammer or machine. This type can be subdivided into two further categories, depending on the beating element. In the first case a wedge is hammered in an external sleeve, while in the second case the sleeve is hammered and expands because of the wedge. Such anchoring systems induce a deformation to the hole lateral faces, assuring the resistance by means of both friction and geometrical interlock.

Nevertheless it has to be highlighted that the installation of deformation controlled anchors can induce relevant expansion forces that can be significantly greater than those induced by torque controlled anchors. Moreover a secondary expansion is not possible for this typology. On the contrary a decreasing of the expansion force could be observed with time because of the base material settlement.

Metal undercut

The anchor typology classified as undercut is characterized by the presence of mechanical interlock with the installation support. Self-tapping screws and in general those anchors able to cut the base material and function by geometrical contrast, belong to this category. Another anchoring system included in this group is installed by drilling in the base material a shaped hole, with an enlarged section in the inner part, which has to be lodged after the tightening by the anchor expansion cone. This procedure allows in the same way to obtain a geometrical interlock between fastener and support. In this case compression forces are induced only in limited parts of the anchor, namely the anchor inner end and the surfaces of contact.

Corrosion risk for steel

The reliability in the lifetime of an anchor manufactured partially or totally in metal is influenced by the entity of the corrosion. The resistance against the corrosion can be reached by adopting a treatment of coating (for ex. zinc-plating) of the surface of the anchor or by using stainless steel in the production. The choice of a product must be done considering the working conditions it has to undergo:

- **in case of external installations or applications in dry areas:** the use of cold galvanized zinc coated anchors with consequent (yellow or white) passivation is recommended. The medium coating thickness for quality anchors is 5 µm (micron).
- **in case of external installations or of not critical applications:** the use of hot zinc coated anchors is advised. The thickness of this coating is 40-60 um. As an alternative, a treatment called Dacromet guarantees a corrosion resistance four times higher than the one with cold galvanized zinc coating (5 µm)
- **in case of external installations with medium – high corrosive potential:** such as applications in urban or industrial areas, in sea-side zones, in motorway tunnels or installations in areas not easy to be inspected, the choice of stainless steel anchors, preferably according the ISO class A4 or, in uncritical conditions, according class A2 is recommended.

The temperature, especially if high may also influence the good fixing hold. The chemical fixings may resist until 80°C.

Mechanical plastic anchors

The plastic anchoring systems generally consist of an expanding element, a screw, and an external sleeve conveniently shaped to favour its deformation. The push outwards of the plastic sleeve is ensured by the screwing in of the expanding element. In this way the expansion forces induce a variation to the sleeve in the shape. In the case that anchors are installed in hollow materials the expansive sleeve can also make a knot to allow the load transfer by geometrical contrast.

Various typologies of anchors made of engineering plastics do exist, depending on the support where they are installed in, on the thickness of the fixture. As a consequence of this variety **ELEMATIC** promotes the development of versatile products.

Most common failure modes in solid supports for all the types of plastic anchors is pull-out (slipping). This mechanism generally does not induce relevant damages to the base material.

The ultimate resistance for engineering plastics anchors, under axial or shear loads, is influenced by many factors. Among these the humidity ratio contained in the polyamide sleeve, the stiffness of the sleeve and temperature at which the installation is realized are important.

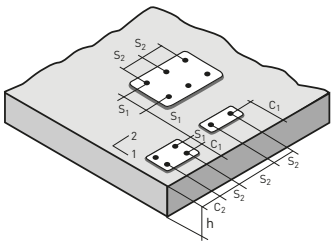
Typically the humidity ratio contained in hygroscopic plastic anchors in stable conditions (23°C – 50% RH) is on the average of 2.5%.

The increase of absorbed humidity can lead to reduction of stiffness for the engineering plastics, resulting in a decrease of ultimate bearable load. On the contrary, the decrease of humidity in the anchor leads to a rise in the stiffness and a consequent increase in the strength. Also the stiffness of the plastic used to manufacture the sleeve influences the global resistance of the anchoring system. Softer materials, like polyethylene, show lower maximum loads than more rigid materials, like polyamide.

A similar effect is brought by thermal variations. An increase in temperature causes a drop in strength, while a decrease in temperature results in a rise of ultimate bearable load.

Installation

Drilling methods



In order to get the maximum performance from the anchor, it is fundamental to be able to realize in the best possible way the hole containing the fixing element. For this reason, for getting the right coupling anchor-hole, it is necessary to choose the right diameter of the drill bit, taking particular care to what advised in this catalogue. The typical drawback to face is usually an oval-shaped drilling, resulting from the use of an old bit or of a bit rotating outside the axis. A short explanation of the different drilling methods according to the different types of installations is therefore useful:

- **Rotary drilling:** using an hammer with rotary drill bit. Suitable in bricks or in materials with low strength. The absence of hammering action avoids damaging

the substrate.

- **Impact drilling:** Using an hammer with a drill bit able to perform rotation and a large number of light impacts. Very efficient in all not reinforced materials.
- **Hammer drilling:** using an hammer whose drill bit is able to perform short rotations together with a large number of hard impacts. Ideal for concrete and materials with high strength.
- **Diamond drilling:** Using a core diamond drill bit cutting the material, in dry as in wet conditions. Suitable for the production of a large drill-hole diameter or where metal reinforcement is encountered.

Anchor spacing and edge distance

In order to get the total load transmission from the fixing element to the substrate, therefore the total resistance, it is necessary to observe norms coming from international regulations and referring to the critical distances of installations. These are called as follows:

• s: distance between two anchors in group

• c: distance between the anchor and the edge of the substrate

Anchors must be set by observing the following relations:

• $s \geq s_{cr}$ and never $s \leq s_{min}$

• $c \geq c_{cr}$ e and never $c \leq c_{min}$

where s_{cr} (c_{cr}) is the characteristic distance and s_{min}(c_{min}) the minimum distance.

In general the characteristic distances are in accordance with the anchorage depth called h_{ef} and the relation of well design described as $s_{cr}=2 \cdot c_{cr}=3 \cdot h_{ef}$ is the valid one. In case of applications with values lower than the characteristic ones, the decrease of the values of the anchor resistance through due corrective coefficients is necessary.

Drill-hole cleaning

After having drilled and before going ahead with the installation, the dust remained in the drill hole must be removed as its presence reduces largely the holding values both in case of use of heavy duty anchors (risk of friction decrease) or of chemical anchors (decrease of the resin power). Finally it is necessary to brush the hole and blow inside compressed air.

Drill-hole depth

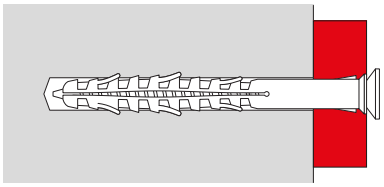
The drill-hole depth h_0 is the depth of the hole and as a general rule it should be larger than the effective anchorage depth h_{ef} so as to prevent the presence of any drilling dust in the hole or the eventual screw emerging from the plug tip. If on the one hand a limited drill-hole depth can simplify the installation thanks to a quicker operation or a smaller possibility to encounter reinforcements, on the other hand the fixing holding value increases with the increase of h_{ef} and therefore ofi h_0.

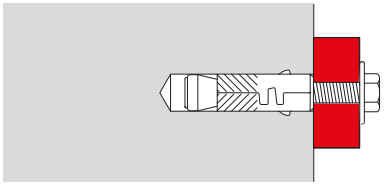
Base material thickness

If not better specified and especially in case of use of heavy duty expanding anchors, the thickness of the anchoring substrate should be approximately alike of or two times larger than the anchorage depth, therefore $h_{min} \geq 2h_{ef}$. The installation of medium heavy fixings or of heavy duty anchors in substrates with a thickness less than 100 mm is generally not suggested, except in presence of specific valuations or preparatory tests advising the contrary.

Installation types

In order to select an anchor combining functionality with convenience and quickness, three different installation types have to be considered:

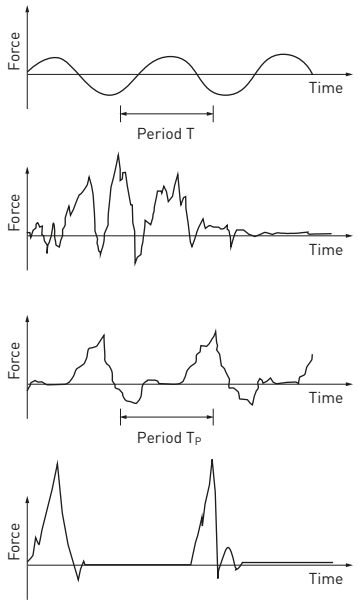




- **Through fixings:** the anchor can be fixed in the substrate through the object you are connecting if this is located in the definitive position. The drill-hole can be made through the object being connected without moving it. The diameter of the object hole is very important: it must not be too small so as to obstruct the anchor going through or too large to require the use of washers for achieving the proper blocking.
- **Non-through fixings:** in this case the drilling and the inserting of the anchor are made before the positioning of the object to be fixed. The hole diameter in the substrate is larger than that of the installation hole of the object to be fixed. High-expanding anchors and percussion concrete anchors are suitable for this application.
- **Spaced installation:** the object to be connected is not adherent with the substrate, but it is fixed at a certain distance away from the anchoring surface. The anchor undergoes in this case significant bending forces. Metal anchors with an internal metric thread coupled with bars, anchors with lengthened thread, or in general anchors made in high strength steel (class 6.8 or 8.8) are therefore recommended for that.

Performance and design

Types of load



Action typologies with variation in time: harmonic, periodic, variable transient, impulsive *(CEB, 1994)*.

In engineering current practice calculation methods as resistance verification for any element are based on the semi-probabilistic limit states method which, even in normative, has replaced the allowable stress approach. The codes issued on anchoring systems design and currently in force hence are based on this method.

Therefore the formulations included in the current national and international building codes which are used for the calculation of acting forces are based on statistical analyses. The obtained value defines the entity of external forces, namely characteristic action (S_k). This value shall be calculated as the fractile lower than 95%. Such expression means that 95% of random action values are lower than the calculated characteristic o "S_k".

The characteristic resistance of materials and systems can be determined experimentally or analytically and represents the fractile greater than 5%. This value identified with (R_k) consists in the threshold under which only 5% of measures of random resistance values stands.

Finally the fact that the semi-probabilistic method of limit states is based on the use of Partial Safety Factors, applied to characteristic considered quantities, as well to external actions and to resistances, must be highlighted. The final value of loading to use in the verification, for a structural element as for an anchoring system, is calculated by increasing the characteristic force (S_k) by a partial safety coefficient "γ_k" obtaining the design action (S_d). In a similar and complementary way the characteristic resistance (R_k) shall be reduced by a partial safety coefficient "γ_m", obtaining the value of design resistance (R_d) to be used in the verification.

The current European regulations distinguish the forces acting on a structure into two main categories, namely static and dynamic loading. A third types represented by fatigue loading.

As a consequence of this distinction the acting forces F_{Sk} affecting an anchoring system can be of the following typologies:

- **Static or quasi-static loading:** this class includes, for instance, the self-weight of the fixtures (permanent load) or the forces induced by variable actions (e.g. wind, snow).
- **Dynamic:** these are variable with time actions and can be subdivided into harmonic, periodic, transient (e.g. earthquakes) and impulsive.

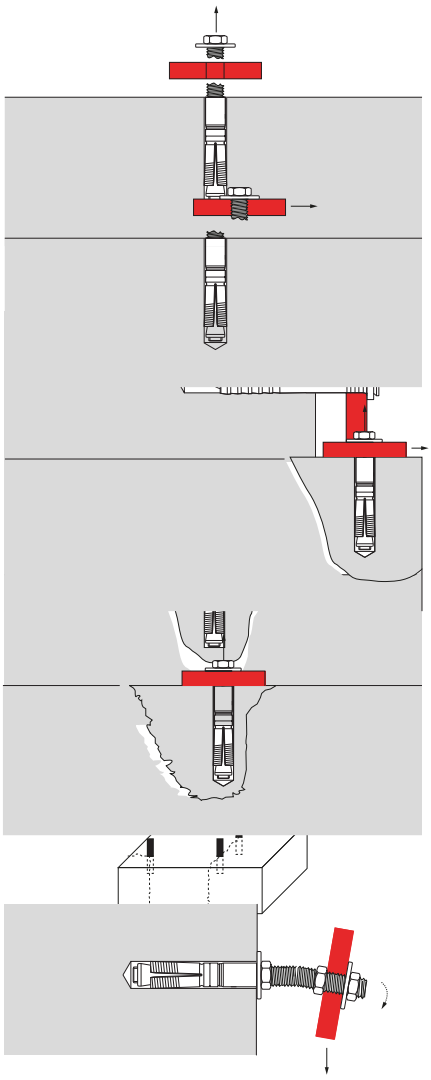
The forces acting on a structure or on an element generate several stress components on the fixing point. This contribution has to be added to a possible stress induced at the moment of product installation.

The resulting force F_{Sk} which bears upon the anchoring system shall be classified depending on its direction:

- **Tension force (N_{Sk}):** acting almost in parallel to the longitudinal axis of the anchor with an angle of $0° \leq \alpha \leq 30°$.
- **Shear force (V_{Sk}):** acting almost perpendicularly to the longitudinal axis of the anchor with an angle of $60° \leq \alpha \leq 90°$.
- **Combined oblique force:** inclined with an angle of 30° ↖ ↖ 60° vector sum of tension and shear.
- **Bending moment (M_{Sk}):** originated by a shear force applied with height eccentricity.
- **Twisting moment ($M_{T,\ Sk}$):** generated by a shear force applied with lateral eccentricity (e.g. tightening torque).

Failure modes

In this section, accordingly to anchorage state-of-art, the failure modes in solid material obtained through laboratory testing are presented.



Tensile force

The aspects which influence the most the failure mode of an anchor loaded by axial actions are listed in the following:

- **Steel failure:** collapse overcomes due to tension failure of the bolt or screw. This case usually appears in high strength base material (e.g. concrete, stone) especially if reinforced with bars. The system resistance is represented by the strength of the steel used to manufacture the anchor.
- **Pull-out failure:** collapse occurs for anchor slipping from installation hole without any damage of the base material. This failure overcomes especially for plastic anchors or for heavy duty anchors applied in low strength base materials reinforced with bars.
- **Base material cone failure:** base material collapses because the load is fully transferred through the anchor. The surrounding material detaches with a conic shape. This failure usually occurs in low and normal strength concrete without reinforcement for heavy duty anchors. Concrete cone failure is more likely to occur when the anchor is installed next to edge or it is part of a group of anchors with small spacing.
- **Splitting failure:** collapse is caused by the rupture of the support element. This mode is strongly unwanted and it can occur if the anchor is installed in insufficient thickness supports.

Shear force

Shear tests consist in the application of an increasing load applied perpendicularly to the anchor, just over base material surface up to anchor failure. The rupture occurs, typically, with the following features:

- **Steel failure:** collapse occurs due to shear failure of the bolt or screw. This case

usually appears on high strength base materials (e.g. concrete, stone) especially if reinforced with bars. The more is the embedment depth, the more likely is this case to occur. The resistance coincides with the strength of the steel used to manufacture the anchor.

- **Pry out failure:** collapse occurs for the base material rupture caused by the lever action induced by the loading. This case occurs most of the times in low strength non-reinforced concrete, for high strength steel anchors. The less is the embedment depth, the more likely is this mode to occur.
- **Edge failure:** this mode is usual for anchors installed in proximity to an edge, when shear force is directed perpendicularly to it. This failure is also favoured by the low strength of the base material, as well as by the absence of reinforcement.

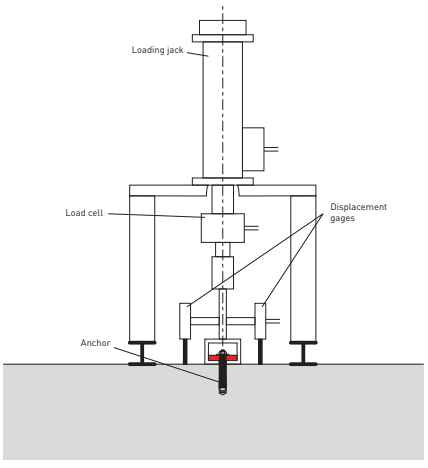
Combined load

The combined load test requires the application of a static load resulting from two components, one of tension and the other one of shear. Failure modes are those presented for the case of tension tests.

Bending moment

The bending moment test consists of a shear load, spaced off the base material surface. The collapse of the anchoring system occurs for the exceedance of the allowable bending moment, with a consequent yielding and bending of anchor outer part.

Design and verification of a fastening system



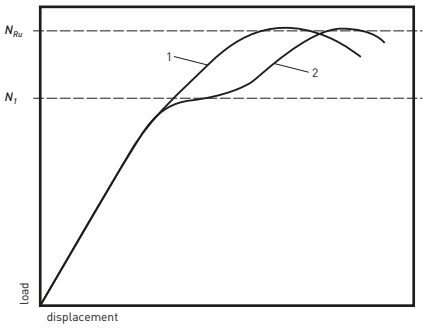
The design of every anchoring system is based on the basic knowledge about the fixing technology as well as on the current applicative experience. The design procedure evolution is endorsed continuously by tests carried out in laboratory as on building site. Each product is characterized through a testing programme aimed to determine the anchor resistance for various loading conditions and base materials. In the flanked figure the typical device used for anchor tension tests is shown. The test realization allows the product behaviour knowledge to be achieved, considering different installation cases.

Each test allows the following indications to be obtained:

- **The registration of the curve of load or displacemento:** it shows the course of displacement or slipping out of the anchor in concomitance with the gradual increase of the load applied.
- **The registration of the way in which a failure occurs.**
- **The minimum thickness** of the substrate.
- **The definition of the characteristic distances** for the installation.

The parameters of resistance of the anchor, as:

- **Ultimate medium load** $F^t_{Ru,m}\{N^t_{Ru,m};V^t_{Ru,m}\}$: average value of the ultimate load according to axial traction or to shear or, in other words, the average value of the load connected with the failure of the anchor, got through a sequence of at least o n=5 tests.
- **Characteristic resistance** F^t_{Rk}**:** 5% of the mean ultimate resistance calculated as $F^t_{Rk} = F^t_{Ru,m} \cdot \{1\text{-}k_s v\}$.
- **Design resistance** F_{Rd}**:** it is obtained by dividing the characteristic resistance by the partial safety factor of the material γ_M described as $F_{Rd} = F^t_{Rk}/\gamma_M$. The value of the partial safety factor of the material is reported in the international standards and varies according to the type of failure, reaching the maximum value of 2,5.
- **Recommended load** F_{Rec}**:** it is obtained by dividing the design resistance by the partial safety factor of the applied load γ_F described as $F_{Rec} = F_{Rd}/\gamma_F$ with the typical value of the partial safety factor equal to1,4.



Load- displacement curve
case 1: regular trend
case 2: inflected trend

In the present catalogue it was decided to get the value of the recommended load directly from the ultimate medium load through a global safety factor γ=5, the formula $F_{Rec} = F^t_{Ru,m}/\gamma$ is therefore valid.

In general, the following formula about the acting force and the recommended load has to be checked by every applications:

$$F_{Sd} \leq F_{rec}$$

Considering then the type of external force acting on the fixing system, the verification provides for what follows:

Axial tension: $N_{Sd} \leq N_{rec}$

Shear: $V_{Sd} \leq V_{rec}$

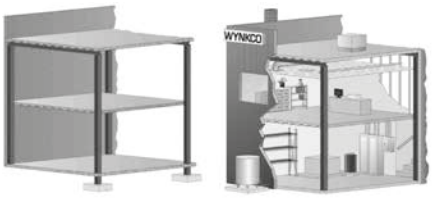
Combined load: $(\beta_N)^{\alpha} + (\beta_V)^{\alpha} \leq 1{,}2$

Where $\beta_N = \frac{N_{Sd}}{N_{rec}} \leq 1$; $\beta_V = \frac{V_{Sd}}{V_{rec}} \leq 1$

α = 2 in case of steel failure

α = 1,5 all other types of failure

Application in civil constructions



(FEMA E-74, 2011)

Fastening solutions are widely used in new construction structures as in the rehabilitation of existing buildings with the aim of fixing elements of various functions. The general and common fastening subdivision in heavy duty anchors and light duty anchors reflects a technical classification based on product performance requirements. According to its performance a specific product can be prescribed for the fixing of structural or non-structural elements.

Structural application

The use of anchors for the fastening of structural elements is a widespread practice in current building technology. The fixing of elements can be realized by means of anchoring systems prearranged in building phases of by means of post-installed anchors.

The right connection methodology, the more suitable anchor functioning principle and the installation method are all aspects to consider carefully, case by case. They depend on various factors, among which the base material, the support geometry, the laying conditions and the fixture structural function.

A typical example of structural connection is represented by the fixing of a column base restraint with the horizontal structural element. In the same way both chemical and mechanical anchors are used also for the anchoring of horizontal structural elements (e.g. beams, shingle).

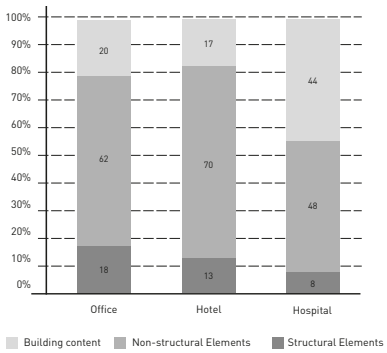
In all the above mentioned cases the anchoring system is generally installed after the construction of the building main structure.

Such systems are utilized also when intervening in existing buildings allowing other structural elements to be coupled.

Chemical anchors are widely used also for post-installed rebar installation. Other

applications, depending on the base material, are represented by the fastening of connections on wooden ceilings through resin injection. In such case the anchoring solution shall be designed in order to make sure the stress is transferred from the RC slab, subsequently poured, to the existing wooden frame.

Non-structural application



Construction costs estimation for the different components. *(FEMA E-74, 2011)*

In recent years the codes and engineers attention in considering the non-structural elements design has significantly increased. The interest is mainly oriented to the effects of the seismic actions on these components which are often fixed to the principal structure through anchoring systems.

Indeed these anchors result to be safe and oversized under static loading while they work critically as the building is struck by a seismic event.

Observing the effects of recent earthquakes (L'Aquila 2009, Chile 2010, Christchurch 2011, Emilia 2012) it is easy to understand the importance of preventing the possible damage to non-structural components in order to assure human life safety and to reduce the economic losses due to the damages and lack of functionality of building after an earthquake.

(DPC, 2009 - FEMA E-74, 2011)

An inadequate design of the anchoring system for medical equipment inside hospitals, for instance, cannot assure a full functioning immediately after an earthquake occurrence with significant damages for the community.

A not effective fixing of suspended ceiling indicates another example of potential danger for people. The collapse of such elements can be a cause of lack in the usability of a building.

A relevant issue for human life safety is represented by external elements fixed to the structure, like signs, balconies, ledges and parapets, that may break and fall onto the street. A further typical application is the anchorage of facades: also for these elements it is important to consider the design of the right fastening to reach the required level of safety.

Safety barriers, tanks, electrical equipment are other cases for which a good knowledge of anchors dynamic response is required. A particular attention has to be paid to those elements with a relevant mass and fixed at highest floors in buildings, where the amplification of acceleration through the structure is maximum.

For every building, the non-structural components that need a design of the anchoring system, shall be identified carefully to assure both stability and functionality. The use of anchors specifically designed can limit the occurrence of damages, increasing the global level of safety of the construction and contributing hence to make a more resilient community.

Norms and certifications

Assessment

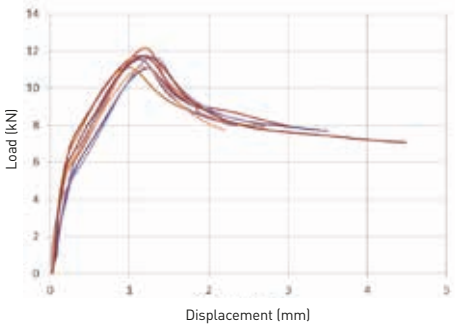
The establishment of European Community and the liberalization of the inner commerce made necessary the introduction of provisions able to assure the free trade, guaranteeing at the same time an adequate safety of the marketed products by standardizing technical requirements and proposing common levels of quality. Such principles were introduced first through Construction Product Directive 89/106/CEE recently abrogated and substituted on the 18th of January 2011 by Construction Products Regulation N.305/2011. The CPR came into force the 1st of July 2013 and it is mandatory for all those products included in structures.

The European Organization for Technical Assessment (EOTA) is the body with the objective to issue specific guidelines, used by manufacturers and Technical Assessment Bodies, in order to evaluate the products for which a harmonized normative hEN is not published yet.

Each European Assessment Document (EAD), as the ETAGs (European Technical Approval Guidelines) are, includes in detail the testing procedure to follow for the assessment of a product used in a certain application, by guaranteeing the technical data. In the EADs also some verification methods for the anchor design are included.

A product may need also a CE marking which is achieved through the ETA and provides a guarantee that the performances described in the ETA are valid for all the product manufacturing. Since 2013 CE marking has to be placed on the product after the publication of a Declaration of Performance (DoP) issued by the Manufacturer.

Design



Load-displacement plot for a tension tests series carried out at ITW Construction laboratories.

In the fastening design it is necessary to follow, in addition to provisions included in the above mentioned EADs, the recommendations of the standards issued by CEN (Comitè Européen de Normalisation). The field covered by these indications is metal anchors installed in concrete. The main reference is represented by the Technical Specification of Eurocode2 CEN/TS 1992-4 (2009) "*Design of fastenings for use in concrete*" and by the normative EN 1992-4 (in publication). In the latter the design provisions for seismic application, which are now presented in a temporary EOTA Technical Report TR45 "*Design of metal anchors for use in concrete under seismic actions*", will be included.
The design of fastenings not included in such context have to be done accordingly to the recommendations presented in the relevant ETAGs.

ITW Construction and scientific research

ITW Construction Europe, which **ELEMATIC** brand is part of, with a high technology and manufacturing quality established itself as a leader for the research and development in order to distribute innovative fasteners for all kind of applications.

The fastening technique through post-installed anchors is constantly under study and research by **ITW** engineers in several partnerships with the major research and assessment bodies.

ITW participates with its representatives in EOTA working group "Technical Board" for the European provisions development on anchoring system topic.

The main target for the Company is to develop and introduce into the market products and systems with always more reliability and efficiency.

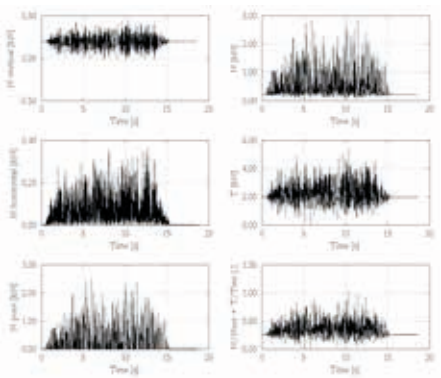
Ordinary testing for R&D, certification and quality check

In ITW R&D laboratories experimental activities are continuously carried out with up-to-date setup and equipment according to European guidelines. The testing campaigns are planned with various purposes: developing a study of product features needed for a continuous innovation, certificates attaining, inspecting the quality and the performance of the marketed products.

Special testing

The research project named "*Seismic Application of Fastening*" is developed by **ITW** Construction Products Italy within a partnership with the Department of Civil, Environmental and Architectural Engineering of University of Padova and deals with the study on the seismic behaviour of anchoring systems. The project aim is to deepen the knowledge of the products performance in critical conditions, as dynamic loading is. In the experimental studies the most common and widespread applications are considered. Moreover the importance of this project is to get information for the new products development, for the constant assessment of mechanical performance of the products already in market, and for proposals of new design and testing approaches.

The first experimental campaign programme had the scope to study anchoring systems for non-structural elements by means of seismic shake-table tests. The entire testing programme as the support structural units were designed to research the effects of a seismic event on non-structural components located inside buildings (e.g. HVAC, piping, furniture, office equipment). It was carried out on the shake-table in the *Laboratory of Structural Dynamics and Vibration Control* of ENEA Research Centre in Rome.



Resultant actions withstood by anchor specimens during the shaking table testing.

The research focused on two widespread base materials, like non-cracked and cracked concrete, and lightweight brick masonry. A total of almost 40 specimens, belonging to six different anchor types underwent the testing sessions. The project most innovative aspects are represented by the seismic tests on plastic expansion anchors and in general all the tested specimens installed in masonry infill walls.

The fixtures consisted in steel plates with a mass selected in order to obtain characterizing data and in real non-structural components as a water-heater and a monitor. The latter fixing applications passed all the tests without anchoring failure occurrence by withstanding seismic actions induced by more than 2g of acceleration. The tri-axial acceleration signal selected as the time history input for the shaking table was generated synthetically on the basis of AC 156, a United States standard issued by ICC-ES, with a more severe outline than typical natural seismic events records.

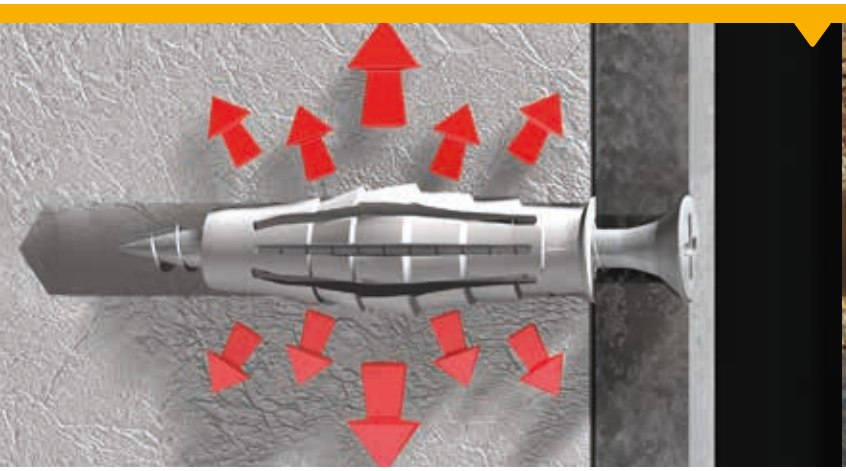
The project outcomes underline the good response to seismic actions of **ELEMATIC** tested anchors for product performance and reliability in the different base materials.

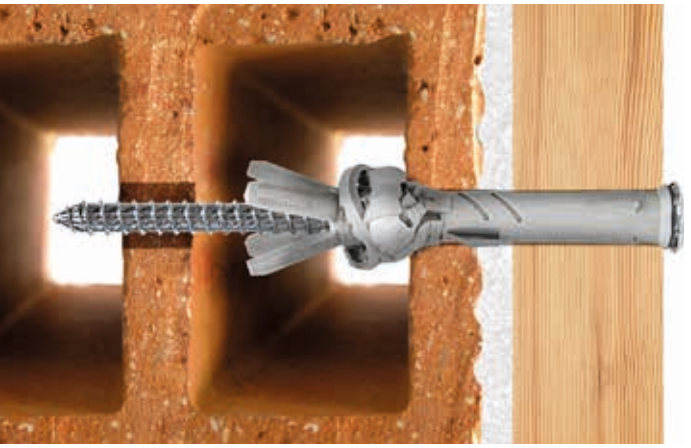
ITW
SEISMIC APPLICATION
OF FASTENING

Within this research project also numerical studies on post-installed anchors and behavior modeling based on testing data are realized. The innovative outcomes brought by **ITW** with experimental and analytical activities are presented in international conferences and published in important reviews, as a proof of **ITW** commitment in researching the technical and functional improvement.

ELEMATIC®

Fixing solutions





ITW Construction Products Italy S.r.l. · Viale Regione Veneto, 5 · 35127 Padova · export.ecs@itw-italy.com · **www.elematic.it**

				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
UNIVERSAL LIGHT-DUTY ANCHORS										
T6			32	●	●	●	●			
T2			36	●	●	●				●
E-EB			39	●	●	●				●
T4			42	●	●					
TPF-TPFC			45	●	●					●
LIGHT-DUTY ANCHORS WITH ACCESSORIES										
ENP			48	●	●					●
T61			52	●	●	●				
T51			55	●	●		●		●	
LIGHT-DUTY ANCHORS FOR HOLLOW MATERIALS										
MINI DRIVA			56	●						●
DRIVA NYLON			57	●						●
T-CLICK			58	●	●					●
DRIVA			60	●	●	●				●
DRIVA PLUS			61	●	●	●				●
ETPV			62	●	●					
ETAF			65	●	●	●	●			●
ETR			68	●	●	●	●			●
ETNF			70	●	●					●
FRAME ANCHORS										
T66		ETA CE	71			●		●	●	
T88		ETA CE	74			●		●	●	
APS			78			●			●	

MATERIALS											
											
●	●	●	●	●	●	●				●	
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●		●	●	●	●	●					
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				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
APR			81			●			●	
UCX			83	●		●	●	●	●	
HCX			86	●		●	●	●	●	
ETCD			89	●	●			●	●	
LIGHT-DUTY ANCHORS FOR DOORS AND WINDOWS FRAMES										
ETFP			90			●				
SCREWS			91			●				
MEDIUM-HEAVY DUTY ANCHORS										
DYNABOLT PLUS			94	●	●	●	●	●	●	
T21			96	●	●	●	●	●	●	
EDC			98			●	●			
MEDIUM HEAVY-DUTY NOT-THROUGH ANCHORS										
LE-LEX			99	●	●			●	●	
EFPM			102	●	●			●	●	
HPM			105	●	●					
T101 PIOVRA		ETA CE	108	●	●	●	●	●	●	
ETHD			111		●			●		
MEDIUM HEAVY-DUTY THROUGH ANCHORS										
ETDZ		ETA CE	112	●	●	●	●	●	●	
ETDZ A4		ETA CE	114	●	●	●	●	●	●	
ETD III		ETA CE	116	●	●	●	●	●	●	
T11			119	●	●		●	●	●	
ETKX			121	●	●		●	●	●	

MATERIALS											
											
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				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
SZ			122		●		●	●		
CHEMICAL ANCHORS										
MULTI BLOK		ETA CE	124	●	●	●		●	●	
PRIME BLOK		ETA CE	126	●	●	●		●	●	
ULTRA BLOK		ETA CE	128	●	●	●		●	●	
ACCESSORIES			130	●	●	●		●	●	
MAXIMA		ETA CE	134			●	●	●		
SILICONES AND SEALANTS										
SEALANTS			163	●	●	●	●	●	●	●
INSULATION ANCHORS										
EFK			138			●				
EFH			139			●				
SCAFFOLDING ANCHORS										
EGP			140			●				
EOP			141			●				
E/PN			142			●				
FIXING ACCESSORIES FOR ELECTRICAL INSTALLATIONS										
ELEFIX			144	●		●	●			
E-CLIP			146	●		●	●			
ECAV			147	●		●	●			
CLIPS			148	●	●	●	●			
COLLARS M6			149		●	●				
NAILING BY HAND			150	●	●	●				

MATERIALS											
											
●	●	●									
●	●	●	●	●	●	●					
●	●	●	●	●	●	●					
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●	●	●	●	●	●	●					
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●		●	●	●							
●		●	●								
●	●	●	●								
●	●	●									
●	●	●	●	●							

				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
FIXINGS FOR PLUMBING INSTALLATIONS										
COLLARS			151		●	●		●		
EMB-EMC EB/SB			154		●	●				
ETS			156		●	●				
EA-EG-EP-EML			158		●	●				
FIXINGS FOR SHELVES										
EMS			160							●

MATERIALS											
											
●	●	●	●	●							
●	●	●	●	●							
●	●	●	●	●							
●	●	●	●	●							
●	●	●	●	●							

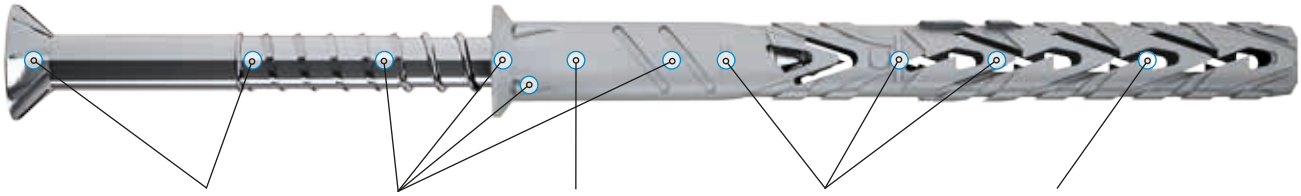
V66

The anchor you are looking for.

✓**Multi-material** ✓**Versatile** ✓**Easy to apply**

CE
ETA
1020-CPR-090-033112
ETA-13/1066
according to ETAG 020

Certification according to **European Technical Assessment** of plastic anchors for multiple use in concrete and masonry for non-structural applications.



MULTI-MATERIAL
safe and efficient anchoring on any kind of material: solid, hollow and lightened.

SPEED
Progressive torque, final blocking, safe fixing.

RELIABLE
Perfect insertion, no rotation while screwing, compensation on irregular surfaces or thicknesses.

PRACTICAL
Easy through-fixing application in any object to fix such as structures, frames, stirrups, strips.

VERSATILE
Three different possible anchoring depths, from 5 up to 250 mm of fixable thickness, for many applications and in many supports.

MAXIMUM PERFORMANCE
guaranteed on lightened materials thanks to the modular expansion distributed in more directions.

DURABILITY
Produced with the best materials and technologies: safe anchoring granted by rigorous and selective tests.

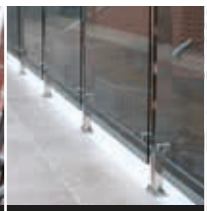

Façades


Roofs

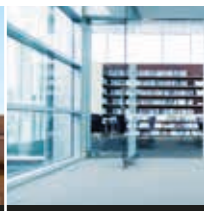

Insulation panels


Structures


Frames


Barriers


Gates


Modular walls


Concrete


Hollow concrete block

Aerated concrete


Full brick


Hollow brick


Lightened brick block

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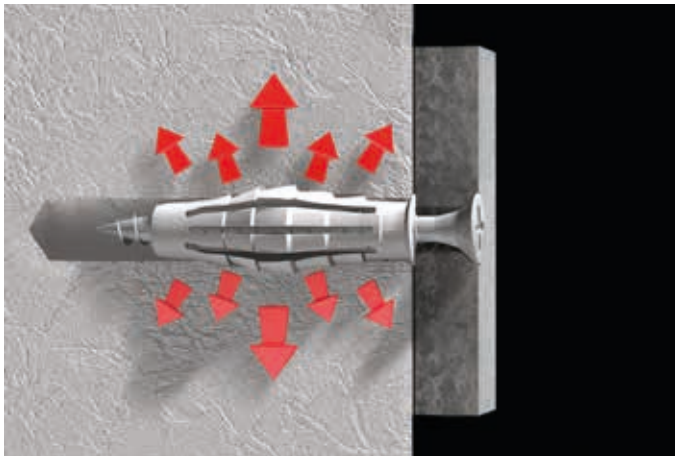
LIGHT-DUTY FIXINGS

T6: THE ONLY ANCHOR WITH 6 EXPANDABLE ZONES

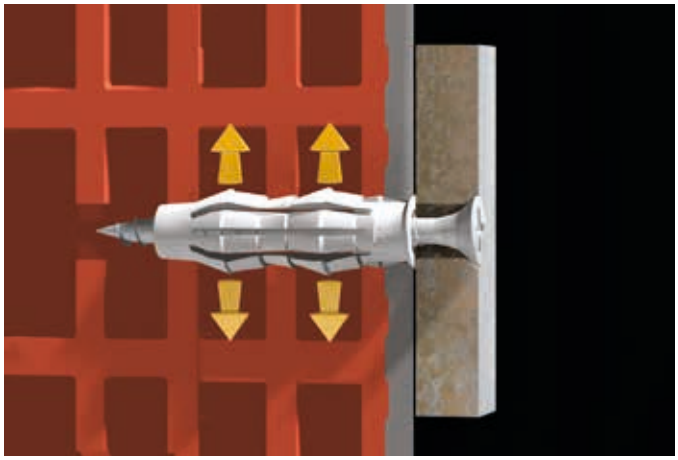
THE MULTISOLUTION:

1. **High loads**: the revolutionary T6 increases over 20% the applicable loads capacity respect to the most innovative anchors in the market.
2. **6 Ways Grip**: the innovative multidirectional expansion allows the load capacities optimization and grants to have safety fixings and anchorage even in the most extreme situations.
3. **Multifunctional**: the dynamic collar allows either the fixing on the board of the wall or the fixing through the object to fix.
4. **Multimaterial**: T6 is suitable for many kinds of building materials: concrete or aerated concrete, solid and hollow bricks, hollow materials.
5. **Multiscrew and multidiameter**: T6 can be used with many screws available in the market and in different diameters.

Multirapid: quick, rapid fitting thanks to the exclusive anti-rotation fins.



Multimaterial: from concrete to hollow block, from solid brick to hollow brick.



T6

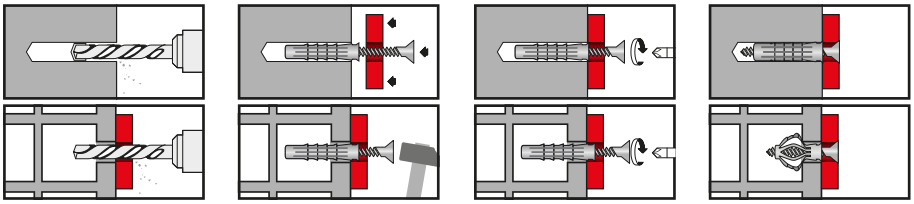
T6 is the first new generation light-duty anchor, able to exploit at best the benefits in multi-directional expansion and differentiated functionality.
The versatility on many building materials and the flexibility to several types of applications grant to the professional users the best results and the right solution to the different problems of the light-duty fixings in any situation.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	-5°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Greater expansion and optimization of the load capabilities through the radial distribution in 6 different directions.
- The differentiated empty/full operation operates through an innovative and exclusive structure design.
- An increase of +20% of the applicable loads compared to the new generation fixings.
- Maximum versatility for a perfect performance on many building materials.

BENEFITS

- The multidirectional expansion grants safe fixing also in difficult situations.
- T6 can be used with many screws both wood, chipboard and self-drilling.
- Quick and rapid fixings thanks to the exclusive anti-rotation fins.

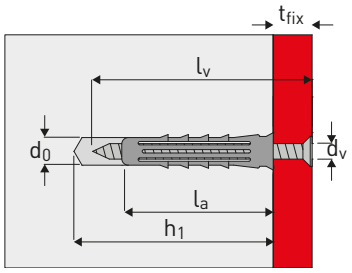
RECOMMENDED TENSION LOADS

DESCRIPTION		T6 5	T6 6	T6 8	T6 10	T6 12	T6 14
Drill diameter	d_0/(mm)	5	6	8	10	12	14
Screw diameter (wood type)	d_v/(mm)	4	5	6	8	10	12
Concrete C20/25	daN	60	66	104	150	220	320
Solid brick	daN	52	60	90	104	-	-
Hollow block	daN	48	50	64	80	103	108
Perforated brick	daN	28	42	50	50	-	-
Hollow brick	daN	20	20	22	23	-	-
Aerated Concrete	daN	8	8	15	30	35	40

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg

T6

Plug without screw

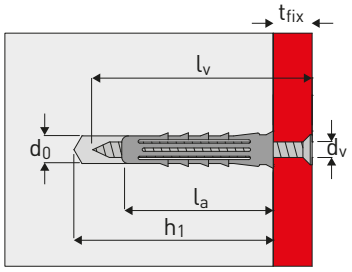


Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	T6	d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
565385	T6 5x25	5	25	35	3,0-4,0	30	100	3.200
565386	T6 6x30	6	30	40	4,0-5,0	35	100	3.200
565757	T6 6x45	6	45	55	4,0-5,0	50	100	1.600
565387	T6 8x40	8	40	55	4,5-6,0	45	100	1.600
565758	T6 8x50	8	50	65	4,5-6,0	55	50	800
565388	T6 10x50	10	50	65	6,0-8,0	55	50	800
565759	T6 10x60	10	60	75	6,0-8,0	65	25	400
565281	T6 12x60	12	60	75	8,0-12,0	65	25	400
565282	T6 14x70	14	70	90	10,0-12,0	75	20	320

T6/VA

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.

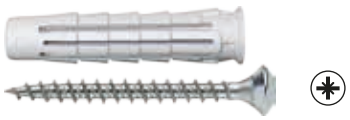


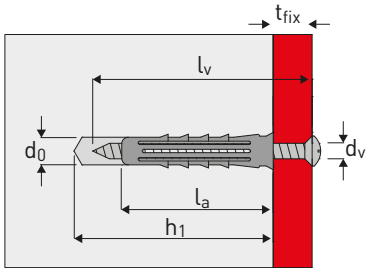
Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T6/VA	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
565389	T6/VA 5x25	5	25	35	2	4,0x30	100	3.200
565390	T6/VA 6x30	6	30	40	5	4,5x40	100	1.600
565882	T6/VA 6x45	6	45	55	5	4,5x60	50	800
565391	T6/VA 8x40	8	40	55	5	5,0x50	50	800
565883	T6/VA 8x50	8	50	65	5	5,0x60	50	800
565392	T6/VA 10x50	10	50	65	5	6,0x60	25	400
565884	T6/VA 10x60	10	60	75	5	6,0x70	25	400

T6/VN

Countersunk head screw with combined slot cap

Plug with nickel-plated countersunk cup head screw, slot PZ.



