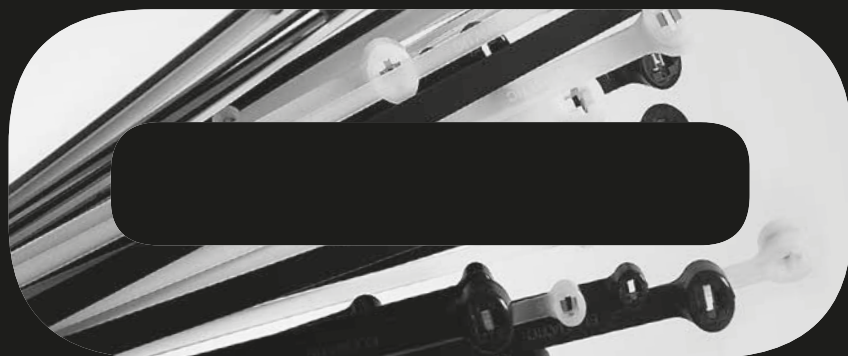




Fixing
solutions





FASTENING GUIDE

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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

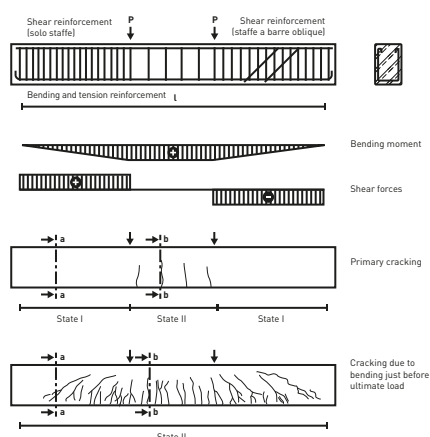
Concrete is the most common building material used in new or recent constructions. It is obtained by a semi-solid mixture made of sand and aggregate (gravel), cement (as binder), water and eventual suitable additives, being all casted in formwork. The curing of this compost, which completes conventionally 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.



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

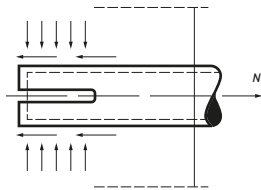
The cellular concrete is a paste made with special additives to create elements of porous and friable consistence. Because of its reduced weight and excellent properties of thermal and sound insulation it is used for the quick construction of both not bearing parametric or dividing brickwork. It has 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.

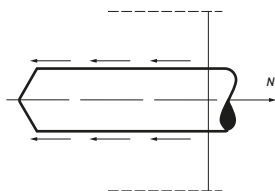
Functioning principles of the anchorage



Friction

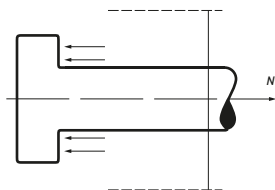
A first anchoring methodology is based on transferring the external load by means of friction generated between the hole surfaces in the base material and the anchorage element. In this case the functioning of the anchor is obtained through the push of an expansion sleeve against the hole surfaces.

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.

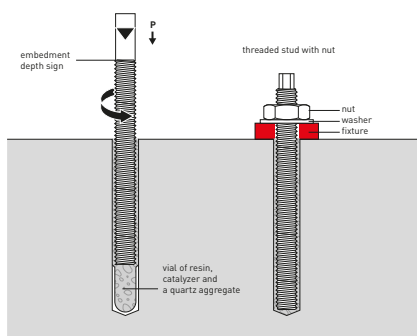
Anchor types

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.

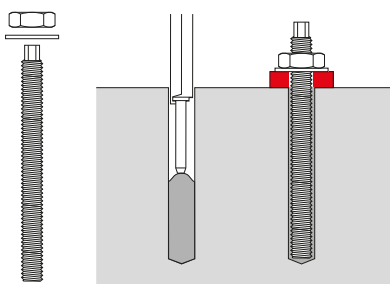
The installation of this anchoring system, including the hole clearance and the adequate curing time, can affect deeply the effective bearing capacity. If it is made not properly, according to guidelines and manufacturer instructions, the value of resistance of the system can be lower than the expected. 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 glass vials containing three different substances: the resin, the catalyst 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

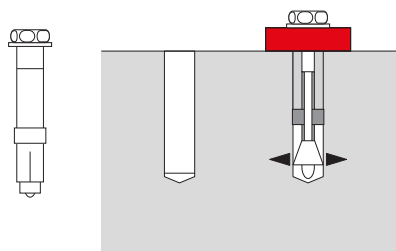
The installation of chemical anchors can be achieved also through the injection of the resin inside the hole. Usually the two-component resin is contained in a double room cartridge. The resin and the catalyst, in pre-determined quantity, are mixed correctly by using a dedicated nozzle. The mixing is 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

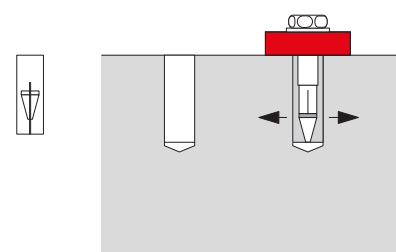
These anchors function by inducing pre-tensions on the hole surfaces by means of an expansion sleeve. The applied force generates the friction needed to contrast the stress acting on the anchor. In such classification two typologies of anchors can be distinguished by a different installation procedure,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

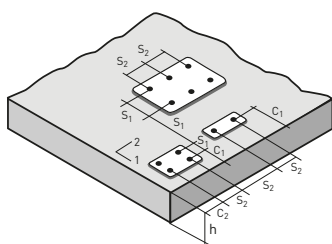
A similar effect is brought by thermal variations. An increase in temperature causes a drop in strength, while a decrease in temperature results in a rise of ultimate bearable load.

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 $s \leq s_{min}$
- $c \geq c_{cr}$ 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

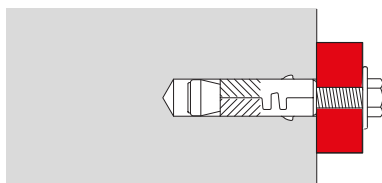
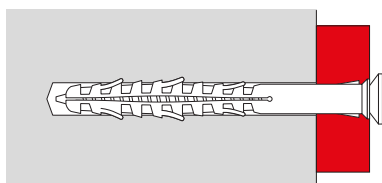
The drill-hole depth h_o is the depth of the hole and as a general rule it should be larger than the effective anchorage depth h_{ef} so as to prevent the presence of any drilling dust in the hole or the eventual screw emerging from the plug tip. If on the one hand a limited drill-hole depth can simplify 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 of h_o .

Base material thickness

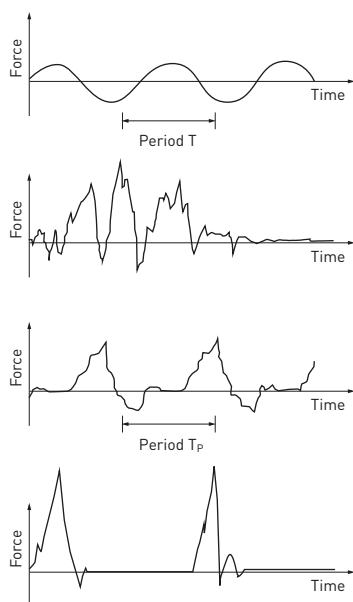
If not better specified and especially in case of use of heavy duty expanding anchors, the thickness of the anchoring substrate should be approximately alike of or two times larger than the anchorage depth, therefore $h_{min} \geq 2h_{ef}$. The installation of medium heavy fixings or of heavy duty anchors 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.



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

Performance and design

Types of load

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 $0^\circ \leq \alpha \leq 30^\circ$.
- **Shear force (V_{sk}):** acting almost perpendicularly to the longitudinal axis of the anchor with an angle of $60^\circ \leq \alpha \leq 90^\circ$.
- **Combined oblique force:** inclined with an angle of $30^\circ \leq \alpha \leq 60^\circ$ 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

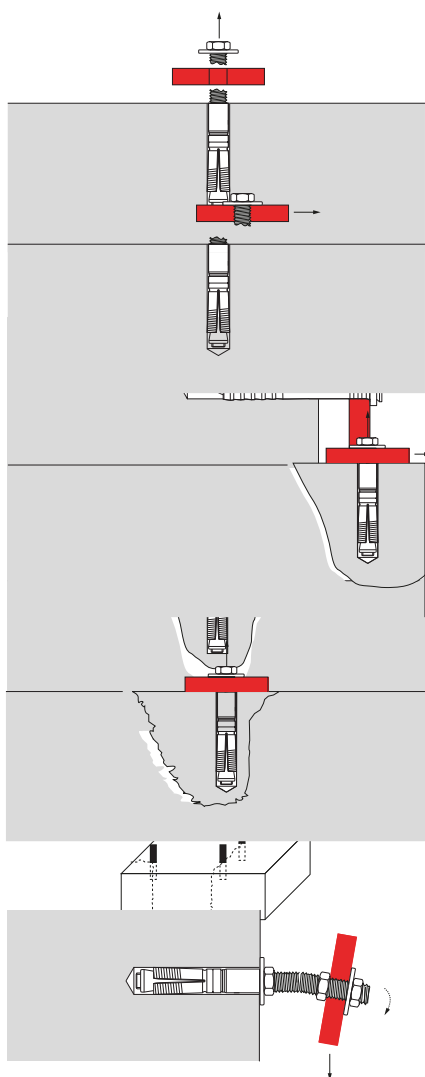
The aspects which influence the most the failure mode of an anchor loaded by axial actions are listed in the following:

- **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

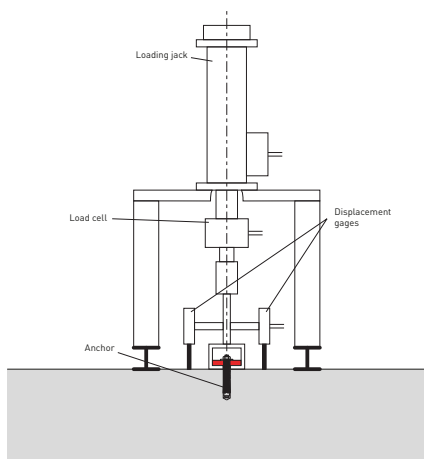
The combined load test requires the application of a static load resulting from two components, one of tension and the other one of shear. Failure modes are those presented for the case of tension tests.