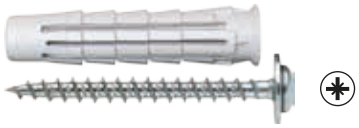


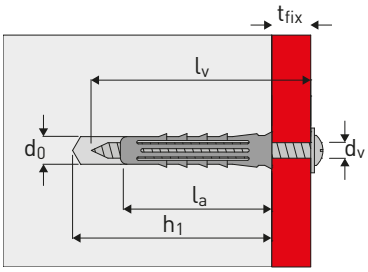
Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T6/VN	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
565393	T6/VN 6x30	6	30	40	5	4,5x40	100	1.600
565394	T6/VN 8x40	8	40	55	5	5,0x50	50	800

T6/VX

Cylindrical head screw

Plug with zinc-plated cylindrical head screw, slot PZ.



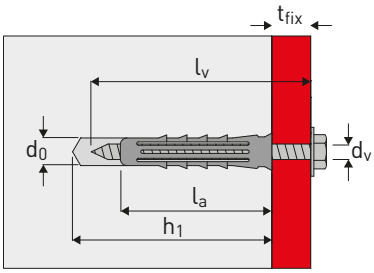


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T6/VX	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
565395	T6/VX 6x30	6	30	40	6	4,5x40	100	1.600

T6/VTE R

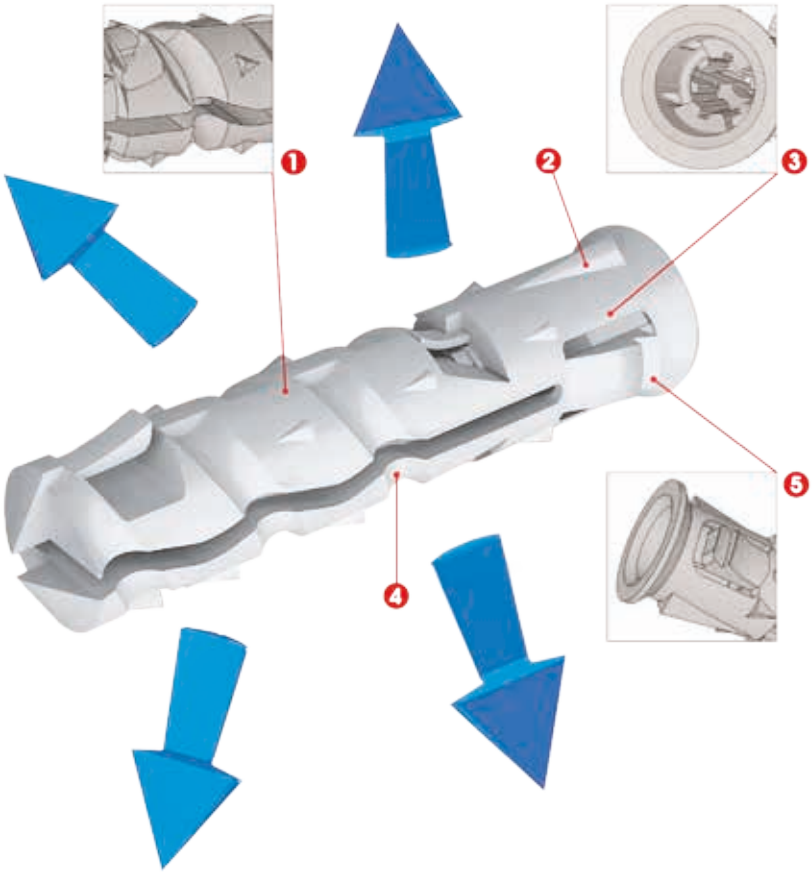
Hexagonal head screw with washer

Plug with zinc-plated wood hexagonal head screw with zinc-plated washer.



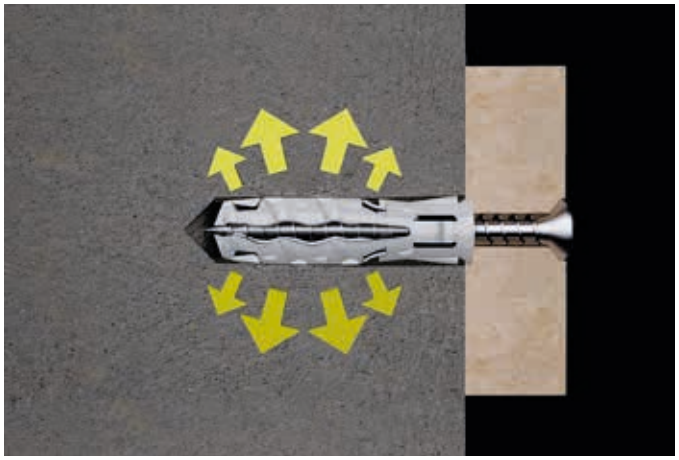
Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T6/VTE R	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
565760	VTE R 8x40	8	40	55	5	6,0x50	50	1.600
565761	VTE R 10x50	10	50	65	15	7,0x70	50	400
565762	VTE R 12x60	12	60	75	15	8,0x80	50	400
565763	VTE R 14x70	14	70	90	20	10,0x100	25	200

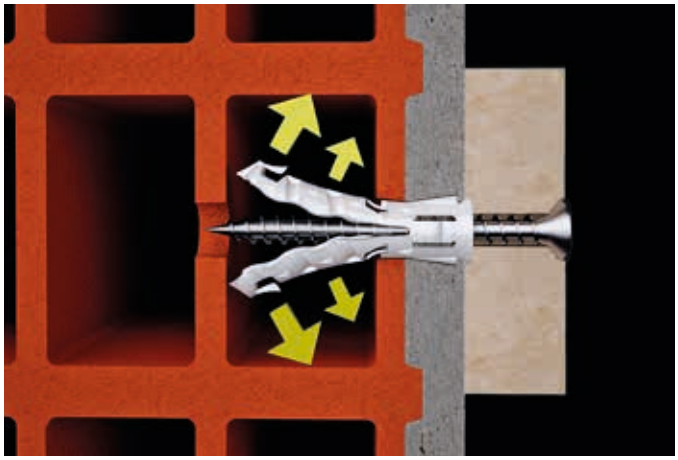
T2: TRADITION AND INNOVATIVE DESIGN!



TRADITION AND INNOVATIVE DESIGN:

1. New exclusive geometry with helicoidal structure for a perfect grip and versatility in different building materials.
2. Driven tightening of the screw, thanks to the undulating profile of the longitudinal openings, for a more perfect and maximum expansion.
3. New internal profile for a perfect installation with different types and dimensions of screws.
4. Stop collar for installation with a correct depth.
5. Effective and robust fins to prevent any rotation of the plug into the hole during the drilling.
6. Maximum flexibility and deformability for a maximum expansion in hollow materials.





T2

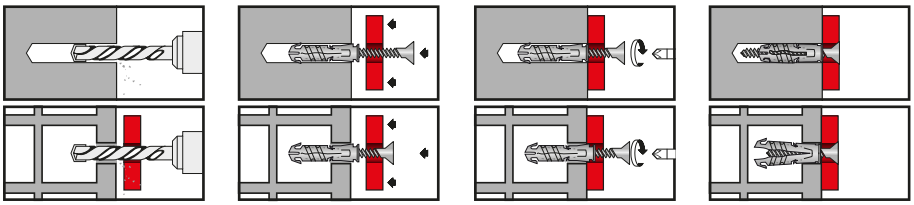
Light-duty fixing suitable for any kind of building materials.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	-5°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Exclusive geometry of the head (like a drill bit SDS) for an easy insertion into the hole.
- The helicoidal structure makes the plug more flexible and light, allowing the dust to canalize correctly, without compromising the fixing.
- Longitudinal opening and prisms load, that guarantee a resistance incomparable on different building materials.
- Anti-rotation fins under the collar.

BENEFITS

- Easy insertion into the hole.
- Excellent fixing.
- It can be used with many screws: wood, chipboard and self-drilling.
- Quick and rapid fixings thanks to the exclusive anti-rotation fins.

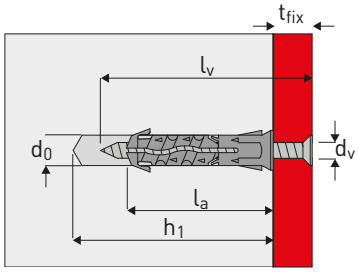
RECOMMENDED TENSION LOADS

DESCRIPTION		T2/VA 5x25	T2/VA 6x30	T2/VA 8x40	T2/VA 10x50
Drill diameter	d_0/(mm)	5	6	8	10
Drilling depth	h_1/(mm)	35	40	50	60
Screw	d_v/(mm)	4,0x30	4,5x40	5,0x50	6,0x60
Concrete C20/25	daN	30	32	38	60
Solid brick	daN	28	31	37	58
Hollow block	daN	23	29	-	-
Perforated brick	daN	18	26	28	-

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg

T2

Plug without screw

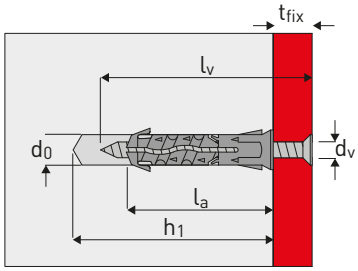


Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	T2	d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
566430	T2 5x25	5	25	35	2,5-4,0	30	200	19.200
566431	T2 6x30	6	30	40	3,5-5,0	35	100	9.600
566432	T2 8x40	8	40	55	4,5-6,0	45	100	4.000
566433	T2 10x50	10	50	65	6,0-8,0	55	50	2.000

T2/VA

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	T2/VA	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
566434	T2/VA 5x25	5	25	35	2	4,0x30	100	9.600
566435	T2/VA 6x30	6	30	40	5	4,5x40	100	4.000
566436	T2/VA 8x40	8	40	55	5	5,0x50	50	2.000
566437	T2/VA 10x50	10	50	65	5	6,0x60	50	2.000

E-EB

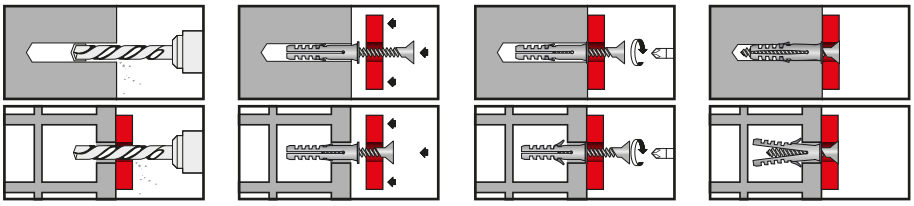
Light-duty fixing suitable for any kind of building materials.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C÷ +40°C
Working temperature:	-40°C ÷ +80°C
Version:	E without collar EB with collar

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Wide and uniform expansion.
- Big anti-rotation fins.
- Deep anchorage reliefs.
- Available in several versions without collar for flush fixings or with a safety stop collar.

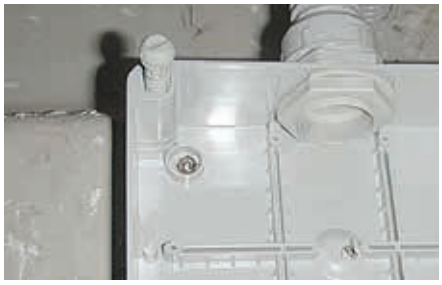
BENEFITS

- Versatility: can be used for many applications in many building materials.
- Cheap and quick installation.
- High quality of the material which ensures safety and durability.

RECOMMENDED TENSION LOADS

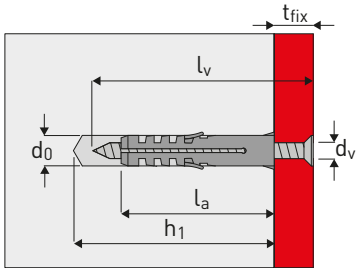
DESCRIPTION		E 4	E/EB 5	E/EB 6	E/EB 7	E/EB 8	E/EB 10	E/EB 12	E 14
Drill diameter	d_0/(mm)	4	5	6	7	8	10	12	14
Screw diameter (wood type)	d_V/(mm)	3	4	5	5,5	6	8	10	12
Concrete C20/25	daN	15	24	50	46	86	124	210	400
Solid brick	daN	10	23	47	44	82	112	189	-
Perforated brick	daN	8	14	22	27	28	-	-	-

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg



E-EB

Plug without screw

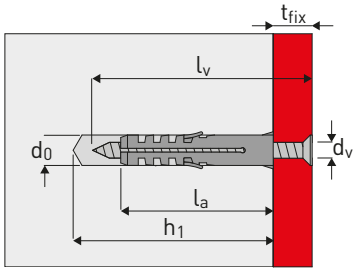


Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	E-EB	d_0/(mm)	l_v/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8701001	E 4x20	4	20	30	2,0-3,0	25	200	19.200
8701002	E 5x25	5	25	35	2,5-4,0	30	200	19.200
8701003	E 6x30	6	30	40	3,5-5,0	35	100	9.600
8701000	E 7x30	7	30	40	4,0-5,5	35	100	9.600
8701004	E 8x40	8	40	55	4,5-6,0	50	100	4.000
8701005	E 10x50	10	50	65	6,0-8,0	60	50	2.000
8701008	E 10x60	10	60	75	6,0-8,0	70	50	2.000
8701006	E 12x60	12	60	75	8,0-10,0	70	25	1.000
8701007	E 14x75	14	75	90	10,0-12,0	90	20	800
8701037	E 14x100	14	100	120	10,0-12,0	115	25	200
8701009	E 16x80	16	80	100	12,0-14,0	95	10	320
8701036	E 16x110	16	110	130	12,0-14,0	125	10	320
8701052	EB 5x25	25	25	35	2,5-4,0	30	200	19.200
8701053	EB 6x30	30	30	40	3,5-5,0	35	100	9.600
8701050	EB 7x30	30	30	40	4,0-5,5	35	100	9.600
8701054	EB 8x40	40	40	55	4,5-6,0	50	100	4.000
8701055	EB 10x50	50	50	65	6,0-8,0	60	50	2.000
8701058	EB 10x60	60	60	75	6,0-8,0	70	50	2.000
8701056	EB 12x60	60	60	75	8,0-10,0	70	25	1.000

E/VA - EB/VA

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	E-EB/VA	d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8702052	E/VA 5x25	5	25	35	2	4,0x30	100	9.600
8702053	E/VA 6x30	6	30	40	5	4,5x40	100	4.000
8702054	E/VA 8x40	8	40	55	5	5,0x50	50	2.000
8702055	E/VA 10x50	10	50	65	5	6,0x60	50	1.600
8702262	EB/VA 5x25	5	25	35	2	4,0x30	100	9.600
8702263	EB/VA 6x30	6	30	40	5	4,5x40	100	4.000
8702264	EB/VA 8x40	8	40	55	5	5,0x50	50	2.000
8702265	EB/VA 10x50	10	50	65	5	6,0x60	50	1.600

E/VN

Countersunk head screw with combined slot cap

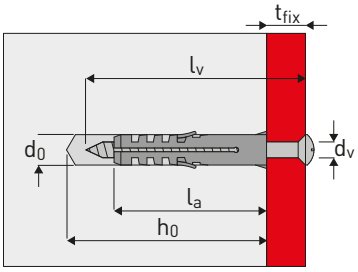
Plug with nickel-plated countersunk cup head screw, slot PZ.

Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	E/VN	d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8702077	VN 6x30	6	30	40	5	4,5x40	100	4.000

E/VL - EB/VL

Countersunk head screw with combined slot cap

Plug with zinc-plated countersunk wood head screw, combined slot cap.

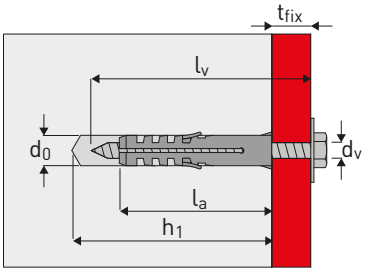


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	E-EB/VL	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8702002	E/VL 5x25	5	25	35	1	3,5x30	100	9.600
8702003	E/VL 6x30	6	30	40	5	4,0x40	100	4.000
8702004	E/VL 8x40	8	40	55	5	5,0x50	50	2.000
8702252	EB/VL 5x25	5	25	35	1	3,5x30	100	9.600
8702253	EB/VL 6x30	6	30	40	5	4,0x40	100	4.000
8702254	EB/VL 8x40	8	40	55	5	5,0x50	50	2.000
8702255	EB/VL 10x50	10	50	65	5	6,0x60	50	1.600

E/VTE R

Hexagonal head screw with washer

Plug with zinc-plated hexagonal head screw with washer.

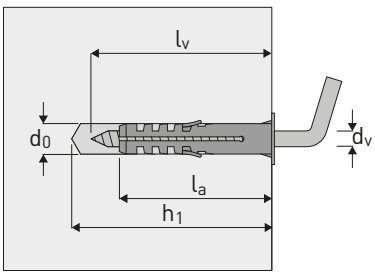


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	E/VTE R	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8702064	VTER 8x40	8	40	55	5	6,0x50	50	1.600
8702065	VTER 10x50	10	50	65	15	7,0x70	50	400
8702066	VTER 12x60	12	60	75	15	8,0x80	50	400
8702067	VTER 14x75	14	75	95	5	10,0x100	25	200
8702068	VTER 14x100	14	100	120	10	10,0x120	25	200
8702069	VTER 16x80	16	80	100	10	12,0x100	25	200
8702080	VTER 16x110	16	110	130	5	12,0x120	25	150

EB/P

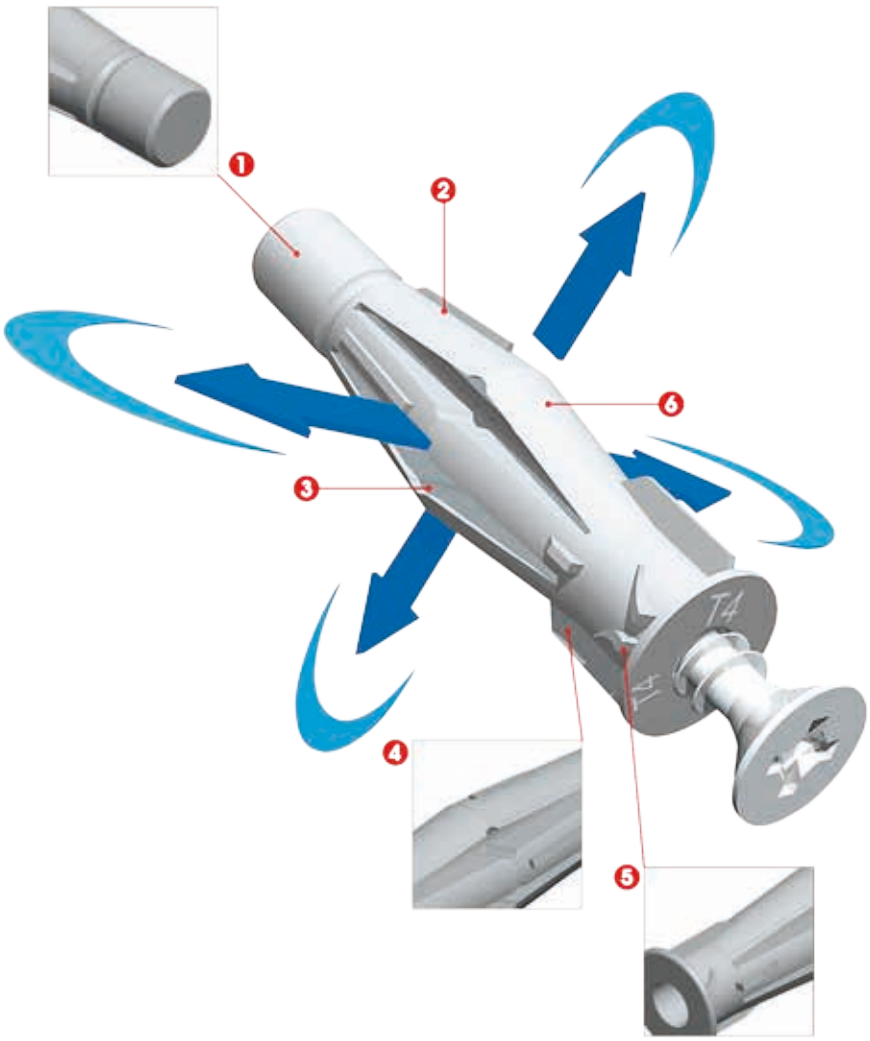
With accessories

Plug with zinc-plated accessories (OA, GM, OC, GC) or brass (GO).



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	EB/P	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8702423	EB/OA 6x30	6	30	40	-	4,0x35	100	4.000
8702413	EB/GM 6x30	6	30	40	-	4,0x35	100	4.000
8702433	EB/OC 6x30	6	30	40	-	4,0x35	100	4.000
8702403	EB/GC 6x30	6	30	40	-	4,0x35	100	4.000
8702443	E/GO 4x20	4	20	30	-	2,5x30	10	600

T4: THE SPECIALIST FOR FIXING ON HOLLOW MATERIALS!



THE SPECIALIST FOR FIXING ON HOLLOW MATERIALS!

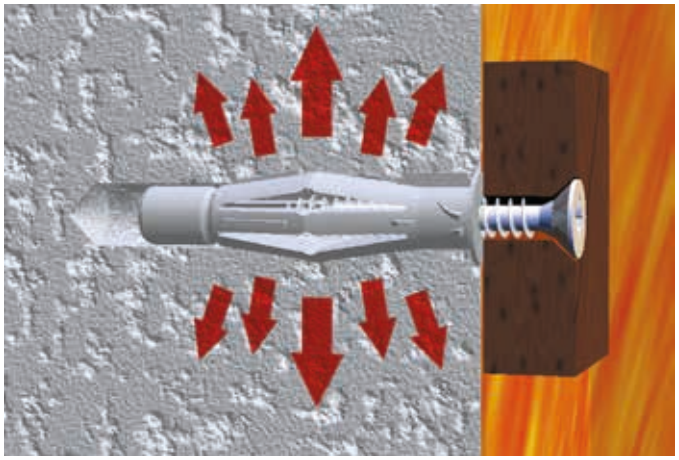
❶ **Differential expansion**: the 4 split tails grant anchoring capability by expansion or shape, according to the support material.

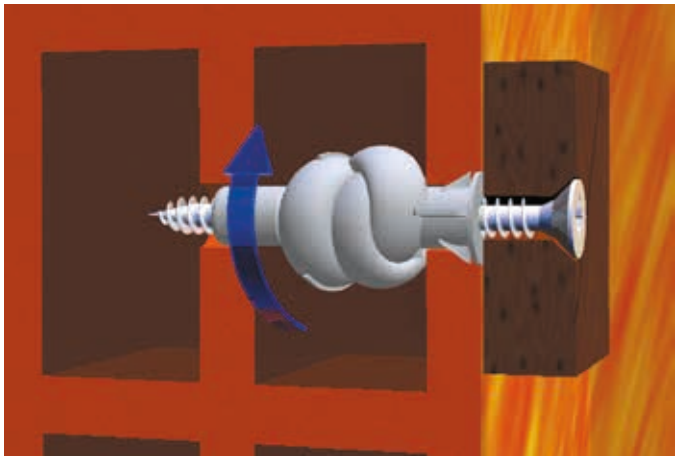
❷ **Multiscrew**: 4 fins to obtain maximum grip mainly with chipboard screw. The tip's inner structure allows the use of a wide range of screws (also wood-thread screws).

❸ **Multimaterial**: T4 can be applied in different types of building materials, from hollow bricks to plasterboard, from aerated concrete to solid bricks, from natural stone to concrete.

❹ **Closed tip**: this characteristic makes easier the insertion of the plug into the hole, avoiding dust getting into the tip, facilitating the screw entry and guaranteeing maximum functionality in terms of anchoring torque.

❺ **Anti-rotation**: 12 anti-rotation fins ensure the maximum performance in every building material.
The reinforced ribs along the wings increase the grip and the performance on solid materials.





T4

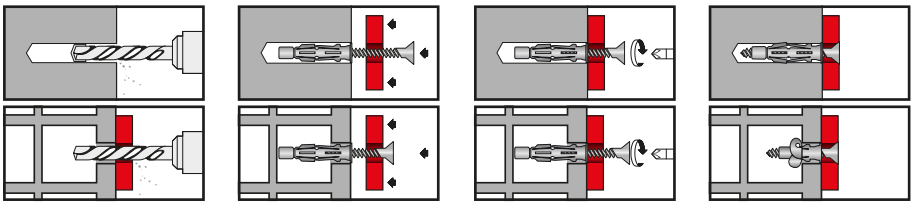
Universal light-duty fixing for anchoring in hollow materials.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035.
Screw material:	Carbon steel, treated with zinc-plating Cr^{3+} ≥5µm thick
Installation temperature:	-5°C÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- The 4 expansion sleeves guarantee a good flexibility on hollow materials and a good anchorage by friction grip in solid materials.
- Anti-rotation fins placed at the base of the anchor for an excellent blocking.
- Closed tip for an easy insertion of the plug into the hole.

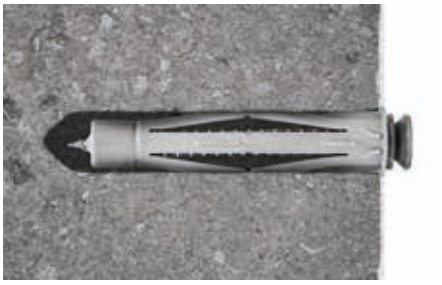
BENEFITS

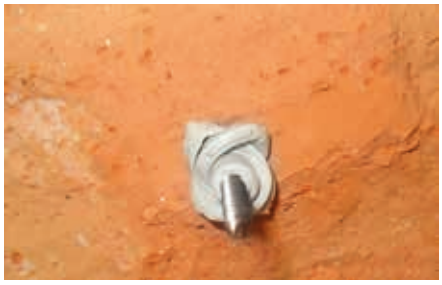
- Perfect application on different building materials.
- Exceptional high load capacity, especially on hollow materials.
- Functionality, ease and safety of installation.
- Suitable for many types of screws.

RECOMMENDED TENSION LOADS

DESCRIPTION		T4/VA 6x35	T4/VA 6x45	T4/VA 8x50	T4/VA 10x60
Drill diameter	d_0/(mm)	6	6	8	10
Drilling depth	h_1/(mm)	45	55	60	80
Screw	d_V/(mm)	3,5x45	3,5x55	4,5x60	6,0x80
Concrete C20/25	daN	26	32	50	66
Solid brick	daN	26	32	48	56
Hollow block	daN	26	40	50	64
Perforated brick	daN	30	30	38	42
Hollow brick	daN	30	30	38	42
Aerated Concrete	daN	8	9	11	19
Plasterboard (10 mm)	daN	8	-	-	-
Plasterboard (13 mm)	daN	8	10	12	12
Plasterboard (13 + 13 mm)	daN	-	18	26	32

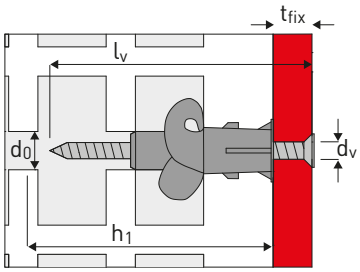
Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg





T4

Plug without screw

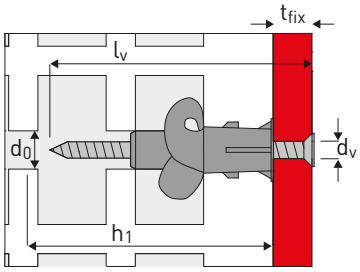


Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	T4	d_0/(mm)	l_s/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
566130	T4 6x35	6	35	45	3,0 - 3,5	40	100	3.000
566131	T4 6x45	6	45	55	3,0 - 3,5	50	100	3.000
566132	T4 8x50	8	50	60	4,0 - 5,0	55	50	1.500
566133	T4 10x60	10	60	80	5,0 - 6,0	60	25	750

T4/VA

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	T4/VA	d_0/(mm)	l_s/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
566135	T4/VA 6x35	6	35	45	10	3,5x45	100	3.000
566136	T4/VA 6x45	6	45	55	10	3,5x55	50	1.500
566137	T4/VA 8x50	8	50	65	10	4,5x60	50	1.500
566138	T4/VA 10x60	10	60	75	20	6,0x80	25	750

TPF - TPFC

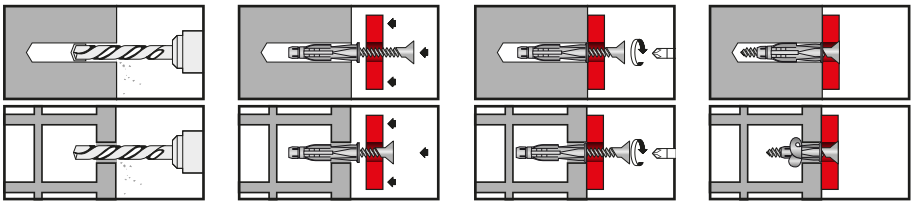
Light-duty fixing suitable for any kind of building materials.

TECHNICAL DATA

Plug material:	polyethylene HD, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C÷ +40°C
Working temperature:	-40°C ÷ +80°C
Version:	TPF without collar TPFC with collar

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Differentiated operation wall plug.
- It expands on solid materials and knotting on hollow materials.
- Safety anti-rotation fins.
- Blocking fins during knotting.
- Anti-skid and finishing collar.
- Version without collar for flush anchoring or through fixings.

BENEFITS

- Wide and uniform expansion in 3 directions in full materials.
- Shape anchorage on hollow materials.

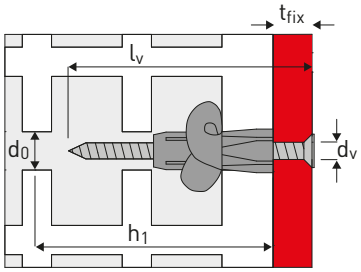
RECOMMENDED TENSION LOADS

DESCRIPTION		TPF/TPFC 5	TPF/TPFC 6	TPFC 7	TPF/TPFC 8	TPF/TPFC 10	TPF/TPFC 12
Drill diameter	d_0/(mm)	5	6	7	8	10	12
Screw diameter (wood type)	d_V/(mm)	4	4,5	4,5	6	7	8
Concrete C20/25	daN	16	28	30	40	60	70
Solid brick	daN	16	28	28	40	60	68
Perforated brick	daN	16	22	24	30	32	32
Plasterboard (13 mm)	daN	4	4	4	9	9	9

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg

TPF - TPFC

Plug without screw

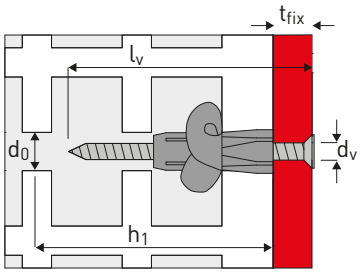


Code	Type	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
	TPF-TPFC	d_0/(mm)	l_s/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8705011	TPF 6x37	6	37	50	4,0 - 4,5	45	100	3.200
8705015	TPF 6x50	6	50	60	4,0 - 4,5	55	50	1.600
8705012	TPF 8x50	8	50	65	5,0 - 6,0	55	50	1.600
8705013	TPF 10x60	10	60	75	6,0 - 7,0	65	25	800
8705114	TPFC 5x31	5	31	40	3,0 - 4,0	35	100	3.200
8705111	TPFC 6x38	6	38	50	4,0 - 4,5	45	100	3.200
8705115	TPFC 6x51	6	51	60	4,0 - 4,5	55	50	1.600
8705116	TPFC 7x36	7	36	50	4,0 - 4,5	40	100	3.200
8705112	TPFC 8x51	8	51	65	5,0 - 6,0	55	50	1.600
8705113	TPFC 10x61	10	61	75	6,0 - 7,0	65	25	800
8705117	TPFC 12x71	12	71	85	7,0 - 8,0	75	25	800

TPF/V - TPFC/V

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.

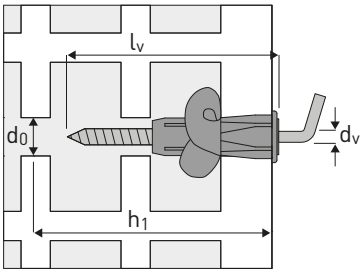


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	TPF/V-TPFC/V	d_0/(mm)	l_s/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8705004	V 5x30	5	30	40	5	3,0x40	100	3.200
8705001	V 6x37	6	37	50	5	4,0x50	100	3.200
8705005	V 6x50	6	50	60	5	4,0x60	50	1.600
8705002	V 8x50	8	50	65	5	5,0x60	50	1.600
8705003	V 10x60	10	60	75	5	6,0x70	25	800
8705104	C/V 5x31	5	31	40	5	3,0x40	100	3.200
8705101	C/V 6x38	6	38	50	5	4,0x50	100	3.200
8705105	C/V 6x51	6	51	60	5	4,0x60	50	1.600
8705102	C/V 8x51	8	51	65	5	5,0x60	50	1.600
8705103	C/V 10x61	10	61	75	5	6,0x70	25	800

TPFC/P

With accessories

Plug with zinc-plated accessories.



Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	TPFC/P	d_0/(mm)	l_s/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8705161	OA 6x38	6	38	50	-	4,0x45	50	1.600
8705162	OA 8x51	8	51	65	-	5,0x55	50	1.600
8705151	GM 6x38	6	38	50	-	4,0x45	50	1.600
8705152	GM 8x51	8	51	65	-	5,0x55	50	1.600
8705171	OC 6x38	6	38	50	-	4,0x45	50	1.600
8705172	OC 8x51	8	51	65	-	5,0x55	50	1.600
8705141	GC 6x38	6	38	50	-	4,0x45	50	1.600
8705142	GC 8x51	8	51	65	-	5,0x55	50	1.600

ENP

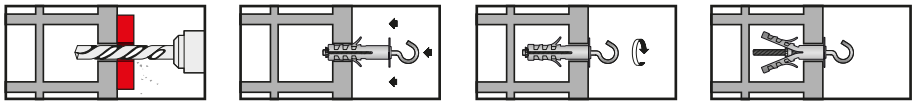
Light-duty fixing with accessories, suitable for any kind of building materials.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035 with metal cone
Screw material:	zinc plating steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Plug in Polyamide with zinc-plated steel accessories and metallic expansion cone.
- Safety anti-rotation fins.
- Deep anchorage reliefs.
- Three different drilling diameters 8, 9, 12 mm.
- Through-fixing prolonged versions.

BENEFITS

- Safe anchorage and expansion on different building materials.
- Safety and efficacy unbeatable.
- Many accessories for every need and application.

RECOMMENDED TENSION LOADS

DESCRIPTION		ENP 8	ENP 9 ENP P 9	ENP 12 ENP P 12
Drill diameter	d_0/(mm)	8	9	12
Screw diameter	d_V/(mm)	M4	M4	M5
Concrete C20/25	daN	30	44	80
Perforated brick	daN	26	36	40
Break of the accessory*	daN	26	36	40

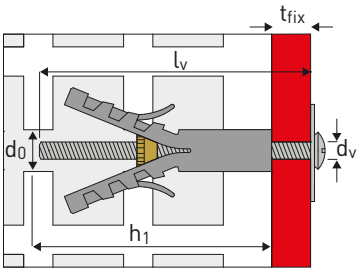
* Representative value of accessories range: for a more detailed information ask for the technical data sheet.

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg

ENP/V

Countersunk head screw with combined slot cap

Plug with zinc-plated countersunk cup head screw, combined slot.

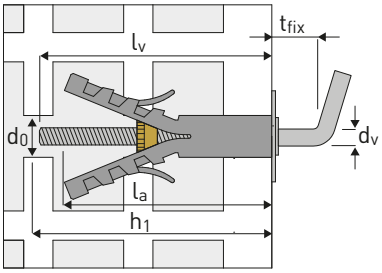


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/V	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700051	V 8x40	8	40	55	10	M4x52	200	1.200
8700001	V 9x40	9	40	55	10	M4x52	200	1.200
8700016	VP 9x50	9	50	65	10	M4x60	100	600
8700020	V 12x45	12	45	60	10	M5x55	100	600
8700035	VP 12x55	12	55	70	10	M5x62	50	300

ENP/GC

With short hook

Plug with zinc-plated short hook.

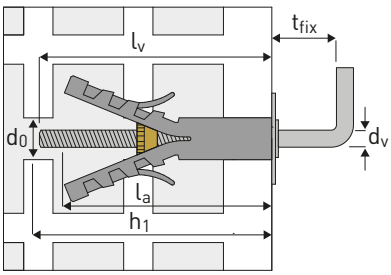


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/GC	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700052	GC 8x40	8	40	55	4	M4x43	200	1.200
8700003	GC 9x40	9	40	55	4	M4x43	200	1.200
8700017	GCP 9x50	9	50	65	4	M4x57	100	600
8700022	GC 12x45	12	45	60	4,5	M5x46	100	600
8700036	GCP 12x55	12	55	70	4,5	M5x60	50	300

ENP/GM

With medium hook

Plug with zinc-plated medium hook.

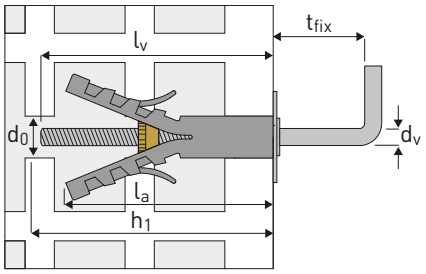


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/GM	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700053	GM 8x40	8	40	55	10	M4x43	200	1.200
8700005	GM 9x40	9	40	55	10	M4x43	200	1.200
8700018	GMP 9x50	9	50	65	10	M4x57	100	600
8700024	GM 12x45	12	45	60	10	M5x46	100	600
8700037	GMP 12x55	12	55	70	10	M5x60	50	300

ENP/GL

With long hook

Plug with zinc-plated long hook.

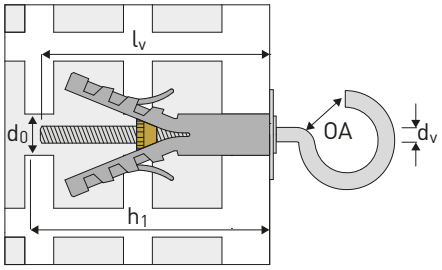


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/GL	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700054	GL 8x40	8	40	55	17	M4x43	100	600
8700007	GL 9x40	9	40	55	17	M4x43	100	600
8700026	GL 12x45	12	45	60	19	M5x46	50	300

ENP/OA

With open eye hook

Plug with zinc-plated open eye hook.

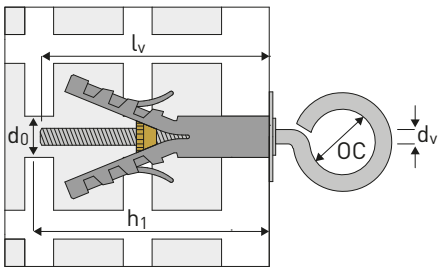


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/OA	d_0/(mm)	l_a/(mm)	h_1/(mm)	OA/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700055	OA 8x40	8	40	55	9	M4x43	100	600
8700009	OA 9x40	9	40	55	9	M4x43	100	600
8700028	OA 12x45	12	45	60	9	M5x46	50	300

ENP/OC

With closed eye hook

Plug with zinc-plated closed eye hook.

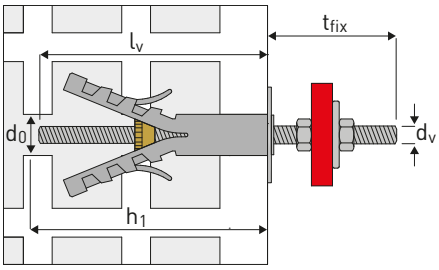


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/OC	d_0/(mm)	l_a/(mm)	h_1/(mm)	OC/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700056	OC 8x40	8	40	55	13	M4x43	100	600
8700011	OC 9x40	9	40	55	13	M4x43	100	600
8700041	OCP 9x50	9	50	65	13	M4x57	100	600
8700030	OC 12x45	12	45	60	13	M5x46	50	300
8700045	OCP 12x55	12	55	70	13	M5x60	50	300

ENP/DD

With threaded bar

Plug with zinc-plated threaded bar, completed with double nut and washer.

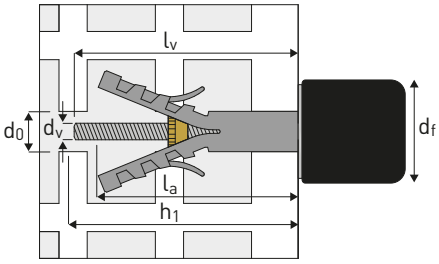


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ENP/DD	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700013	DD 9x40	9	40	55	35	M4x78	100	600
8700032	DD 12x45	12	45	60	40	M5x85	50	300

ENP/FP

With door stoppers

Plug with rubber door stoppers, in white, brown, black color.



Code	Type		Drilling Ø	Plug length	Drilling Depth	Ø Door stoppers	Screw dim.	Pack	Carton
	ENP/FP		d_0/(mm)	l_a/(mm)	h_1/(mm)	d_f/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8700058	FP 8x40		8	40	55	23,5	M4x60	50	300
8700039	FP 9x40		9	40	55	23,5	M4x60	50	300
8700043	FP 12x45		12	45	60	23,5	M5x70	50	300
8700059	FP 8x40		8	40	55	23,5	M4x60	50	300
8700040	FP 9x40		9	40	55	23,5	M4x60	50	300
8700044	FP 12x45		12	45	60	23,5	M5x70	50	300
8700060	FP 8x40		8	40	55	23,5	M4x60	50	300
8700046	FP 9x40		9	40	55	23,5	M4x60	50	300
8700047	FP 12x45		12	45	60	23,5	M5x70	50	300

T61

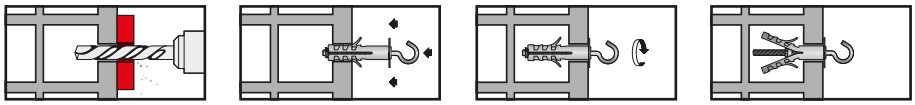
Professional light-duty fixing, suitable for solid materials, where different accessories are required.
Safe and reliable anchorage even near a heat source.

TECHNICAL DATA

Plug material:	chromium zinc plated steel with metal cone
Screw material:	zinc plating steel

BUILDING MATERIALS

INSTALLATION METHOD



BENEFITS

- Plug and accessories in zinc-plated steel.
- Expansion through 3 independent sectors.
- 3 anti-rotation fins.
- Restricted drill diameters with high load capacity.

RECOMMENDED TENSION LOADS

DESCRIPTION		T61 6	T61 8 C T61 8	T61 9 C T61 9
Drill diameter	d_0/(mm)	6	8	9
Screw diameter	d_V/(mm)	M3	M4	M5
Concrete C20/25	daN	40	46	56
Break of the accessory*	daN	6	8	20

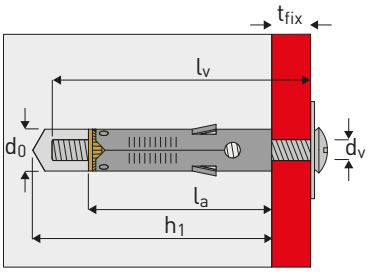
* Representative value of accessories range: for a more detailed information ask for the technical data sheet.

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg

T61/V

Countersunk head metric screw with cross-imprint cap

Plug with zinc-plated countersunk metric cup head screw, combined slot.

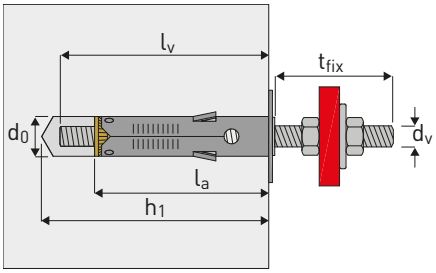


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/V	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712047	V 6x25	6	25	35	5	M3x30	100	3.600
8712050	V 8x35	8	35	50	5	M4x40	100	600
8712051	VP 8x35	8	35	50	10	M4x52	100	600
8712052	V 9x40	9	40	55	5	M5x45	100	600
8712053	VP 9x40	9	40	55	10	M5x55	100	600

T61/DD

With threaded bar

Plug with zinc-plated threaded bar, completed with double nut and washer.

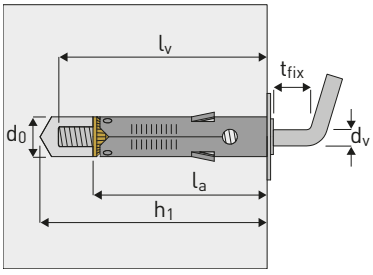


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/DD	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712064	DD 8x35 M4	8	35	50	30	M4x70	100	600
8712065	DD 9x40 M5	9	40	55	25	M5x80	50	300
8712066	DD 9x40 M6	9	40	55	20	M6x70	50	300

T61/GC

With short hook

Plug with zinc-plated short hook.