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.

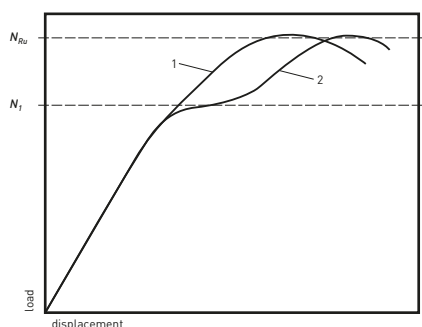


Each test allows the following indications to be obtained:

- **The registration of the curve of load or displacement:** 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** $F_{Ru,m}^t$ ($N_{Ru,m}^t; V_{Ru,m}^t$): 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 $n=5$ tests.
- **Characteristic resistance** F_{Rk}^t : 5% of the mean ultimate resistance calculated as $F_{Rk}^t = F_{Ru,m}^t \cdot (1 - k_s \cdot v)$.
- **Design resistance** F_{Rd}^t : it is obtained by dividing the characteristic resistance by the partial safety factor of the material γ_M described as $F_{Rd}^t = F_{Rk}^t / \gamma_M$. 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}^t : it is obtained by dividing the design resistance by the partial safety factor of the applied load γ_F described as $F_{Rec}^t = F_{Rd}^t / \gamma_F$ with the typical value of the partial safety factor equal to 1,4.



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 $\gamma=5$, the formula $F_{Rec}^t = F_{Ru,m}^t / \gamma$ 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: $V_{sd} \leq V_{rec}$

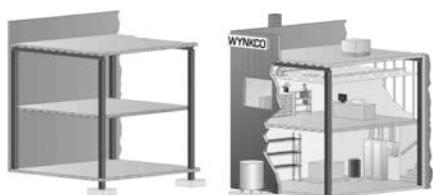
Combined load: $(\beta_N)^\alpha + (\beta_V)^\alpha \leq 1,2$

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

$\alpha = 2$ in case of steel failure

$\alpha = 1,5$ 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 or 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).



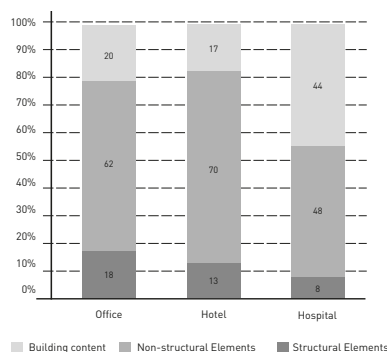
In all the above mentioned cases the anchoring system is generally installed after the construction of the building main structure.

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.



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.



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

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.

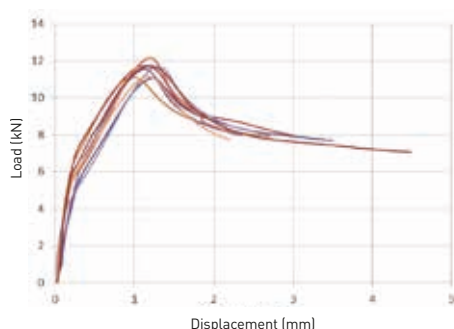
Each European Assessment Document (EAD), as the ETAGs (European Technical Approval Guidelines) are, includes in detail the testing procedure to follow for the assessment of a product used in a certain application, by guaranteeing the technical data. In the EADs also some verification methods for the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

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 (Comité 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.



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

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.

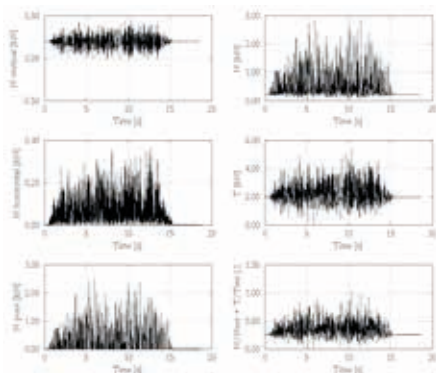
Special testing



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.