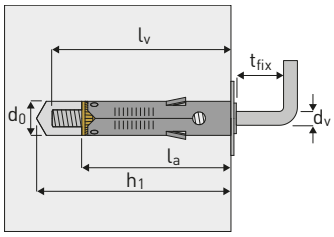


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/GC	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712048	GC 6x25	6	25	35	3	M3x42	100	3.600
8712054	GC 8x35	8	35	50	4	M4x43	100	600
8712055	GC 9x40	9	40	55	4,5	M5x46	100	600

T61/GM

With medium hook

Plug with zinc-plated medium hook.

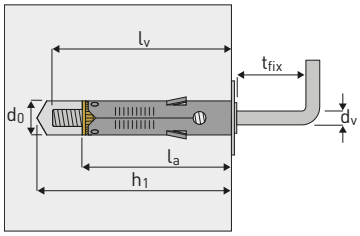


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/GM	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712056	GM 8x35	8	35	50	10	M4x43	100	600
8712057	GM 9x40	9	40	55	10	M5x46	100	600

T61/GL

With long hook

Plug with zinc-plated long hook.

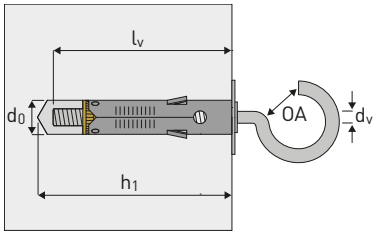


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/GL	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712058	GL 8x35	8	35	50	17	M4x43	100	600
8712059	GL 9x40	9	40	55	19	M5x46	100	600

T61/OA

With open eye hook

Plug with zinc-plated open eye hook.

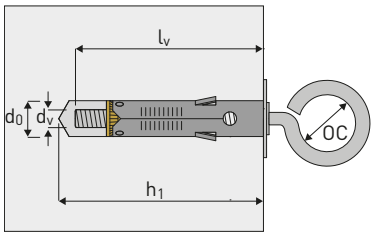


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/OA	d_0/(mm)	l_a/(mm)	h_1/(mm)	OA/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712060	OA 8x35	8	35	50	17	M4x43	100	600
8712061	OA 9x40	9	40	55	19	M5x46	100	600

T61/OC

With closed eye hook

Plug with zinc-plated closed eye hook.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	T61/OC	d_0/(mm)	l_a/(mm)	h_1/(mm)	OC/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8712049	OC 6x25	6	25	35	6	M3x42	100	3.600
8712062	OC 8x35	8	35	50	13	M4x43	100	600
8712063	OC 9x40	9	40	55	13	M5x46	100	600

T51

Plug without screw

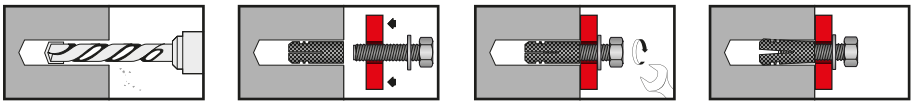
Brass expansion anchor with metric screw for fixing tubes, water race and electrical plants on solid materials. Suitable for concrete, full brick, natural stones, hard wood. Recommended for humid or corrosive environments.

TECHNICAL DATA

Plug material: brass OT58

BUILDING MATERIALS

INSTALLATION METHOD



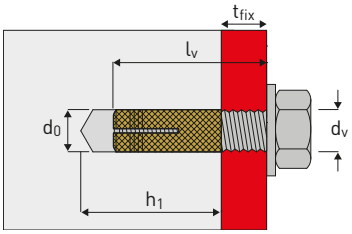
CHARACTERISTICS/BENEFITS

- Brass body compact in size divided into 4 sectors with high elasticity.
- Special internal conical geometry.
- Very rough surface.
- Expansion for tightening of the screw or accessory.
- Reduced installation depth: easy to apply and economic.
- High resistance to corrosion.
- Wide expansion and excellent grip, thanks to surface knurling, also on the lighter materials such as wood.

RECOMMENDED TENSION LOADS

DESCRIPTION		T51 4	T51 5	T51 6	T51 8	T51 10	T51 12	T51 14	T51 16
Drill diameter	d_0/(mm)	5	6	8	10	12	15	18	20
Screw diameter	d_v/(mm)	M4	M5	M6	M8	M10	M12	M14	M16
Concrete C20/25	kN	0,42	0,96	1,02	1,95	2,65	2,95	3,15	3,50

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg



Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Screws	Min. Screw Length	Pack	Carton
	T51	d_0/(mm)	l_s/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8727001	T51 M4	5	19	30	M4	25	300	3.600
8727002	T51 M5	6,5	21	30	M5	25	200	3.200
8727003	T51 M6	8	24	40	M6	30	300	3.600
8727004	T51 M8	10	29	45	M8	35	200	1.600
8727005	T51 M10	12	32	50	M10	40	100	1.200
8727006	T51 M12	15	40	60	M12	45	50	400
8727007	T51 M14	18	42	65	M14	50	50	400
8727008	T51 M16	20	43	65	M16	50	25	200

MINI DRIVA

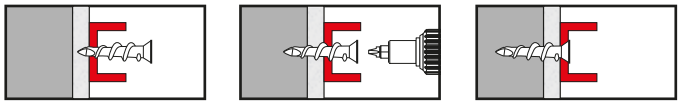
Self-drilling two-in-one plasterboard anchor for cable trays fixing in the case of electrical equipment and light lamps, etc.

TECHNICAL DATA

Plug material: zinc-aluminum alloy (zamak)

BUILDING MATERIALS

INSTALLATION METHOD



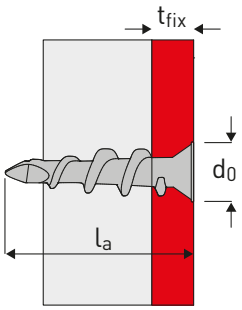
CHARACTERISTICS/BENEFITS

- Body in zinc-aluminum alloy corrosion-proof.
- Self-drilling special geometry.
- Fixing maximum thickness 5 mm.
- Easy and quick installation with a screwdriver with no pre-drilling.

RECOMMENDED TENSION LOADS

DESCRIPTION		MINI DRIVA
Drill diameter*	d_0/(mm)	6
Plasterboard (13 mm)	daN	3,2

*Necessary drilling depth only on aerated concrete. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Collar dim.	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	d_1/(mm)	pcs.	pcs.
565398	MINI DRIVA	6*	26	30*	5	7,5	200	1.600

*Necessary drilling depth in coupled plasterboard panels or gypsum blocks Ø 10 mm and in aerated concrete Ø 6 mm.

DRIVA NYLON

Fixing for plasterboard polyamide, for light loads, complete with screw, for fixing frames, moldings, lamps on plasterboard and concrete phones

CHARACTERISTICS/BENEFITS

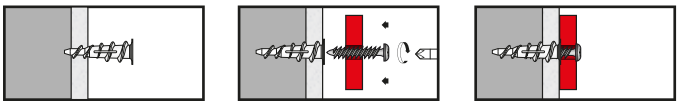
- Zinc-plated steel rounded head screw.
- Self-drilling special geometry.
- Easy and quick installation with a screwdriver with no pre-drilling.
- The white color prevents imperfections of the plug on the wall.
- The screw with washer under head allows a sure anchorage of flexible objects in plastic materials.

TECHNICAL DATA

Plug material:	polyamide 6.6 fiber glass reinforced, neutral color
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

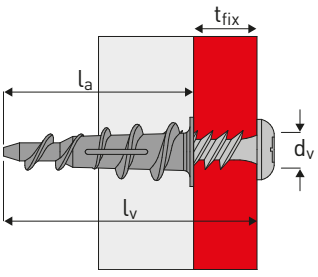
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

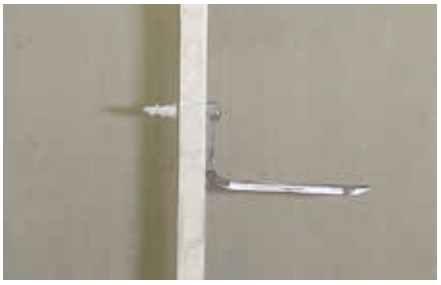
DESCRIPTION		DRIVA NYLON
Drill diameter*	d_0/(mm)	5
Drilling depth*	h_1/(mm)	35
Aerated Concrete	daN	4,6
Plasterboard (13 mm)	daN	4,4

*Necessary drilling depth only on aerated concrete. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg

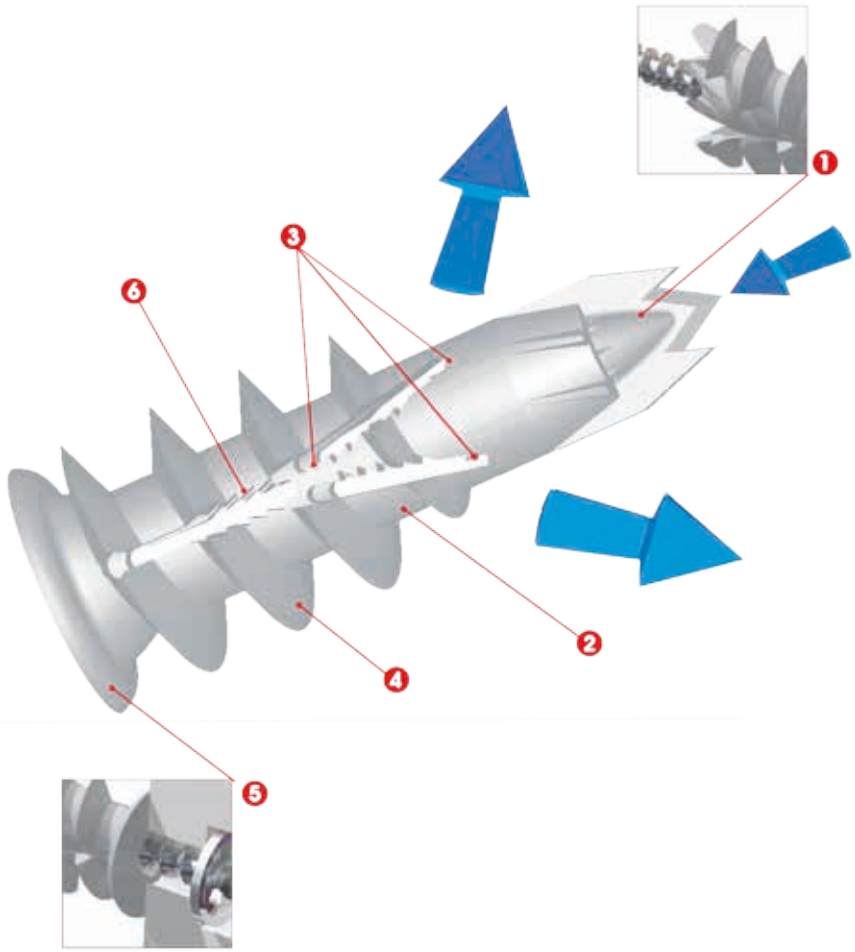


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	DRIVA	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8704216	NYLON	5*	30	35*	12	3,0x25	200	8.000

*Necessary drilling depth in coupled plasterboard panels or gypsum blocks and in aerated concrete Ø 6 mm.



T-CLICK: THE SELF-DRILLING FIXING



❶ **Self-drilling tip**: quick and easy installation on plasterboard (thickness <15 mm) without pre-drilling .

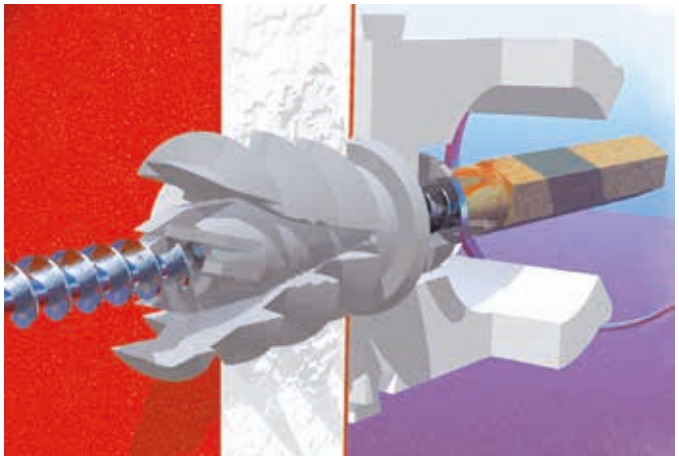
❷ Body expansion able to affect a large area of the panel holder.

❸ The breakage of the opening points, recognizable from the "click" sound, allows the release of the cone and a two-direction expansion of the sleeve.

❹ **Special design of the thread**: self-drilling for an easy, fast installation and for a perfect anchorage to the panel.

❺ Block collar for a perfect installation without risk to damage the plasterboard and for a wall flat setting.

❻ **Knurling locking**: to allow the adjustment of the screw when the anchor is installed.



T-CLICK

Self-drilling anchor suitable for plasterboard, composite panels, aerated concrete, produced in polyamide with addition of fiberglass for the maximum resistance, safety and reliability.

BENEFITS

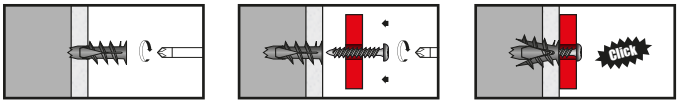
- It can be used without drilling the panel; the application can be performed with both screwdriver and electrical tool.
- Easy and fast installation.
- High bearing capacity because of the wide panel area affected by the expansion.
- Perfect adherence to the wall without damaging and swelling the panel.

TECHNICAL DATA

Plug material:	polyamide 6.6 fiber glass reinforced, grey color RAL 7036
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	-5°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

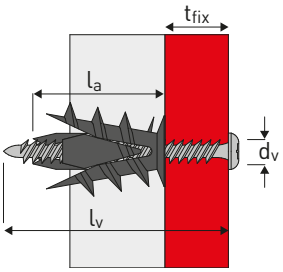
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

Description		T-CLICK
Drill diameter*	d_0/(mm)	8
Drilling depth*	h_1/(mm)	45
Aerated Concrete	daN	9,5
Plasterboard (10 mm)	daN	6
Plasterboard (13 mm)	daN	9
Plasterboard (13 + 13 mm)	daN	16

*Necessary drilling depth only on aerated concrete or plasterboard panels > 15 mm. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Collar dim.	Pack	Carton
	T-CLICK	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
566261	TP 10	8*	40	45*	10	4,5x45	25	800
566301	TP 10	8*	40	45*	10	4,5x45	100	800

*Necessary drilling depth only on aerated concrete or plasterboard panels > 15 mm.

DRIVA

Fixing for plasterboard and aerated concrete for medium loads of metallic race-ways, guides, sanitary accessories, internal signs, shelves, light brackets, accessories for electric and water systems in plasterboard, panel systems and wood.

CHARACTERISTICS/BENEFITS

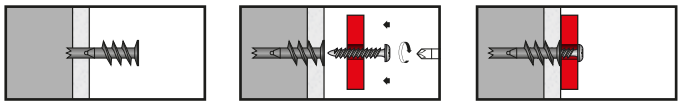
- Fixing for plasterboard and aerated concrete for medium loads
- Quick and easy installation using only a screwdriver.
- Effective harpoon fixing to the panels structure.
- Available with rounded head screw (TP) and countersunk head screw (TF).
- Screws suitable for every application.

TECHNICAL DATA

Plug material:	zinc-aluminum alloy (zamak)
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm

BUILDING MATERIALS

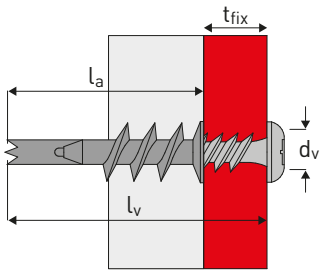
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

DESCRIPTION		DRIVA
Drill diameter*	d_0/(mm)	6
Drilling depth*	h_1/(mm)	35
Aerated Concrete	daN	6
Plasterboard (13 mm)	daN	6

*Necessary drilling depth only on aerated concrete. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	DRIVA	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_V \cdot l_V$/(mm)	pcs.	pcs.
8704226	TP 12	6*	31	35*	12	4,5x35	100	3.200
8704227	TF 5	6*	31	35*	5	4,5x25	100	3.200
8704228	TF 27	6*	31	35*	27	4,5x50	100	3.200

*Necessary drilling depth in coupled plasterboard panels or gypsum blocks Ø 10 mm and in aerated concrete Ø 6 mm.

DRIVA PLUS

Self-drilling plasterboard fixing for anchoring of heavy duty object such as piping, shelves, convectors, bathroom accessories, light fittings and various equipment on plasterboard or composite panels.

CHARACTERISTICS/BENEFITS

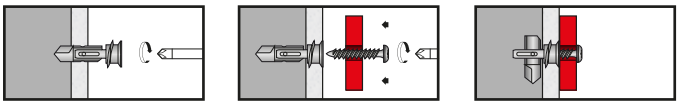
- Body in zinc-aluminum alloy corrosion-proof.
- Self-drilling geometry.
- Anchoring by tightening of the screw.
- Safety and high performance also for anchoring in light-supports and low load-bearing capacity.

TECHNICAL DATA

Plug material:	zinc-aluminum alloy (zamak)
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm

BUILDING MATERIALS

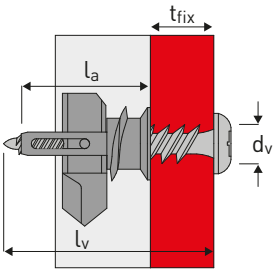
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

DESCRIPTION		DRIVA PLUS
Plasterboard (10 mm)	daN	8,4
Plasterboard (13 mm)	daN	12

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm² • 1 daN ≅ 1 kg



Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	DRIVA PLUS	d_0/(mm)	l_s/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8704236	TP 12	-	39	-	12	4,5x45	100	800

ETPV

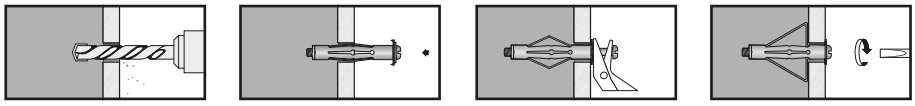
Cavity anchor for fixing of consoles, stirrups, lamps, electric switches, race-ways on hollow materials.
Anchoring on hollow materials that require fixing accessories such as hooks and eyelets.
Suitable for plasterboard panels, composite panels, wood and light walls.

BUILDING MATERIALS

TECHNICAL DATA

Plug material:	chromium zinc plated steel
Screw material:	zinc plating steel
Tool for the installation:	cod. 707070

INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

- The installation is done with the relative tool. For lightweight applications you can install the anchor with a screwdriver or electrical tool.
- Expansion due to the return of the cone into the sleeve. Inside the material, the anchor makes "an umbrella" opposing to the load.
- Shear harpoons on the head of the plug to ensure a perfect anti-rotation anchoring.
- Safe anchorage in thin panels and low bearing walls.
- Thermal resistance: possibility of application near tubes or heat sources.
- Possibility of assembling and disassembling of the system without compromising the anchoring.

RECOMMENDED TENSION LOADS

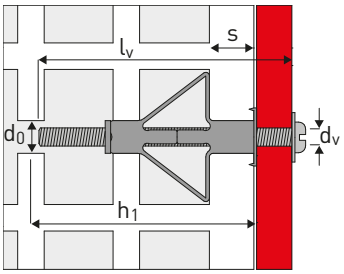
DESCRIPTION		ETPV M4/8	ETPV M5/10	ETPV M6/12
Drill diameter	d_0/(mm)	8	10	12
Screw diameter	d_V/(mm)	M4	M5	M6
Plasterboard (10 mm)	daN	20	20	15
Plasterboard (13 mm)	daN	20	20	20
Plasterboard (13 + 13 mm)	daN	-	40	30
Break of the accessory*	daN	8	12	-

*Representative value of accessories range: for a more detailed information ask for the technical data sheet. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg

ETPV/V

Metric screw flat head

Plug with zinc-plated flat metric cup head screw, combined slot.

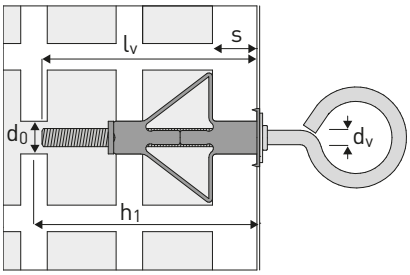


Code	Type	Drilling Ø	Plug length	Min - Max Thickn. Support	Screw dim.	Pack	Carton
	ETPV/V	d_0/(mm)	l_v/(mm)	s/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
568617	M4/8x35-41	8	35	5-9	M4x41	100	1.200
568618	M4/8x40-47	8	40	10-16	M4x47	100	1.200
568619	M4/8x46-53	8	46	17-23	M4x53	100	1.200
568620	M5/10x37-46	10	37	5-10	M5x46	50	600
568621	M5/10x50-59	10	50	11-16	M5x59	50	600
568622	M5/10x63-72	10	63	21-27	M5x72	50	600
568623	M6/12x37-46	12	37	5-10	M6x46	50	600
568624	M6/12x51-59	12	51	11-16	M6x59	50	600
568625	M6/12x63-72	12	63	27-32	M6x72	50	600

ETPV/OC

With closed eye hook

Plug with zinc-plated closed eye hook.

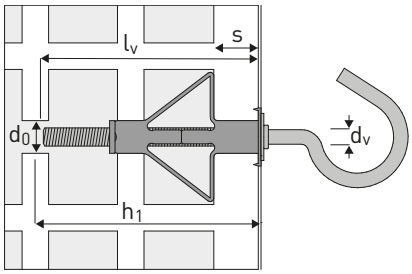


Code	Type	Drilling Ø	Plug length	Min - Max Thickn. Support	Dim. Accessory	Pack	Carton
	ETPV/OC	d_0/(mm)	l_v/(mm)	s/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
568626	M4/8x35	8	35	3-9	M4x43	100	1.200
568627	M5/10x52	10	52	9-16	M5x60	50	600

ETPV/OA

With open eye hook

Plug with zinc-plated open eye hook.

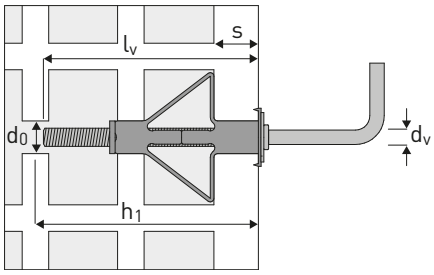


Code	Type	Drilling Ø	Plug length	Min - Max Thickn. Support	Dim. Accessory	Pack	Carton
	ETPV/OA	d_0/(mm)	l_s/(mm)	s/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
568628	M4/8x35	8	35	3-9	M4x43	100	1.200
568629	M5/10x52	10	52	9-16	M5x60	50	600

ETPV/GL

With long hook

Plug with zinc-plated long hook.



Code	Type	Drilling Ø	Plug length	Min - Max Thickn. Support	Screw dim.	Pack	Carton
	ETPV/GL	d_0/(mm)	l_s/(mm)	s/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
568630	M4/8x35	8	35	3-9	M4x39	100	1.200
568631	M5/10x52	10	52	9-16	M5x60	50	600

ETAF

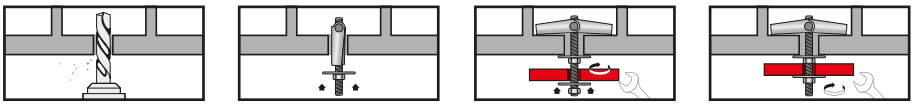
Cavity toggle fixing for hollow materials.
Suitable for fixing suspension elements or illuminating groups on ceiling.
Suitable for hollow bricks, plasterboard, composite panels, metal floors.

TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

- Anchoring due to the opening of the sleeve.
- Safe anchoring for suspension elements.
- Possibility of spaced anchoring to create cavity wall insulations and technical rooms.
- Accessories for every need and application.

RECOMMENDED TENSION LOADS

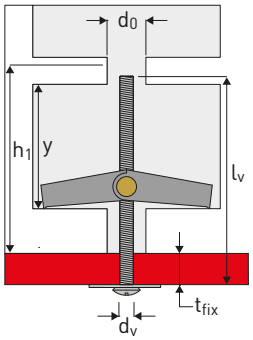
DESCRIPTION		ETAF 4/12	ETAF 4/14
Drill diameter	d_0/(mm)	12	14
Screw diameter	d_V/(mm)	M4	M4
Perforated brick	daN	40	40
Break of the accessory*	daN	8	8

*Representative value of accessories range: for a more detailed information ask for the technical data sheet. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg

ETAF/V

Countersunk head screw with combined slot cap

Toggle with countersunk head screw, zinc-plated washer, combined slot.

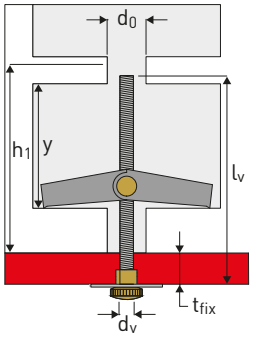


Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETAF/V	d_0/(mm)	y/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706001	V 4/12	12	25	80	45	M4x75	50	600
8706002	V 4/14	14	32	80	40	M4x75	50	600

ETAF/DC

Countersunk head screw with nut

Toggle with countersunk head screw and brass blind nut.

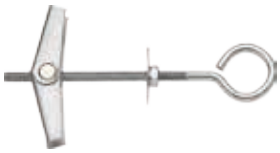


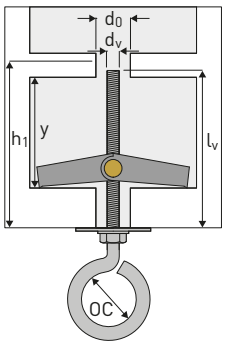
Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETAF/DC	d_0/(mm)	y/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706351	DC 4/12	12	25	100	55	M4x95	50	600
8706352	DC 4/14	14	32	100	50	M4x95	50	600

ETAF/OC

With closed eye hook

Toggle with zinc-plated closed eyebolt.



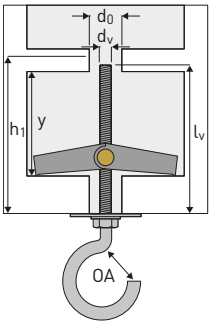


Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETAF/OC	d_0/(mm)	y/(mm)	h_1/(mm)	OC/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706101	OC 4/12	12	25	70	15	M4x65	50	600
8706102	OC 4/14	14	32	70	15	M4x65	50	600

ETAF/OA

With open eye hook

Toggle with zinc-plated open eyebolt.

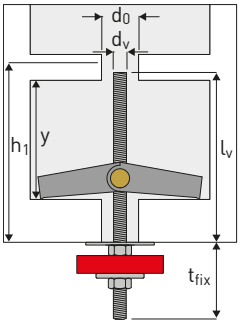


Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETAF/OA	d_0/(mm)	y/(mm)	h_1/(mm)	OA/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706201	OA 4/12	12	25	100	11	M4x65	50	600
8706202	OA 4/14	14	32	100	11	M4x65	50	600

ETAF/DD

Threaded bar with double nut

Toggle with zinc-plated threaded bar.



Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETAF/DD	d_0/(mm)	y/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706301	DD 4/12	12	25	100	60	M4x95	50	600
8706302	DD 4/14	14	32	100	53	M4x95	50	600

ETR

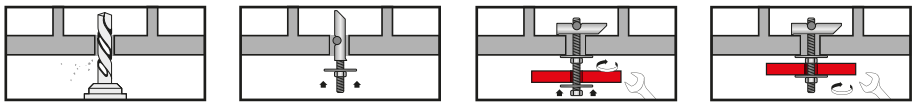
Gravity toggle fixing for hollow and empty materials, to fix false ceilings structures, ventilation channels, illuminating groups and other appliances.
Suitable for hollow bricks, plasterboards, light floors and ceilings, composite panels, perforated blocks.

TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

- Sure and effective anchorage for contrast.
- Anchorage due to the turnover of the toggle into the wall for gravity force.
- Superior thermal and mechanic resistance.
- Possibility to apply big loads on wall and ceilings of difficult anchoring.

RECOMMENDED TENSION LOADS

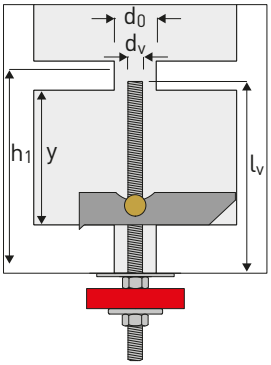
DESCRIPTION		ETR 6	ETR 8
Drill diameter	d_0/(mm)	16	20
Screw diameter	d_V/(mm)	M6	M8
Perforated brick	daN	72	120
Break of the accessory*	daN	20	35

*Representative value of accessories range: for a more detailed information ask for the technical data sheet. Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg

ETR/DD

Threaded bar with double nut

Toggle with zinc-plated threaded bar.

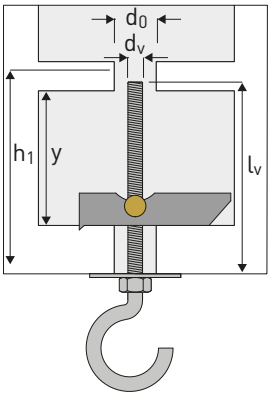


Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Thickness Max wall	Screw dim.	Pack	Carton
	ETR/DD	d_0/(mm)	y/(mm)	h_1/(mm)	sp/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706303	ETR/DD 6	16	69	105	31	M6x100	25	300
8706304	ETR/DD 8	20	75	105	55	M8x100	25	300

ETR/OA

With open eye hook

Toggle with zinc-plated open eyebolt.



Code	Type	Drilling Ø	Cavity Space	Drilling Depth	Thickness Max wall	Screw dim.	Pack	Carton
	ETR/OA	d_0/(mm)	y/(mm)	h_1/(mm)	sp/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8706203	ETR/OA 6	16	69	105	31	M6x100	25	300
8706204	ETR/OA 8	20	75	105	55	M8x100	25	300

ETNF

Light-duty fixing, ideal for fixing of light frames, signs, strips, small stirrups on thin walls. Suitable for plasterboard and composite panels.

CHARACTERISTICS/BENEFITS

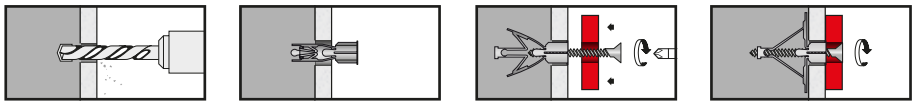
- Shape anchorage in the internal wall of the support by tightening of the screw.
- Maximum bearing wall capability also in materials of low consistency.
- Safe fixing with different screws and accessories.
- Resistance to deterioration thanks to the quality of the material employed.

TECHNICAL DATA

Plug material:	polyamide 6, neutral color
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

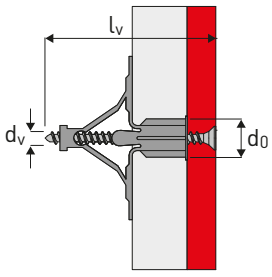
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

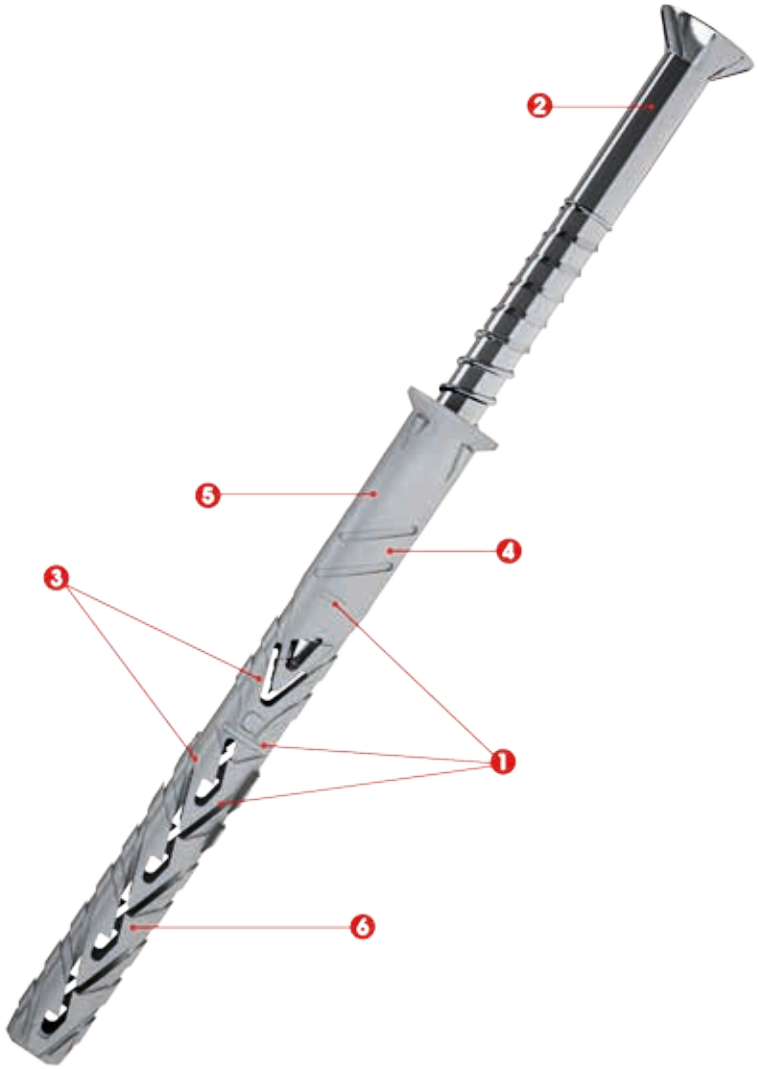
DESCRIPTION		ETNF 10x38	ETNF 10x47
Drill diameter	d_0/(mm)	10	10
Drilling depth	h_1/(mm)	40	50
Screw	d_V/(mm)	4,5x50	4,5x60
Plasterboard (10 mm)	daN	5	-
Plasterboard (13 mm)	daN	5	-
Plasterboard (13 + 13 mm)	daN	-	5

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg



Code	Type	Drilling Ø	Plug length	Drilling Depth	Ø Screws	Min. Screw Length	Pack	Carton
	ETNF	d_0/(mm)	l_x/(mm)	h_1/(mm)	d_V/(mm)	l_V/(mm)	pcs.	pcs.
8711000	10x38	10	38	40	4,0 - 4,5	50	100	5.000
8711001	10X47	10	47	50	4,0 - 4,5	60	100	5.000

T66: VERSATILE, PERFORMING, MULTI-MATERIAL!



1. **Versatile**: three different anchoring depths , up to 260 mm of fixable thickness, suitable for different applications on several support materials. 40 mm the minimum anchoring depth, tested and certified on concrete! The best performances saving time and holes drilled material: 10 m less of drilled surfaces each 1000 fixings, respect to the standard anchoring at 50mm!
2. **Speed**: quick screwing without rotation; progressive driving torque, easy to control.
3. **Effective**: perfect insertion, no rotation while screwing , very good compensation on irregular surfaces or with variable thicknesses. The fixing is immediate, safe, perceived by the installer.
4. **Practical**: easy through-fixing application on any object to fix such as metal and wood structures, frames, stirrups, strips.
5. **Reliable**: produced with the best materials and technologies, T66 is the first plug for non-structural applications that has been evaluated in the anti-seismic field, on cracked-concrete, non-cracked concrete and hollow brick!
6. **Safe**: tests at the maximum levels according to the most recent European guidelines , constant, rigorous and selective in any productive phase, for applications in total safety.

T66

T66 is the first frame anchor with through-fixing system, really versatile to fix frames, insulations panels, structures, substructures for façades and coverings. T66 is produced with avant-garde technologies able to grant easy and speedy of installation, and safety on any kind of building materials: solid, hollow and lightened.

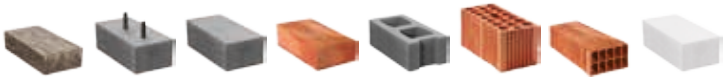
TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, cl. 6.8 (inox A4-AISI 316), zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	-5°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

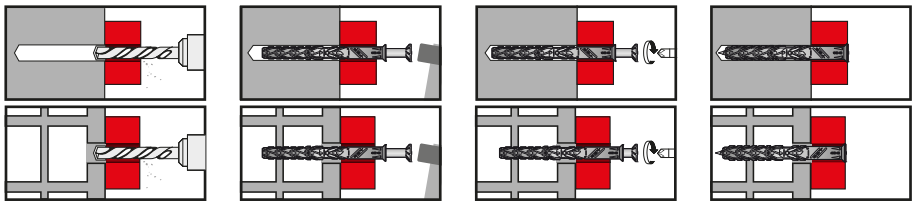
CERTIFICATIONS

ETA CE
1020-CPR-090-033112
ETA-13/1066
according to ETAG 020

BUILDING MATERIALS



INSTALLATION METHOD



CHARACTERISTICS

- Projected and tested for multiple fixings on different support materials and on different embedment depths, calibrated on the real resistance and lift of the support.
- Studied and evaluated for fixing that are subjected to the strongest seismic shakings, reproduced with shaking table.
- Up to 260 mm of fixing thickness for the different fixing needs: insulation sets, substructures of coverings, metal substructures for façades, frames, carpentry and supports for light systems.

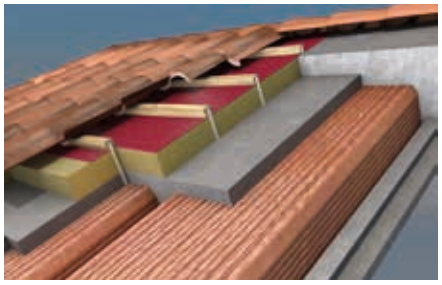
BENEFITS

- Quick insertion thanks to the uniform and compact geometry of the plug: just few hammer blows on the screw to reach the required minimum installation depth , through big thicknesses of wood and insulation panels too.
- Fire resistant F90.

RECOMMENDED LOADS

DESCRIPTION		T66/V 8	T66/V 10
Drill diameter	d_0/(mm)	8	10
Drilling depth	h_1/(mm)	65	65
Anchorage depth	h_{nom}/(mm)	50	50
Concrete C20/25	daN	202	244
Solid brick	daN	136	148
Hollow block*	daN	46	40
Perforated brick*	daN	42	54
Hollow brick*	daN	50	38
Aerated Concrete*	daN		54

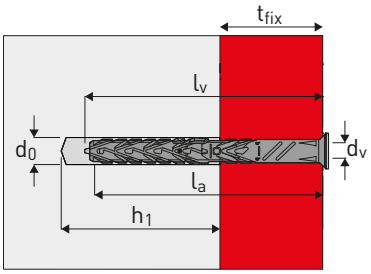
*Values refer to testing carried out on commonly used materials. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg



T66/V TORX

With countersunk head screw

Plug with zinc-plated countersunk head screw, slot TORX.



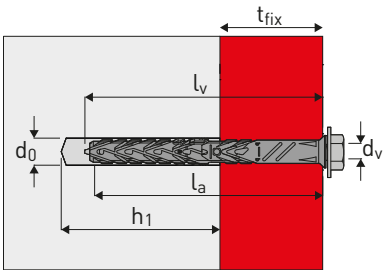
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T66/V TORX	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
567850	8x60/10	8	60	50	60	10	50	400
567851	8x80/30	8	80	50	60	30	50	400
567852	8x100/50	8	100	50	60	50	50	400
567853	8x120/70	8	120	50	60	70	50	300
567854	8x150/100	8	150	50	60	100	50	250
567857	10x80/30	10	80	50*	60	30	50	300
567858	10x100/50	10	100	50*	60	50	50	300
567859	10x120/70	10	120	50*	60	70	50	250
567860	10x140/90	10	140	50*	60	90	50	250
567861	10x160/110	10	160	50*	60	110	50	250
567862	10x180/130	10	180	50*	60	130	50	250
567863	10x200/150	10	200	50*	60	150	50	250
567864	10x230/180	10	230	50*	60	180	50	200
567865	10x260/210	10	260	50*	60	210	50	200
567866	10x280/230	10	280	50*	60	230	50	200
567867	10x300/250	10	300	50*	60	250	50	150

For embedment depth different from 50 mm, see the technical documentation.

T66/V TER W

With hexagonal and flanged head screw

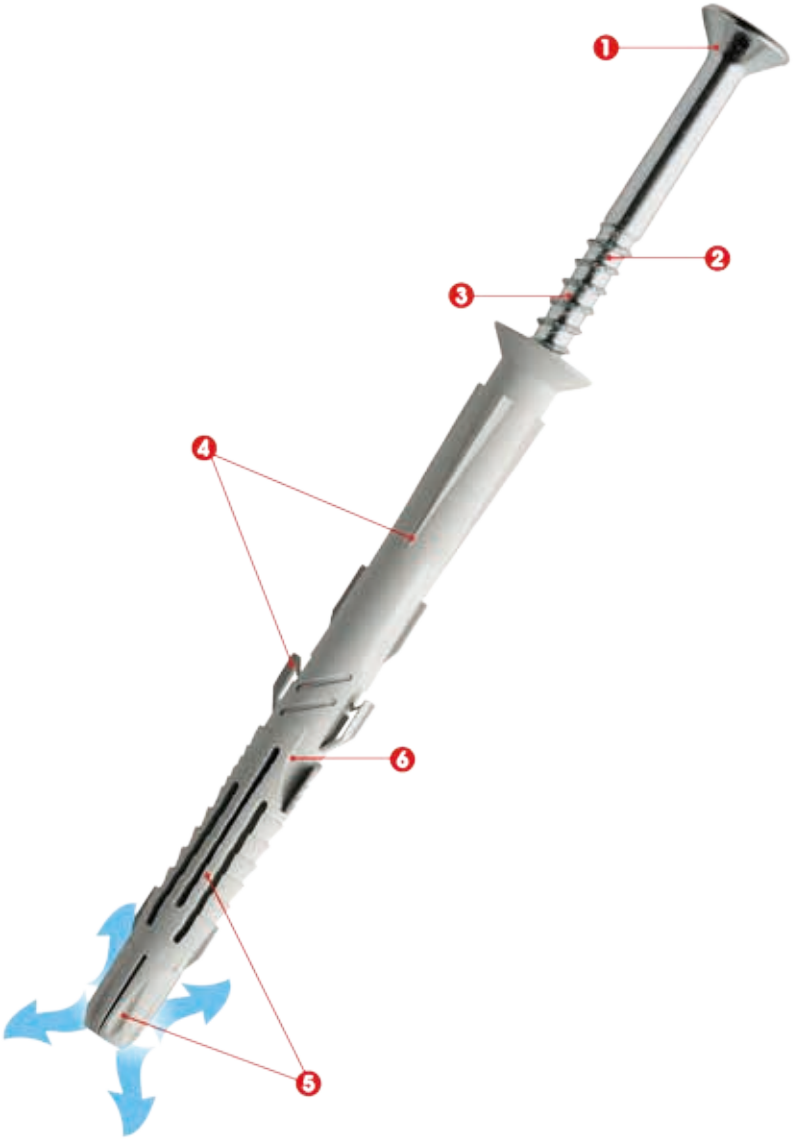
Plug with countersunk collar, completed with zinc-plated hexagonal screw, slot TORX.



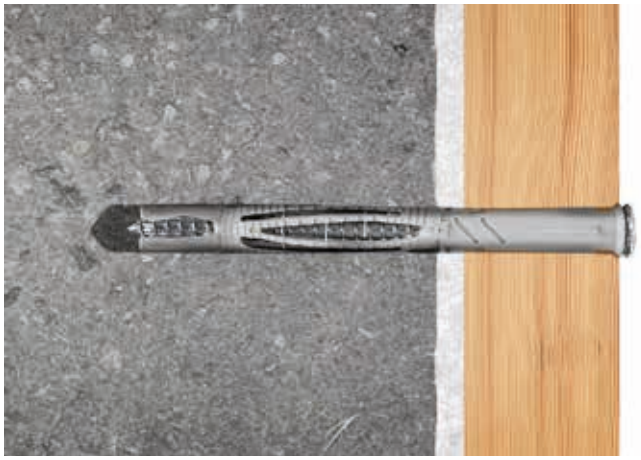
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T66/V TER W	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
567868	10x60/10	10	60	50*	60	10	50	300
567869	10x80/30	10	80	50*	60	30	50	300
567870	10x100/50	10	100	50*	60	50	50	300
567871	10x120/70	10	120	50*	60	70	50	250
567872	10x140/90	10	140	50*	60	90	50	250
567873	10x160/110	10	160	50*	60	110	50	250
567874	10x180/130	10	180	50*	60	130	50	250
567875	10x200/150	10	200	50*	60	150	50	250

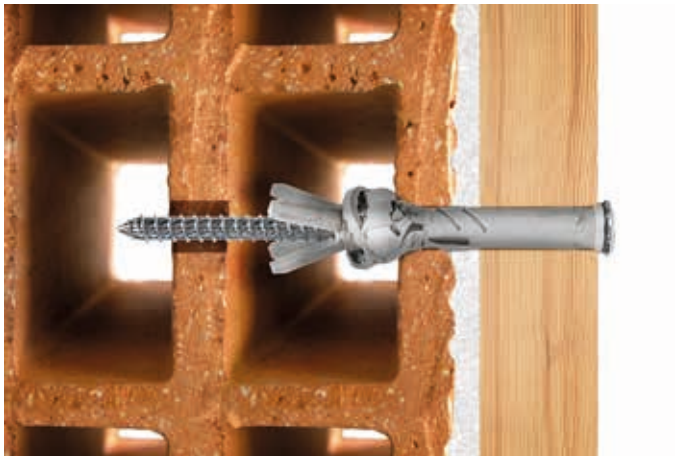
For embedment depth different from 50 mm, see the technical documentation.

T88: UNIVERSAL, UNBEATABLE FOR HOLLOW MATERIALS!



1. **Universal**: suitable for every building materials, it expands in depth and on most areas in solid materials, while it associates expansion and knotting in hollow materials and lightened ones.
2. **Performing**: the particular flexibility of the plug allows to obtain always the best load performance in hollow or lightened materials of any structure or resistance.
3. **Practical**: simple setting, easy, fast, while hammering the screw, without any problem of pre-expansion. The fixing is linear, progressive, without any rotation problem, even with non-perfect or oversized drill holes.
4. **Functional in any situation, anchoring on hollow materials of objects with reduced thicknesses respect to the plug length**: the particular compensation system of the length allows anyway the perfect and stable blocking of the object to be fixed to the wall.
5. **Complete range**: 8,10, 12 and 16 mm: if required other oversized diameters are available, assembled with high resistance special screws in order to grant high value of share and traction.
6. **Certified**: European Technical Assessment and CE marking on various construction materials. Tested in applications with high design loads (wooden structures/ frames).





T88

T88 is the new universal frame anchor with push-through system, suitable in any kind of building materials, ideal for fixing in hollow and lightened materials.
It expands on solid materials and knotting on hollow materials.

TECHNICAL DATA

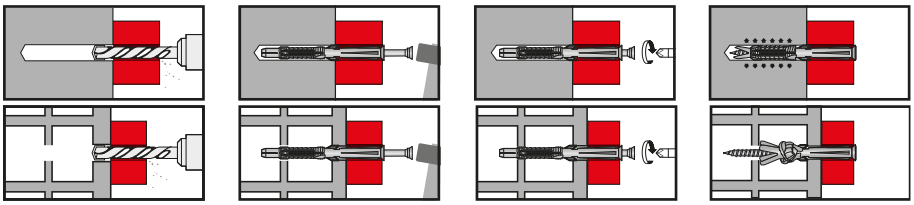
Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, cl. 6.8, treated with zinc plating Cr^{3+}, thickness ≥5µm
Installation temperature:	+0°C÷ +40°C
Working temperature:	-40°C÷ +80°C

CERTIFICATIONS

ETA CE
0970-CPD-0046/CE/FPC12
ETA-12/0069
according to ETAG 020
(T88 Ø10)

BUILDING MATERIALS

INSTALLATION METHOD



BENEFITS

- Available in different diameters and screws for fixing for wood or metallic frames, timber frames, metal construction parts, curtain walling, door and windows frames.

APPLICATIONS

- Through fixing setting, simple, quick, through the object to be fixed. An immediate fixing can be done with few hammer blows on the screw and a following progressive tightening in different materials, solid and hollow.
- The bigger sizes are supplied with special hexagonal head screw with oversized washer: ideal for the direct fixing of metal construction parts or stirrup of shelves, wooden pergolas and metallic door and windows frames.
- The special geometry and flexibility of the body allow immediate, safe and performing fixings in hollow blocks and hollow bricks, avoiding long complex and expensive chemical fixings.

RECOMMENDED LOADS

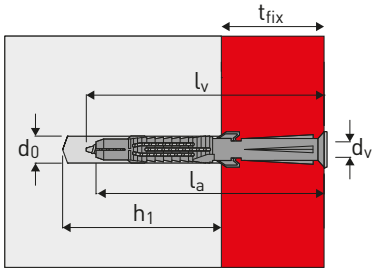
DESCRIPTION		T88/V 8	T88/V 10	T88/V 12	T88/V 16
Drill diameter	d_0/(mm)	8	10	12	16
Drilling depth	h_1/(mm)	85	85	90	115
Anchorage depth	h_{nom}/(mm)	70	70	70	90
Concrete C20/25	daN	130	152	156	220
Solid brick	daN	126	144	148	208
Hollow block*	daN	40	42	44	84
Perforated brick*	daN	46	52	56	62
Hollow brick*	daN	38	42	46	62

*Values refer to testing carried out on commonly used materials. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg

T88/V TORX

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot TORX.



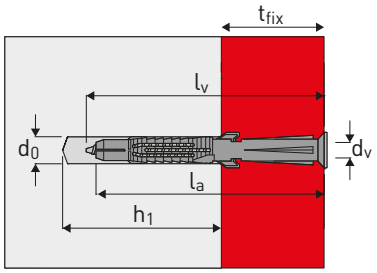
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T88/V TORX	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
567001	8x80	8	80	70	85	10	50	400
567002	8x100	8	100	70	85	30	50	400
567003	8x120	8	120	70	85	50	50	300
567004	10x80*	10	80	70	85	10	50	300
567005	10x100*	10	100	70	85	30	50	300
567006	10x115*	10	115	70	85	45	50	250
567007	10x145*	10	145	70	85	75	50	250
567008	10x160*	10	160	70	85	90	50	300
567009	10x185*	10	185	70	85	115	50	300
567010	10x210*	10	210	70	85	140	50	300

*Certified in accordance with ETAG 020

T88/V

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.



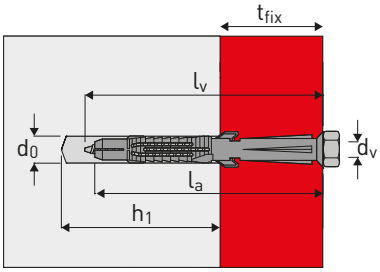
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T88/V Pozidriv	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
566736	8x80	8	80	70	85	10	50	400
566737	8x100	8	100	70	85	30	50	400
566738	8x120	8	120	70	85	50	50	300
566753	10x80*	10	80	70	85	10	50	300
566754	10x100*	10	100	70	85	30	50	300
566755	10x115*	10	115	70	85	45	50	250
566756	10x145*	10	145	70	85	75	50	250
566757	10x160*	10	160	70	85	90	50	300
566758	10x185*	10	185	70	85	115	50	300
566759	10x210*	10	210	70	85	140	50	300

*Certified in accordance with ETAG 020

T88/VTE

With hexagonal head screw

Plug with zinc-plated hexagonal head screw.



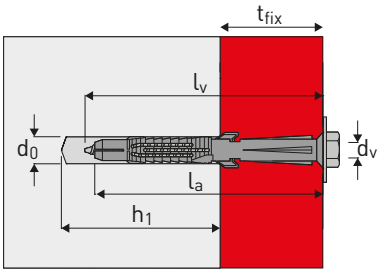
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T88/VTE	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
566733	8x80	8	80	70	85	10	50	400
566734	8x100	8	100	70	85	30	50	400
566735	8x120	8	120	70	85	50	50	300
566746	10x80*	10	80	70	85	10	50	300
566747	10x100*	10	100	70	85	30	50	300
566748	10x115*	10	115	70	85	45	50	250
566749	10x145*	10	145	70	85	75	50	250
566750	10x160*	10	160	70	85	90	50	300
566751	10x185*	10	185	70	85	115	50	300
566752	10x210*	10	210	70	85	140	50	300

*Certified in accordance with ETAG 020

T88/VTER

With hexagonal head screw and washer

Plug with zinc-plated hexagonal head screw with washer.



Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	T88/VTER	d_0/(mm)	l_a/(mm)	h_0/(mm)	h_0/(mm)	t_{fix}/(mm)	pcs.	pcs.
566765	12x120	12	120	70	85	50	25	150
566766	12x145	12	145	70	85	75	25	150
566767	12x165	12	165	70	85	95	25	125
566768	12x185	12	185	70	85	115	25	150
566769	12x210	12	210	70	85	140	25	150
566785	16x145	16	145	90	110	55	25	125
566786	16x165	16	165	90	110	75	25	125
566787	16x185	16	185	90	110	95	25	100
566788	16x200	16	200	90	110	110	25	100
566789	16x270	16	270	90	110	180	15	60

APS

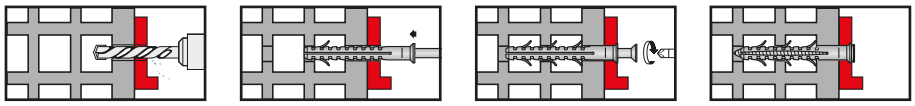
Through-fixing anchor in solid and hollow materials for substructures of window and door frames. Suitable for light hollow bricks, conglomerates of low resistance to the compression.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, cl. 5.8, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Expansion frame fixing in nylon, suitable for perforated and hollow bricks, light construction materials.
- Available in different diameters and lengths in relation to the anchoring typology and thickness of the object to fix.

BENEFITS

- Fast and reliable push-through installation even with oversized or inaccurate drill holes.
- No rotation during installation thanks to the 6 fins and low torque. Anchorage guaranteed thanks to the distributed expansion on extended areas of the support materials.
- Available in diam. 8, 10, 12, 16 and with special screws: countersunk, hexagonal, hexagonal with anti-tampering insert washers (Ø 12 and 16).

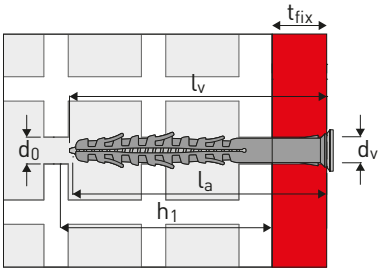
RECOMMENDED LOADS

DESCRIPTION		APS/V 8	APS/V 10
Drill diameter	d_0/(mm)	8	10
Anchorage depth	h_{nom}/(mm)	70	70
Drilling depth	h_1/(mm)	90	90
Concrete C20/25	daN	90	110
Solid brick	daN	80	95
Perforated brick*	daN	23	30

*Values refer to testing carried out on commonly used materials. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg

APS

Plug without screw

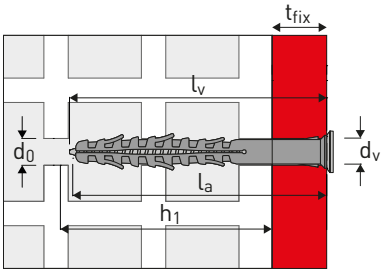


Code	Type	Drilling Ø	Plug length	Anchor Depth	Max Fixable Thick	Dimensions Screw	Pack	Carton
	APS	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	t_{fix}/(mm)	d_v x l_v/(mm)	pcs.	pcs.
8722505	8x80	8	80	70	10	5,5x85	100	2.400
8722506	8x100	8	100	70	30	5,5x105	50	1.200
8722512	8x120	8	120	70	50	5,5x125	50	1.200
8722507	10x80	10	80	70	10	7x85	50	1.200
8722508	10x100	10	100	70	30	7x105	50	1.200
8722509	10x115	10	115	70	45	7x120	50	1.200
8722510	10x135	10	135	70	65	7x140	50	1.200
8722511	10x160	10	160	70	90	7x165	50	1.200

APS/V

With countersunk head screw

Plug with zinc-plated countersunk head screw, slot PZ.

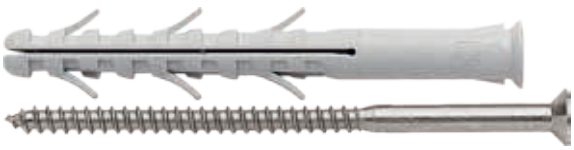


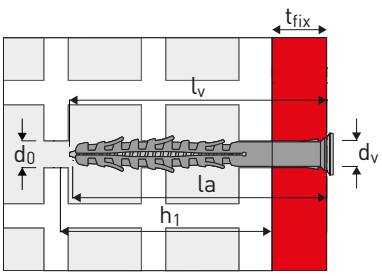
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APS/V	d_0/(mm)	l/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
8722555	8x80	8	80	70	85	10	50	1.200
8722556	8x100	8	100	70	85	30	25	600
8722562	8x120	8	120	70	85	50	25	600
8722557	10x80	10	80	70	85	10	25	600
8722558	10x100	10	100	70	85	30	25	600
8722559	10x115	10	115	70	85	45	25	300
8722560	10x135	10	135	70	85	65	25	300
8722561	10x160	10	160	70	85	90	25	300

APS/V TORX

With countersunk head screw

Plug with zinc-plated countersunk head screw, slot TORX.



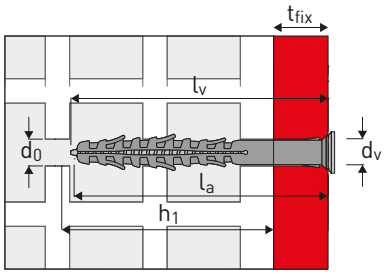


Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APS/V TORX	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
8722545	8x80	8	80	70	85	10	50	1.200
8722546	8x100	8	100	70	85	30	25	600
8722552	8x120	8	120	70	85	50	25	600
8722547	10x80	10	80	70	85	10	25	600
8722548	10x100	10	100	70	85	30	25	600
8722549	10x115	10	115	70	85	45	25	300
8722550	10x135	10	135	70	85	65	25	300
8722551	10x160	10	160	70	85	90	25	300
8722553	10x200	10	200	70	85	120	25	150

APS/AM

With anti-tampering screw

Plug with zinc-plated rounded anti-tampering head screw, slot TORX. Final insert in zamak.

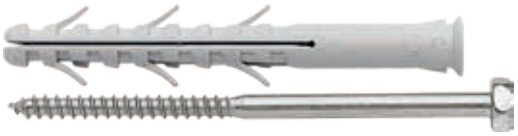


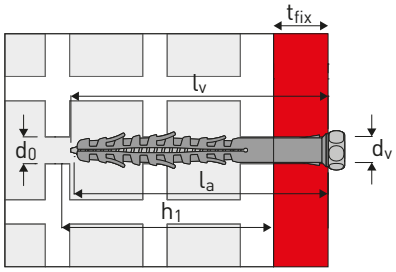
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APS/AM	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
565765	10x100	10	100	70	85	30	25	600
565766	10x115	10	115	70	85	45	25	300
565767	10x135	10	135	70	85	65	25	300

APS/V TE

With hexagonal head screw

Plug with zinc-plated hexagonal head screw.



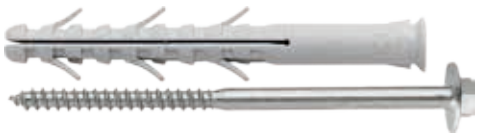


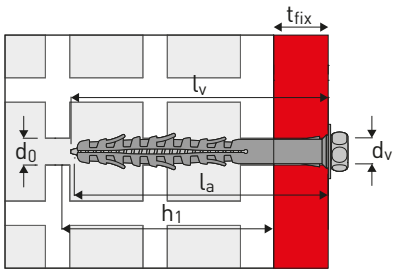
Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APS/V TE	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
8722575	8x80	8	80	70	85	10	50	1.200
8722576	8x100	8	100	70	85	30	25	600
8722582	8x120	8	120	70	85	50	25	600
8722577	10x80	10	80	70	85	10	25	600
8722578	10x100	10	100	70	85	30	25	600
8722579	10x115	10	115	70	85	45	25	300
8722580	10x135	10	135	70	85	65	25	300
8722581	10x160	10	160	70	85	90	25	300

APS/V TER

With hexagonal head screw and washer

Plug with zinc-plated hexagonal head screw with washer.





Code	Type	Drilling Ø	Plug length	Anchor Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APS/V TER	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
8722584	12x130	12	130	70	85	60	25	25
8722585	12x200	12	200	70	85	130	20	20
8722586	12x240	12	240	70	85	170	20	20
8722587	16x140	16	140	80	100	60	20	20
8722588	16x160	16	160	80	100	80	20	20
8722589	16x200	16	200	80	100	120	20	20
8722590	16x240	16	240	80	100	160	20	20

APR

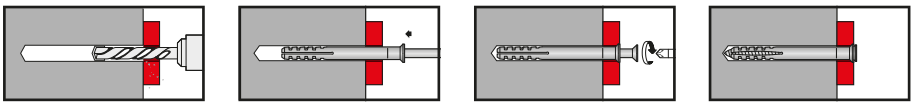
Nylon frame anchor for fixing of doors and windows frames, kitchen cabinets, wood strips, covering, wall plates, sole plates, battens. Suitable for concrete, stone, solid brick, solid block.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, cl. 5.8, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Extended nylon plug for through fixing, with countersunk collar for flush anchoring.
- Available in diam. 6, 8 and 10 and for thicknesses up to 110 mm.

BENEFITS

- Easy installation even on limited thickness supports due to reduced anchoring depth.
- Quality of materials and performance at reduced costs.

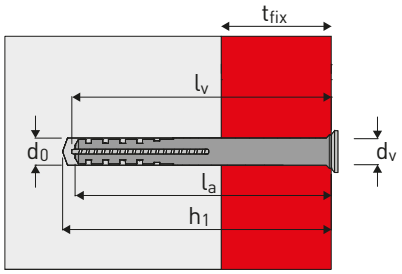
RECOMMENDED LOADS

DESCRIPTION		APR/V 6	APR/V 8	APR/V 10
Drill diameter	d_0/(mm)	6	8	10
Drilling depth	h_1/(mm)	50	50	60
Installation depth	h_{nom}/(mm)	30	40	50
Concrete C20/25	daN	22	50	90
Solid brick	daN	14	45	76

Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg

APR

Plug without screw

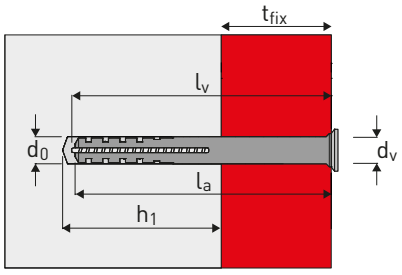


Code	Type	Ø drill	Plug length	Install. Depth	Drilling Depth	Dimensions Screw	Pack	Carton
	APR	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	$d_v \bullet l_v$/(mm)	pcs.	pcs.
8722051	6x35	6	35	30	40	4x40	200	4.800
8722052	6x50	6	50	30	40	4x55	150	3.600
8722053	6x60	6	60	30	40	4x65	100	2.400
8722054	8x60	8	60	40	55	5,5x65	100	2.400
8722055	8x80	8	80	40	55	5,5x85	100	2.400
8722056	8x100	8	100	40	55	5,5x105	50	1.200
8722062	8x120	8	120	40	55	5,5x125	40	960
8722063	8x135	8	135	40	55	5,5x140	40	960
8722064	8x160	8	160	40	55	5,5x165	40	960
8722057	10x80	10	80	50	65	7x85	50	1.200
8722058	10x100	10	100	50	65	7x105	50	1.200
8722059	10x115	10	115	50	65	7x120	40	960
8722060	10x135	10	135	50	65	7x140	40	960
8722061	10x160	10	160	50	65	7x165	40	960

APR/V

Countersunk flat head screw

Plug with zinc-plated countersunk head screw, slot PZ.



Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Max Fixable Thick	Pack	Carton
	APR/V	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	pcs.	pcs.
8722001	6x35	6	35	30	40	5	100	2.400
8722002	6x50	6	50	30	40	20	100	2.400
8722003	6x60	6	60	30	40	30	100	2.400
8722004	8x60	8	60	40	55	20	50	1.200
8722005	8x80	8	80	40	55	40	50	1.200
8722006	8x100	8	100	40	55	60	50	1.100
8722012	8x120	8	120	40	55	80	25	600
8722013	8x135	8	135	40	55	95	25	600
8722014	8x160	8	160	40	55	120	25	600
8722007	10x80	10	80	50	65	30	25	600
8722008	10x100	10	100	50	65	50	25	600
8722009	10x115	10	115	50	65	65	20	480
8722010	10x135	10	135	50	65	85	20	480
8722011	10x160	10	160	50	65	110	20	480

UCX

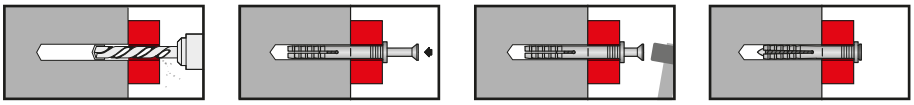
The Elematic solution for the quick installation by hammering. With UCX you can fix in compact materials the substructures, frame outlines, raceways, gutters, accessories and components for electrical and hydraulic systems.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Plug in polyamide with special preassembled nail screw, slot PH.
- Versions with flat collar and countersunk collar.
- Three different drilling diameters (5,6,8 mm) for different lengths.

BENEFITS

- Quick installation by hammering.
- Drilling through the object to fix.

RECOMMENDED LOADS

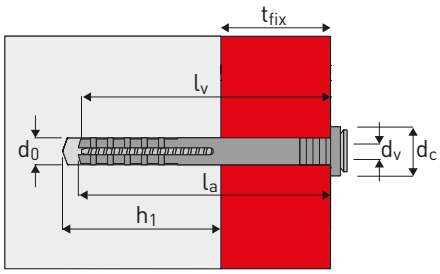
DESCRIPTION		UCX 5	UCX 6	UCX 8
Drill diameter	d_0/(mm)	5	6	8
Installation depth	h_{nom}/(mm)	30	30	40
Concrete C20/25	daN	16	20	32
Solid brick	daN	16	20	30

Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg

UCX/V

Cylindrical head screw

Cylindrical head plug in polyamide 6 (nylon 6), completed with zinc-plated screw, slot PZ.

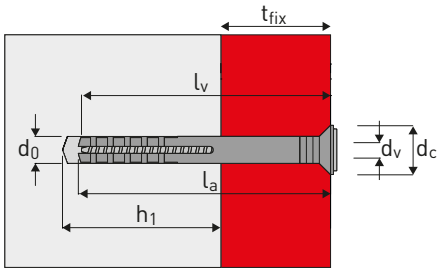


Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Max Fixable Thick	Ø Collar	Slot	Pack	Carton
	UCX	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	d_c/(mm)	n. POZI	pcs.	pcs.
8710001	5x25	5	25	24	35	1	9	2	100	3.200
8710002	5x36	5	36	30	40	5	9	2	100	3.200
8710003	5x45	5	45	30	40	15	9	2	100	3.200
8710004	6x35	6	35	30	40	5	10	2	100	3.200
8710005	6x45	6	45	30	40	15	10	2	100	3.200
8710006	6x55	6	55	30	40	25	10	2	100	2.400
8710007	6x70	6	70	30	40	40	10	2	100	2.400
8710008	8x45	8	45	40	55	5	11	3	100	2.400
8710009	8x60	8	60	40	55	12	11	3	50	1.600
8710010	8x75	8	75	40	55	30	11	3	50	1.600
8710011	8x100	8	100	40	55	60	11	3	50	1.200
8710012	8x120	8	120	40	55	80	11	3	50	1.200
8710013	8x135	8	135	40	55	95	11	3	50	1.200

UCX TS/V

With countersunk collar

Countersunk head plug in polyamide 6 (nylon 6), assembled with zinc-plated screw, slot PZ.



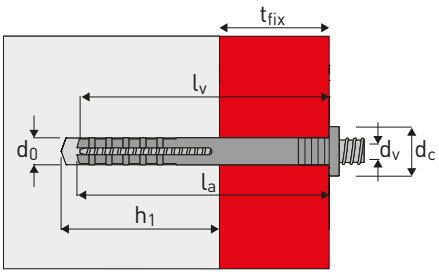
Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Max Fixable Thick	Ø Collar	Slot	Pack	Carton
	UCX TS	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	t_{fix}/(mm)	d_c/(mm)	n. POZI	pcs.	pcs.
8710500	4x35*	4	35	25	35	10	9	2	100	9.600
8710501	5x25	5	25	24	35	1	9	2	100	3.200
8710502	5x30	5	30	25	35	5	9	2	100	3.200
8710503	5x45	5	45	30	40	15	9	2	100	3.200
8710504	6x35	6	35	30	40	5	10	2	100	3.200
8710505	6x45	6	45	30	40	15	10	2	100	3.200
8710506	6x55	6	55	30	40	25	10	2	100	2.400
8710507	6x70	6	70	30	40	40	10	2	100	2.400
8710508	8x45	8	45	40	55	5	11	3	100	2.400
8710509	8x60	8	60	40	55	12	11	3	50	1.600
8710510	8x75	8	75	40	55	30	11	3	50	1.600
8710511	8x100	8	100	40	55	60	11	3	50	1.200
8710512	8x120	8	120	40	55	80	11	3	50	1.200
8710513	8x135	8	135	40	55	95	11	3	50	1.200

*Version not pre-assembled - bronze screw

UCX/VM

With cylindrical collar plug and metric screw

Plug with cylindrical collar, pre-assembled with zinc-plated screw, metric head, slot PH.



Code	Type	Drilling ∅	Plug length	Install. Depth	Drilling Depth	∅ Collar	Thread Screw	Pack	Carton
	UCX VM	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c/(mm)	Mxl/mm	pcs.	pcs.
8710014	M6/6x35	6	35	35	45	10	M6x10	100	3.200
8710017	M7/6x35	6	35	35	45	10	M7x10	100	3.200

HCX

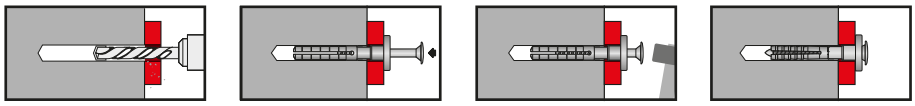
Hammer in anchor ideal to fix in light carpentry, general coverings, raceways, signalization, guides and profiles.

TECHNICAL DATA

Plug material:	polyamide 6, neutral color
Screw material:	carbon steel, treated with zinc plating Cr^{3+}, thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Plug in polyamide 6 pre-assembled with special screws and available with different collars and diameters.
- Available in neutral color with zinc-plated screw for light applications or with copper screw and brown galvanized screw for fixing general covering, raceways, signalizing, guides and profiles.

BENEFITS

- Quick installation by hammering.
- Drilling through the object to fix.

LIGHT-DUTY FIXINGS

RECOMMENDED LOADS

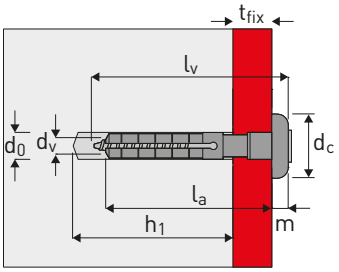
DESCRIPTION		HCX 6
Drill diameter	d_0/(mm)	6
Installation depth	h_{nom}/(mm)	30
Concrete C20/25	daN	20
Solid brick	daN	16

Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg

HCX TB/V

Rounded head screw

Rounded head plug in polyamide 6 (nylon 6), completed with zinc-plated screw, slot PH. Neutral color.

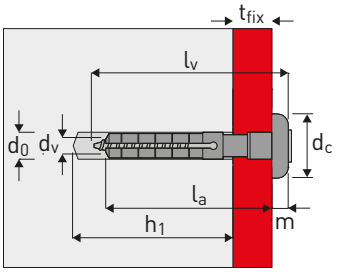


Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Head Dim.	Max Fixable Thick	Slot	Pack	Carton
	HCX TB V	d_0/(mm)	l/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c • m/ (mm)	t_{fix}/(mm)	no. PH	pcs.	pcs.
8709001	6x35	6	36	25	35	Ø14x3	8	2	100	3.200
8709002	6x45	6	46	27	35	Ø14x3	15	2	100	2.400
8709003	6x60	6	62	27	35	Ø14x3	30	2	100	2.400
8709004	6x70	6	72	27	35	Ø14x3	35	2	50	1.200

HCX TB/VZN

Rounded head screw

Rounded head plug in polyamide, completed with zinc plated black screw, slot PH. Brown color.

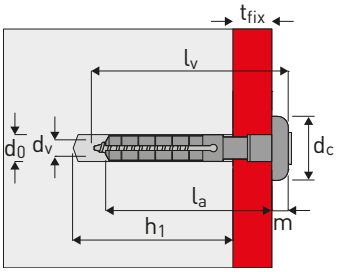


Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Head Dim.	Max Fixable Thick	Slot	Pack	Carton
	HCX VZN	d_0/(mm)	l_s/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c • m/ (mm)	t_{fix}/(mm)	n. PH	pcs.	pcs.
8709306	6x35	6	35	25	35	Ø13x3	8	2	100	3.200
8709307	6x45	6	45	27	35	Ø13x3	15	2	100	3.200

HCX TB/VR

Rounded head screw

Rounded head plug in polyamide, completed with zinc-plated black screw, slot PH. Copper color.

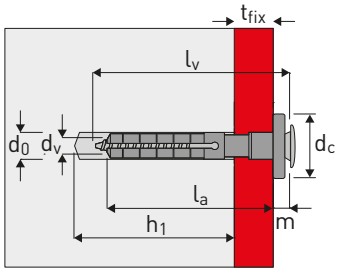


Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Head Dim.	Max Fixable Thick	Slot	Pack	Carton
	HCX TB VR	d_0/(mm)	l_s/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c • m/ (mm)	t_{fix}/(mm)	n. PH	pcs.	pcs.
8709301	6x35	6	36	25	35	Ø14x3	8	2	100	3.200
8709302	6x45	6	46	27	35	Ø14x3	15	2	100	2.400

HCX TPL/V

Flat large head

Cylindrical large head plug in polyamide 6 (nylon 6), completed with zinc-plated screw, slot PH. Neutral color.

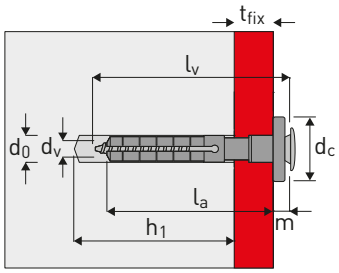


Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Head Dim.	Max Fixable Thick	Slot	Pack	Carton
	HCX TPLV	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c • m/ (mm)	t_{fix}/(mm)	n. PH	pcs.	pcs.
8709201	6x35	6	36	25	35	Ø14x3	8	2	100	3.200
8709202	6x45	6	46	27	35	Ø14x3	15	2	100	2.400
8709203	6x60	6	62	27	35	Ø14x3	30	2	100	2.400
8709204	6x70	6	72	27	35	Ø14x3	35	2	50	1.200

HCX TPS/V

Flat head

Cylindrical small head plug in polyamide 6 (nylon 6), completed with zinc-plated screw, slot PH. Neutral color.



Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Head Dim.	Max Fixable Thick	Slot	Pack	Carton
	HCX TPSV	d_0/(mm)	l/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c • m/ (mm)	t_{fix}/(mm)	n. PH	pcs.	pcs.
8709101	6x35	6	36	24	35	Ø9x2	8	2	100	3.200
8709102	6x45	6	46	27	35	Ø9x2	15	2	100	2.400
8709103	6x60	6	62	27	35	Ø9x2	30	2	100	2.400
8709104	6x70	6	72	27	35	Ø9x2	35	2	50	1.200

ETCD

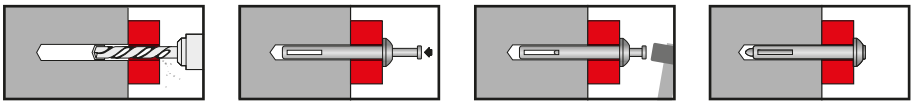
Light-duty metal anchor with displacement controlled expansion sleeve, for the fixing through the fixtures such as small frames, plates or angles, studs.

TECHNICAL DATA

Plug material:	zinc-aluminum alloy (zamak)
Nail material:	zinc plating steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Body in zinc-aluminum alloy (zamak) and pre-assembled zinc-plated steel nail galvanized.
- Rounded wide head.

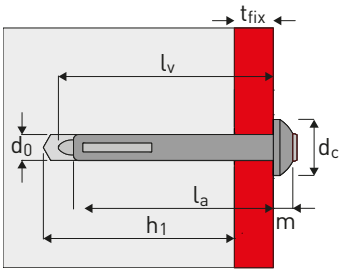
BENEFITS

- Good resistance to corrosion.
- Perfect anchoring of the object to fix thanks to the increased diameter of the cap.

RECOMMENDED LOADS

DESCRIPTION		ETCD 6
Drill diameter	d_0/(mm)	6
Installation depth	h_{nom}/(mm)	22
Concrete C20/25	daN	24
Solid brick	daN	21

Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg



Code	Type	Drilling ∅	Plug length	Install. Depth	Drilling Depth	∅ Collar	Max Fixable Thick	Pack	Carton
	ETCD	d_0/(mm)	l/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c/(mm)	t_{fix}/(mm)	pcs.	pcs.
704004	6x30	6	30	22	30	14	5	100	1.000
704005	6x40	6	40	22	30	14	15	100	1.000
704006	6x50	6	50	22	30	14	20	100	1.000
704007	6x65	6	65	22	30	14	35	100	1.000

ETFP

Countersunk flat head screw

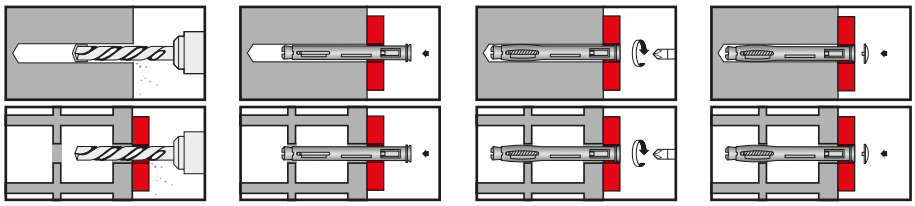
Through light-duty fixing for aluminum, wood and metal windows and door frames, suitable for concrete, natural stone, solid brick, semi hollow brick.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035
Screw material:	carbon steel, treated with zinc plating Cr^{3+} thickness ≥5µm
Installation temperature:	0°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

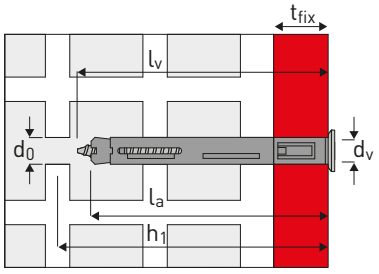
- Independent expansion due to the return of the cone during the tightening of the screw.
- Anti-rotation side fins.
- Fixing of the profile through the expansion of the locking wing.
- Possibility of absorbing expansions and strains of the frames.
- No electrolytic corrosion in metallic fixtures.
- White cover cap included in the package.

LIGHT-DUTY FIXINGS

RECOMMENDED LOADS

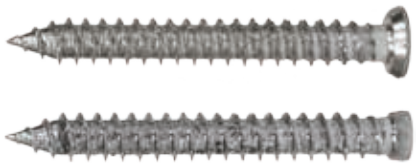
DESCRIPTION		ETFP 8	ETFP 10
Drill diameter	d_0/(mm)	8	10
Anchorage depth	h_{ef}/(mm)	50	60
Concrete C20/25	daN	60	112
Solid brick	daN	60	108
Perforated brick	daN	20	26

Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 ≅ 250 kg/cm^2 • 1 daN ≅ 1 kg



Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETFP	d_0/(mm)	l_s/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8707001	8x75	8	75	65	25	5,0x85	50	600
8707002	8x100	8	100	65	50	5,0x105	50	600
8707003	8x120	8	120	65	70	5,0x125	50	600
8707004	8x140	8	140	65	90	5,0x145	50	400
8707006	10x75	10	75	75	15	6,0x85	50	400
8707007	10x100	10	100	75	40	6,0x105	50	400
8707008	10x120	10	120	75	60	6,0x125	50	400
8707009	10x140	10	140	75	80	6,0x145	50	400
8707010	10x160	10	160	75	100	6,0x165	50	400

SCREWS FOR DOORS AND WINDOWS FRAMES



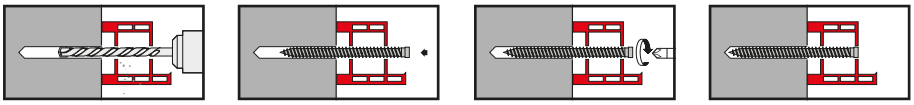
Direct fixing through self-tapping screws for door and windows frames. The complete thread of the screw ensures stability and security in all the applications.

TECHNICAL DATA

Screw material: hardened galvanized steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

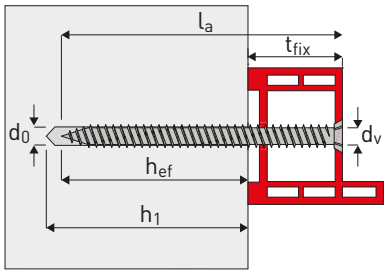
- They can be directly applied without anchor in any type of compact support.
- Given the absence of tensions during fixing, do not show any breakage of the support material.
- The resistance is always optimal also in presence of low consistency materials.
- The version with countersunk head screw can be used to fix the aluminum, PVC and steel windows and doors frames.
- The version with cylindrical head screw is suitable for the anchoring of wooden profiles and frames.

SETTING METHOD:

Description		Concrete C20/25	Solid brick	Hollow block	Perforated brick
∅ Drill	d_0/(mm)	6	6	6	6
Drill depth	h_1/(mm)	40	55	60	70
Installation depth	h_{nom}/(mm)	30	45	50	60
Tightening torque	Nm	20	15	15	10
Fixable thickness	t_{fix}/(mm)	= (screw length) - (installation depth)			

VSS

Countersunk head screw for frames

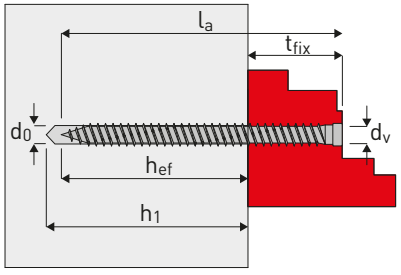


Code	Type	∅ Drill	Drilling Depth	Min. Depth Anchor	Max Fixable Thick	Screw dim.	Slot	Pack	Carton
	VSS	d_0/(mm)	h_1/(mm)	h_{ef}/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)		pcs.	pcs.
8771010	7,5x60	6	40	30*	30*	7,5x60	T30	100	600
8771011	7,5x70	6	40	30*	40*	7,5x70	T30	100	600
8771012	7,5x80	6	40	30*	50*	7,5x80	T30	100	600
8771013	7,5x90	6	40	30*	60*	7,5x90	T30	100	600
8771014	7,5x100	6	40	30*	70*	7,5x100	T30	100	600
8771015	7,5x120	6	40	30*	90*	7,5x120	T30	100	600
8771016	7,5x150	6	40	30*	120*	7,5x150	T30	100	600
8771017	7,5x180	6	40	30*	150*	7,5x180	T30	100	600

*Reference value for concrete

VSC

Cylindrical head screw for frames



Code	Type	∅ Drill	Drilling Depth	Min. Depth Anchor	Max Fixable Thick	Screw dim.	Slot	Pack	Carton
	VSC	d_0/(mm)	h_1/(mm)	h_{ef}/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)		pcs.	pcs.
8771020	7,5x60	6	40	30*	30*	7,5x60	T25	100	600
8771021	7,5x70	6	40	30*	40*	7,5x70	T25	100	600
8771022	7,5x80	6	40	30*	50*	7,5x80	T25	100	600
8771023	7,5x90	6	40	30*	60*	7,5x90	T25	100	600
8771024	7,5x100	6	40	30*	70*	7,5x100	T25	100	600
8771025	7,5x120	6	40	30*	90*	7,5x120	T25	100	600
8771026	7,5x150	6	40	30*	120*	7,5x150	T25	100	600
8771027	7,5x180	6	40	30*	150*	7,5x180	T25	100	600

*Reference value for concrete

MEDIUM HEAVY DUTY ANCHORS/ CHEMICALS

DYNABOLT PLUS

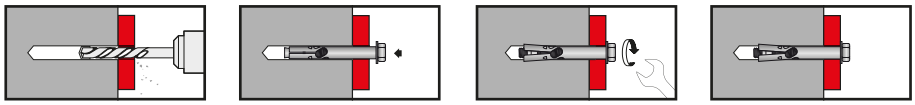
Anchor for medium-heavy duty fixings in concrete, full bricks and semi-hollow bricks, and natural stone.
Ideal for securing plumbing fixings, brackets, medium-heavy carpentry steel, ducts, guides, carpentry and signage.

TECHNICAL DATA

Raw material: treated steel with electrolytic zinc plating

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Deformable structure of the body for a perfect adherence of the object to be fixed to the base material.
- Pre-assembled anchor.
- Available with many kind of accessories for different applications.

BENEFITS

- Speed of installation: it is not necessary to mark and reposition the object.
- Perfect blocking of the object to be fixed.

RECOMMENDED TENSION LOADS

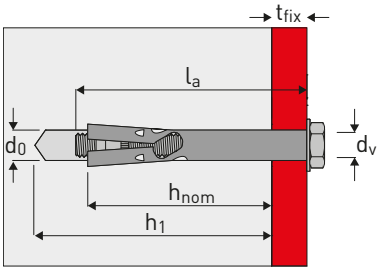
DESCRIPTION		DP 08	DP 10	DP 12	DP 16
Drill diameter	d_0/(mm)	8	10	12	16
Embedment depth	h_{ef}/(mm)	30	34	44	46
Concrete C20/25	kN	1,5	2,3	4	4,7

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

DYNABOLT PLUS/B

With hexagonal head screw cl 8.8

Anchor complete with hexagonal head galvanized screw class 8.8 and special washer with increased width.

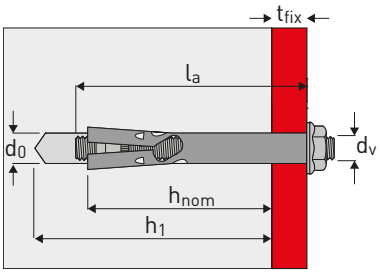


Code	Type	Anchor Depth	Max Fixable Thick	Drilling Depth	Drilling Ø	Tightening	Screw dim.	Pack	Carton
	DYNABOLT/B	h_{nom}/(mm)	t_{fix} max/ (mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
050489	8x45	26	8	45	8	9	M6x45	100	800
050491	8x70	30	30	45	8	9	M6x70	50	400
050492	8x95	30	56	45	8	9	M6x95	50	400
050493	10x55	28	8	50	10	20	M8x55	50	400
050494	10x80	34	35	50	10	20	M8x80	50	400
050495	10x105	34	62	50	10	20	M8x105	25	200
050496	12x75	44	18	65	12	40	M10x75	25	200
050497	12x105	44	46	65	12	40	M10x105	20	160

DYNABOLT PLUS/D

With threaded bar

Anchor with threaded bar cl. 5.8 galvanized steel, complete with nut and washer.

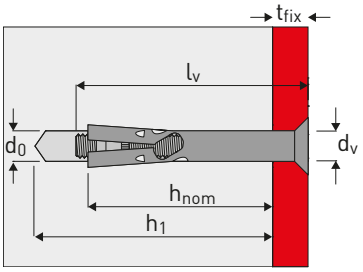


Code	Type	Anchor Depth	Max Fixable Thick	Drilling Depth	Drilling Ø	Tightening	Screw dim.	Pack	Carton
	DYNABOLT/D	h_{nom}/(mm)	t_{fix} max/ (mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
565252	8x45	40	4	50	8	6	M6x57	100	800
565253	8x65	40	24	50	8	6	M6x73	100	400
565255	10x50	45	5	55	10	15	M8x60	50	400
565256	10x70	45	25	55	10	15	M8x80	50	300
565257	10x100	45	45	55	10	15	M8x102	50	200
565258	10x130	45	75	55	10	15	M8x130	25	100
565260	12x80	55	25	60	12	30	M10x95	50	200
565261	12x100	55	45	60	12	30	M10x110	50	100
565262	12x120	55	65	60	12	30	M10x130	50	100
565265	16x140	65	83	70	16	70	M12x140	25	100

DYNABOLT PLUS/E

With countersunk head screw cl 10.9

Anchor complete with countersunk head screw, hexagonal, galvanized class 10.9.



Code	Type	Anchor Depth	Max Fixable Thick	Drilling Depth	Drilling Ø	Tightening	Screw dim.	Pack	Carton
	DYNABOLT/E	h_{nom}/(mm)	t_{fix} max/ (mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8723091	8x45	40	10	40	8	10	M6x50	100	800
8723092	8x65	40	25	45	8	10	M6x70	100	800
8723093	10x50	45	10	45	10	25	M8x60	50	400
8723094	10x70	45	25	50	10	25	M8x80	50	400
8723096	12x80	55	25	60	12	40	M10x80	50	400

T21

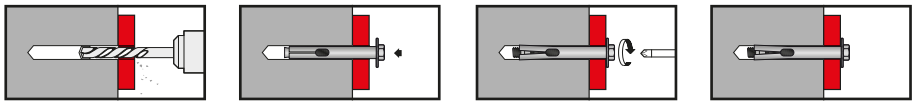
Galvanized steel anchor, with hexagonal head screw.
Anchor to fix in concrete, full and semi-hollow bricks, natural stone.
T21 is ideal for quick and through-fixings.