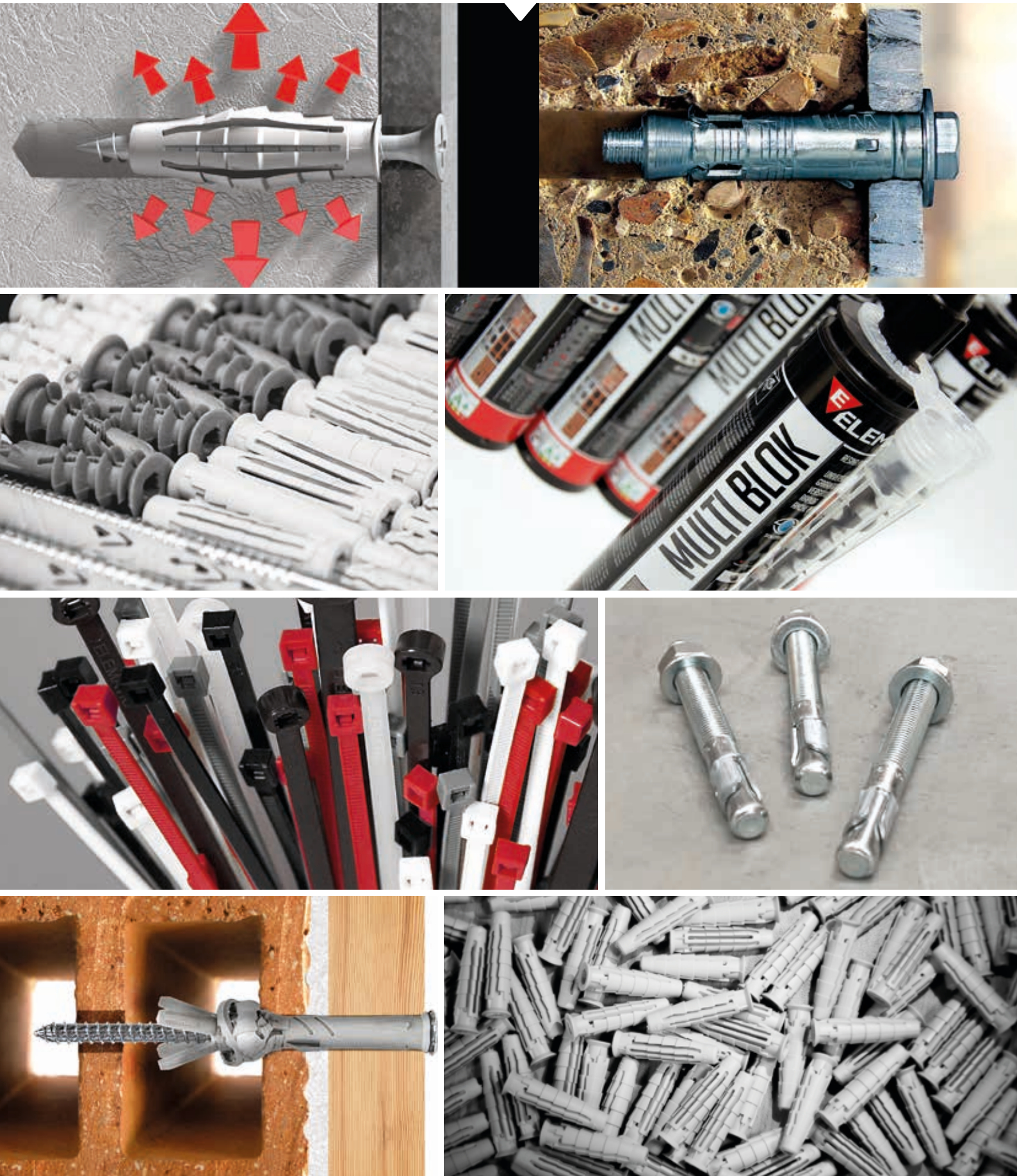
The project outcomes underline the good response to seismic actions of **ELEMATIC** tested anchors for product performance and reliability in the different base materials.





















ITW

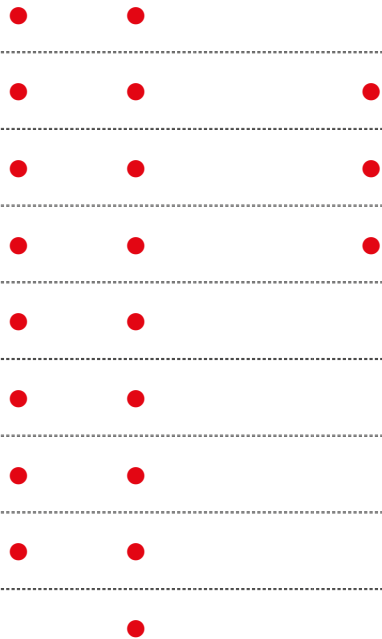
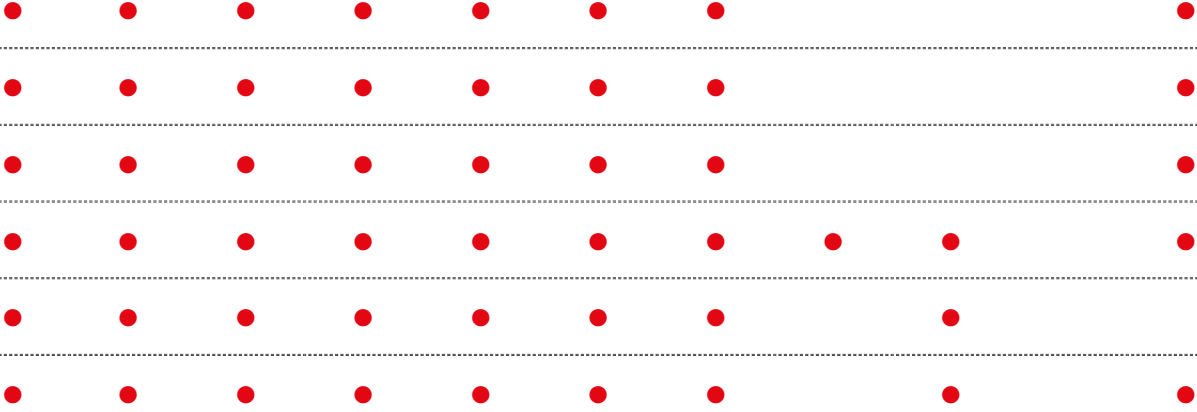
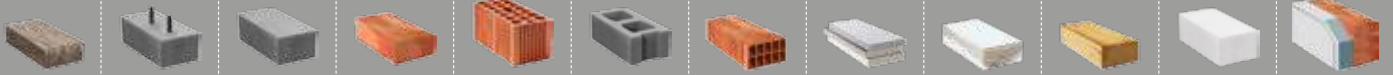
SEISMIC APPLICATION
OF FASTENING

























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.