TECHNICAL DATA

Raw material: zinc plating steel and hexagonal head screw cl 8.8

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Body in zinc plated steel.
- Washer with big diameter.

BENEFITS

- Ideal for fast and through-fixings.
- Perfect adhesion of the support material to the object to be fixed.

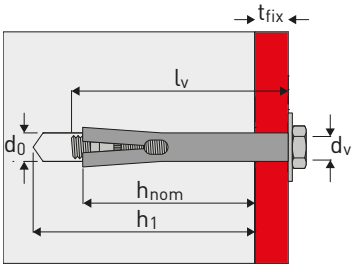
RECOMMENDED TENSION LOADS

DESCRIPTION		T21 08	T21 10	T21 12	T21 14	T21 16
Drill diameter	d_0/(mm)	8	10	12	14	16
Embedment depth	h_{ef}/(mm)	30	35	40	40	42
Concrete C20/25	kN	1,64	2,34	2,6	3	4,34

Refer to the technical data and, where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

T21

With hexagonal head screw cl 8.8



Code	Type	Anchor Depth	Max Fixable Thick	Drilling Depth	Drilling Ø	Screw dim.	Pack	Carton
	T21	h_{ef}/(mm)	t_{fix} max/(mm)	h_1/(mm)	d_0/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8723050	8x45	30	5	40	8	M6x45	100	800
8723051	8x60	30	20	40	8	M6x60	100	400
8723052	8x70	30	30	40	8	M6x80	100	400
8723053	8x95	30	55	40	8	M6x95	100	400
8723063	8x120	30	80	40	8	M6x120	25	200
8723054	10x60	35	10	45	10	M8x60	50	400
8723056	10x80	35	30	45	10	M8x80	50	400
8723057	10x105	35	55	45	10	M8x105	25	200
8723064	10x120	35	70	45	10	M8x120	25	200
8723065	10x140	35	90	45	10	M8x140	25	200
8723058	12x70	40	10	50	12	M10x70	25	200
8723059	12x100	40	35	50	12	M10x100	25	200
8723066	12x120	40	55	50	12	M10x120	25	200
8723067	12x150	40	85	50	12	M10x150	20	80
8723068	14x70	40	15	50	14	M10x70	25	100
8723060	14x100	40	45	50	14	M10x100	25	100
8723069	14x120	40	65	50	14	M10x120	25	100
8723070	14x150	40	95	50	14	M10x150	25	100
8723061	16x80	42	20	52	16	M12x80	25	100
8723062	16x110	42	50	52	16	M12x110	20	80
8723071	16x130	42	70	52	16	M12x130	15	60
8723072	16x150	42	90	52	16	M12x150	15	60

EDC

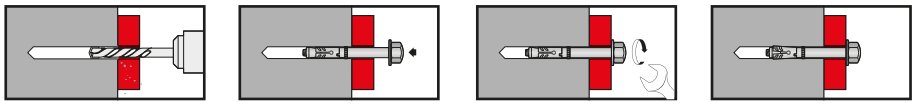
Through-anchor in depth to be used to combine speed of installation and aesthetic, thanks to his particular shape, with finishing nut and small drilling diameter.
Can be used to fix carpentry, brackets, support bases of protection elements, street furniture, signage light.

TECHNICAL DATA

Raw material: zinc plating steel

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Body in treated steel with zinc plated and white galvanization.
- Cold-pressed expansion clamp with loads distribution in depth and radial expansion in different directions.

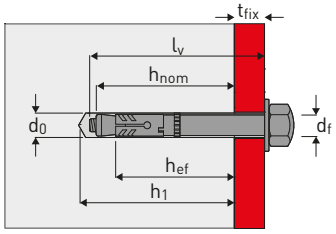
BENEFITS

- Speed of installation with no need to move the object to be fixed to drill the hole.
- Instantaneous setting and no rotation during the fixing thanks to the red antirotation ring.

RECOMMENDED TENSION LOADS

Description		EDC 8	EDC 10	EDC 12	EDC 14	EDC 16
Drill diameter	d_0/(mm)	8	10	12	14	16
Embedment depth	h_{ef}/(mm)	46	55	65	74	84
Concrete C20/25	kN	1,6	2,3	3	3,7	4,1

Refer to the technical data and, where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg



Code	Type	Anchor Depth	Max Fixable Thick	Drilling Depth	Drilling ∅	Tightening	Wrench	Pack	Carton
	EDC	h_{nom}/(mm)	t_{fix} max/ (mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	k/(mm)	pcs.	pcs.
8750001	8x70	50	15	70	8	10	13	50	50
8750002	8x85	50	30	70	8	10	13	50	50
8750003	10x85	60	15	80	10	20	17	50	50
8750004	10x120	60	50	80	10	20	17	50	50
8750005	12x100	70	15	90	12	35	19	50	50
8750006	12x135	70	50	90	12	35	19	50	50
8750007	14x115	80	20	100	14	50	22	25	25
8750008	14x145	80	50	100	14	50	22	25	25
8750009	16x130	90	20	110	16	75	24	25	25
8750010	16x150	90	40	110	16	75	24	25	25

LE-LEX

Anchor for medium-heavy duty fixings in concrete, full bricks, stone and compact material. LE distributes the loads in 4 radial directions exploiting the maximum load bearings capacity of the support material.
Available with different accessories suitable for all needs, LE represents the ideal solution in term of versatility and economy in many situations of medium-heavy duty anchoring.

TECHNICAL DATA - LE VERSION

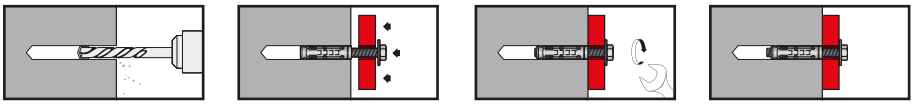
Raw material: electrolytic zinc plating steel (≥ 5µ)

TECHNICAL DATA - LEX VERSION

Raw material: steel INOX A2 - AISI 304

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Body in pressed zinc-chromium plated steel.
- Available in zinc-chromium plated version and stainless steel INOX A2.
- Complete range with accessories.

BENEFITS

- Expansion in 4 independent sectors.
- Special geometry of the cone.
- Anti-rotation fins.
- Anchoring profiles on the surface.

RECOMMENDED TENSION LOADS

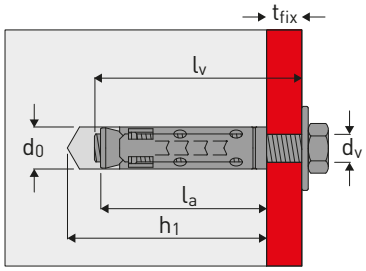
Description		LE 6	LE 8	LE 10	LE 12
Drill diameter	d_0/(mm)	10	12	15	18
Embedment depth	h_{ef}/(mm)	35	40	51	63
Screw diameter	d/(mm)	M6	M8	M10	M12
Concrete C20/25	kN	2,5	3	4,2	6,6
Break of the accessory*	kN	0,4	0,8	1,1	1,7

* Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

LE - LEX

Plug without screw

Pressed galvanized steel anchor **(LE)** or in steel INOX A2 - AISI 304 **(LEX).**

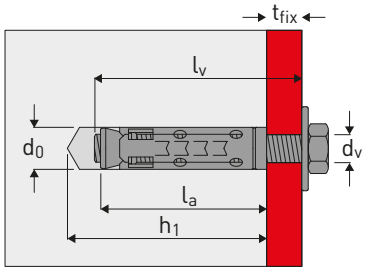


Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Screws	Min. Screw Length	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8717001	LE 6	10	45	55	M6	50	100	800
8717002	LE 8	12	50	60	M8	55	100	800
8717003	LE 10	15	60	75	M10	70	50	400
8717004	LE 12	18	74	90	M12	80	25	200
8717011	LEX 6	10	45	55	M6	50	100	800
8717012	LEX 8	12	50	60	M8	55	100	800
8717013	LEX 10	15	60	75	M10	70	50	400
8717014	LEX 12	18	74	90	M12	80	25	200

LE/B - LEX/B

With hexagonal head screw

Anchor complete with hexagonal head galvanized screw class 8.8 **(LE)** or in steel INOX A2.70 **(LEX).**

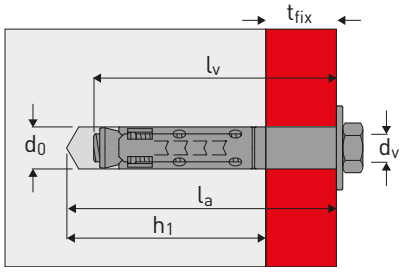


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8717101	LE/B 6	10	45	55	5	M6x55	10	50	400
8717102	LE/B 8	12	50	60	10	M8x60	25	50	400
8717103	LE/B 10	15	60	75	20	M10x80	45	25	200
8717104	LE/B 12	18	74	90	25	M12x90	75	20	160
8717021	LEX/B 6	10	45	55	5	M6x55	10	50	400
8717022	LEX/B 8	12	50	60	10	M8x60	25	50	400
8717023	LEX/B 10	15	60	75	20	M10x80	45	25	200
8717024	LEX/B 12	18	74	90	25	M12x90	75	20	160

LE/BP

With hexagonal head spacer

Anchor complete with spacer and hexagonal head zinc plated screw class 8.8.

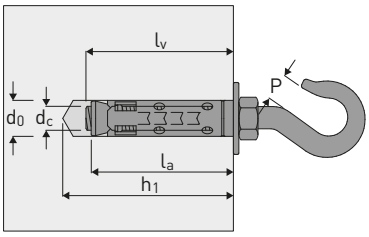


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8717106	LE/BP 6	10	70	80	25	M6x70	10	50	400
8717107	LE/BP 8	12	75	85	25	M8x80	25	25	200
8717108	LE/BP 10	15	85	100	25	M10x90	45	25	200
8717109	LE/BP 12	18	105	120	30	M12x110	75	20	80

LE/G

With hook

Anchor complete with galvanized pressed steel hook.

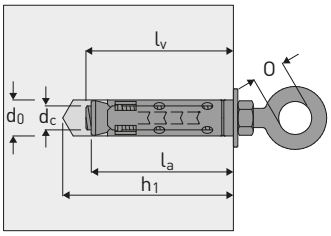


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	t_{inst}/(Nm)	pcs.	pcs.
8717301	LE/G 6	10	45	55	7,5	M6x55	5	50	400
8717302	LE/G 8	12	50	60	9,0	M8x60	12	25	200
8717303	LE/G 10	15	60	75	12,0	M10x80	20	15	120
8717304	LE/G 12	18	74	90	15,0	M12x90	35	10	80

LE/OC

With eye-hook

Anchor complete with pressed galvanized steel eye-hook.

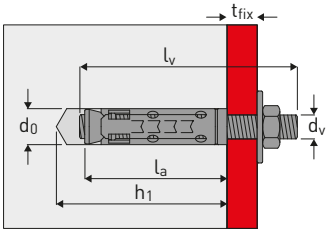


Code	Type	Drilling Ø	Plug length	Drilling Depth	Ø Eye-hook	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_v/(mm)	h_1/(mm)	O/(mm)	$d_v \cdot l_v$/(mm)	t_{inst}/(Nm)	pcs.	pcs.
8717401	LE/OC 6	10	45	55	Ø 10,0	M6x55	5	50	400
8717402	LE/OC 8	12	50	60	Ø 11,0	M8x60	12	25	200
8717403	LE/OC 10	15	60	75	Ø 14,5	M10x80	20	20	160
8717404	LE/OC 12	18	74	90	Ø 17,0	M12x90	35	10	80

LE/D

With threaded bar

Anchor with threaded bar cl. 5.8 galvanized steel, complete with nut and washer.

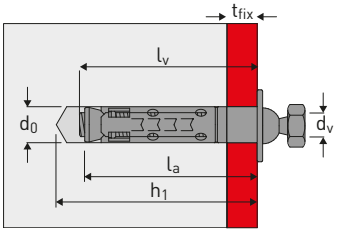


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Torque Tightening	Pack	Carton
		d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8717501	LE/D 6	10	45	55	5	M6x60	6	25	200
8717502	LE/D 8	12	50	60	10	M8x70	15	25	200
8717503	LE/D 10	15	60	75	20	M10x90	30	15	160
8717504	LE/D 12	18	74	90	25	M12x100	50	10	80

LE/R

With anti-intrusion screw

Anchor complete with anti-intrusion galvanized steel screw.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8717500	LE/R 8x50	12	50	60	10	M8x60	14	25	200
8717507	LE/R 8x75	12	75	85	20	M8x75	14	25	200

EFPM

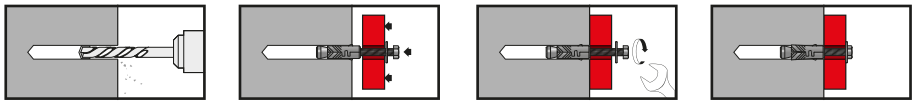
Anchor to fix carpentry, stirrups, profiles and guides in concrete, full bricks and stone, with many possibilities of installation thanks to the several available accessories.

TECHNICAL DATA

Raw material: electrolytic zinc plating steel (≥ 5µ)

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Anti-rotation fins,
- Protection device from dusts.
- Wide range of accessories: threaded bar, Hex. head screw T.E., forged hook and eye-hook.

BENEFITS

- Transmission to support materials of high loads in complete safety.
- Possibility of choice based on the type of application required and the needs of different accessories.

RECOMMENDED TENSION LOADS

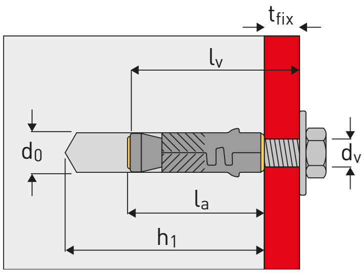
Description		EFPM 6	EFPM 8	EFPM 10	EFPM 12	EFPM 16
Drill diameter	d_0/(mm)	12	14	16	20	24
Embedment depth	h_{ef}/(mm)	40	44	57	65	73
Screw diameter	d/(mm)	M6	M8	M10	M12	M16
Concrete C20/25	kN	3,3	4,3	5,4	6,7	7,7
Break of the accessory*	kN	0,4	0,8	1,1	1,7	

* Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

EFPM

Plug without screw

Adaptable anchor to all kind of screws or accessories with threaded screw from M6 up to M12.

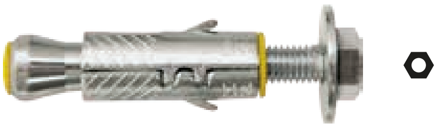


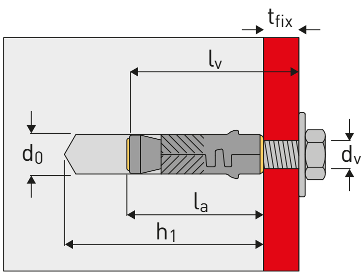
Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Screws	Min. Screw Length	Pack	Carton
	EFPM	d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8715000	6	12	45	55	M6	50	50	400
8715001	8	14	50	60	M8	55	50	400
8715002	10	16	65	75	M10	70	25	200
8715003	12	20	75	90	M12	80	25	200

EFPM/B

With hexagonal head screw cl 8.8

Anchor with hexagonal head screw class 8.8.



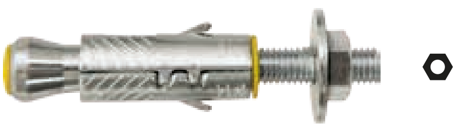


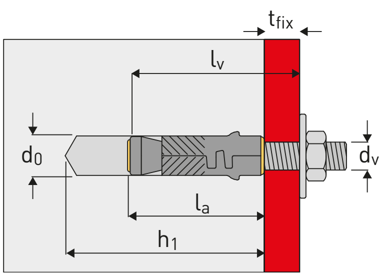
Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
	EFPM/B	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8715100	B 6	12	45	55	10	M6x55	10	50	400
8715101	B 8	14	50	60	10	M8x60	25	50	400
8715102	B 10	16	65	75	15	M10x80	45	25	200
8715103	B 12	20	75	90	20	M12x90	75	20	160
8715104	B 16	24	90	105	20	M16x100	120	10	80

EFPM/D

With threaded bar

Anchor with threaded bar cl. 5.8, galvanized nut and washer.



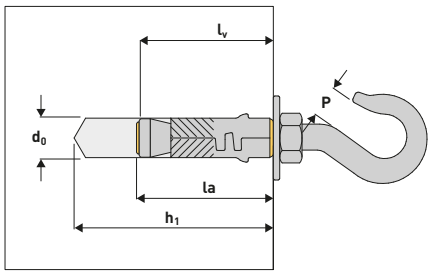


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
	EFPM/D	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8715400	D 6	12	45	55	10	M6x60	5	25	200
8715401	D 8	14	50	60	15	M8x70	15	25	200
8715402	D 10	16	65	75	15	M10x90	30	20	160
8715403	D 12	20	75	90	20	M12x100	50	10	80

EFPM/G

With hook

Anchor with galvanized hook.

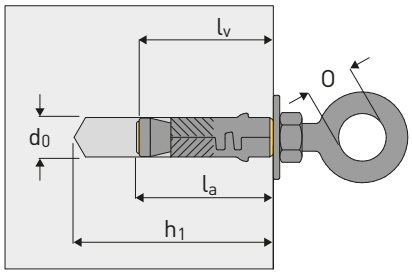


Code	Type	Drilling ∅	Plug length	Drilling Depth	Int. diameter Hook	Hook Dim.	Tightening	Pack	Carton
	EFPM/G	d_0/(mm)	l_a/(mm)	h_1/(mm)	P/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8715300	G 6	12	45	55	7,5	M6x55	5	50	400
8715301	G 8	14	50	60	9	M8x60	15	25	200
8715302	G 10	16	65	75	12	M10x80	25	15	120
8715303	G 12	20	75	90	15	M12x90	35	10	80

EFPM/OC

With eye-hook

Anchor with eye-hook.



Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Eye-hook	Eye-hook size	Tightening	Pack	Carton
	EFPM/OC	d_0/(mm)	l_a/(mm)	h_1/(mm)	O/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8715200	OC 6	12	45	55	∅ 10	M6x55	5	50	400
8715201	OC 8	14	50	60	∅ 11	M8x60	15	25	200
8715202	OC 10	16	65	75	∅ 14,5	M10x80	25	20	160
8715203	OC 12	20	75	90	∅ 17	M12x90	35	10	80

HPM

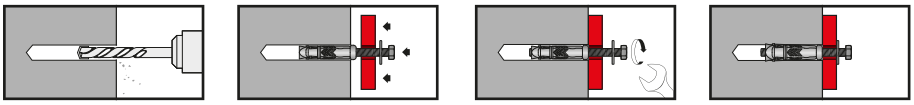
Heavy duty anchor to fix in medium/low compactness and density materials.
Suitable in: concrete, full bricks and natural stone.

TECHNICAL DATA

Raw material:	zinc-aluminium alloy treated with electrolytic galvanization

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Expansion in 4 independent sectors perfectly adaptable to the different situations and materials.
- Shaped plug body surface for maximum adhesion to the wall of the hole.
- Available in 5 different versions with several zinc plated accessories.

BENEFITS

- Safe anchoring even in not homogeneous materials, thanks to the high expansion capacity and to the strong frictions, developed by the surface of the expansion body.
- Resistance to corrosion, even on wet or saline materials thanks to the body in zinc-aluminium alloy.

RECOMMENDED TENSION LOADS

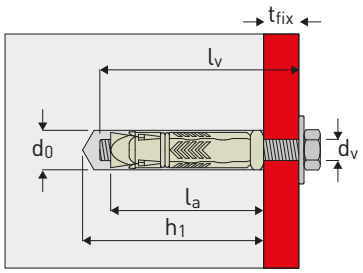
Description		HPM 6	HPM 8	HPM 10	HPM 12
Drill diameter	d_0/(mm)	12	14	16	20
Embedment depth	h_{ef}/(mm)	40	45	50	62
Screw diameter	d/(mm)	M6	M8	M10	M12
Concrete C20/25	kN	2,5	3,1	5	6
Break of the accessory*	kN	0,4	0,8	1,1	

*Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

HPM

Plug without screw

Only body, suitable for any kind of screws and accessories, threaded from M6 up to M12.

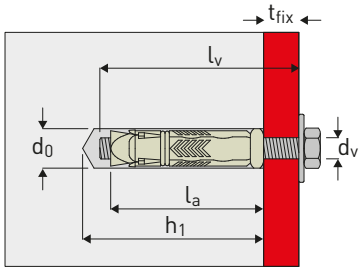


Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Screws	Min. Screw Length	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8713000	HPM 6	12	45	55	M6	50	50	400
8713001	HPM 8	14	52	60	M8	55	50	400
8713002	HPM 10	16	60	60	M10	65	25	200
8713003	HPM 12	20	72	80	M12	75	25	200

HPM/B

With hexagonal head screw cl 8.8

Anchor with hexagonal head screw class 8.8, galvanized.

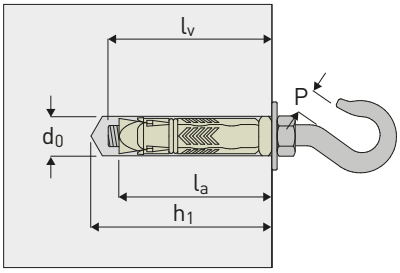


Code	Type	Drilling ∅	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8713010	HPM/B 6	12	45	55	10	M6x55	10	50	400
8713011	HPM/B 8	14	52	60	10	M8x60	25	50	400
8713012	HPM/B 10	16	60	60	15	M10x80	40	25	200
8713013	HPM/B 12	20	72	80	20	M12x90	70	20	160

HPM/G

With hook

Anchor with galvanized hook.

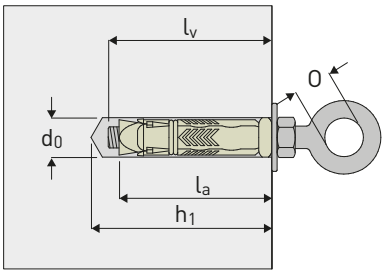


Code	Type	Drilling ∅	Plug length	Drilling Depth	Hook passage	Hook Dim.	Tightening	Pack	Carton
		d_o/(mm)	l_a/(mm)	h_1/(mm)	P/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8713030	HPM/G 6	12	45	55	7,5	M6x55	5	50	400
8713031	HPM/G 8	14	52	60	9	M8x60	10	25	200
8713032	HPM/G 10	16	60	60	12	M10x80	20	10	80

HPM/OC

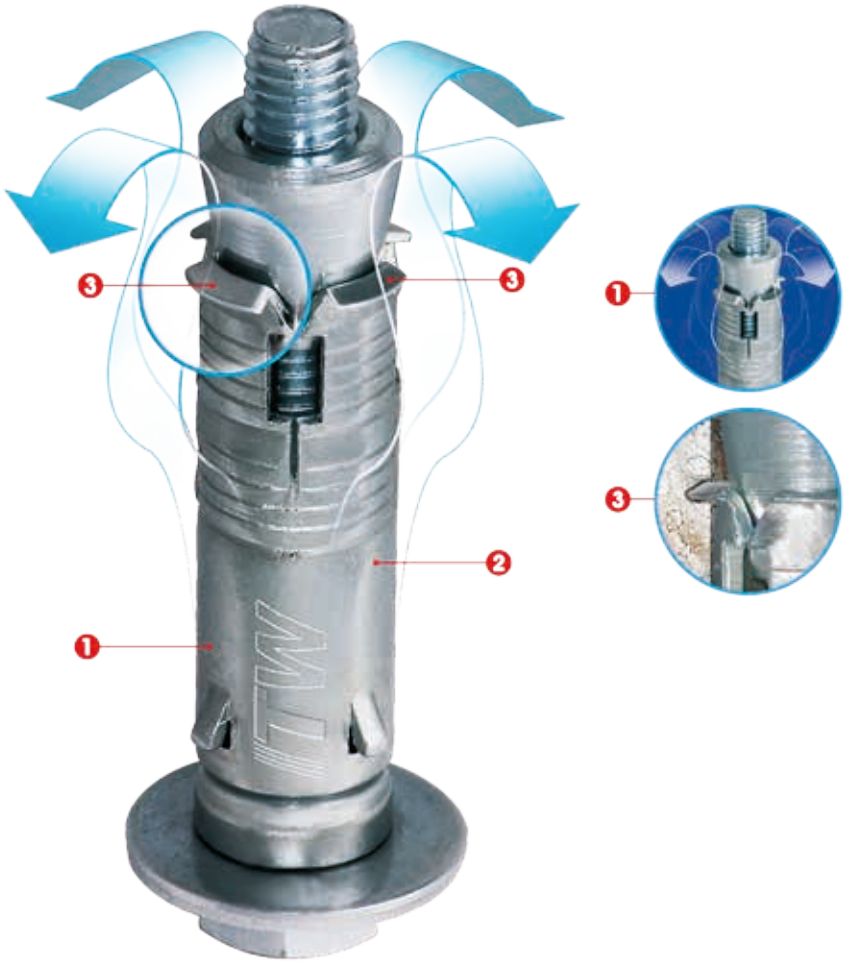
With eye-hook

Anchor with galvanized eye-hook.



Code	Type	Drilling ∅	Plug length	Drilling Depth	∅ Eye-hook	Eye-hook size	Tightening	Pack	Carton
		d_o/(mm)	l_a/(mm)	h_1/(mm)	O/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8713040	HPM/OC 6	12	45	55	∅ 10	M6x55	5	50	400
8713041	HPM/OC 8	14	52	60	∅ 11	M8x60	10	25	200
8713042	HPM/OC 10	16	60	60	∅ 14,5	M10x80	20	10	80

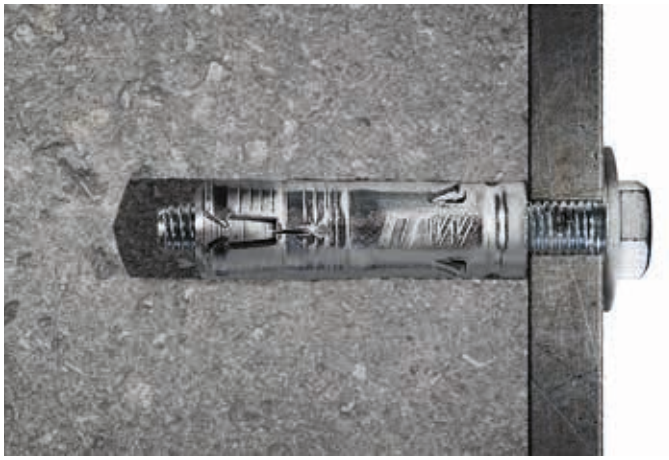
T101 PIOVRA



❶ **Body**: increased thickness of the body to resist to considerable stress load, with special internal clamp that grants more stability to the screw. Hexagonal head screw in high quality steel cl 8.8. big size cone, projected with a specific geometry to guarantee a balancing in the different expansion phases.

❷ **Galvanization**: the special Lanthane galvanization with Finigard finishing ensures an high resistance to white spots of oxidation and rust, and eliminate internal frictions.

❸ **Exclusive fins**: projected to grip into the hole, "excavating" the concrete. The obtained anchoring assures better performances of resistance compared to the traditional fixings.



T101 PIOVRA

Heavy duty anchor for concrete, reinforced concrete and stone with high resistance to compression. Particularly suitable to fix industrial shelving, external balustrades, gates and railings, safety barriers. Supplied with cup to protect from dust.

CHARACTERISTICS

- Exclusive "fins" of anchoring.
- Increased thickness of the body.
- Special galvanization.

BENEFITS

- Anchoring with many possibilities of installation thanks to the different available accessories.
- Very high resistance to load.

TECHNICAL DATA

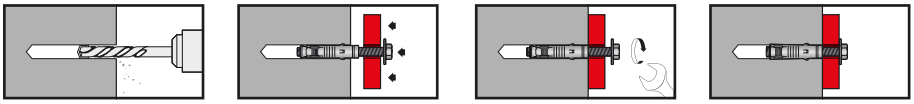
Raw material: electrolytic zinc plating steel, lanthane and finigard top-coat galvanization

CERTIFICATIONS

ETA CE
1020-CPD-090-026816
ETA-11/0423
according to ETAG 001
option 7

BUILDING MATERIALS

INSTALLATION METHOD



RECOMMENDED TENSION LOADS

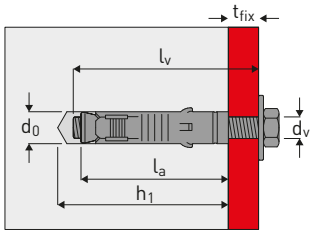
Description		PIOVRA 6	PIOVRA 8	PIOVRA 10	PIOVRA 12
Drill diameter	d_0/(mm)	12	14	16	20
Embedment depth	h_{ef}/(mm)	41	46	56	64
Screw diameter	d/(mm)	M6	M8	M10	M12
Concrete C20/25	kN	5,4	6,6	10,2	14,3
Break of the accessory*	kN	0,3	0,7	1,1	1,7

*Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

T101 PIOVRA

Plug without screw

Adaptable anchor to all kind of screws or accessories with threaded screw M6 - M12.

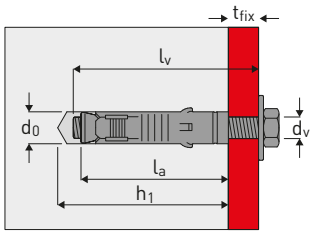


Code	Type	Drilling Ø	Plug length	Drilling Depth	Ø Screws	Min. Screw Length	Pack	Carton
	PIOVRA	d_0/(mm)	l_v/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8716000	6	12	48	60	M6	55	50	400
8716001	8	14	55	65	M8	60	50	400
8716002	10	16	65	75	M10	70	25	200
8716003	12	20	77	85	M12	85	25	200

T101 PIOVRA/B

With hexagonal head screw

Anchor with hexagonal head screw cl. 8.8, galvanized.

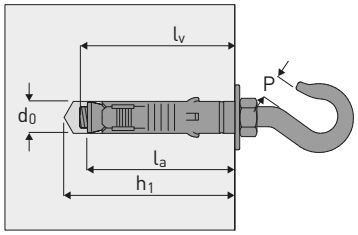


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Tightening torque	Pack	Carton
	PIOVRA/B	d_0/(mm)	l_v/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8716010	B 6	12	48	60	10	M6x60	10	50	400
8716011	B 8	14	55	65	15	M8x65	23	50	400
8716012	B 10	16	65	75	15	M10x80	40	25	200
8716013	B 12	20	77	85	20	M12x90	65	20	160

T101 PIOVRA/G

With hook

Anchor with galvanized hook.

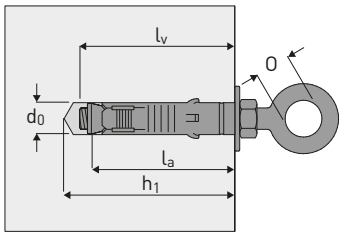


Code	Type	Drilling Ø	Plug length	Drilling Depth	Hook passage	Hook Dim.	Tightening torque	Pack	Carton
	PIOVRA/G	d_0/(mm)	l_v/(mm)	h_1/(mm)	P/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8716020	G 6	12	48	60	7,5	M6x55	10	50	400
8716021	G 8	14	55	65	9	M8x60	23	25	200
8716022	G 10	16	65	75	12	M10x80	40	15	120
8716023	G 12	20	77	85	15	M12x90	65	10	80

T101 PIOVRA/OC

With closed eye hook

Anchor with eye-hook.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Ø Eye-hook	Dim. Eye-hook	Tightening torque	Pack	Carton
	PIOVRA/OC	d_0/(mm)	l_v/(mm)	h_1/(mm)	O/(mm)	$d_v \cdot l_v$/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8716030	OC 6	12	48	60	Ø 10,0	M6x55	10	50	400
8716031	OC 8	14	55	65	Ø 11,0	M8x60	23	25	200
8716032	OC 10	16	65	75	Ø 14,5	M10x80	40	15	120
8716033	OC 12	20	77	85	Ø 17,0	M12x90	65	10	80

ETHD + TOOL

Tool for ETHD

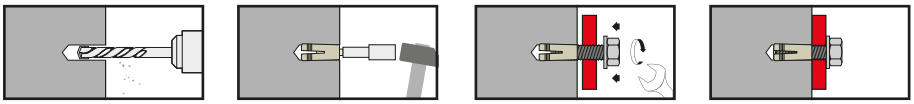
Heavy duty anchor for non-through applications with percussion expansion, independent from the screw tightening. To be used with threaded screws and accessories in construction, in the fire-fighting systems, carpentry and fixing of pipes and ducts.

TECHNICAL DATA

Raw material: treated steel with electrolytic zinc plating

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Expanding cylinder divided in 4 sectors.
- Expander cone with special geometry.
- Controlled expansion for hammering with the appropriate tool.

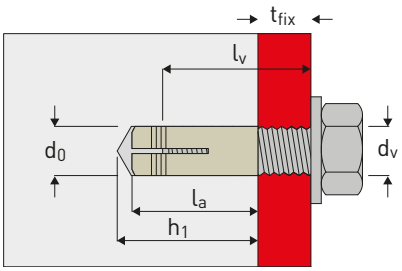
BENEFITS

- Speed of installation with immediate control.
- Low installation depth in order to avoid the reinforcements.
- Possibility to remove the fixing at any time keeping the expanded anchor in the material.

RECOMMENDED TENSION LOADS

DESCRIPTION		ETHD 6	ETHD 8	ETHD 10	ETHD 12	ETHD 16
Drill diameter	d_0/(mm)	8	10	12	15	20
Embedment depth	h_{ef}/(mm)	32	32	42	53	70
Concrete C20/25	kN	2,7	3,4	5	6,8	11,8

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg



Code	Type	Tool code	Drilling Ø	Plug length	Drilling Depth	Screw Ø	Min. Screw Length	Pack	Carton
			d_0/(mm)	l_a/(mm)	h_1/(mm)	d_v/(mm)	l_v/(mm)	pcs.	pcs.
8724001	ETHD 6	8724801	8	30	32	M6	13	200	2.400
8724002	ETHD 8	8724802	10	30	32	M8	13	100	1.200
8724003	ETHD 10	8724803	12	40	42	M10	15	100	800
8724004	ETHD 12	8724804	15	50	53	M12	18	50	400
8724005	ETHD 16	8724805	20	65	70	M16	28	50	200

ETD Z

Heavy duty through-anchor used for structural fixings in cracked and non-cracked concrete.

TECHNICAL DATA

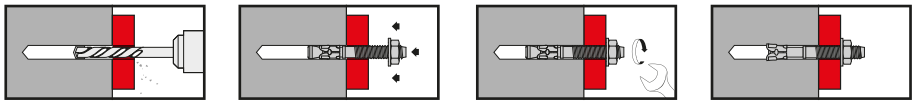
Raw material: zinc plating steel (body)
steel Inox A4 (expansion clamp)

CERTIFICATIONS

ETA CE
0679-CPD-0005
ETA-02/0045
according to ETAG 001
option 1

BUILDING MATERIALS

INSTALLATION METHOD



APPLICATIONS

- Structural anchoring in cracked and non-cracked concrete.
- Anchoring of heavy duty carpentries, structures, guides, support brackets with structural walls and beams.

BENEFITS

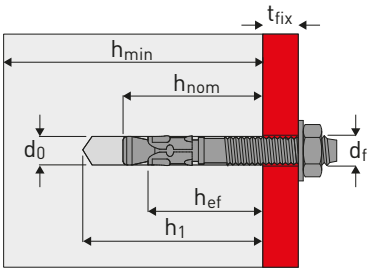
- Maximum resistance in both areas compressed and stretched.
- Special treatment of the expanding clamp surface to ensure a perfect slide on the cone and immediate expansion.
- Instantaneous setting in concrete with few turns of wrench with no rotation.
- Distances among anchors and edges of the support are reduced.

RECOMMENDED TENSION LOADS

DESCRIPTION		ETD Z M8	ETD Z M10	ETD Z M12	ETD Z M16
Drill diameter	d_0/(mm)	8	10	12	16
Embedment depth	h_{ef}/(mm)	46	58	68	82
Concrete C20/25	kN	3,3	3,9	5,7	13,7
Cracked concrete C20/25	kN	3	4,3	6,7	9,4

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

ETD Z



Code	Type	Drilling Ø	Drilling Depth	Ø Drill on the object	Anchor Depth	Depth Nominal Installation	Max Fixable Thick	Min thickness. Support	Tightening	Pack	Carton
	ETD Z	d_0/(mm)	h_1/(mm)	d_f/(mm)	h_{ef}/(mm)	h_{nom}/(mm)	t_{fix} max/(mm)	h_{min}/(mm)	T_{inst}/(Nm)	pcs.	pcs.
050565	8x70/9	8	65	9	46	55	9	100	20	100	800
050566	8x90/29	8	65	9	46	55	29	100	20	50	600
050567	8x110/49	8	65	9	46	55	49	100	20	50	400
050569	10x95/19	10	80	12	58	68	19	120	35	50	400
050571	10x140/64	10	80	12	58	68	64	120	35	25	200
050572	12x100/8	12	95	14	68	80	8	140	50	25	200
050573	12x115/23	12	95	14	68	80	23	140	50	25	200
050574	12x140/48	12	95	14	68	80	48	140	50	25	200
050577	16x135/22	16	115	18	82	97	22	160	100	20	120
050578	16x170/57	16	115	18	82	97	57	160	100	20	120
050579	16x210/97	16	115	18	82	97	97	160	100	10	40

ETD Z A4

Heavy duty through-anchor used for structural fixings in cracked and non-cracked concrete, ideal for outdoor and corrosive environments.

TECHNICAL DATA

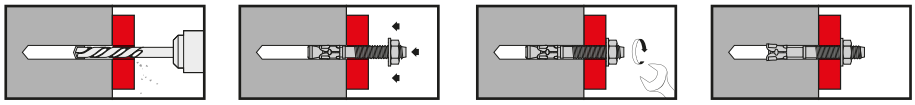
Raw material: steel INOX A4 - AISI 316

CERTIFICATIONS

ETA CE
0679-CPD-0007
ETA-09/0131
according to ETAG 001
option 1

BUILDING MATERIALS

INSTALLATION METHOD



APPLICATIONS

- Structural anchoring in cracked and non-cracked concrete in outdoor and corrosive environments.
- Anchoring of heavy duty carpentries, structures, guides, structural support brackets.

BENEFITS

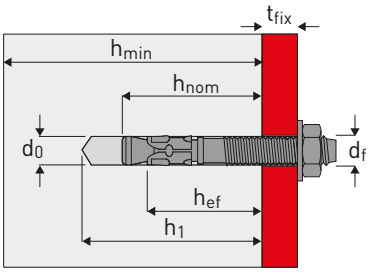
- INOX A4 steel allows outdoor applications and in corrosive environments
- Maximum resistance in both areas compressed and stretched.
- Special treatment of the expanding clamp surface to ensure a perfect slide on the expanding cone and immediate expansion.
- Instantaneous setting in concrete with few turns of wrench with no rotation.
- Distances among anchors and edges of the support are reduced.

RECOMMENDED TENSION LOADS

DESCRIPTION		ETD Z A4 M8	ETD Z A4 M10	ETD Z A4 M12	ETD Z A4 M16
Drill diameter	d_0/(mm)	8	10	12	16
Embedment depth	h_{ef}/(mm)	35	42	50	64
Concrete C20/25	kN	3,8	4,7	6,5	11,5
Cracked concrete C20/25	kN	3,6	4,3	6,8	11,8

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

ETD Z A4



Code	Type	Drilling ∅	∅ Drill on the object	Anchor Depth	Depth Nominal Installation	Max Fixable Thick	Min thickness. support	Drilling Depth	Tightening	Pack	Carton
	ETD Z A4	d_0/(mm)	d_f/(mm)	h_{ef} min/(mm)	h_{nom} min/(mm)	t_{fix} max/(mm)	h_{min}/(mm)	h_1/(mm)	T_{inst}/(Nm)	pcs.	pcs.
050542	A4 8x55/5	68	9	35	42	5	100	52	20	100	800
050543	A4 8x70/20-7	68	9	35	42	20	100	52	20	100	800
050544	A4 8x90/40-27	68	9	35	42	40	100	52	20	100	600
050546	A4 10x75/15	10	12	42	50	15	100	62	35	50	400
050547	A4 10x95/35-20	10	12	42	50	35	100	62	35	50	400
050551	A4 12x80/5	12	14	50	60	5	100	75	50	25	200
050552	A4 12x100/25-6	12	14	50	60	25	100	75	50	25	200
050553	A4 12x140/65-46	12	14	50	60	65	100	75	50	25	200
050555	A4 16x125/30-8	16	18	64	78	30	128	95	100	20	120
050556	A4 16x170/75-53	16	18	64	78	65	128	95	100	20	120

ETD III NEW

CHOOSE THE MAXIMUM, CHOOSE ETD III.

❶ Better sealing thanks to the "shoulder" on the clip, better resistance on the concrete.

❷ **Better load distribution**: thanks to the reduction of the cone angle from 20° up to 16°.

❸ **Wide range**: thanks to the big assortment of sizes it is possible to have fixings at very high thickness (up to 100 mm).

❹ **Head marking**: the letter engraved on the head lets you know immediately and check the embedment depth even after the fixing.

❺ **Immediate identification**: the marking of the anchor allows very clearly the recognition of ETD III.

ETD III NEW

ETD III is the new heavy duty through-anchor in steel, for structural and safety applications, according to the new European regulations for the construction materials.
Engineered to give the best performance and maximum flexibility, built with the best and latest technology, with a special and innovative expanding clamp, ETD III has an European Technical approval, Option 7, and CE marking for applications in concrete in compressed areas.
ETD III is protected from corrosion with a treatment of white and blue electrolytic zinc galvanization and is supplied pre-assembled with nut and washer.

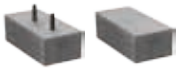
TECHNICAL DATA

Raw material:	treated steel with electrolytic white-blue zinc plating, 5μ≤sp.≥15μ

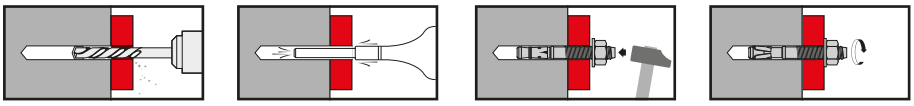
CERTIFICATIONS

ETA CE
0679-CPR-0904
ETA-13/0734
according to ETAG 001 option 7

BUILDING MATERIALS



INSTALLATION METHOD



APPLICATIONS

- Through-fixings of metal structures, shelves, plates in medium heavy and heavy carpentries and in the industrial plants.
- Through-fixings of elements and wood beams already positioned.

BENEFITS

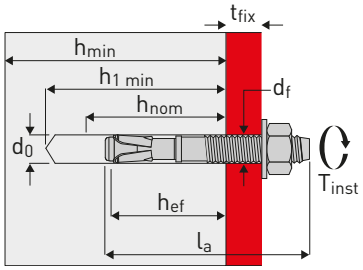
- Different lengths to fix elements of different thickness.
- Long thread with possibility of installation in two different embedment depths for maximum flexibility in the yard.
- The best tensile strength and shear: the limit is given by the strength of the concrete.
- Quick installation and immediate tightening.
- Distances among edges and centres are reduced of 20% in average.
- Possibility of installation even on concrete elements with reduced thickness, as in prefabricated.