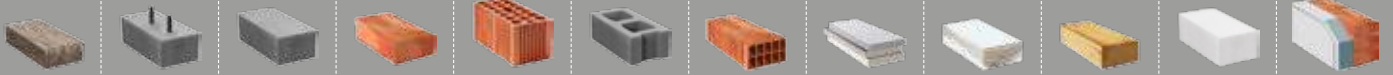
				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
UNIVERSAL LIGHT-DUTY ANCHORS										
T6			249	•	•	•	•			•
T2			254	•	•	•				•
E-EB			257	•	•	•				•
T4			260	•	•					•
TPF-TPFC			263	•	•					•
BLUEFIX			265	•	•	•	•	•		•
LIGHT-DUTY ANCHORS WITH ACCESSORIES										
ENP			268	•	•					•
T61			272	•	•	•				
T51			275	•	•		•		•	
LIGHT-DUTY ANCHORS FOR HOLLOW MATERIALS										
MINI DRIVA			276	•						•
DRIVA NYLON			277	•						•
DRIVA			280	•	•	•				•
T-CLICK			278	•	•					•
DRIVA PLUS			281	•	•	•				•
ETAF			283	•	•	•	•			•
ETR			286	•	•	•	•			•
ETPV/V			282	•	•					
ETNF			288	•	•					•
FIXING ON EXTERNAL INSULATION										
EIS-D			289	•		•				•

MATERIALS



				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
FRAME ANCHORS										
T66			293			•		•	•	
T88			296			•		•	•	
APS			300			•			•	
APR/V			303			•			•	
JTX	JTX		304	•		•	•	•	•	
UCX			307	•		•	•	•	•	
HCX			309	•		•	•	•	•	
ETCD			312	•	•			•	•	
LIGHT-DUTY ANCHORS FOR DOORS AND WINDOWS FRAMES										
ETFP			313			•				
MEDIUM-HEAVY DUTY ANCHORS										
DYNABOLT PLUS			315	•	•	•	•	•	•	
T21			317	•	•	•	•	•	•	
EDC			318			•	•			
MEDIUM HEAVY-DUTY NON-THROUGH ANCHORS										
LE-LEX			319	•	•			•	•	
EFPM			322	•	•			•	•	
HPM			325	•	•					
T101 PIOVRA			327	•	•	•	•	•	•	
ETHD			330		•			•		
MEDIUM HEAVY-DUTY THROUGH ANCHORS										
ETDZ A4			331	•	•	•	•	•	•	
ETD III			333	•	•	•	•	•	•	
T11			336	•	•		•	•	•	

MATERIALS



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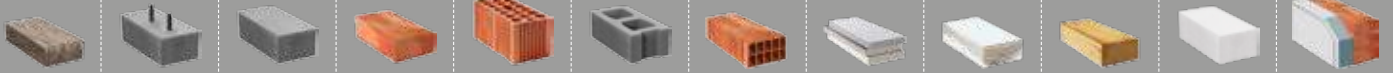
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				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
CHEMICAL ANCHORS										
MULTIBLOK			339	•	•	•		•	•	
PRIMEBLOK			341	•	•	•		•	•	
STARBLOK			343	•	•	•		•	•	
ULTRABLOK			345	•	•	•		•	•	
ACCESSORIES			347	•	•	•		•	•	
MAXIMA			351			•	•	•		
SILICONES AND SEALANTS										
SEALANTS			380	•	•	•	•	•	•	•
INSULATION ANCHORS										
EFK			355			•				
EFH			356			•				
SCAFFOLDING ANCHORS										
EGP			357			•				
E/PN			359			•				
EOP			358			•				
FIXING ACCESSORIES FOR ELECTRICAL INSTALLATIONS										
CT-CLIP			360	•		•	•			
ELEFIX			361	•		•	•			
E-CLIP			363	•		•	•			
ECAV			364	•		•	•			
COLLARS M6			365		•	•				
NAILING BY HAND			366	•	•	•				

MATERIALS



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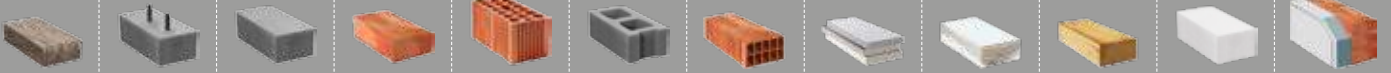
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				APPLICATIONS						
				Plants and electrical installations	Plumbing installations	Construction and building renovation	Industrial plant	Metal carpentry	Wood carpentry	Do it yourself
FIXINGS FOR PLUMBING INSTALLATIONS										
COLLARS			367		●	●		●		
EMB-EMC EB/SB			370		●	●				
ETS			372		●	●				
EA-EG-EP-EML			374		●	●				
FIXINGS FOR SHELVES										
EMS			376							●

MATERIALS



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BLUEFIX

NEW

INNOVATIVE 2-MATERIAL PLASTIC ANCHOR!

The new concept of universal fixing:

flexibility and high strength
together.

High performance
in every base material:
hollow base materials, solid materials,
lightweight materials, plasterboard,
aerated concrete.

BLUEFIX Ø8 is the first universal light-duty
anchor to be tested on shaking table under
seismic actions.



FLEXIBILITY

THE GREY MATERIAL
INNOVATIVE POLYMER MATERIAL

- Flexibility and reliability
- Compatible with different screw types
- Unmatched grip
- Flexible collar



HIGH STRENGTH

COLOURED MATERIAL
SPECIAL REINFORCED POLYMER

- High resistance connection
- Installation quality
- Reinforced anti-rotation fins
- Torque feedback



See the video of
BLUEFIX

E **ELEMATIC**[®]

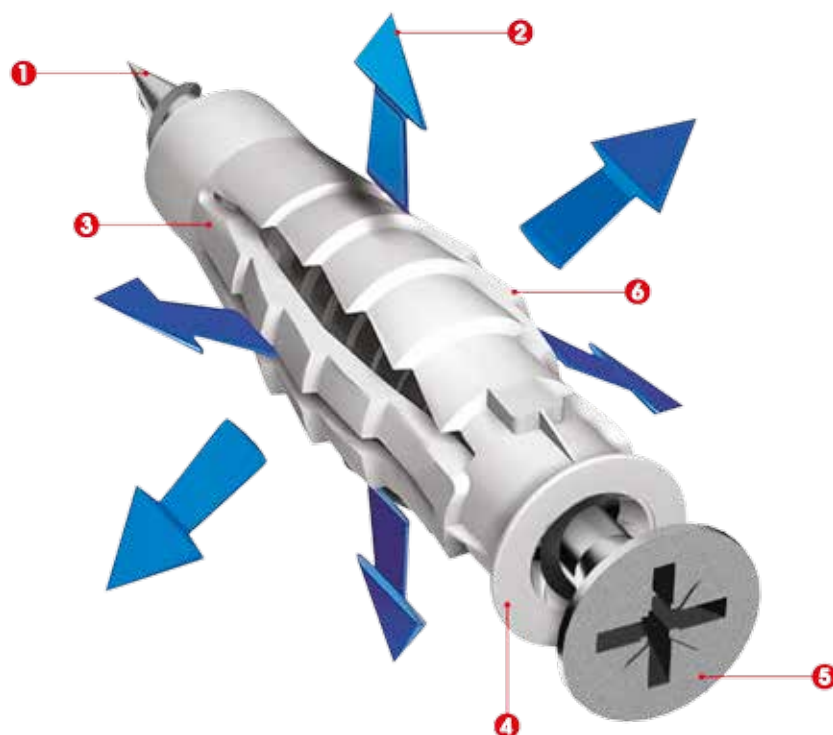
Discover more at www.elematic.it



LIGHT-DUTY FIXINGS

▶ Universal light-duty fixings	
T6 NEW	249
T2	254
E-EB	257
T4	260
TPF-TPFC	263
BLUEFIX NEW	265
▶ Light-duty fixings with accessories	
ENP	268
T61	272
T51	275
▶ Anchors for hollow supports	
MINI DRIVA	276
DRIVA NYLON	277
T-CLICK	278
DRIVA	280
DRIVA PLUS	281
ETAF	283
ETR	286
ETPV/V	282
ETNF	288
▶ Fixing on external insulation	
EIS-D NEW	289
▶ Frame fixings and hammer-in fixings	
T66 NEW	293
T88	296
APS	300
APR/V	303
JTX NEW	304
UCX	307
HCX	309
ETCD	312
▶ Light-duty fixings for doors and windows frames	
ETFP	313