RECOMMENDED RESISTANCE TO TENSION (ISOLATED SINGLE ANCHOR)

DESCRIPTION		ETD III M8	ETD III M10	ETD III M12	ETD III M16	ETD III M20
Embedment depth	h_{ef}/(mm)	30	40	50	65	75
Concrete C20/25 - min. thickness	h_{min}/(mm)	100	100	100	130	150
Concrete C20/25	kN	3,7	5,2	9,1	15	16

For more information, consult to the technical data. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

ETD III NEW



MINIMUM EMBEDMENT DEPTH

Code	Type	Drilling ∅	Plug length	∅ Drill on the object	Anchor Depthing	Depth drill	Max Fixable Thick	Min thickness. support	Tightening	Pack	Carton
	ETD III	d_0/(mm)	l_a/(mm)	d_f/(mm)	h_{ef} min/(mm)	$h_{1\,min}$/(mm)	t_{fix} max/(mm)	h_{min}/(mm)	T_{inst}/(Nm)	pcs.	pcs.
060010	8x55/5	8	55	9	30	50	5	80	15	100	400
060011	8x70/20-10	8	70	9	30	50	20	80	15	100	400
060012	8x90/40-30	8	90	9	30	50	40	80	15	50	200
060013	8x130/80-70	8	130	9	30	50	80	80	15	50	200
060014	8x160/110-100	8	160	9	30	50	110	80	15	50	200
060015	10x65/5	10	65	12	40	60	5	100	30	50	200
060016	10x75/15-5	10	75	12	40	60	15	100	30	50	200
060017	10x95/36-26	10	95	12	40	60	36	100	30	50	200
060018	10x125/65-55	10	125	12	40	60	65	100	30	25	100
060019	10x140/80-70	10	140	12	40	60	80	100	30	25	100
060020	12x80/5	12	80	14	50	75	5	100	50	25	100
060021	12x100/25-10	12	100	14	50	75	25	100	50	25	100
060022	12x115/40-25	12	115	14	50	75	40	100	50	25	100
060023	12x140/65-50	12	140	14	50	75	65	100	50	25	100
060024	12x160/85-70	12	160	14	50	75	85	100	50	25	100
060025	12x180/105-90	12	180	14	50	75	105	100	50	25	100
060026	12x220/145-130	12	220	14	50	75	145	100	50	20	80
060027	16x100/5	16	100	18	65	95	5	130	100	20	80
060028	16x125/30-15	16	125	18	65	95	30	130	100	20	80
060029	16x150/55-40	16	150	18	65	95	55	130	100	10	40
060030	16x170/75-60	16	170	18	65	95	75	130	100	10	40
060031	20x165/50-25	20	165	22	75	110	50	150	160	10	40
060032	20x220/105-80	20	220	22	75	110	105	150	160	10	40

T11

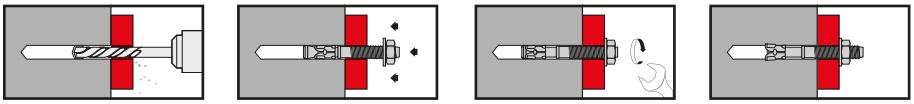
Through-anchor to fix stirrups, fences, supports, light frames, plants. Suitable in: concrete, natural stone and rock of good resistance to the compression.

TECHNICAL DATA

Raw material: treated steel with electrolytic zinc plating

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Body in white zinc plated steel.
- Expansion clamp with special geometry in zinc plated steel.
- Body with extended thread to have the maximum flexibility in embedment depths and in the different fixable thicknesses.

BENEFITS

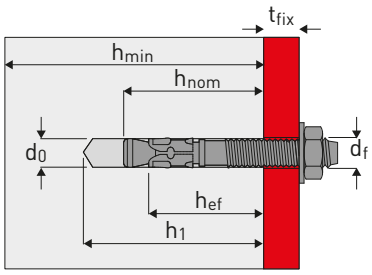
- Easy and quick installation.
- Economy and practicality for smiths, carpenters and frame fitters.

RECOMMENDED TENSION LOADS

DESCRIPTION		T11 M6	T11 M8	T11 M10	T11 M12	T11 M14	T11 M16
Drill diameter	d_0/(mm)	6	8	10	12	14	16
Embedment depth	h_{ef}/(mm)	40	48	55	65	75	84
Concrete C20/25	kN	3	4,7	6,3	9,9	11,9	13,8

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm^2 • 1 kN ≅ 100 kg

T11



Code	Type	Drilling ∅	Drilling Depth	∅ Hole on the object	Anchor Depth	Depth Nominal Installation	Max Fixable Thick	Min thickness. support	Tightening	Pack	Carton
	T11	d_0/(mm)	h_1/(mm)	d_f/(mm)	h_{ef}/(mm)	h_{nom}/(mm)	t_{fix} max/(mm)	h_{min}/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8716300	6x45	6	55	7	40	49,5	2	100	7	100	800
8716301	6x55	6	55	7	40	49,5	2	100	7	100	800
8716325	6x65	6	55	7	40	49,5	7	100	7	100	800
8716303	6x85	6	55	7	40	49,5	27	100	7	100	800
8716326	6x100	6	55	7	40	49,5	42	100	7	100	800
8716327	6x120	6	55	7	40	49,5	62	100	7	100	800
8716304	8x53	8	65	9	48	59,5	5	100	20	100	800
8716305	8x65	8	65	9	48	59,5	5	100	20	100	800
8716328	8x75	8	65	9	48	59,5	5	100	20	100	800
8716306	8x90	8	65	9	48	59,5	20	100	20	100	800
8716329	8x120	8	65	9	48	59,5	50	100	20	50	400
8716330	10x65	10	75	12	55	66,5	5	110	35	50	400
8716308	10x75	10	75	12	55	66,5	5	110	35	50	400
8716309	10x95	10	75	12	55	66,5	15	110	35	50	400
8716310	10x120	10	75	12	55	66,5	40	110	35	25	200
8716311	10x140	10	75	12	55	66,5	60	110	35	25	200
8716331	10x160	10	75	12	55	66,5	80	110	35	25	200
8716314	12x75	12	85	14	65	77	5	130	60	25	200
8716315	12x110	12	85	14	65	77	18	130	60	25	200
8716316	12x140	12	85	14	65	77	48	130	60	25	200
8716333	12x160	12	85	14	65	77	68	130	60	20	120
8716334	12x180	12	85	14	65	77	88	130	60	20	120
8716318	14x100	14	100	16	75	91	5	150	90	20	120
8716319	14x120	14	100	16	75	91	12	150	90	20	120
8716320	14x160	14	100	16	75	91	52	150	90	20	120
8716335	16x90	16	110	18	75	91	5	168	120	20	120
8716336	16x110	16	110	18	84	103,5	5	168	120	20	120
8716322	16x125	16	110	18	84	103,5	5	168	120	20	120
8716323	16x145	16	110	18	84	103,5	25	168	120	20	120
8716324	16x175	16	110	18	84	103,5	53	168	120	20	120
8716337	16x220	16	110	18	84	103,5	98	168	120	15	90

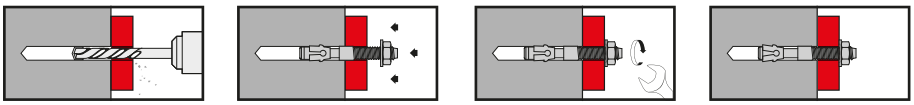
ETK X

TECHNICAL DATA

Raw material: steel INOX AISI 304 - A2

BUILDING MATERIALS

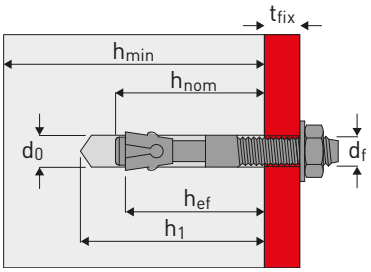
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

DESCRIPTION		ETK X 6	ETK X 8	ETK X 10	ETK X 12	ETK X 16
Drill diameter	d_0/(mm)	6	8	10	12	16
Embedment depth	h_{ef}/(mm)	25	40	51	65	75
Concrete C20/25	kN	1,5	2,3	3,5	5	6,9

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg



Code	Type	Drilling ∅	Drilling Depth	∅ Drill on the object	Anchor Depth	Max Fixable Thick	Tightening	Pack	Carton
	ETK X	d_0/(mm)	h_1/(mm)	d_f/(mm)	h_{nom}/(mm)	t_{fix} max/(mm)	T_{inst}/(Nm)	pcs.	pcs.
8716102	6x65	6	50	8	35	10	10	100	400
8716105	8x75	8	60	10	40	10	20	100	400
8716107	8x90	8	60	10	40	23	20	100	400
8716124	10x75	10	60	12	51	10	45	100	300
8716110	10x90	10	60	12	51	20	45	50	200
8716123	10x120	10	60	12	51	50	45	50	50
8716113	12x110	12	80	14	65	20	65	50	50
8716114	12x140	12	80	14	65	50	65	25	25
8716116	16x145	16	100	18	75	30	120	25	25
8716117	16x175	16	100	18	75	60	120	20	20

SZ

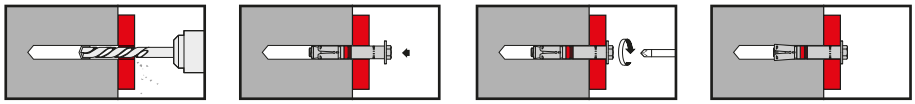
Heavy duty anchor to fix in concrete and natural stone with high resistance to compression. Can be used to fix heavy carpentry, metal structures, machinery, pipes.

TECHNICAL DATA

Raw material: treated steel with electrolytic zinc plating

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

- Special expansion clamp able of transmitting at better the loads applied to the support material also in the presence of micro-cracks in tense areas.
- Bush of compensation in non-metallic material to obtain the maximum locking degree of the element to fix against the concrete.

BENEFITS

- The optimal distribution of forces allows to minimize the distances between anchors and from the edges of the manufacture.
- Allowable high loads of tension and shear.

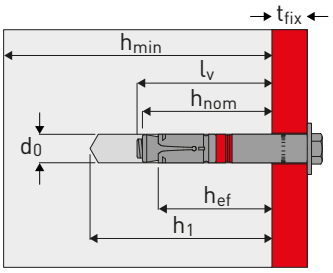
RECOMMENDED TENSION LOADS

DESCRIPTION		SZ 10	SZ 12	SZ 15	SZ 18	SZ 24
Drill diameter	d_0/(mm)	10	12	15	18	24
Embedment depth	h_{ef}/(mm)	50	60	71	80	100
Concrete C20/25	kN	5,7	6,4	9,6	11,2	16
Cracked concrete C20/25	kN	1,5	3,8	5,1	7,9	11,5

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

SZ-S

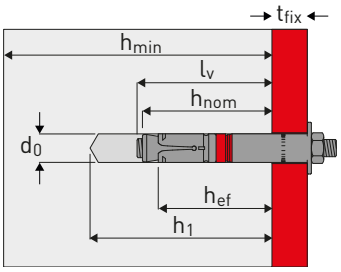
With hexagonal head screw cl 8.8 galvanized



Code	Type	Anchor Depth	Max Fixable Thick	Min thickness. Support	Drilling Depth	Drilling ∅	Tightening torque	Screw size	Pack	Carton
	SZ-S	h_{ef}/(mm)	t_{fix}/(mm)	h_{min}/(mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	d|ddd|/(mm)	pcs.	pcs.
8726201	S 10-10	50	10	100	65	10	15	M6	50	50
8726203	S 10-50	50	50	100	65	10	15	M6	50	50
8726207	S 12-30	60	30	120	80	12	30	M8	50	50
8726208	S 12-50	60	50	120	80	12	30	M8	25	25
8726211	S 15-25	71	25	140	95	15	50	M10	25	25
8726212	S 15-45	71	45	140	95	15	50	M10	25	25
8726215	S 18-40	80	40	160	105	18	80	M12	20	20
8726216	S 18-70	80	70	160	105	18	80	M12	20	20
8726218	S 24-20	100	20	200	130	24	160	M16	10	10
8726219	S 24-50	100	50	200	130	24	160	M16	10	10

SZ-B

With bar galvanized



Code	Type	Anchor Depth	Max Fixable Thick	Min thickness. Support	Drilling Depth	Drilling ∅	Tightening torque	Screw size	Pack	Carton
	SZ-B	h_{ef}/(mm)	t_{fix}/(mm)	h_{min}/(mm)	h_1/(mm)	d_0/(mm)	T_{inst}/(Nm)	d|ddd|/(mm)	pcs.	pcs.
8726301	B 10-10	50	10	100	65	10	15	M6	50	50
8726303	B 10-50	50	50	100	65	10	15	M6	50	50
8726307	B 12-30	60	30	120	80	12	30	M8	50	50
8726308	B 12-50	60	50	120	80	12	30	M8	25	25
8726311	B 15-25	71	25	140	95	15	50	M10	25	25
8726312	B 15-45	71	45	140	95	15	50	M10	25	25
8726315	B 18-40	80	40	160	105	18	80	M12	20	20
8726316	B 18-70	80	70	160	105	18	80	M12	20	20
8726318	B 24-20	100	20	200	130	24	160	M16	10	10
8726319	B 24-50	100	50	200	130	24	160	M16	10	10

MULTIBLOK: NEW UNIVERSAL, ALSO FOR INTERNAL USE

Universal: use in all support materials.

Guaranteed: SOTOTEC certification, synonymous of guarantee, safety and performance.

VOC and Styrene free: A+ classified thanks to the absence of air organic components (VOC) , can also be used indoor.

Quick: reduced setting times for a fast installation (from 20 minutes up to 25°C).

Versatile: can be used with bars from M6 up to M16 for non structural applications.

No waste, more cleaning, more protection: special safety piston to avoid waste, losses of resin and makes the job always clean and safe.

UV resistant packaging: polymer cartridge resistant to shocks and able to protect the resin and internal components from harmful UV rays effects. Durability and safety.

Respect of the environment: engineered and produced by ITW, in Europe, according to ISO 9001 and ISO 4001. Maximum guarantee of quality and respect for the environment.

MULTIBLOK NEW

VOC free A+ (A+ A B C)

Multiblok is the new chemical anchor in special polyester-based resin, universal and usable in all support materials, for non structural applications.

APPLICATIONS

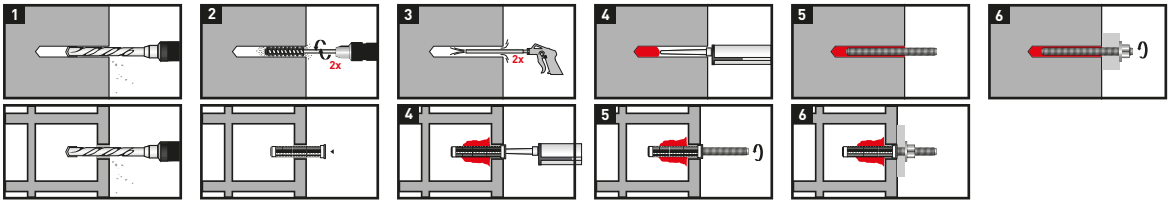
- Anchoring of balcons, shatterings, main doors and pedestrain gates.
- Anchoring of railings, gates, barriers.
- Fixing of curtains, blinds and rolling shutters.
- Fixing of external and internal units of air conditioners civilians, temporary fixtures and wall fixtures for light fixtures.

CERTIFICATIONS

SOCOTEC

BUILDING MATERIALS

INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING AND READY FOR USE

Concrete temperature	Sequence times of installation 5 > 6		Sequence times of installation 7	
	410 ml	300 ml	410 ml	300 ml
5°C	17	25	55	120
10°C	10	15	40	80
20°C	4	6	25	45
30°C	2	4	20	25
35°C	-	2	-	20

RECOMMENDED RESISTANCE TO TENSION FOR ISOLATED SINGLE ANCHOR IN kN - WITH BAR CLASS 5.8

DESCRIPTION		M8	M10	M12	M16
CONCRETE C20/25					
Drill diameter	d_0/(mm)	10	12	14	18
Embedment depth	h_{ef} min/(mm)	80	90	110	125
Tensile strength N_{rec}	kN	4,48	6,30	9,25	14,00
HOLLOW BRICKS WITH NYLON NET					
Drill diameter	d_0/(mm)	15	15	20	-
Embedment depth	h_{ef} min/(mm)	85	85	85	-
Tensile strength N_{rec}	kN	0,6	0,6	0,6	-

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

Code	Type	Q.ty	Note	Pack
		ml		pcs.
059513	MultiBlok 300	300	2 mixers included	12
059512	MultiBlok 410	410	2 mixers included	12
8708520	Professional metal gun EHP 310	-	For cartridges up to 310 ml	1
8708510	Professional metal coaxial gun EHP 380	-	For cartridges up to 410 ml	1
8708595	New universal mixer Blok	-	-	5

To use with nylon nets, sleeves with internal thread and threaded bars, see page 130

PRIMEBLOK: NEW TRIPLE ETA CERTIFICATION IDEAL FOR ELECTRICIANS

Certified for different support materials: for applications in total safety.

Guaranteed and certified for different applications: structural anchoring in concrete M8-M24, anchoring in masonry from M8 up to M12, post-installed rebars M8-M20.

More performances, more resistance: absolutely superior respect to the anchoring with other kind of resin.

Also in wet holes: safe and durable anchoring even in presence of water.

A+ Certificate for internal use: no odour, absence of organic air components (VOC). 0% styrene, 0% phthalate, 0% vinyltoluene.

Completely usable: no bags to be open, no second closing cap, fluid injection and immediate mix without waste. Guaranteed re-use and maxim durability.

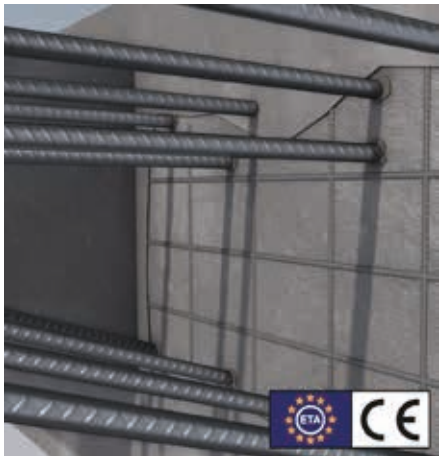
Practical: usable with silicone guns too. Cartridges of easy extrusion for applications from -5°C up to +40°C. Always packed with 2 mixers.

Duration and reducing waste: new cartridges in polymer total emptying, impact-resistant, UV protected from resin.

Structural Anchoring: certified in concrete.

Anchor certified in masonry.

Post-installed rebars certified system in concrete.



PRIMEBLOK NEW

VOC free A+ (A+ A B C)

PrimeBlok is the new chemical anchor in methacrylate-based resin, usable in many kind of support materials, for structural applications.

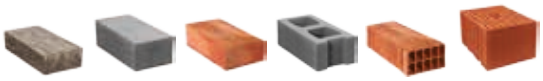
APPLICATIONS

- Fixings and steel constructions of civil and industrial systems: mechanical, thermal, cooling, heavy electrical, security, photovoltaic.
- Fixings and steel constructions, life lines, structural anchors, industrial doors, armoured doors and driveways.
- Fixing of structure for stairs, porches and balconies. Grouting of rebar, post-installed rebar systems.
- Anchoring of antennas, dishes and heavy external drives.

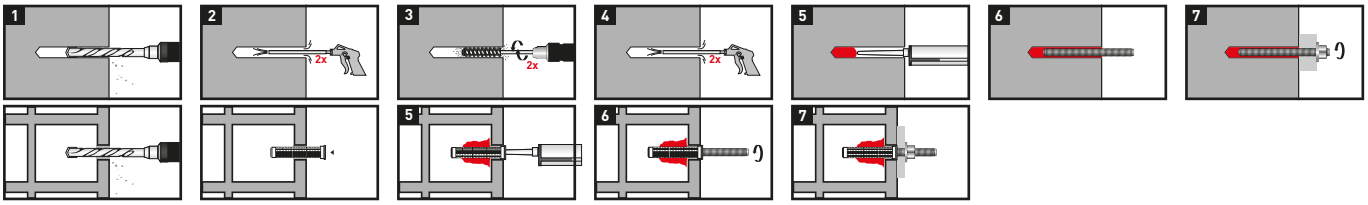
CERTIFICATIONS

0679-CPR-0908 ETA-13/0741	0679-CPR-0911 ETA-13/0739	0679-CPR-0907 ETA-13/0737
according to ETAG 029	according to TR 023	according to ETAG 001 option 7

BUILDING MATERIALS



INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING AND READY FOR USE

Concrete temperature	Sequence times of installation 5 > 6	Sequence times of installation 7
T		
-5°C < T < 0°C	-	360 min
1°C < T < 5°C	18 min	180 min
6°C < T < 10°C	12 min	90 min
11°C < T < 20°C	6 min	60 min
21°C < T < 30°C	4 min	45 min
31°C < T < 40°C	2 min	35 min

RECOMMENDED RESISTANCE TO TENSION FOR ISOLATED SINGLE ANCHOR IN kN - WITH BAR CLASS 5.8

DESCRIPTION		M8	M10	M12	M16	M20	M24
CONCRETE C20/25							
Drill diameter	d_0/(mm)	10	12	14	18	25	28
Embedment depth	h_{ef} min/(mm)	80	90	110	125	170	210
Tensile strength N_{rec}	kN	8,60	10,10	14,00	19,90	33,90	47,10
HOLLOW BRICK BLOCK WITH NET							
Drill diameter	d_0/(mm)	15	15	20	-	-	-
Embedment depth	h_{ef} min/(mm)	85/130	85/130	85	-	-	-
Tensile strength N_{rec}	kN	0,30/0,43	0,30/0,43	0,70	-	-	-

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

Code	Type	Q.ty	Note	Pack
		ml		pcs.
059511	PrimeBlok 280	280	2 mixers included	12
059510	PrimeBlok 410	410	2 mixers included	12
8708520	Professional metal gun EHP 310	-	For cartridges up to 310 ml	1
8708510	Professional metal coaxial gun EHP 380	-	For cartridges up to 410 ml	1
8708595	New universal mixer Blok	-	-	5

To use with nylon nets, sleeves with internal thread and threaded bars, see page 130

ULTRABLOK: NEW STRUCTURAL ANCHORINGS AT VERY HIGH PERFORMACE

Certified, structural, for anchoring in non-cracked concrete with bars up to M30, galvanized steel, from class 5.8 up to 10.9, for stainless steels A4 very high resistance to the corrosion. Possibility of 3 embedment depths for M8, M10, M12 bars.

Certified structural post-fixing: innovative bushes with internal thread for post-fixings even with particular threaded screws and accessories.

Certified in extreme conditions: dry, wet and submersed holes, from -40°C up to +120°C, fire resistant.

Always and completely reusable: easy injection at low temperatures, storable up to 35°C, reusable at any time.

Practical: usable with professional coaxial guns: in applications to the ceiling too. Packed with 2 mixers.

A+ Certificate for internal use: no odour, absence of organic air components (VOC). 0% styrene, 0% phthalate, 0% vinyltoluene.

Innovative vinylester-based resin: engineered product , patented and manufactured by ITW in Europe. Maximum performances, maximum guarantee of quality, maximum respect for the environment.

ULTRABLOK NEW

VOC free A+ (A+ A B C)

Ultrablok is the new chemical anchor vinylester-based resin, used for structural fastenings in non-cracked concrete.

APPLICATIONS

- Anchoring of metal carpentries.
- Anchoring of heavy duty plants supports, guides, ventilation and air conditioning systems.
- Anchoring of machineries.
- Anchoring of safety lines and plants.

CERTIFICATIONS

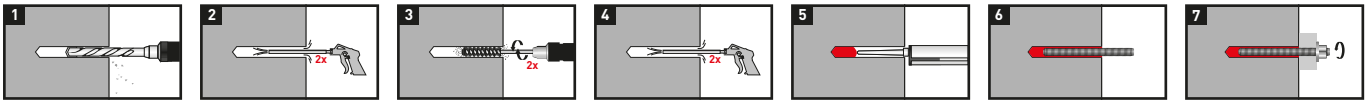
ETA 0679-CPR-0947 ETA-13/0861 according to TR 023

ETA 0679-CPR-0948 ETA-13/0862 according to ETAG 001 option 7

FIRE TEST

BUILDING MATERIALS

INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING AND READY FOR USE

Concrete temperature	Sequence times of installation 5 > 6	Sequence times of installation 7
T		Dry concrete
-5°C ≤ T < 1°C*	22 min	720 min
0°C ≤ T < 9°C	11 min	210 min
10°C ≤ T < 19°C	6 min	60 min
20°C ≤ T < 29°C	3 min	40 min
30°C ≤ T < 39°C	1 min	35 min
T < 40°C	1 min	30 min

*resin temperature ≥ +5°C

RECOMMENDED RESISTANCE TO TENSION FOR ISOLATED SINGLE ANCHOR IN kN - WITH BAR CLASS 5.8

DESCRIPTION		M8	M10	M12	M16	M20	M24	M30
CONCRETE C20/25								
Drill diameter	d_0/(mm)	10	12	14	18	25	28	35
Embedment depth	h_{ef} min/(mm)	80	90	110	125	170	210	280
Tensile strength N_{rec}	kN	10,50	14,80	21,70	29,30	35,10	52,00	70,40

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

Code	Type	Q.ty	Note	Pack
		ml		pcs.
059509	UltraBlok 410	410	2 mixers included	12
8708510	Professional metal coaxial gun EHP 380	-	For coaxial cartridges up to 410 ml	1
569172	Special UltraBlok mixer	-	Square mixer	10
569173	Ultra ATP bush M8x60	-	Internal threaded for post-installed anchors M8	10
569174	Ultra ATP bush M10x65	-	Internal threaded for post-installed anchors M10	10
569175	Ultra ATP bush M12x75	-	Internal threaded for post-installed anchors M12	10
569176	Ultra ATP bush M16x125	-	Internal threaded for post-installed anchors M16	10

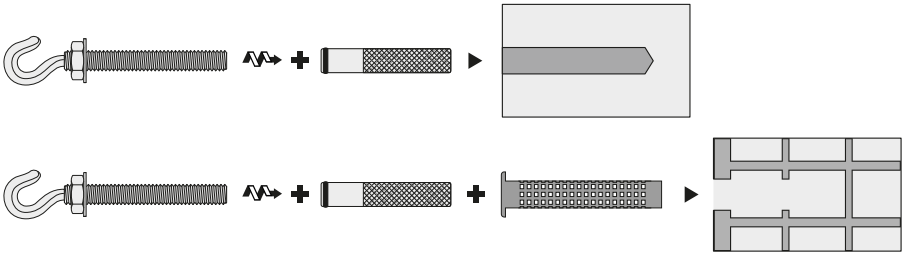
CHEMICAL ACCESSORIES COMBINATION

n The number identifies the drilling Ø (in mm) relative to the typology of the suitable support.

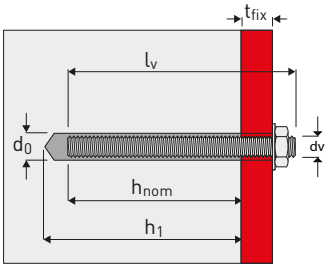
Product	Dimensions	Code	FULL MATERIALS: no accessory	HOLLOW MATERIALS: BE						HOLLOW MATERIALS: BM*		
			-	12x45	12x60	12x80	15x85	15x130	20x85	11x1000	15x1000	20x1000
			-	**8708955**	**8708956**	**8708957**	**8708952**	**8708953**	**8708954**	**8708961**	**8708962**	**8708963**
EHD	M8x110	**8730101**	10			12	15			12		
	M10x110	**8730102**	12				15				16	
	M10x130	**8730103**	12				15				16	
	M10x160	**8730104**	12				15	15			16	
	M12x115	**8730105**	14						20		16	22
	M16x190	**8730107**	20									22
EHG	M8x60	**8708916**	10		12	12	15					
	M10x70	**8708917**	12				15					
	M12x80	**8708918**	14						20			
EHO	M8x60	**8730012**	10		12	12	15					
	M10x70	**8730013**	12				15					
	M12x80	**8730014**	14						20			
EHC	M10x90	**8730041**	12				15					
FOR REMOVABLE AND REUSABLE FIXINGS - (see sequence of installation)**												
BT	M8	**8708981**	14						20			
	M10	**8708982**	16						20			
	M12	**8708983**	18						20			

*BM steel sleeve allows to get superior performance for rigidy and resistance to the torque.
*It allows to realize fixings at very big depth to get superior performance in hollow materials. In this case should be used some bars expressly cut at the needed length.
*The BM sleeve are available in pieces of 1 metre that can be easily cut to the desired length.

**SETTING METHOD FOR REMOVABLE AND REUSABLE FIXINGS, IN SOLID AND HOLOW MATERIALS



THREADED BARS AND ACCESSORIES



EHD

EHG

EHO

EHC

EHD - THREADED BAR WITH NUT AND WASHER

Code	Type	∅ Bar	Length bar	∅ Drill in full	Drill Depth in full	Thickness Fixable	Indicative hole volume	Indicative resin volume	Pack
	EHD	d_v/(mm)	l_v/(mm)	d_0/(mm)	h_1/(mm)	t_{fix}/(mm)	cm^3	cm^3	pcs.
8730101	8x110	M8	110	10	80	10	6,29	4,19	10
8730102	10x110	M10	110	12	90	10	10,18	6,79	10
8730104	10x160	M10	160	12	90	60	10,18	6,79	10
8730105	12x115	M12	115	14	110	10	16,94	11,29	10
8730107	16x190	M16	190	18	125	25	31,82	21,22	5

EHG - STAMPED HOOK WITH NUT AND WASHER

Code	Type	∅ Thread	Length thread	∅ Drill	Drill Depth minimum	Pack
	EHG	d_v/(mm)	l_v/(mm)	d_0/(mm)	h_1/(mm)	pcs.
8730016	8x60	M8	52	10	45	50
8730017	10x70	M10	60	12	50	25
8730018	12x80	M12	66	14	54	10

EHO - STAMPED EYE HOOK WITH NUT AND WASHER

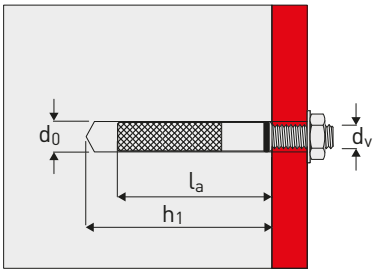
Code	Type	∅ Thread	Length thread	Drilling ∅	Depth drill	Pack
	EHO	d_v/(mm)	l_v/(mm)	d_0/(mm)	h_1/(mm)	pcs.
8730012	8x60	M8	52	10	45	50
8730013	10x70	M10	60	12	50	25
8730014	12x80	M12	66	14	54	10

EHC - ZINC PLATED ANGLE HOOK

Code	Type	∅ Thread	Length thread	Drilling ∅	Depth drill	Pack
	EHC	d_v/(mm)	l_v/(mm)	d_0/(mm)	h_1/(mm)	pcs.
8730041	10x90	M10	70	12	70	25

BT

Metallic bush with internal thread

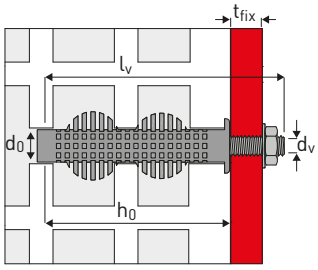


BT

Code	Type	∅ Bar	Length bush	∅ Drill in full	Drill Depth in full	Thickness Fixable	Indicative hole volume	Indicative resin volume	Pack
	BT	d_v/(mm)	l_v/(mm)	d_0/(mm)	h_1/(mm)	t_{fix}/(mm)	cm^3	cm^3	pcs.
8708981	M8	M8	80	14	90	-	13,86	8,40	10
8708982	M10	M10	80	16	90	-	18,10	10,97	10
8708983	M12	M12	80	18	90	-	22,91	13,89	10

BE

Bush for chemical fixing on drilled support



BE

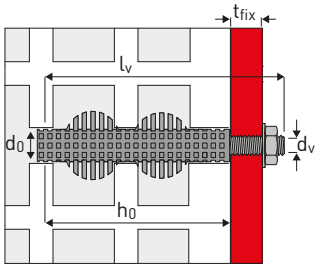
BE - NET IN PEHD

Code	Type	Ø Bar	Min. length bar	Drilling Ø	Ø internal	Depth drill	Thickness Fixable*	Indicative hole volume	Indicative resin volume	Pack
	BE	d_v/(mm)	l_v/(mm)	d_0/(mm)	(mm)	h_0/(mm)	t_{fix}/(mm)	cm^3	cm^3	pcs.
8708955	12x45	M6-M8	65	12	10	45	-	5,1	5,1	10
8708956	12x60	M6-M8	80	12	10	60	-	6,8	6,8	10
8708957	12x80	M6-M8	110	12	10	70	10	9,1	9,1	10
8708952	15x85	M8-M10	110-160	15	13	85	30-55	15,0	15,0	10
8708953	15x130	M8-M10	160	15	13	130	10	23,0	23,0	10
8708954	20x85	M12	115	20	18	85	10	26,7	26,7	10

*with EHD bars

BM

Bush for chemical fixing on drilled support



BM

BM - 1 MTR METAL SLEEVE TO CUT

Code	Type	Ø Bar	Length bar	Drilling Ø	Ø internal	Depth drill	Pack	Carton
	BM	d_v/(mm)	l_v/(mm)	d_0/(mm)	(mm)	h_1/(mm)	pcs.	pcs.
8708961	11x1000	M8	variable	12	9,5	variable	10	-
8708962	15x1000	M10	variable	16	13,5	variable	10	-
8708963	20x1000	M12	variable	22	19,0	variable	6	-

INSTALLATION EQUIPMENT

Code	Type	Description	Pack
			pcs.
8708520	EHP 310	Professional metal gun for cartridges up to 310 ml	1
8708510	EHP 380	Professional metal coaxial gun for cartridges up to 410 ml	1

BELLOWS

PIPE CLEANER

Code	Type	Description	Pack
			pcs.
8708590	Bellows	Manual bellows	1
8708591	Pipe cleaner	Accessories to clean the hole	1

Code	Description	Pack
		pcs.
8708595	New universal mixer Blok	5

MAXIMA

INNOVATION AND RESPECT OF THE ENVIRONMENT!

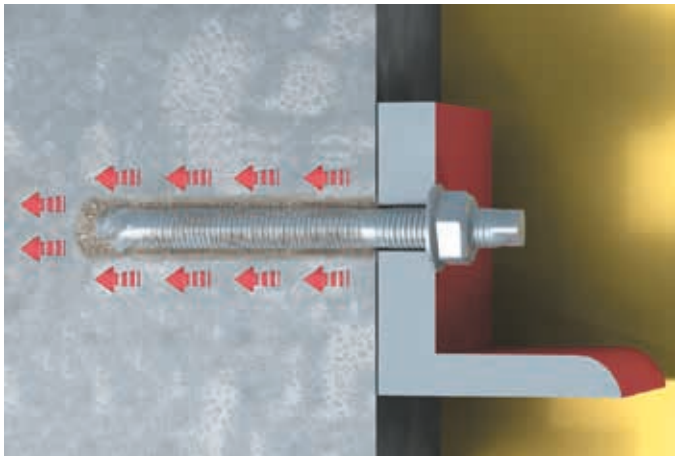
❶ **Faster mixing system and more effective**: the special helical conformation of the bar increases the homogeneity and thus the speed of the mixing and hardening.

❷ **Calibrated mixture of the components and no waste**: to ensure a safe reaction and optimal in all respects.

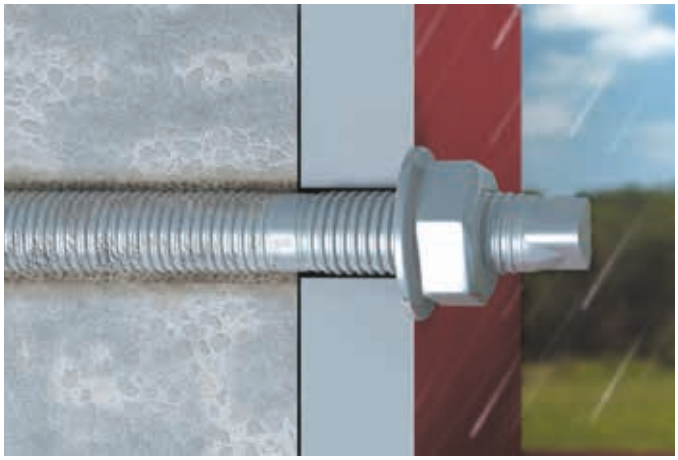
❸ **New styrene free formula**: the absence of styrene for the professional means a significant reduction of odours and irritating fumes during installation.

Easy and safe installation: maximum lift.

Resistance to variables stress: thanks to the uniform distribution of the forces of lift throughout the depth of installation.



Complete sealing of the hole: no water infiltration and moisture to protect the anchorage



MAXIMA

Methacrylate, bi-component chemical anchor in pre-mixured vial, high performances to fix high loads in concrete and natural stone.
Ideal for heavy duty anchoring with minimum distances from the edges and minimum spacing between anchors.

TECHNICAL DATA

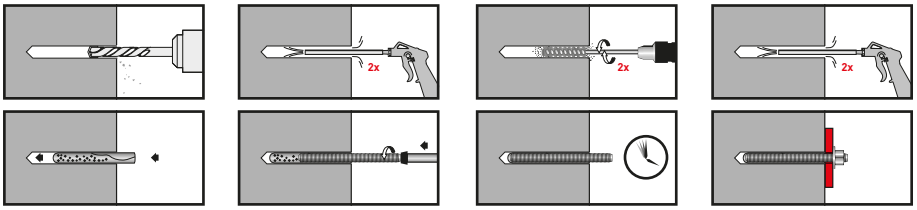
Raw material:	pre-mixured synthetic resin.Special threaded bars class 5.8 or INOX A4 (upon request).

BUILDING MATERIALS

CERTIFICATIONS

ETA CE
0679-CPD-0011
ETA-03/0008
according to ETAG 001 option 7

INSTALLATION METHOD



APPLICATIONS

- High loads anchoring such as the fixings between concrete and stirrups/supports of industrial metallic carpentry, plants and beams in steel and/or wood.
- Anchoring of column base plate, heavy duty shelves and several structures.
- Anchoring subjected to vibrations, such as the fixings between concrete and stirrups of machines bases, molds, bridge crane and lines of material handling.

BENEFITS

- Stability, mechanical strength and maximum lift in every condition.
- Absence of expansion: no tension in the support materials.
- Extremely fast. Pre-mixture, no waste of product in the yard and very fast setting times.
- No refuse of work, the glass shell of the vial becomes part of the fixing.

WAITING TIMES FOR TIGHTENING

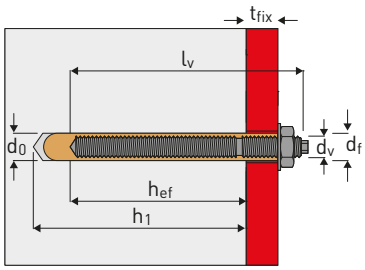
Concrete temperature	100% of the resistance	
T	Dry concrete	Wet concrete
-5°C < T < 0°C	5 h	10 h
0°C < T < 10°C	60 min	120 min
10°C < T < 20°C	30 min	60 min
T > 20°C	20 min	40 min

RECOMMENDED RESISTANCE TO TENSION FOR ISOLATED SINGLE ANCHOR IN kN

DESCRIPTION		MAXIMA M8	MAXIMA M10	MAXIMA M12	MAXIMA M16	MAXIMA M20	MAXIMA M24	MAXIMA M30
CONCRETE C20/25								
Drill diameter	d_0/(mm)	10	12	14	18	25	28	35
Embedment depth	h_{ef} min/(mm)	80	90	110	125	170	210	280
Tensile strength N_{rec}	kN	7,3	10,2	14,9	22,7	32	47,5	60,3

Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 ≅ 250 kg/cm² • 1 kN ≅ 100 kg

MAXIMA



Code		Description	Anchor Depth	Max Fixable Thick	Min thickness. Support	Drilling Depth	Drilling Ø	Ø Hole On the object	Torque tightening	Screw dim.	Pack	Carton vial	Carton bar
Vial	Zinc plated bar	MAXIMA	h_{ef}/(mm)	t_{fix}/(mm)	h_{min}/(mm)	h_1/(mm)	d_0/(mm)	d_f/(mm)	T_{inst}/(Nm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.	pcs.
050891	**050901**	M8	80	15	110	80	10	9	10	M8x110	10	480	10
050892	**050902**	M10	90	20	120	90	12	12	20	M10x130	10	480	10
050893	**050903**	M12	110	25	150	110	14	14	30	M12x160	10	200	10
050894	**050904**	M16	125	35	160	125	18	18	60	M16x190	10	200	10
050895	**565247**	M20	170	65	220	170	25	22	120	M20x260	10	60	10
050896	**565248**	M24	210	63	300	210	28	26	200	M24x300	10	60	10
050897	**upon request**	M30	280	70	350	280	35	33	400	M30x380	10	30	10

SPECIAL FIXINGS

EFK

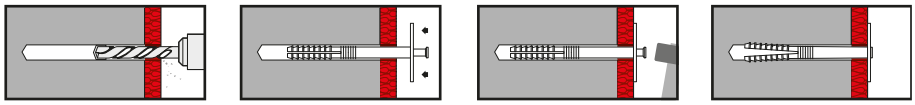
Fixing for rigid insultation panels in polyurethane, polystyrene and mineral fibers with thickness from 20 up to 100 mm. Suitable in concrete, solid bricks and hollow bricks.

TECHNICAL DATA

Raw material:	body in polypropylene Screw in PS

BUILDING MATERIALS

INSTALLATION METHOD

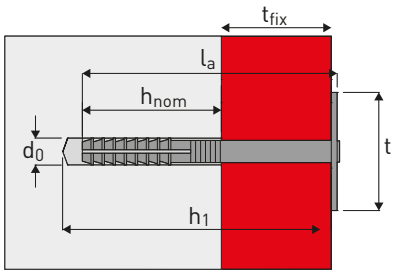


CHARACTERISTICS

- Expansion by percussion (effective even in hollow masonry).
- Marked notches of anchoring to improve the fixing even on non-compact materials.
- 90 mm diameter disc with treated surface for the application of plaster.
- Different lenghts for different thicknesses to be fixed.

BENEFITS

- The right anchoring for panels with different thickness.
- Reduced embedment depth (30 mm).
- Suitable for many different materials.
- Special surface finish for a good grip of the plaster or wall coverings.



Code	Type	Drilling ∅	Plug length	Drilling Depth	Anchor Depth	Head	Max Fixable Thick	Pack	Carton
	EFK	d_0/(mm)	l_2/(mm)	h_1/(mm)	h_{nom}/(mm)	t/(mm)	t_{fix}/(mm)	pcs.	pcs.
8718011	2-4	10	70	80	30	50	20-40	500	500
8718012	2-6	10	90	100	30	50	40-60	500	500
8718013	7-8	10	110	120	30	50	60-80	250	250
8718014	9-10	10	130	140	30	50	80-100	250	250
8718020	EF-D*	-	-	-	-	90	-	500	500

* Expansion disc for soft materials

EFH

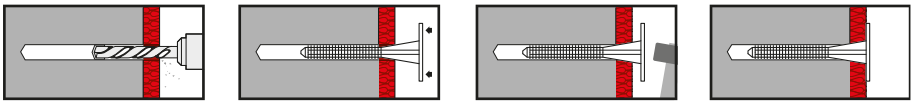
Fixing of rigid insulation panels. Suitable in concrete and solid bricks, double bricks UNI and lateritious.

TECHNICAL DATA

Raw material: polyethylene

BUILDING MATERIALS

INSTALLATION METHOD

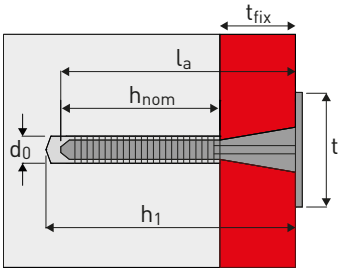


CHARACTERISTICS

- Anchoring rings with special geometry for a safe fixing with percussion.
- Treated head surface to keep hold on the parget and the wall coatings.
- Expansion disc of the head of 90 mm to fix soft panels.

BENEFITS

- Quick installation by hammering with through drilling through the panel
- Big range of fixable thicknesses from 30 to 80 mm diameter.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Anchor Depth	Head	Max Fixable Thick	Pack	Carton
	EFH	d_0/(mm)	l_a/(mm)	h_1/(mm)	h_{nom}/(mm)	t/(mm)	t_{fix}/(mm)	pcs.	pcs.
8718002	3-5	8	80	90	40	38	20-50	400	400
8718004	5-8	8	110	120	40	38	50-80	250	250
8718020	EF-D*	-	-	-	-	90	-	500	500

* Expansion disc for soft materials

EGP

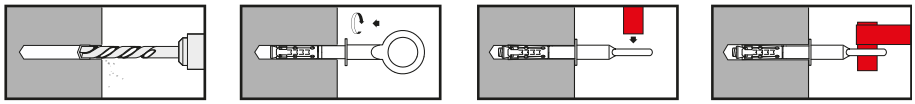
Anchor to fix the scaffolding leaned on the ground to the walls of the building, with a direct connection eyebolt scaffolding. Suitable on concrete and materials

TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS

INSTALLATION METHOD

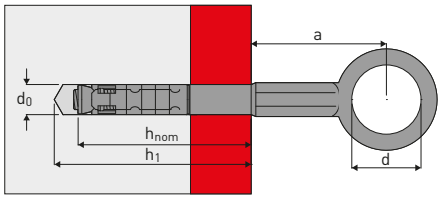


CHARACTERISTICS

- Steel eyebolt with internal diameter of 50 mm.
- Anchor available in 2 lengths for different installation depth.

BENEFITS

- Direct connection of the scaffolding without the need for extra elements.
- Possibility of re-use the eyebolt with the addition of the several spare parts, such as the anchor and the extentions of connection.
- Tested according to the regulations relating to the construction and use of scaffolding.