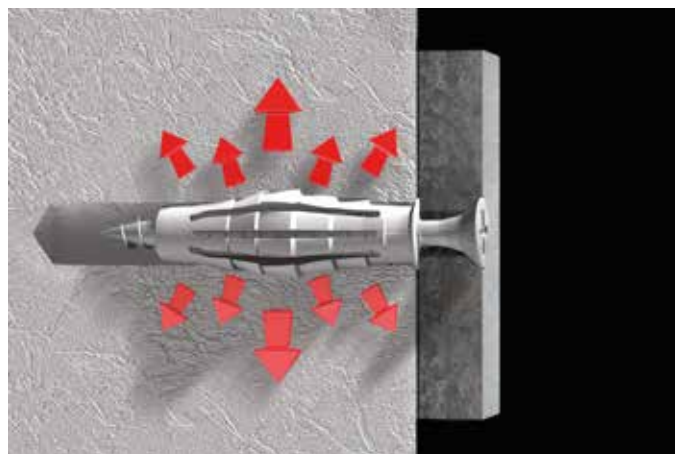
T6: THE ONLY ANCHOR WITH 6 EXPANDABLE ZONES



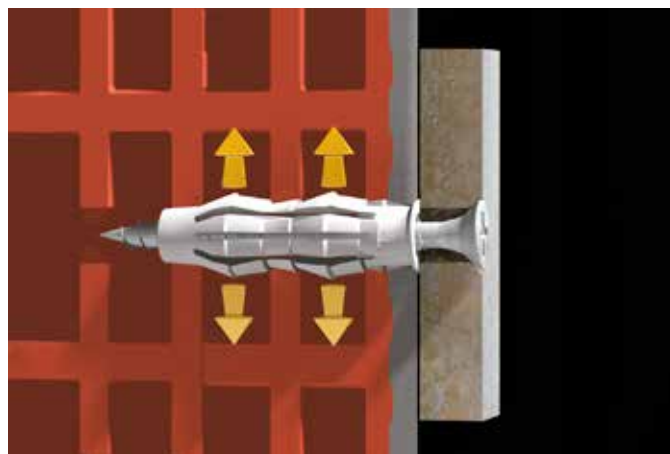
THE MULTISOLUTION:

- ❶ **High loads:** the revolutionary T6 increases over 20% the applicable loads capacity respect to the most innovative anchors in the market.
- ❷ **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.
- ❸ **Multifunctional:** the dynamic collar allows either the fixing on the board of the wall or the fixing through the object to fix.
- ❹ **Multimaterial:** T6 is suitable for many kinds of building materials: concrete or aerated concrete, solid and hollow bricks, hollow materials.
- ❺ **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.

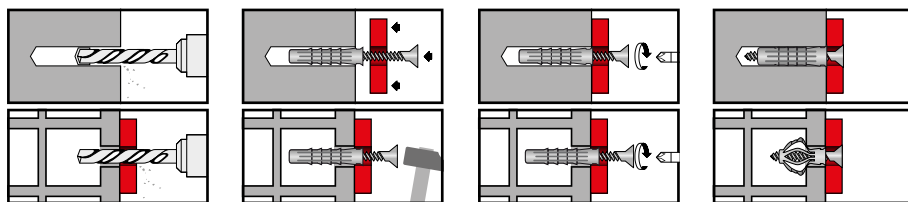
TECHNICAL DATA

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.
- New special screws with long pitch thread and reinforced core: high driving speed and perfect control of the tightening torque, even with electrical tool.

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

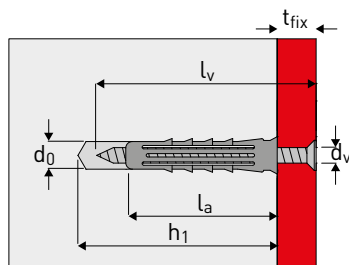
DESCRIPTION		T6 5	T6 6	T6 8	T6 10	T6 12	T6 14
Drill diameter	d _v /(mm)	5	6	8	10	12	14
Screw diameter (wood type)	d _v /(mm)	4	5	6	8	10	12
Concrete C20/25	daN	60	66	104	150	220	320
Solid brick	daN	52	60	90	104	-	-
Hollow block	daN	48	50	64	80	103	108
Perforated brick	daN	28	42	50	50	-	-
Hollow brick	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

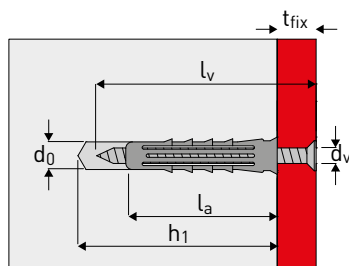


Code	Type	Ø Drilling d ₀ /(mm)	Length Plug l _v /(mm)	Depth Drilling h ₁ /(mm)	Ø Screw d _v /(mm)	Length Min. Screw l _a /(mm)	Pack	Carton
	T6						pcs.	pcs.
565385	T6 5x25	5	25	35	3,0-4,0	30	100	3.200
565386	T6 6x30	6	30	40	4,0-5,0	35	100	3.200
565757	T6 6x45	6	45	55	4,0-5,0	50	100	1.600
565387	T6 8x40	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.

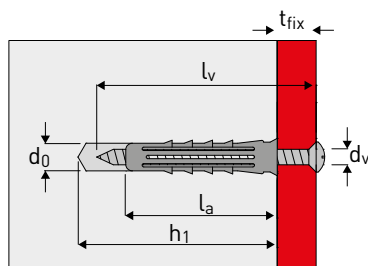


Code	Type	Ø Drilling d ₀ /(mm)	Length Plug l _v /(mm)	Depth Drilling h ₁ /(mm)	Max Thick. Fixable t _{fix} /(mm)	Dim. Screw d _v · l _a /(mm)	Pack	Carton
	T6/VA						pcs.	pcs.
565389	T6/VA 5x25	5	25	35	2	4,0x30	100	3.200
565390	T6/VA 6x30	6	30	40	5	4,5x40	100	1.600
565882	T6/VA 6x45	6	45	55	5	4,5x50	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.