Code	Type	Drilling Ø	Install. Depth	Drilling Depth	Dist. Wall-axis	Eyebolt	Pack	Carton
	EGP	d_0/(mm)	h_{nom}/(mm)	h_1/(mm)	a/(mm)	d/(mm)	pcs.	pcs.
8717900-E	12x220	18	120	130	100	50	10	10
8717901-E	12x270	18	170	180	100	50	10	10

ACCESSORIES

Code	Type	Description	Pack	Carton
			pcs.	pcs.
8717902	TP 12	Spare anchor	100	500
8717903	DBF 12-90	Spare bar for EGP 12x220	50	300
8717904	DBF 12-140 + DIST.	Spare bar for EGP 12x270	50	200
8717905	PRO 50	Diameter extention 48 - Lenght 480mm	10	100
8717906	TAP	Extension cup	10	300

EOP

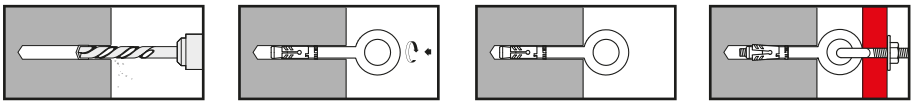
Anchoring system for scaffolding leaned on the ground with the use of additional connecting elements.
Suitable for concrete, stone and full materials.

TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS

INSTALLATION METHOD

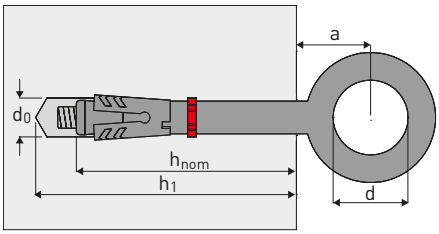


CHARACTERISTICS

- Expansion cone in zinc plated yellow galvanized steel ≥ 5 µ.
- Bent and welded eyelet in galvanized steel yellow passivated, ≥ 5 µ da 22 mm of internal diameter.

BENEFITS

- Anchoring in depth of the scaffolding to the bearing wall.
- Different lengths to calibrate different distances between the wall and the scaffolding.
- Possibility of re-use the eyebolt with the spare part of the expander body ED.



Code	Type	Drilling Ø	Install. Depth	Drilling Depth	Dist. Wall-axis	Eyebolt	Pack	Carton
	EOP	d_0/(mm)	h_{nom}/(mm)	h_1/(mm)	a/(mm)	d/(mm)	pcs.	pcs.
8750106	12x135	12	60	80	65	22	25	25
8750116	12x180	12	60	80	110	22	25	25
8750117	12x215	12	60	80	155	22	25	25

ACCESSORIES

Code	Type	Description	Pack	Carton
			pcs.	pcs.
8750206	ED	Spare anchor for EOP	100	100

E/PN

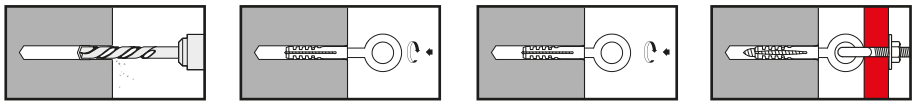
Anchoring system for scaffolding leaned on the ground to be used with additional connecting elements.
Suitable for concrete, stone and solid brick.

TECHNICAL DATA

Raw material: plug in polyamide (nylon).
Chromium zinc plated steel eyelets

BUILDING MATERIALS

INSTALLATION METHOD

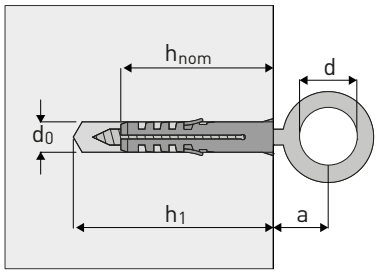


CHARACTERISTICS

- Body in polyamide 6, type E 14x100.
- Bent and welded eyelet in galvanized steel.

BENEFITS

- In-depth anchorage to the wall.
- Versatility of 'E' plug on the different building materials.
- Possibility of re-use the eyebolt.



Code	Type	Drilling ∅	Install. Depth	Drilling Depth	Dist. Wall-axis	Eyebolt	Pack	Carton
	E/PN	d_0/(mm)	h_{nom}/(mm)	h_1/(mm)	a/(mm)	d/(mm)	pcs.	pcs.
8701038	14/100	14	100	120	35	24	25	150
8717910	14/120	14	100	120	45	50	15	15
8717911	14/140	14	100	120	65	50	15	15
8717912	14/160	14	100	120	85	50	10	10
8717913	14/200	14	100	120	125	50	10	10

ACCESSORIES

Code	Type	Description	Pack	Carton
			pcs.	pcs.
8730043	EYELET 12x120	Spare eyelet 12x120/24	25	200
8701037	E 14X100	Spare anchor for E/PN	25	200

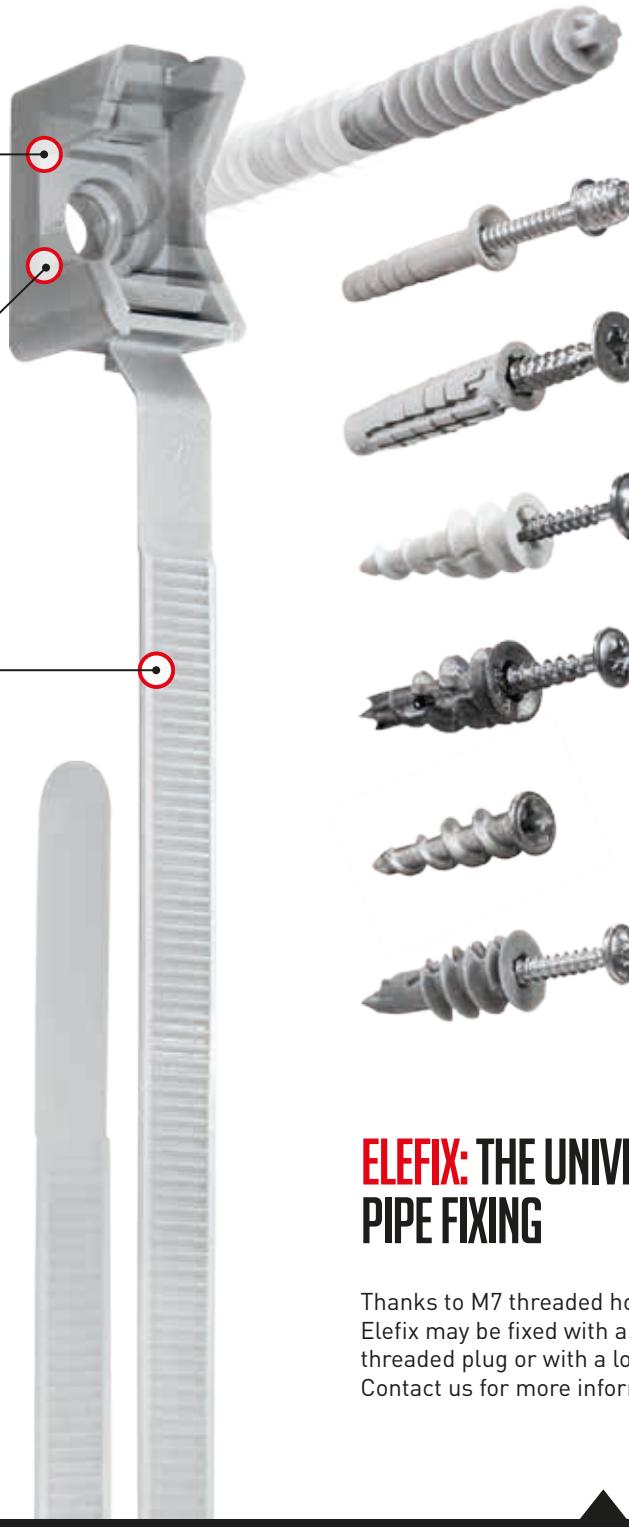
ELEFIX THE FAST AND EASY PIPE FIXING

THREADED HOLE
M7 threaded hole for fixing with threaded accessories or with anchors.

MULTI-MATERIAL
Elefix allows fixing on all the types of materials such as natural stone, concrete, hollow blocks and bricks, plasterboard and aerated concrete.

FLAMMABILITY
V2 according to UL 94
(grey and black versions)
V0 according to UL 94
(white version)

VERSATILE
The two versions permit the anchorage of conduits of rigid plastic and metal from Ø 16 to 63 mm.



THREADED HOLE

UCX VM

T6/VA

DRIVA NYLON

DRIVA

MINI DRIVA

T-CLICK

ELEFIX: THE UNIVERSAL PIPE FIXING

Thanks to M7 threaded hole,
Elefix may be fixed with a
threaded plug or with a lot of anchors!
Contact us for more informations

ELEMATIC®

ELEFIX

ELEFIX is an easy and quick accessory for the fixing of pipes and tubes.
It is available in grey version for indoor applications, on request in black color (UV resistant) and in white color for special applications where particular characteristics of flammability are required (UL 94 V0 and GW 960°C).

TECHNICAL DATA

Raw material:	polyamide 6.6, grey colour RAL 7035
Installation temperature:	-15°C ÷ 35°C
Working temperature:	-40°C ÷ +85°C
Flammability rating:	V2 according to UL 94 (grey and black versions) V0 according to UL 94 (white version)
Glow wire test:	850 °C according to IEC 60695-2-12 (grey and black version) 960 °C according to IEC 60695-2-12 (white version)
Min tensile strength:	360 N

CERTIFICATIONS

Compliant with norm CEI EN 62275.

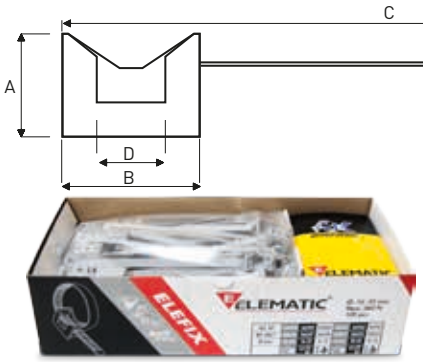
CE

CHARACTERISTICS

- The two versions: Ø 16-32 mm and Ø 40-63 mm permit the anchorage of conduits of rigid plastic and metal from Ø 16 to 63 mm.
- M7 threaded hole for fixing with threaded accessories or with anchors.

BENEFITS

- The ELEFIX range integrated with the proper anchor, allows the fixing on all the types of materials such as natural stone, concrete, hollow blocks and bricks, plasterboard and aerated concrete.
- The packaging offers to the end users an excellent functionality: in fact into the box you can find an empty space that permits to contain the anchors chosen for the desired application.



Code	Type	Ø Nominal		Use	Dimensions (mm)				Tensile strength	Pack	Carton
	ELEFIX	(mm)	*		A	B	C	D	(N)	pcs.	pcs.
565958	16-32	16-32	■	internal	17,6	24,5	180	5,9	360	100	1.200
565961	40-63	40-63	■	internal	17,6	40,5	280	5,9	360	100	600
565959	16-32	16-32	■	UV stabilized	17,6	24,5	180	5,9	360	100	1.200
565962	40-63	40-63	■	UV stabilized	17,6	40,5	280	5,9	360	100	600
565960	16-32	16-32	□	GW 960° C	17,6	24,5	180	5,9	360	100	1.200
565963	40-63	40-63	□	GW 960° C	17,6	40,5	280	5,9	360	100	600

Black and white colors available on request (minimum order quantity).

LINKED PRODUCTS:

Threaded wall plug M7

SPECIAL FIXINGS

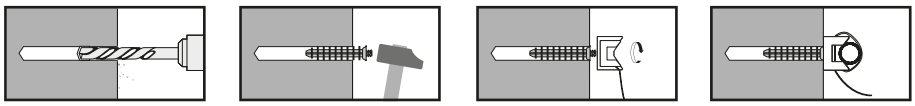
RECOMMENDED TRACTION LOADS

		Building material					
		Full material	Hollow material	Other supports			
							
Threaded anchor M7		85 N	-	-	-	-	30 N
UCX VM7		200 N	-	-	-	-	-
T6/VA 6x30 - 8x40		350 N**	230 N**	-	-	-	100 N
MINI DRIVA		-	-	30 N	30 N*	30 N	30 N
T-CLICK		-	-	90 N	90 N*	-	90 N
DRIVA		-	-	60 N	60 N*	60 N	60 N
DRIVA NYLON		-	-	40 N	40 N*	-	40 N

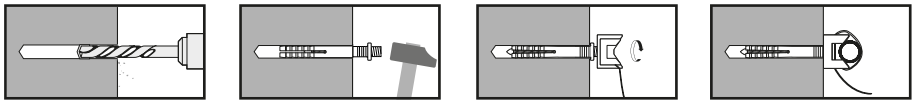
*with pre-drilling
**values obtained with T6/VA 8x40

INSTALLATION METHOD

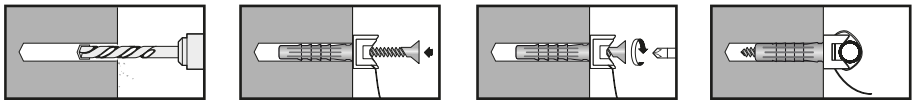
With anchor M7 (code: 565940)



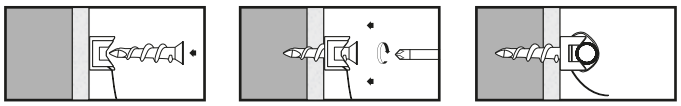
With UCX VM7 (cod. 8710017)



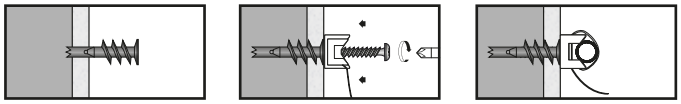
With T6/VA 6x30 (cod. 565390)



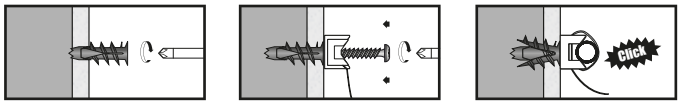
With Mini Driva (cod. 565398)



With Driva (cod. 8704226)



With T-Click (cod. 8704216)



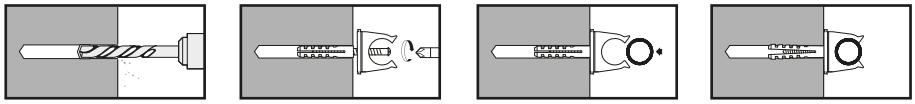
ECLIP

ECLIP is an open single clamp for the fixing of plastic insulated protection pipes and rigid tubes from ø 16 to 50 mm; the necessary accessory for the professional end user.
It can be installed with a light-duty anchor such as T6, E, UCX or with gas nailer.

TECHNICAL DATA

Raw material:	polypropylene, grey color RAL 7035
Installation temperature:	-5°C ÷ 35°C
Working temperature:	-30°C ÷ +55°C
Flammability rating:	HB according to UL 94
Glow wire test:	650 °C according to IEC 60695-2-12
Maximum strength to release:	up to 9 daN according to the dimension

INSTALLATION METHOD

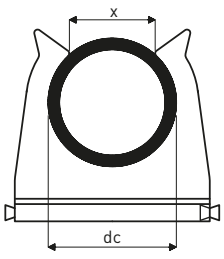


CHARACTERISTICS

- Reinforced structure in grey polypropylene.
- Rounded shape of the tabs for the facilitated accommodation of the pipes.
- An elongated hole for the regulation of the fixing.
- Interlocking slits for the support rails.
- Side hooks for the connection of other pipes saddles in series.

BENEFITS

- Rapid, well-ordered and economic installation of the rigid insulating pipes.
- Available in different sizes and packaging.
- Fixable also with gas nailer.



Code	Type	∅ Internal	Int. diameter	Resistance	Pack	Carton
	ECLIP	d_c/(mm)	x/(mm)	(daN)	pcs.	pcs.
13502116	16	15	10,5	6	100	1.000
13502120	20	19	12,5	7	100	1.200
13502125	25	24	15	6	100	1.200
13502135	32	30	20	9	50	600
13502140	40	38	25	7	50	600
13502150	50	48	32,5	7	20	200

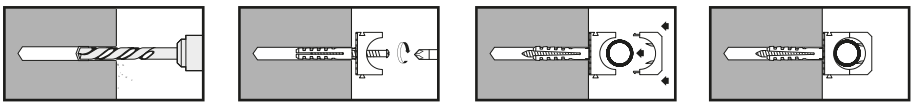
ECAV

ECAV is a double clamp system to fix pipes and tubes from 4 to 60 mm ø on wall and ceiling . It can be installed with light-duty anchors like T6, E, APR, UCX or with gas nailer.

TECHNICAL DATA

Raw material:	polyamide 6, grey color RAL 7035
Installation temperature:	-5°C ÷ 40°C
Working temperature:	-30°C ÷ +65°C
Flammability rating:	HB according to UL 94
Glow wire test:	650 °C according to IEC 60695-2-12
Maximum strength to release:	up to 50 daN according to the dimension

INSTALLATION METHOD

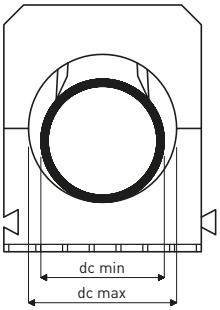


CHARACTERISTICS

- Self-extinguishing polyamide structure UL 94 class HB.
- Simple interlocking of the upper parts by pressure.
- The inside pressure of the flexible tabs permits to fix the pipes in right position, leaving the possibility of longitudinal movements.
- Side hooks for the joint connection in series.

BENEFITS

- Fixing with an highly resistance to the unhooking.
- The particular structure and the wide range it's perfectly suitable with the different measures of pipes and cables usually used in the electric systems.
- Fixable also with gas nailer.



Code	Type	∅ Min Pipe	∅ Max Pipe	Resistance	Pack	Carton
	ECAV	d_c min/(mm)	d_c max/(mm)	(daN)	pcs.	pcs.
13501008	8	4	8	10	200	1.200
13501012	12	8	12	10	100	1.000
13501016	16	12	16	23	75	750
13501020	20	16	23	20	50	500
13501025	25	20	25	25	50	500
13501032	32	25	32	31	25	250
13501040	40	32	40	40	20	200
13501050	50	40	60	50	15	150

LIGHT SINGLE CLIPS

Light single clips in zinc-plated steel to fix the stiff pipes and cables for electric systems.
Available for pipes of a diameter from 10 to 50 mm.

Code	Type	∅ Nominal	∅ Pipes IEC423	Pack	Carton
		(mm)	(mm)	pcs.	pcs.
8730200	light ZG 10	10	-	300	10.500
8730201	light ZG 13	13	-	200	7.000
8730202	light ZG 16	16	16	100	3.500
8730203	light ZG 20	20	20	100	3.500
8730204	light ZG 22	22	-	100	1.200
8730205	light ZG 24	24	-	100	1.200
8730206	light ZG 25	25	25	100	1.200
8730207	light ZG 26	26	-	100	1.200
8730208	light ZG 28	28	-	100	800
8730209	light ZG 32	32	32	50	600
8730210	light ZG 40	40	40	50	400
8730211	light ZG 50	50	50	50	600

HEAVY SINGLE CLIPS

Heavy single clips in zinc-plated steel to fix the light hydraulic and electrical piping.
Available for pipes of a diameter from 16 to 37 mm.

Code	Type	∅ Nominal	∅ Pipes IEC423	Pack	Carton
		(mm)	(mm)	pcs.	pcs.
8730240	single ZB 16	16	16	100	3.500
8730241	single ZB 19	19	-	100	800
8730242	single ZB 20	20	20	100	800
8730243	single ZB 22	22	-	50	400
8730244	single ZB 24	24	-	50	600
8730245	single ZB 28	28	-	50	600
8730246	single ZB 38	38	-	25	300
8730250	doubles ZB 16	16	16	100	3.500
8730251	doubles ZB 19	19	-	100	800
8730252	doubles ZB 20	20	20	100	800
8730253	doubles ZB 22	22	-	50	600
8730254	doubles ZB 28	28	-	50	400
8730255	doubles ZB 37	37	-	25	300

COLLARS M6

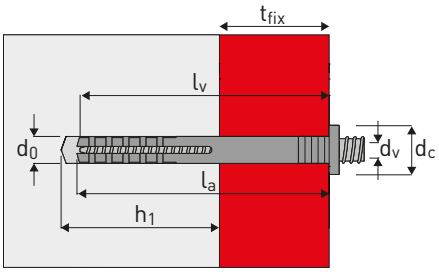
Zinc-plated steel collars with M6 connection to fix the light pipes, equipped with screws. Available also with UCX VM6 anchor. Available for pipes of a diameter from 10 to 60 mm.

Code	Type	Ø Nominal	Ø Pipes IEC423	Pack	Carton
	COLLARS	(mm)	(mm)	pcs.	pcs.
8730220	M6 - 10 ZG	10-11	-	100	3.500
8730221	M6 - 12 ZG	12-13	12	100	800
8730222	M6 - 14 ZG	14-15	-	100	800
8730223	M6 - 16 ZG	16-17	16	100	800
8730224	M6 - 18 ZG	18-19	18	100	800
8730225	M6 - 20 ZG	19-20	20	100	1.200
8730226	M6 - 22 ZG	21-22	-	100	1.200
8730227	M6 - 24 ZG	24-26	-	100	1.200
8730228	M6 - 26 ZG	25-26	-	100	1.200
8730229	M6 - 32 ZG	31-32	32	50	600
8730230	M6 - 40 ZG	38-40	-	25	200
8730231	M6 - 50 ZG	48-50	-	25	300
8730232	M6 - 60 ZG	60	-	25	300

UCX/VM

With cylindrical collar plug and metric screw

Plug with cylindrical collar, pre-assembled with zinc-plated screw, metric head, slot PH.



Code	Type	Drilling Ø	Plug length	Install. Depth	Drilling Depth	Ø Collar	Thread Screw	Pack	Carton
	UCX VM	d_0/(mm)	l_a/(mm)	h_{nom}/(mm)	h_1/(mm)	d_c/(mm)	Mxl/mm	pcs.	pcs.
8710014	M6/6x35	6	35	35	45	10	M6x10	100	3.200

NAIL

Nail in steel 18 mm for fixing of bands on the floor.

Code	Description	Pack	Carton
		pcs.	pcs.
8412122	Steel nail 18 mm	200	4.000

MANUAL NAIL SETTING TOOL

Hammer for nails realized with a special ergonomic handle for a better grip and hand protection.

Code	Description	Pack	Carton
		pcs.	pcs.
8412123	Manual nail setting tool	1	1

TEXTILE BAND

The textile band, made of polypropylene, is suitable for floor fixings. The product is available in a packaging of 10 rolls of 10 meters each.

Code	Description	Dimensions	Pack	Carton
		(mm)	(m)	pcs.
8412120	Textile band in rolls of 10 m	15 x 0,8	10	10

E/CL

Clamping system for the installation of pipelines for waterworks, sanitary and drainage systems. Suitable for concrete, solid and hollow bricks.
The standard packaging is a bag with 2 complete pieces.

APPLICATIONS

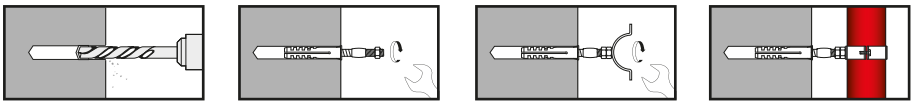
- Pipelines for waterworks.
- Pipelines for sanitary systems.
- Pipelines for discharge systems.

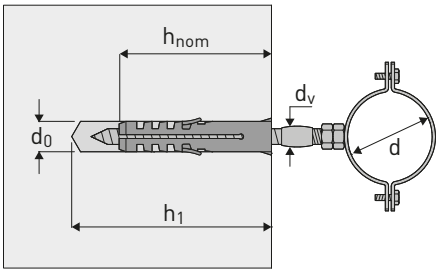
TECHNICAL DATA

Plug material:	polyamide 6
Collar material:	zinc-plated steel. Special zinc-plated VDF conjunction screw.

BUILDING MATERIALS

INSTALLATION METHOD





Code	Type	Ø Pipe	Nut	Ø Hole	Drilling Depth	Pack	Carton
	E/CL	d/(inch)	d_V/(mm)	d_0/(mm)	h_0/(mm)	pcs.	pcs.
8411001	3/8"	3/8"	M8	10	75	2	100
8411002	1/2"	1/2"	M8	10	75	2	100
8411003	3/4"	3/4"	M8	10	75	2	100
8411004	1"	1"	M8	10	75	2	100
8411005	1 1/4"	1 1/4"	M8	10	75	2	100
8411006	1 1/2"	1 1/2"	M8	10	75	2	100
8411007	2"	2"	M8	10	75	2	50
8411008	2 1/2"	2 1/2"	M8	10	75	2	50
8411009	3"	3"	M8	10	75	2	30
8411010	4"	4"	M8	10	75	2	30

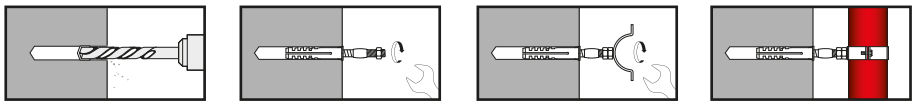
CL/Z

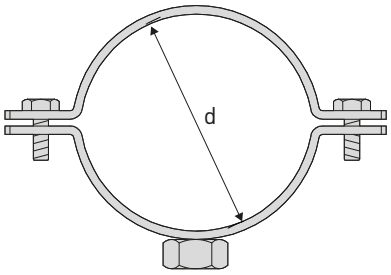
Collar with thread M8 nut for the installation of pipelines for waterworks and sanitary systems.
The standard packaging is a bag with 5 pieces.

TECHNICAL DATA

Raw material: zinc plating steel

INSTALLATION METHOD





Code	Type	∅ Pipe	Nut	Pack	Carton
	CL/Z	d/(inch)	d_v/(mm)	pcs.	pcs.
8411129	3/8"	3/8"	M8	5	100
8411130	1/2"	1/2"	M8	5	100
8411131	3/4"	3/4"	M8	5	100
8411132	1"	1"	M8	5	100
8411133	1 1/4"	1 1/4"	M8	5	100
8411134	1 1/2"	1 1/2"	M8	5	100
8411135	2"	2"	M8	5	50
8411136	2 1/2"	2 1/2"	M8	5	50
8411137	3"	3"	M8	5	50

EBAN

Bands for the suspension fixings or for the locking of pipes, ducts and cables in general. They are available in 3 different widths for 2 different thicknesses.

BENEFITS

- The drilling permits the application and the locking with standard M4, M6, M8 nuts and bolts or the passing fixing using plugs.

TECHNICAL DATA

Raw material: provided in different materials, from galvanized steel to stainless steel AISI 316 to copper.

Code	Type	Dimensions	∅ Internal hole	Distance Holes	Roll	Pack	Carton
	EBAN	(mm)	(mm)	(mm)	(m)	pcs.	pcs.
8412001	Zinc-plated steel	12 x 0,8	4,95	16	10	1	10
8412002	Zinc-plated steel	17 x 0,8	6,95	20	10	1	10
8412003	Zinc-plated steel	26 x 1,0	7,95	25	10	1	10
8412102	Stainless steel	17 x 0,8	6,95	20	10	1	10
8412011	Copper	12 x 0,8	4,95	16	10	1	10

EDS

Hexagonal spacers for different kinds of connections in the industrial and civil engineering field.
Available with different diameters and in the female-female or male-female versions.

TECHNICAL DATA

Raw material: treated steel with electrolytic zinc plating

Cod. FF	Cod. MF	Type	Dim. Thread	Male length Thread	Length Total	Wrench	Pack	Carton
			d_v/(mm)	l_v/(mm)	l/(mm)	k/(mm)	pcs.	pcs.
8720001	**8720011**	6x20	M6	12	20	10	100	1.200
8720002	**8720012**	6x30	M6	12	30	10	100	1.200
8720003	**8720013**	6x40	M6	12	40	10	50	600
-	**8720014**	6x50	M6	12	50	10	50	600
8720004	**8720015**	8x20	M8	12	20	13	100	800
8720005	**8720016**	8x30	M8	12	30	13	100	800
8720006	**8720017**	8x40	M8	12	40	13	50	400
-	**8720018**	8x50	M8	12	50	13	50	400
8720007	**-**	10x20	M10	-	20	17	100	800
8720008	**-**	10x30	M10	-	30	17	50	400
8720009	**-**	12x30	M12	-	30	19	50	400

FIXINGS FOR WATER HEATERS, CONDITIONING SYSTEMS AND SAFE-DEPOSIT BOXES

EMB

EMC

EB/SB

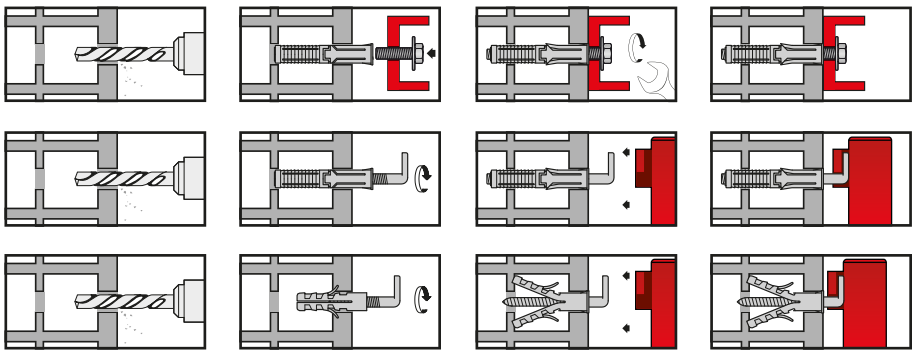
Anchors for the fixing of water heaters, support stirrups and flushing water cisterns for sanitary equipment.

TECHNICAL DATA

Raw material: plug in polyamide 6

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS EMB-EMC

- EMB-EMC are wall fixings systems for water heaters and suspended bathroom fixtures.
- Expansion cone assembled with screw or hook in zinc plated galvanized steel ≥ 5 µ.

CHARACTERISTICS EB/SB

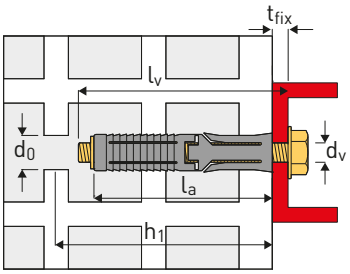
- ES/SB is a fixing for the flushing water cisterns and the sanitary systems, distributed with threaded hooks.
- Using the EB system, you can obtain an high performance associated with a versatility, to most of the building materials.

BENEFITS

- Efficient fixing and strong grip also on hollow brick or aerated concrete.

EMB

Anchor for the fixing of support stirrups for bathroom fixtures and air conditioning systems.

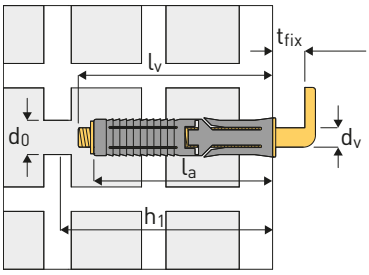


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8719812	EMB 12x70	12	70	80	3	M8x80	2	200
8719814	EMB 14x75	14	75	90	4	M10x90	2	200
8719922	EM 12x70*	12	70	80	-	-	2	200
8719924	EM 14x75*	14	75	90	-	-	2	200

* Spare part: expander body + metallic cone

EMC

Anchor for the fixing of water heaters. Suitable for hollow brick and perforated brick.

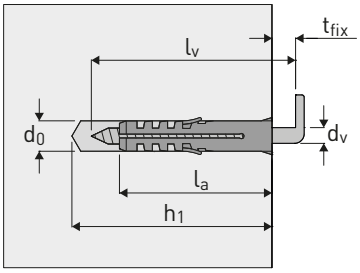


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8719714	EMC 14x75	14	75	90	11	M10x95	2	100
8719924	EM 14x75*	14	75	90	-	-	2	200

* Spare part: expander body + metallic cone

EB/SB

Anchor for the fixing of the flushing cisterns and of the plumbing-sanitary systems equipped with mordant threaded hooks. Suitable for concrete, solid brick, perforated brick and stone.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8714101	EB/SB 8x65	10	60	75	-	8x45	2	100
8714102	EB/SB 10x75	12	60	75	-	10x75	2	100
8714103	EB/SB 10x95	12	60	75	-	10x95	2	100
8714104	EB/SB 10x120	14	75	95	-	10x120	2	100

FIXINGS FOR BATHROOM FIXTURES

ETS/V

ETS/P

ETS/L

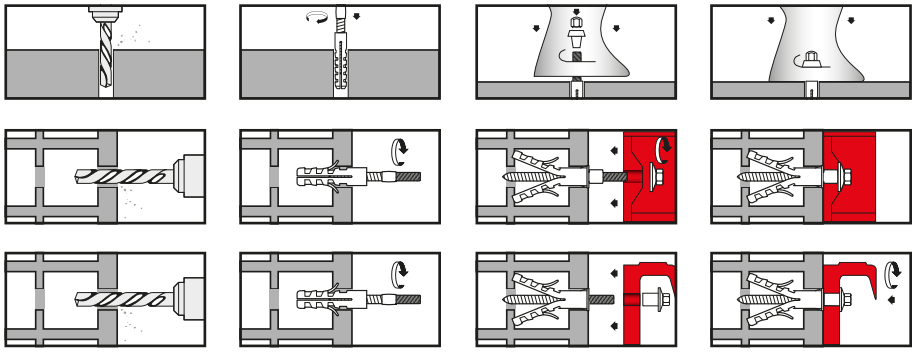
Fixings for floor and wall bathroom fixtures, suitable on concrete, hollow and standard bricks.

TECHNICAL DATA

Raw material:	plug and bushing in nylon. Screw in tropicalized brass steel or stainless steel (ETS/V). Zinc-plated screw (ETS/P and ETS/L)

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS ETS/V

- Fixing of bathroom fixtures to the floor.
- Expansion through the screwing.
- Easy and fast installation.
- Full isolation between the fixing's metallic parts and the ceramic of the bathroom fixture.

CHARACTERISTICS ETS/P

- Fixing system for the installation of the flushing water cisterns on the wall.
- Full isolation between screw and enamel of the fixed appliance.

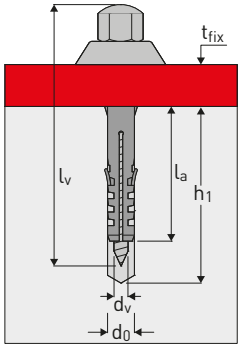
CHARACTERISTICS ETS/L

- Fixing system for the installation of bathroom fixtures to the wall.
- Components produced using high resistance materials.
- Full isolation between the appliance porcelain and the metallic screw.

ETS/V

For floor fixings

Plug with nylon adaptable crown with special tropicalized brass or stainless steel and nickel coated blind nut for the finishing.

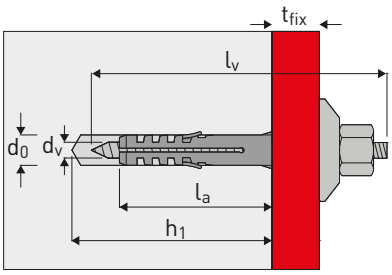


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETS/V	d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8714201	Tropicalized	10	60	70	-	M6x76	4	200
8714202	Brass	10	60	70	-	M6x76	4	200
8714203	Stainless steel	10	60	70	-	M6x76	4	200

ETS/P

For wall fixings of water flushing cisterns

Nylon anchor with double threaded zinc-plated conjunction screw and , insulated collar to prevent contact between the different materials and special polyamide nut.

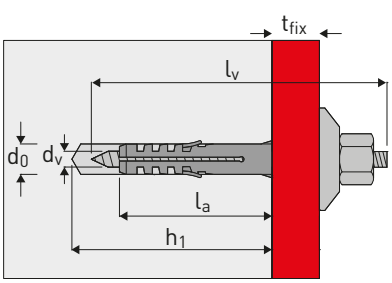


Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
		d_0/(mm)	l_a/(mm)	h_1/(mm)	t_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8714000	ETS/P	10	60	75	-	M8x90	2	100

ETS/L

For wall fixings

Nylon plug with zinc-plated conjunction screw and special polyamide nut.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Max Fixable Thick	Screw dim.	Pack	Carton
	ETS/L	d_0/(mm)	l_a/(mm)	h_1/(mm)	f_{fix}/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8714301	8x90	10	60	70	-	M8x90	2	100
8714302	8x100	10	60	70	-	M8x100	2	100
8714303	10x100	12	60	75	-	M10x100	2	100
8714304	10x120	12	60	75	-	M10x120	2	100
8714305	10x140	14	75	95	-	M10x140	2	100
8714306	10x180	14	75	95	-	M10x180	2	100

WATER HEATERS FIXINGS

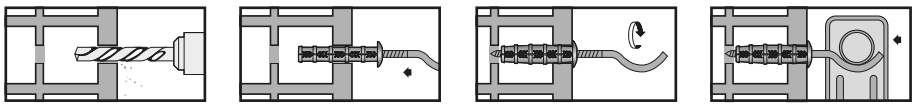
Fixing systems for the installation of aluminum, cast iron and lamellar radiators.
Suitable for concrete, solid brick and perforated brick.

TECHNICAL DATA

Raw material:	high-strenght polymer plug. Zinc-plated shelves

BUILDING MATERIALS

INSTALLATION METHOD



CHARACTERISTICS

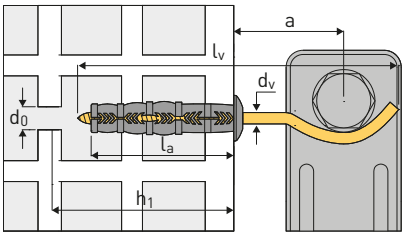
- Plug in polymer with high resistance to degradation factors.
- Expansion through the percussion of the metallic shelf.
- Metallic shelf with a special geometry thread and a basic zinc-coating treatment ≥ 5 µ.

BENEFITS

- Quick installation by hammering.
- Possibility to adjust the distance between the wall and the radiator axis thanks to the special drawing of the shelf.

EA

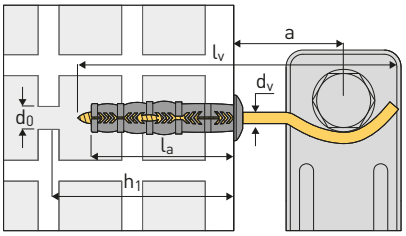
Anchor for the fixing of the aluminum radiators to the wall.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Dist. from wall Radiator axis	Screw dim.	Pack	Carton
	EA	d_0/(mm)	l_a/(mm)	h_1/(mm)	a/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8751021	Z 7 zinc-plated	10	100	110	adjustable	7x170	2	100
8751022	V 7 zinc./ coat.	10	100	110	adjustable	7x170	2	100

EG

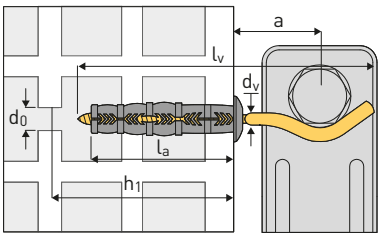
Anchoring for the fixing of the cast iron radiators to the wall.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Dist. from wall Radiator axis	Screw dim.	Pack	Carton
	EG	d_0/(mm)	l_a/(mm)	h_1/(mm)	a/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8751001	3 2-3 columns	16	90	100	adjustable	12x205	2	100
8751002	4 3-4 columns	16	90	100	adjustable	12x230	2	100
8751003	6 4-6 columns	16	90	100	adjustable	12x260	2	100

EP

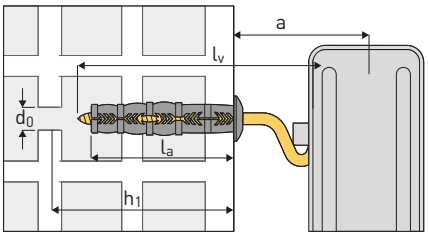
Anchor with flat shelves for the fixing of the aluminum radiators to the wall.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Dist. from wall Radiator axis	Screw dim.	Pack	Carton
	EP	d_0/(mm)	l_a/(mm)	h_1/(mm)	a/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8751031	Z 7 zinc-plated	10	100	110	70	7x170	2	100
8751032	V 7 zinc./ coat.	10	100	110	70	7x170	2	100

EML

Anchor for the fixing of lamellar radiators.



Code	Type	Drilling Ø	Plug length	Drilling Depth	Dist. from wall Radiator axis	Screw dim.	Pack	Carton
	EML	d_0/(mm)	l_a/(mm)	h_1/(mm)	a/(mm)	$d_v \cdot l_v$/(mm)	pcs.	pcs.
8751011	7	12	80	95	adjustable	7x130	2	100

EMS

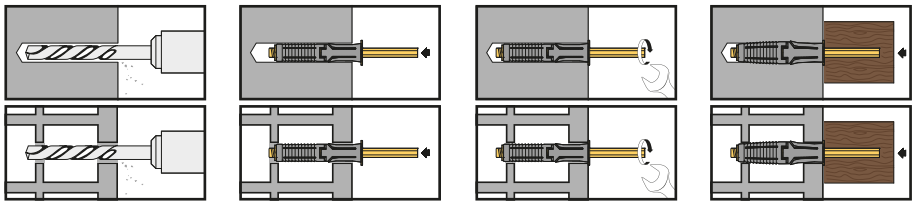
Fixing system for the installation of wood hanging shelves on solid masonry, semi-hollowed, hollow bricks and lightened blocks.

TECHNICAL DATA

Plug material:	polyamide 6, grey color RAL 7035 with metal cone
Bracket material:	zinc plating steel

BUILDING MATERIALS

INSTALLATION METHOD

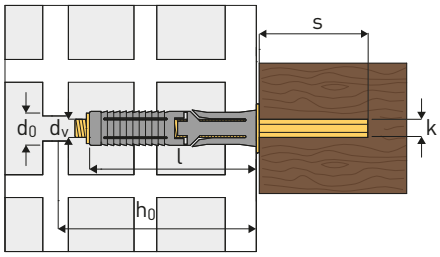


CHARACTERISTICS

- Plug in polyamide (nylon) special structure, with expansion distributed across multiple sectors.
- Hexagonal steel bracket galvanized and yellow passivated.

BENEFITS

- Optimal expansion load distribution of the anchor with maximum exploitation of the bearing capacity of walls built with lightweight materials too.
- High aesthetic finish: no bulky supports under the shelf.



Code	Type	Drilling Ø	Plug length	Min. Drilling Depth	Hole Shelf	Projection hex. bar	Wrench	Pack	Carton
	EMS	d_0/(mm)	l_s/(mm)	h_0/(mm)	d|ddd|/ (mm)	s/(mm)	k/(mm)	pcs.	pcs.
8719101	12.9.70	12	70	75	9	70	8	50	200
8719102	12.9.100	12	70	75	9	100	8	50	200
8719103	12.9.120	12	70	75	9	120	8	50	200
8719104	12.9.140	12	70	75	9	140	8	50	200
8719105	12.12.100	12	70	75	12	100	10	20	80
8719106	12.12.120	12	70	75	12	120	10	20	80
8719107	12.12.140	12	70	75	12	140	10	20	80
8719108	14.14.120	14	75	80	14	120	13	20	80
8719109	14.14.145	14	75	80	14	145	13	20	80
8719110	14.14.170	14	75	80	14	170	13	20	80

SILICONES AND SEALANTS

ACETIC SILICONE UNIVERSAL ANTI-MILDEW

APPLICATIONS

- Joints at high elasticity on glass, ceramic, wood, anodized aluminum, metal gaskets and stainless steel.
- Ideal in construction and hygienic-sanitary field.

CHARACTERISTICS

- Supplemented with anti-mildew agent and detergent resistant.
- Adheres perfectly on compact and non-porous supports (excluding di PP, PE, PTFE).
- Not indicated on metal surfaces or on natural stone, marble and granite.
- Good resistance to ozone, UV rays and atmospheric agents.
- Not paintable.

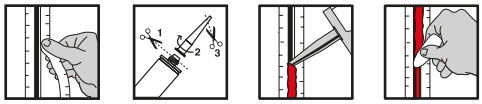
TECHNICAL DATA

Skin formation time:	15-30 min (23°C, 50% H.R.)
Reticulation speed:	2 mm/24h (23°C, 50% H.R.)
Application temperatures:	+5 ÷ +40 °C
Operating temperatures:	-40 ÷ +100 °C
Storage:	12 months

CERTIFICATIONS

CE

SETTING METHOD



Code	Description		Q.ty	Pack
			(ml)	pcs.
8708220	Acetic silicone transparent		280	24
8708221	Acetic silicone white RAL 9.010		280	24
8708222	Acetic silicone grey RAL 7.042		280	24
8708223	Acetic silicone black RAL 9.005		280	24
8708224	Acetic silicone beige RAL 1.013		280	24
8708225	Acetic silicone brown RAL 8.028		280	24
8708226	Acetic silicone dark brown RAL 8.019		280	24
8708227	Acetic silicone green RAL 6.005*		280	24
8708270	Metal gun for silicons.	-	-	1

* available upon request (minimum quantities).

NEUTRAL SILICONE LOW FORM

BENEFITS

- Solvent-free and odorless.
- Adheres perfectly on compact and porous supports.
- Maintains permanent elasticity.
- Resistant to ozone, UV rays and weather resistant.
- Non-corrosive to metals.
- Not paintable.

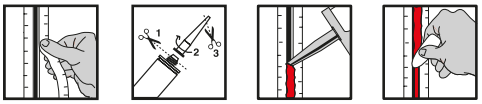
APPLICATIONS

- Sealing and fixings of joints of concrete, wood, anodized aluminum, stainless steel.
- Sealing of plastics materials (excluding PP, PE, PTFE, PVC) and refractories (both porous and smooth).

TECHNICAL DATA

Skin formation time:	20-35 min (23°C, 50% H.R.)
Reticulation speed:	> 2 mm/24h (23°C, 50% H.R.)
Application temperatures:	+5 ÷ +40 °C
Operating temperatures:	-50 ÷ +150 °C
Storage:	12 months

SETTING METHOD



APPROVALS/CERTIFICATIONS

CE G-25LM F-25LM ISO 11600

Code	Description		Q.ty (ml)	Pack pcs.
8708229	Neutral silicone transparent		310	24
8708230	Neutral silicone white RAL 9.010		310	24
8708231	Neutral silicone grey RAL 7.042		310	24
8708232	Neutral silicone black RAL 9.005		310	24
8708233	Neutral silicone dark brown RAL 8.019		310	24
8708234	Neutral silicone beige RAL 1.013		310	24
8708235	Neutral silicone red of Siena RAL 3.009		310	24
8708239	Neutral silicone copper RAL 8.004		310	24
8708270	Metal gun for silicons.	-	-	1

ACRYLIC SEALANT

BENEFITS

- Odor-free and solvent-free.
- Good adhesion even on wet surfaces.
- Excellent resistance to atmospheric agents.
- Usable outside.
- Resistant to aging.
- Paintable after reticulation.

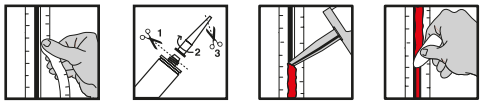
APPLICATIONS

- Sealing of joints between window frames and masonry, inner bins for blinds, wooden boards for windows, plastered walls.
- Filling of cracks and corrections of concrete.
- Suitable for internal sealing on porous surfaces.

TECHNICAL DATA

Skin formation time:	about 10-20 min (23°C, 50% H.R.)
Reticulation speed:	about 2 mm/24h (23°C, 50% H.R.)
Application temperatures:	+5 ÷ +40 °C
Operating temperatures:	-20 ÷ +80 °C
Storage:	18 months

SETTING METHOD



Code	Description		Q.ty	Pack
			(ml)	pcs.
8708236	White acrylic sealant		280	24
8708237	Grey acrylic sealant		280	24
8708270	Metal gun for silicons.	-	-	1

HIGH TEMPERATURES SILICONE

BENEFITS

- Permanent elasticity.
- Resistant to high temperatures, with peaks of 350 ° C.
- Adheres perfectly on compact and smooth supports (excluding PP, PE, PTFE).

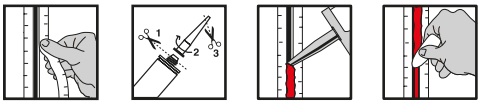
APPLICATIONS

- Elastic joints subjected to high operating temperatures as metal chimneys, stoves, ovens, furnaces, dryers.

TECHNICAL DATA

Skin formation time:	about 10 min (23°C, 50% H.R.)
Reticulation speed:	> 3 mm/24h (23°C, 50% H.R.)
Application temperatures:	+5 ÷ +40 °C
Operating temperatures:	-60 ÷ +250 °C, peaks of 350 °C
Storage:	12 months

SETTING METHOD



Code	Description		Q.ty	Pack
			(ml)	pcs.
8708228	High temperatures silicone red		310	24
8708270	Metal gun for silicons.	-	-	1

ASPHALT SEALANT

BENEFITS

- Applicable on wet surfaces.
- Ideal for materials such as laminates, aluminum, galvanized metal, concrete, and even wood.
- UV rays resistant and occasionally to solvents except white spirit or mineral oils.
- Not paintable.
- Not compatible with other sealants.

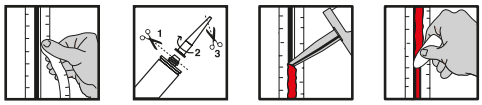
APPLICATIONS

- Bonding and sealing of roofs, tiles, polymer surfaces without plasticizer additives, paving tiles and insulation materials (with the exception of PS foam).
- Specific for the waterproofing of joints or fasteners on bituminous sheathes.

TECHNICAL DATA

Viscosity:	thixotropic paste
Open time:	< 20 min (23°C, 50% H.R.)
Flash point:	56 °C
Leakage:	Absent
Application temperatures:	+5 ÷ +35 °C
Operating temperatures:	-35 ÷ +90 °C
Storage:	24 months

SETTING METHOD



Code	Description		Q.ty	Pack
			(ml)	pcs.
8708257	Bituminous waterproofing sealant	■	310	12
8708270	Metal gun for silicons.	-	-	1

STRUCTURAL POLYURETHANE ADHESIVE CLASS D4

BENEFITS

- Structural use in joinery, carpentry and construction.
- It allows you to quickly pair a variety of materials such as wood, plastic materials, metal, brick, concrete and paving tiles.
- Paintable after reticulation.

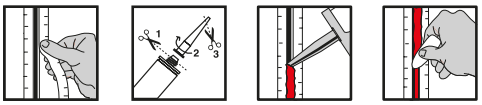
APPLICATIONS

- Water and aging resistant permanent bonding for outdoor use
- Bonding of wood elements, corners of doors or windows and insulation panels.

TECHNICAL DATA

Viscosity:	thixotropic paste
Open time:	8 - 10 min (23°C, 50% H.R.)
Initial set:	about 25 min (wood/wood)
Complete polymerisation:	Porous surfaces 12 - 24 h Non-porous surfaces about 48 h
Leakage:	Absent
Application temperatures:	+5 ÷ +35 °C
Operating temperatures:	-40 ÷ +80 °C
Storage:	24 months

SETTING METHOD



COMPLIANCE

According to the DIN-EN 204-D4 norms

D4
DIN EN 204

Code	Description		Q.ty	Pack
			(ml)	pcs.
8708238	Beige structural polyurethane adhesive		310	24
8708270	Metal gun for silicons.	-	-	1

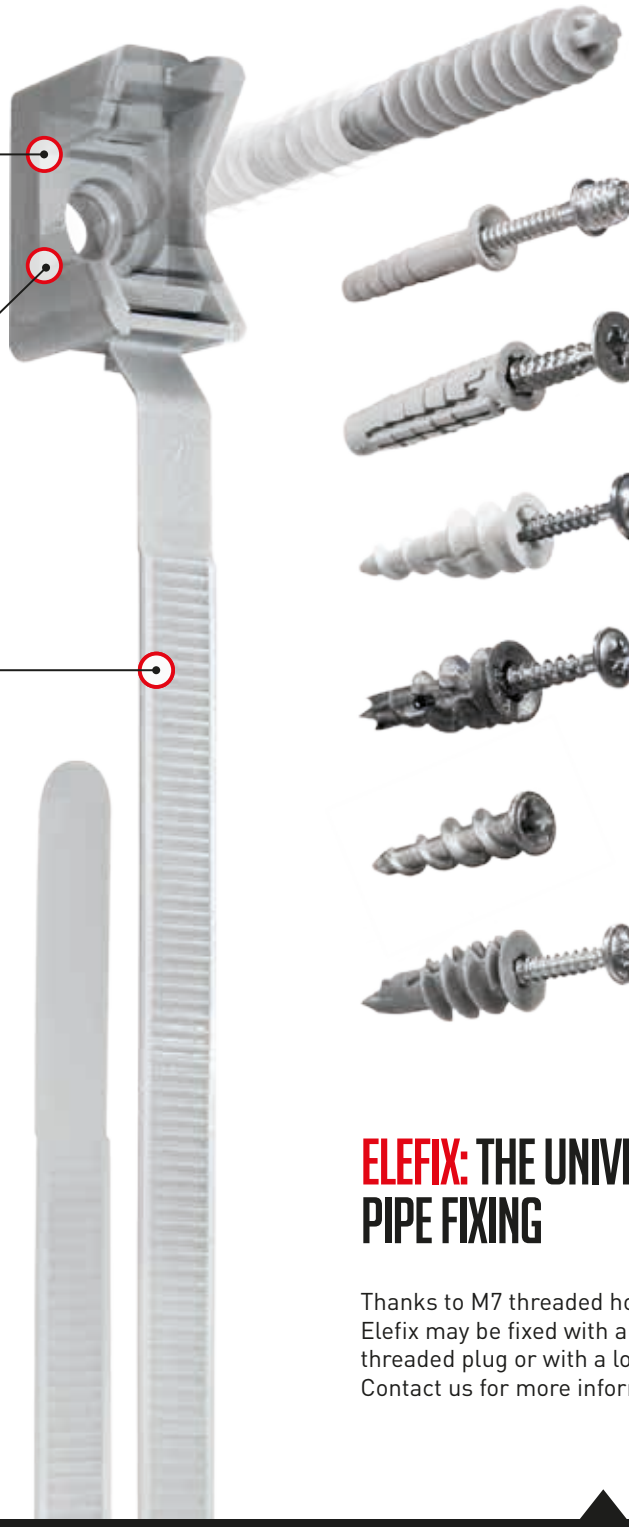
ELEFIX THE FAST AND EASY PIPE FIXING

THREADED HOLE
M7 threaded hole for fixing with threaded accessories or with anchors.

MULTI-MATERIAL
Elefix allows fixing on all the types of materials such as natural stone, concrete, hollow blocks and bricks, plasterboard and aerated concrete.

FLAMMABILITY
V2 according to UL 94
(grey and black versions)
V0 according to UL 94
(white version)

VERSATILE
The two versions permit the anchorage of conduits of rigid plastic and metal from Ø 16 to 63 mm.



THREADED HOLE

UCX VM

T6/VA

DRIVA NYLON

DRIVA

MINI DRIVA

T-CLICK

ELEFIX: THE UNIVERSAL PIPE FIXING

Thanks to M7 threaded hole,
Elefix may be fixed with a
threaded plug or with a lot of anchors!
Contact us for more informations

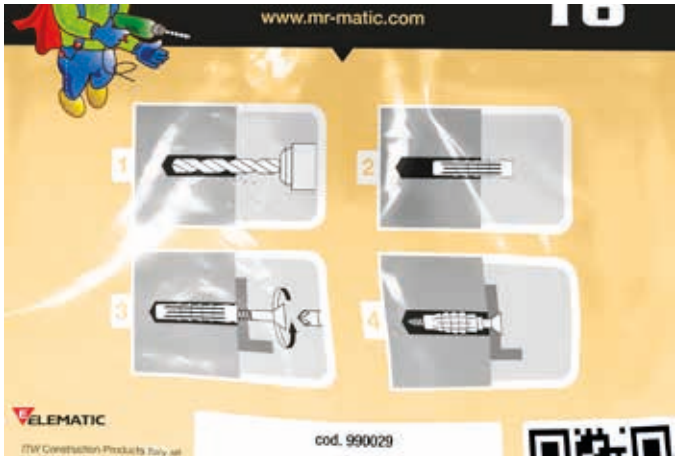
ELEMATIC®

WALL STANDS

MR. MATIC

Mr. Matic is the fixing programme in blisters dedicated to the do it yourself, where in the centre of the communication there is **immediacy** and the **semplicity** of use
The necessary for the domestic fixings within a designed package where you can easily identify what and how to fix! The program is divided for rooms of applications **(kitchen, living room, bedroom, bathroom, garage and outdoor)** and use **(shelves, TV, air conditioner, lamps, etc.....)**.
In each bag is indicated the load supported and the method of installation.

Clear and immediate: all the instructions are represented exclusively by understandable images.



www.mr-matic.com: Mr. Matic is also online with a convenient and intuitive choice for your fixings.

KITCHEN

Fixings in Mr Matic in blister - Kitchen

Code	Description	Pack	Carton
		pcs.	pcs.
990000	ETAF/OA 4/12	2	10
990001	ETAF/OA 4/14	2	10
990002	EMS 12.9.100	2	10
990003	EMS 12.9.120	2	10
990004	EMS 12.12.140	2	10
990005	EMS 14.14.120	2	10
990006	EMS 14.14.145	2	10
990007	EMS 14.14.170	2	10
990008	ENP/V 9x40	6	10
990009	ENP/GC 9x40	6	10
990010	ENP/GM 9x40	6	10
990011	ENP/OA 9x40	6	10
990012	ENP/OC 9x40	6	10
990013	ENP/V 12x45	4	10
990014	ENP/GC 12x45	4	10
990015	ENP/GM 12x45	4	10
990016	ENP/OA 12x45	4	10
990017	ENP/OC 12x45	4	10
990018	EB 5x25	36	10
990019	EB 6x30	30	10
990020	EB 8x40	20	10
990021	EB/VA 5x25	20	10
990022	EB/VA 6x30	16	10
990023	EB/VA 8x40	10	10
990024	EB/VA 10x50	4	10
990025	T6 5x25	36	10
990026	T6 6x30	30	10
990027	T6 8x40	20	10
990028	T6 10x50	10	10
990029	T6/VA 5x25	20	10
990030	T6/VA 6x30	16	10
990031	T6/VA 8x40	10	10
990032	T6/VA 10x50	4	10

LIVING ROOM

Fixings in Mr Matic blister - Living room

Code	Description	Pack	Carton
		pcs.	pcs.
990033	T2 5x25	36	10
990034	T2 6x30	30	10
990035	T2 8x40	20	10
990036	T2 10x50	10	10
990037	T2/VA 5x25	20	10
990038	T2/VA 6x30	16	10
990039	T2/VA 8x40	10	10
990040	T2/VA 10x50	4	10
990041	ENP/V 9x40	6	10
990042	ENP/V 12x45	4	10
990043	T61/VP 9x40	4	10
990044	T6/VA 8x40	10	10
990045	T6/VA 10x50	4	10
990046	E/GO 4x20	10	10
990047	ENP/GC 9x40	6	10
990048	T61/GC 9x40	4	10
990049	T-CLICK TP 10	4	10
990050	DRIVA NYLON	10	10
990051	DRIVA TP 12	4	10

MR. MATIC //

BEDROOM

Fixings in Mr Matic blister - Bedroom

Code	Description	Pack	Carton
		pcs.	pcs.
990052	ETAF/OA 4/12	2	10
990053	ETAF/OA 4/14	2	10
990054	T4/VA 6x45	10	10
990055	T4/VA 8x50	8	10
990056	T4/VA 10x60	4	10
990057	ENP/GC 9x40	6	10
990058	ENP/GC 12x45	4	10
990059	T61/GC 9x40	4	10
990060	T-CLICK TP 10	4	10
990061	DRIVA NYLON	10	10
990062	DRIVA TP 12	4	10

MR. MATIC //

BATHROOM

Fixings in Mr Matic blister - Bathroom

Code	Description	Pack	Carton
		pcs.	pcs.
990063	T2 5x25	36	10
990064	T2 6x30	30	10
990065	T2 8x40	20	10
990066	T2 10x50	10	10
990067	T2/VA 5x25	20	10
990068	T2/VA 6x30	16	10
990069	T2/VA 8x40	10	10
990070	T2/VA 10x50	4	10
990071	ENP/V 9x40	6	10
990072	ENP/V 12x45	4	10
990073	ENP/GC 9x40	6	10
990074	ENP/GC 12x45	4	10
990075	T6/VA 6x30	16	10
990076	T6/VA 8x40	10	10
990077	T6/VA 10x50	4	10
990078	ETS/V Tropicalized	2	10
990079	ETS/V Inox	2	10
990080	ETS/L 8x90	2	10
990081	ETS/L 10x120	2	10

MR. MATIC //

GARAGE

Fixings in Mr Matic blister - Garage

Code	Description	Pack	Carton
		pcs.	pcs.
990082	T6/VA 8x40	10	10
990083	T6/VA 10x50	4	10
990084	T2/VA 6x30	16	10
990085	T2/VA 8x40	10	10
990086	LE/B M6	4	10
990087	LE/B M8	4	10
990088	ENP/GC 9x40	6	10
990089	T61/GC 9x40	4	10

MR. MATIC //

OUTDOOR

Fixings in Mr Matic blister - Outdoor

Code	Description	Pack	Carton
		pcs.	pcs.
990090	APS/V 8x80	10	10
990091	APS/V 8x120	10	10
990092	APS/V 8x100	10	10
990093	APS/V 10x80	6	10
990094	APS/V 10x100	8	10
990095	PIOVRA/B M6	2	10
990096	PIOVRA/B M8	2	10
990097	T6/VA 6x30	16	10
990098	T6/VA 8x40	10	10
990099	T6/VA 10x50	4	10

MR. 100

Mr Matic Wall Stand 1,00 mtr

Code	Description		Position	Pack	Wall Stand
				pcs.	pcs.
990161	1 mtr stand				
Assortment					
990018	EB	5x25	1	36	10
990021	EB/VA	5x25	2	20	10
990019	EB	6x30	3	30	10
990022	EB/VA	6x30	4	16	30
990020	EB	8x40	5	20	10
990023	EB/VA	8x40	6	10	20
990024	EB/VA	10x50	7	4	10
990025	T6	5x25	8	36	10
990029	T6/VA	5x25	9	20	10
990026	T6	6x30	10	30	20
990030	T6/VA	6x30	11	16	30
990027	T6	8x40	12	20	10
990031	T6/VA	8x40	13	10	20
990028	T6	10x50	14	10	10
990032	T6/VA	10x50	15	4	10
990008	ENP/V	9x40	16	6	20
990011	ENP/OA	9x40	17	6	10
990009	ENP/GC	9x40	18	6	20
990013	ENP/V	12x45	19	4	20
990016	ENP/OA	12x45	20	4	10
990014	ENP/GC	12x45	21	4	20
990037	T2/VA	5x25	22	20	10
990038	T2/VA	6x30	23	16	30
990039	T2/VA	8x40	24	10	20
990040	T2/VA	10x50	25	4	10
990049	T-CLICK	TP 10	26	4	10
990050	DRIVA NYLON		27	10	20
990051	DRIVA TP 12		28	4	10
990046	E/GO	4x20	29	10	20
990043	T61/VP	9x40	30	4	10
990048	T61/GC	9x40	31	4	10
990044	T6/VA	8x40	32	10	20
990045	T6/VA	10x50	33	4	10
990047	ENP/GC	9x40	34	6	20
990041	ENP/V	9x40	35	6	20
990054	T4/VA	6x45	36	10	10
990055	T4/VA	8x50	37	8	10
990056	T4/VA	10x60	38	4	10
990052	ETAF/OA	4/12	39	2	10
990053	ETAF/OA	4/14	40	2	10

Code	Description		Position	Pack	Wall Stand
				pcs.	pcs.
990057	ENP/GC	9x40	41	6	20
990058	ENP/GC	12x45	42	4	20
990078	ETS/V Tropicalized		43	2	10
990079	ETS/V Inox		44	2	10
990080	ETS/L	8x90	45	2	10
990081	ETS/L	10x120	46	2	10
990075	T6/VA	6x30	47	16	20
990076	T6/VA	8x40	48	10	10
990063	T2	5x25	49	36	10
990067	T2/VA	5x25	50	20	10
990064	T2	6x30	51	30	20
990068	T2/VA	6x30	52	16	30
990065	T2	8x40	53	20	10
990069	T2/VA	8x40	54	10	20
990066	T2	10x50	55	10	10
990070	T2/VA	10x50	56	4	10
990071	ENP/V	9x40	57	6	20
990073	ENP/GC	9x40	58	6	20
990072	ENP/V	12x45	59	4	20
990074	ENP/GC	12x45	60	4	20
990089	T61/GC	9x40	61	4	10
990084	T2/VA	6x30	62	16	20
990085	T2/VA	8x40	63	10	10
990086	LE/B	M6	64	4	10
990087	LE/B	M8	65	4	10
990082	T6/VA	8x40	66	10	20
990083	T6/VA	10x50	67	4	10
990097	T6/VA	6x30	68	16	20
990098	T6/VA	8x40	69	10	10
990099	T6/VA	10x50	70	4	10
990095	PIOVRA/B	M6	71	2	10
990096	PIOVRA/B	M8	72	2	10
990090	APS/V	8x80	73	10	10
990092	APS/V	8x100	74	10	10
990091	APS/V	8x120	75	10	10
990093	APS/V	10x80	76	6	10
990094	APS/V	10x100	77	8	10
990002	EMS	12.9.100	78	2	20
990003	EMS	12.9.120	79	2	20
990004	EMS	12.12.140	80	2	20
990005	EMS	14.14.120	81	2	20
990006	EMS	14.14.145	82	2	20
990007	EMS	14.14.170	83	2	20

MR. 133

Mr Matic Wall Stand 1,33 mtr

Code	Description		Position	Pack	Wall Stand
				pcs.	pcs.
990160	1,33 mtr stand				
Assortment					
990000	ETAF/OA	4/12	26	2	20
990001	ETAF/OA	4/14	27	2	20
990002	EMS	12.9.100	1	2	20
990003	EMS	12.9.120	2	2	20
990004	EMS	12.12.140	3	2	20
990005	EMS	14.14.120	4	2	20
990006	EMS	14.14.145	5	2	20
990007	EMS	14.14.170	8	2	20
990008	ENP/V	9x40	31	6	20
990009	ENP/GC	9x40	28	6	20
990010	ENP/GM	9x40	29	6	10
990011	ENP/OA	9x40	30	6	10
990012	ENP/OC	9x40	32	6	10
990013	ENP/V	12x45	23	4	20
990014	ENP/GC	12x45	33	4	20
990015	ENP/GM	12x45	34	4	10
990016	ENP/OA	12x45	14	4	10
990017	ENP/OC	12x45	24	4	10
990018	EB	5x25	10	36	10
990019	EB	6x30	11	30	10
990020	EB	8x40	12	20	10
990021	EB/VA	5x25	20	20	10
990022	EB/VA	6x30	21	16	30
990023	EB/VA	8x40	22	10	20
990024	EB/VA	10x50	13	4	10
990025	T6	5x25	6	36	10
990026	T6	6x30	7	30	20
990027	T6	8x40	8	20	10
990028	T6	10x50	9	10	10
990029	T6/VA	5x25	16	20	10
990030	T6/VA	6x30	17	16	30
990031	T6/VA	8x40	18	10	20
990032	T6/VA	10x50	19	4	10
990033	T2	5x25	36	36	10
990034	T2	6x30	37	30	20
990035	T2	8x40	38	20	10
990036	T2	10x50	36	10	10
990037	T2/VA	5x25	46	20	10
990038	T2/VA	6x30	47	16	30
990039	T2/VA	8x40	48	10	20
990040	T2/VA	10x50	49	4	10
990041	ENP/V	9x40	42	6	20
990042	ENP/V	12x45	54	4	20
990043	T61/VP	9x40	44	4	10
990044	T6/VA	8x40	43	10	20
990045	T6/VA	10x50	53	4	10
990046	E/GO	4x20	39	10	20
990047	ENP/GC	9x40	40	6	20
990048	T61/GC	9x40	50	4	10
990049	T-CLICK TP 10		51	4	10
990050	DRIVA NYLON		52	10	20
990051	DRIVA TP 12		41	4	10
990052	ETAF/OA	4/12	56	2	10
990053	ETAF/OA	4/14	66	2	10
990054	T4/VA	6x45	67	10	10
990055	T4/VA	8x50	58	8	10
990056	T4/VA	10x60	68	4	10
990057	ENP/GC	9x40	61	6	20
990058	ENP/GC	12x45	62	4	20
990059	T61/GC	9x40	72	4	10
990060	T-CLICK TP 10		69	4	10
990061	DRIVA NYLON		60	10	20
990062	DRIVA TP 12		70	4	10
990063	T2	5x25	76	36	10
990064	T2	6x30	77	30	20
990065	T2	8x40	78	20	10
990066	T2	10x50	79	10	10
990067	T2/VA	5x25	86	20	10
990068	T2/VA	6x30	87	16	30
990069	T2/VA	8x40	88	10	20
990070	T2/VA	10x50	89	4	10
990071	ENP/V	9x40	96	6	20
990072	ENP/V	12x45	98	4	20
990073	ENP/GC	9x40	97	6	20
990074	ENP/GC	12x45	99	4	20
990075	T6/VA	6x30	80	16	20
990076	T6/VA	8x40	90	10	10
990077	T6/VA	10x50	100	4	10
990078	ETS/V Tropicalized		91	2	10
990079	ETS/V Inox		101	2	10
990080	ETS/L	8x90	92	2	10
990081	ETS/L	10x120	102	2	10
990082	T6/VA	8x40	64	10	20
990083	T6/VA	10x50	74	4	10
990084	T2/VA	6x30	63	16	20
990085	T2/VA	8x40	73	10	10
990086	LE/B	M6	103	4	10
990087	LE/B	M8	104	4	10
990088	ENP/GC	9x40	93	6	20
990089	T61/GC	9x40	94	4	10
990090	APS/V	8x80	65	10	10
990091	APS/V	8x120	85	10	10
990092	APS/V	8x100	75	10	10
990093	APS/V	10x80	95	6	10
990094	APS/V	10x100	105	8	10
990095	PIOVRA/B	M6	15	2	10
990096	PIOVRA/B	M8	25	2	10
990097	T6/VA	6x30	35	16	20
990098	T6/VA	8x40	45	10	10
990099	T6/VA	10x50	55	4	10

MR. FREE

FLOOR DISPLAY - MR. MATIC BLISTER

Code	Height	Width	Deep	Pack
	(mm)	(mm)	(mm)	pcs.
8221813	2.020	540	360	1

Floor display with 60 movable hooks (included). It can withstand up to 60 different types of Mr. Matic blisters.

NOTE

Display without assortment. In order to personalize the assortment, please contact our sales department.

MR. GENIUS

HANGABLE EXHIBITOR - MR. MATIC BLISTER

Code	Height	Width	Pack
	(mm)	(mm)	pcs.
8221366	20	100	1

Exhibitor to be hung on the wall or to any other support. It can withstand up to 12 different types of Mr. Matic blisters.

NOTE

Display without assortment. In order to personalize the assortment, please contact our sales department.

ANCHORS IN BLISTER

UNIVERSAL FIXINGS

Code	Description		Pack	Carton
			pcs.	pcs.
565964	T6	5x25	35	10
565965	T6	6x30	30	15
565966	T6	8x40	20	10
565967	T6	10x50	10	10
565968	T6	12x60	5	10
565969	T6/VA	5x25	20	15
565329	T6/VA	6x30	15	10
565401	T6/VA	8x40	10	10
565970	T6/VA	10x50	4	10
565971	T6/VN	6x30	15	10
565972	T6/VN	8x40	10	10
565973	E	4x20	35	15
565402	E	5x25	35	10
565403	E	6x30	30	10
565404	E	8x40	20	10
565405	E	10x50	10	10
565974	E	10x60	10	10
565975	E	12x60	5	10
565454	E	6x30	50	8
565455	E	8x40	50	8
565408	E/VA	5x25	20	15
565409	E/VA	6x30	15	10
565410	E/VA	8x40	10	10
565411	E/VA	10x50	4	10
565412	E/VL	6x30	15	10
565413	E/VL	8x40	10	10
565406	EB	6x30	30	15
565407	EB	8x40	20	10
565977	EB/VA	5x25	20	10
565978	EB/VA	6x30	15	10
565979	EB/VA	8x40	10	10
565980	EB/VA	10x50	20	10
565414	EB/GC	6x30	10	15
565415	EB/GM	6x30	10	10
565416	EB/OA	6x30	10	10
565417	EB/OC	6x30	10	10
565418	E/GO	4x20	10	15
566015	T4	6x35	20	10
566016	T4	6x45	20	10
566017	T4	8x50	15	10
566018	T4	10x60	4	10
566019	T4/VA	6x35	10	10
566020	T4/VA	6x45	10	10
566021	T4/VA	8x50	8	10
566022	T4/VA	10x60	4	10
565983	TPFC/GC	8x51	4	10
565985	TPFC/GM	8x51	4	10
565987	TPFC/OA	8x51	4	10

ANCHORS WITH ACCESSORIES

Code	Description		Pack	Carton
			pcs.	pcs.
565424	ENP/V	8x40	6	8
565426	ENP/V	9x40	6	8
565433	ENP/V	12x45	4	8
565425	ENP/GC	8x40	6	8
565427	ENP/GC	9x40	6	8
565434	ENP/GC	12x45	4	8
565428	ENP/GM	9x40	6	8
565435	ENP/GM	12x45	4	8
565429	ENP/GL	9x40	6	8
565430	ENP/OA	9x40	6	8
565436	ENP/OA	12x45	4	8
565431	ENP/OC	9x40	6	8
565437	ENP/OC	12x45	4	8
565432	ENP/DD	9x40	6	8
565991	ENP/FP white	9x40	2	8
565992	ENP/FP black	9x40	2	8
565993	ENP/FP brown	9x40	2	8
565438	T61/VP	9x40	4	8
565439	T61/GC	9x40	4	8
565440	T61/GM	9x40	4	8
565441	T61/OA	9x40	4	8
565442	T61/OC	9x40	4	8
565451	T51	M5	10	10
565452	T51	M6	8	10
565453	T51	M8	6	10

FRAME FIXINGS

Code	Description		Pack	Carton
			pcs.	pcs.
565443	UCX/TS	4x35	25	10
565444	UCX	6x35	20	10
565445	UCX	6x55	15	10
565446	UCX	6x70	15	8
565447	UCX	8x75	10	10
565448	UCX	8x100	6	10
565997	APS/V	8x80	10	10
565449	APS/V	8x100	10	10
565998	APS/V	8x120	10	10
565999	APS/V	10x80	6	10
565450	APS/V	10x100	8	10

FIXINGS FOR HOLLOW SUPPORTS

Code	Description		Pack	Carton
			pcs.	pcs.
566023	T-CLICK TP 10		4	15
565463	DRIVA NYLON		10	15
565464	DRIVA TP 12		4	15
565465	DRIVA PLUS TP 12		2	15
566003	ETAF/DD	4/12	2	8
566004	ETAF/OC	4/12	2	8
566005	ETAF/OA	4/12	2	8
565461	ETAF/OA	4/14	2	8
565462	ETAF/DC	4/12	2	8
565460	ETAF/DC	4/14	2	8
566006	ETAF/V	4/12	2	8
565459	ETAF/V	4/14	2	8

FIXINGS FOR SHELVES

Code	Description		Pack	Carton
			pcs.	pcs.
566054	EMS	12.9.70	2	10
565475	EMS	12.9.100	2	10
566056	EMS	12.9.120	2	10
566057	EMS	12.9.140	2	10
565477	EMS	12.12.100	2	10
566058	EMS	12.12.120	2	10
565476	EMS	12.12.140	2	10
565478	EMS	14.14.120	2	10
565479	EMS	14.14.145	2	10
565480	EMS	14.14.170	2	10
565481	EM spare parts for shelves	12	4	10
565482	EM spare parts for shelves	14	4	10

HEAVY DUTY NOT-THROUGH ANCHORS

Code	Description		Pack	Carton
			pcs.	pcs.
565466	EFPM/B	M6	2	8
565467	EFPM/B	M8	2	8
565468	EFPM/B	M10	2	8
566011	EFPM/G	M6	2	8
566012	EFPM/G	M8	2	8
566013	EFPM/OC	M6	2	8
566014	EFPM/OC	M8	2	8
565469	LE/B	M6	4	8
565470	LE/B	M8	4	8
566010	LE/B	M10	2	8
565471	LE/G	M6	2	8
565472	LE/G	M8	2	8
565473	LE/OC	M6	2	8
565474	LE/OC	M8	2	8

ACCESSORIES FOR CHEMICAL ANCHORS

Code	Description		Pack	Carton
			pcs.	pcs.
565484	Sleeve	M10x110	4	10
565485	Eye-hook	M8	2	8
565518	Hook	M8	2	8

FLOOR DISPLAY

Modular system display

Metal floor display, modular, universal for many kind of products.

Modular: ability to put the wall stands side by side satisfying the space needs of the store.

Practical: the accessories of the stand can be customized depending on the chosen products. Shelves and hooks can be moved on the entire display, even at a later time.

Fast: the installation of the stand is quick and simple .

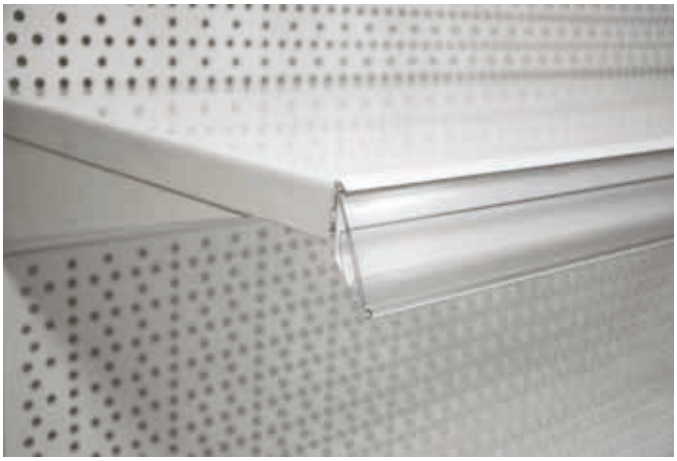
Solid: the metal frame set is reliable for the load and longevity

FLOOR DISPLAY

Code	Description	Height (mm)	Width (mm)	Deep (mm)	Pack pcs.
8221801		2.250	1.030	560	1
Accessories on request					
8221806	Shelf 30 cm	-	990	300	1
8221805	Shelf 40 cm	-	990	400	1
8221803	Double hook	-	-	200	10
8221804	Single hook	-	-	200	10

Magnetic crowner: no more stickers! A convenient magnetic crowner, easy to apply and repositionable over and over again.

Price holder accessory: each shelf offers the possibility to enter prices and product information.



FIX VISION

Fix Vision Wall Stand

Code	Type	Dimensions	Pack	Wall Stand
			pcs.	pcs.
8221611	Fix Vision Wall Stand			
Assortment				
UNIVERSAL FIXINGS - IN BLISTER				
565329	T6/VA	6x30	15	120
565401	T6/VA	8x40	10	40
565402	E	5x25	35	30
565403	E	6x30	30	120
565404	E	8x40	20	70
565405	E	10x50	10	30
565454	E	6x30	50	24
565455	E	8x40	50	24
565406	EB	6x30	30	120
565407	EB	8x40	20	50
565408	E/VA	5x25	20	30
565409	E/VA	6x30	15	120
565410	E/VA	8x40	10	90
565411	E/VA	10x50	10	30
565412	E/VL	6x30	15	40
565413	E/VL	8x40	10	40
565414	EB/GC	6x30	10	45
565415	EB/GM	6x30	10	30
565416	EB/OA	6x30	10	30
565417	EB/OC	6x30	10	30
565418	E/GO	4x20	10	45
566015	T4	6x35	20	20
566016	T4	6x45	20	20
566017	T4	8x50	15	20
566019	T4/VA	6x35	10	40
566021	T4/VA	8x50	8	30
566022	T4/VA	10x60	4	20
ANCHORS WITH ACCESSORIES - IN BLISTER				
565424	ENP/V	8x40	6	24
565426	ENP/V	9x40	6	64
565433	ENP/V	12x45	4	24
565425	ENP/GC	8x40	6	24
565427	ENP/GC	9x40	6	64
565434	ENP/GC	12x45	4	24
565428	ENP/GM	9x40	6	24
565435	ENP/GM	12x45	4	24
565429	ENP/GL	9x40	6	24
565430	ENP/OA	9x40	6	24
565436	ENP/OA	12x45	4	24
565431	ENP/OC	9x40	6	24
565437	ENP/OC	12x45	4	24
565432	ENP/DD	9x40	6	24
565438	T61/VP	9x40	4	64
565439	T61/GC	9x40	4	48
565440	T61/GM	9x40	4	24
565441	T61/OA	9x40	4	24
565442	T61/OC	9x40	4	24
565451	T51	M5	10	30
565452	T51	M6	8	30
565453	T51	M8	6	30
FIXINGS FOR HOLLOW SUPPORTS - IN BLISTER				
565463	DRIVA NYLON		10	60
565464	DRIVA TP 12		4	60
565465	DRIVA PLUS TP 12		2	30
565459	ETAF/V	4/14	2	24
565462	ETAF/DC	4/12	2	24
565460	ETAF/DC	4/14	2	24
565461	ETAF/OA	4/14	2	24
FRAME FIXINGS- IN BLISTER				
565449	APS/V	8x100	10	30
565450	APS/V	10x100	10	30
565443	UCX TS	4x35	25	30
565444	UCX	6x35	20	30
565445	UCX	6x55	15	30
565446	UCX	6x70	15	24
565447	UCX	8x75	10	30
565448	UCX	8x100	6	30
HEAVY DUTY NOT-THROUGH ANCHORS - IN BLISTER				
565469	LE/B	M6	4	8
565470	LE/B	M8	4	8
565471	LE/G	M6	2	8
565472	LE/G	M8	2	8
565473	LE/OC	M6	2	8
565474	LE/OC	M8	2	8
565466	EFPM/B	M6	2	8
565467	EFPM/B	M8	2	8
565468	EFPM/B	M10	2	8
FIXINGS FOR SHELVES - IN BLISTER				
565475	EMS	12.9.100	2	20
565477	EMS	12.12.100	2	20
565476	EMS	12.12.140	2	30
565478	EMS	14.14.120	2	20
565479	EMS	14.14.145	2	30
565480	EMS	14.14.170	2	20
565481	EM spare parts for shelves 12		4	10
565482	EM spare parts for shelves 14		4	10
UNIVERSAL FIXINGS - IN BOX				
565390	T6/VA	6x30	100	2.000
565391	T6/VA	8x40	100	1.000
8701003	E	6x30	100	1.000
8701004	E	8x40	100	500
8701052	EB	5x25	100	600
8701053	EB	6x30	100	1.000
8701054	EB	8x40	100	500
8702053	E/VA	6x30	100	600
8702054	E/VA	8x40	100	200
8702262	EB/VA	5x25	100	300
8702263	EB/VA	6x30	100	2.000
8702264	EB/VA	8x40	100	1.000
8702003	E/VL	6x30	100	1.000

FIX FOX

Code	Type	Dimensions	Pack	Wall Stand
			pcs.	pcs.
8702004	E/VL	8x40	100	500
566135	T4/VA	6x35	100	400
566137	T4/VA	8x50	50	100
ANCHORS WITH ACCESSORIES - IN BOX				
8700001	ENP/V	9x40	100	600
8700003	ENP/GC	9x40	100	200
8712053	T61/VP	9x40	100	500
8712051	T61/VP	8x35	100	200
CHEMICAL ANCHORS				
059512	MULTI BLOK		12	12

Fix Fox Wall Stand

Code	Description		Pack	Wall Stand
			pcs.	pcs.
8221612	Fix Fox Wall Stand			
Assortment				
UNIVERSAL FIXINGS - IN BLISTER				
565329	T6/VA	6x30	15	90
565401	T6/VA	8x40	10	40
565402	E	5x25	35	30
565403	E	6x30	30	120
565404	E	8x40	20	70
565405	E	10x50	10	30
565406	EB	6x30	30	120
565407	EB	8x40	20	50
565408	E/VA	5x25	20	30
565409	E/VA	6x30	15	120
565410	E/VA	8x40	10	90
565411	E/VA	10x50	4	30
565412	E/VL	6x30	15	40
565413	E/VL	8x40	10	40
565414	EB/GC	6x30	10	45
565415	EB/GM	6x30	10	30
565416	EB/OA	6x30	10	30
565417	EB/OC	6x30	10	30
565418	E/GO	4x20	10	45
ANCHORS WITH ACCESSORIES - IN BLISTER				
565424	ENP/V	8x40	6	24
565426	ENP/V	9x40	6	64
565433	ENP/V	12x45	4	24
565425	ENP/GC	8x40	6	24
565427	ENP/GC	9x40	6	64
565434	ENP/GC	12x45	4	24
565428	ENP/GM	9x40	6	24
565435	ENP/GM	12x45	4	24
565429	ENP/GL	9x40	6	24
565430	ENP/OA	9x40	6	24
565436	ENP/OA	12x45	4	24
565431	ENP/OC	9x40	6	24
565437	ENP/OC	12x45	4	24
565432	ENP/DD	9x40	6	24
565438	T61/VP	9x40	4	64
565439	T61/GC	9x40	4	48
565440	T61/GM	9x40	4	24
565441	T61/OA	9x40	4	24
565442	T61/OC	9x40	4	24
FIXINGS FOR HOLLOW SUPPORTS - IN BLISTER				
565463	DRIVA NYLON		10	60
565464	DRIVA TP 12		4	60
565465	DRIVA PLUS TP 12		2	30

FIX BOX

Code	Description		Pack	Wall Stand
			pcs.	pcs.
565459	ETAF/V	4/14	2	24
565460	ETAF/DC	4/14	2	24
565462	ETAF/DC	4/12	2	24
565461	ETAF/OA	4/14	2	24
FRAME FIXINGS- IN BLISTER				
565449	APS/V	8x100	10	30
565450	APS/V	10x100	8	30
565443	UCX TS	4x35	25	30
565444	UCX	6x35	20	30
565445	UCX	6x55	15	30
565446	UCX	6x70	15	24
565447	UCX	8x75	10	30
565448	UCX	8x100	6	30
HEAVY DUTY NOT-THROUGH ANCHORS - IN BLISTER				
565469	LE/B	M6	4	8
565470	LE/B	M8	4	8
565471	LE/G	M6	2	8
565472	LE/G	M8	2	8
565473	LE/OC	M6	2	8
565474	LE/OC	M8	2	8
565466	EFPM/B	M6	2	8
565467	EFPM/B	M8	2	8
565468	EFPM/B	M10	2	8
FIXINGS FOR SHELVES - IN BLISTER				
565475	EMS	12.9.100	2	20
565477	EMS	12.12.100	2	20
565476	EMS	12.12.140	2	30
565478	EMS	14.14.120	2	20
565479	EMS	14.14.145	2	30
565480	EMS	14.14.170	2	20
565481	EM spare parts for shelves 12		4	10
565482	EM spare parts for shelves 14		4	10
UNIVERSAL FIXINGS - IN BOX				
565390	T6/VA	6x30	100	300
565391	T6/VA	8x40	50	150
8701052	EB	5x25	200	200
8701053	EB	6x30	100	400
8701054	EB	8x40	100	200
8702053	E/VA	6x30	100	600
8702054	E/VA	8x40	50	200
8702262	EB/VA	5x25	100	300
8702263	EB/VA	6x30	100	1.000
8702264	EB/VA	8x40	50	400
8702003	E/VL	6x30	100	400
8702004	E/VL	8x40	50	200
566135	T4/VA	6x35	100	400
566137	T4/VA	8x50	50	100

Fix Box Wall Stand

Code	Description		Pack	Wall Stand
			pcs.	pcs.
8221613	Fix Box Wall Stand			
Assortment				
UNIVERSAL FIXINGS - IN BOX				
565386	T6	6x30	100	800
565387	T6	8x40	100	800
565388	T6	10x50	50	400
565390	T6/VA	6x30	100	800
565391	T6/VA	8x40	50	400
565392	T6/VA	10x50	25	200
8705101	TPFC/V	6x38	100	800
8705102	TPFC/V	8x51	50	400
ANCHORS WITH ACCESSORIES - IN BOX				
8700001	ENP/V	9x40	200	1.200
8700003	ENP/GC	9x40	200	1.200
8700011	ENP/OC	9x40	100	600
8712053	T61/VP	9x40	100	400
8712055	T61/GC	9x40	100	400
8712063	T61/OC	9x40	100	400
8727003	T51	M6	300	1.200
8727004	T51	M8	200	800
8727005	T51	M10	100	400
FIXINGS FOR HOLLOW SUPPORTS - IN BOX				
8704216	DRIVA NYLON		200	1.600
FRAME FIXINGS- IN BOX				
8722555	APS/V	8x80	50	300
8722556	APS/V	8x100	25	150
8722560	APS/V	10x135	25	150
8722003	APR/V	6x60	100	800
8722005	APR/V	8x80	50	400
8722006	APR/V	8x100	50	300
8710506	UCX TS	6x55	100	600
8710507	UCX TS	6x70	100	600
8710510	UCX TS	8x75	50	300
8710511	UCX TS	8x100	50	300
MEDIUM-HEAVY DUTY ANCHORS - IN BOX				
050491	DYNABOLT PLUS/B	M6	50	200
050494	DYNABOLT PLUS/B	M8	25	100
050496	DYNABOLT PLUS/B	M10	25	100
HEAVY DUTY NOT-THROUGH ANCHORS - IN BOX				
8717101	LE/B	M6	50	400
8717102	LE/B	M8	50	400
8717103	LE/B	M10	25	200
8715100	EFPM/B	M6	50	300
8715101	EFPM/B	M8	50	300
8715102	EFPM/B	M10	25	150
HEAVY DUTY THROUGH ANCHORS - IN BOX				
8716306	T11	8x90	100	400
8716309	T11	10x95	50	200
8716315	T11	12x110	25	100

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