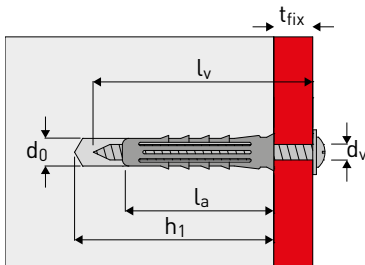


Code	Type	Ø Drilling d ₀ /(mm)	Length Plug l _v /(mm)	Depth Drilling h ₁ /(mm)	Max Thick. Fixable t _{fix} /(mm)	Dim. Screw d _v · l _a /(mm)	Pack	Carton
	T6/VN						pcs.	pcs.
565393	T6/VN 6x30	6	30	40	5	4,5x40	100	1.600
565394	T6/VN 8x40	8	40	55	5	5,0x50	50	800

T6/VX

Cylindrical head screw

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

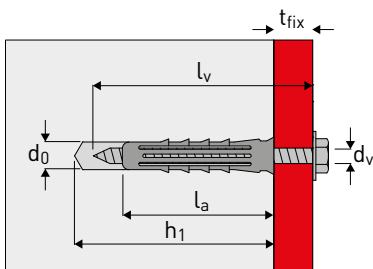


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T6/VX	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
565395	T6/VX 6x30	6	30	40	6	4,5x40	100	1.600

T6/VTE R

Hexagonal head screw with washer

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

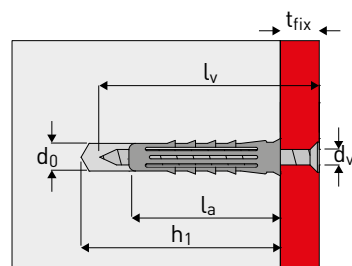


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T6/VTE R	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
565760	VTE R 8x40	8	40	55	5	6,0x50	50	800
565761	VTE R 10x50	10	50	65	15	7,0x70	50	400
565762	VTE R 12x60	12	60	75	15	8,0x80	50	300
565763	VTE R 14x70	14	70	90	20	10,0x100	25	200

T6/VKA NEW

Countersunk head screw with long pitch thread.

Plug with special countersunk flat screw with long pitch thread and reinforced core, zinc-plated, slot PZ.

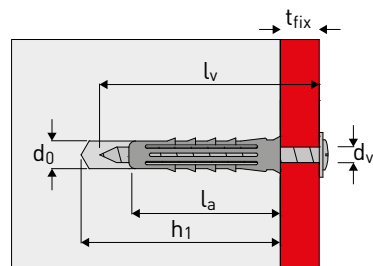


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T6/VKA	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _a /(mm)	pcs.	pcs.
568711	T6/VKA 6x30	6	30	40	5	4,5x40	200	2.400

T6/VKC NEW

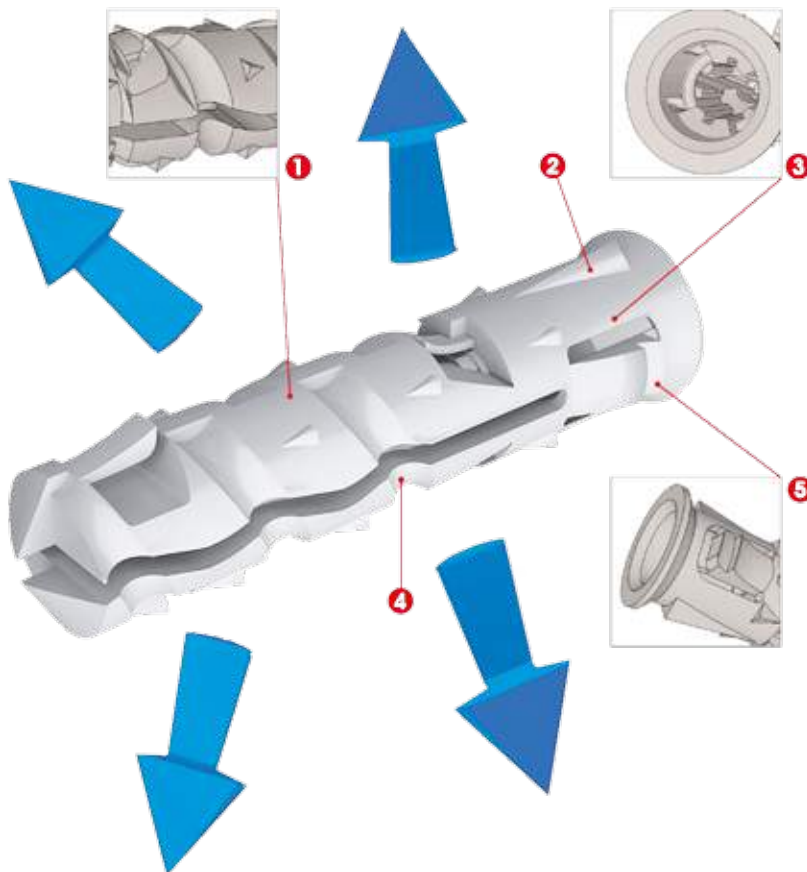
Dome head screw with long pitch thread.

T6 VKC with the universal plug T6 can be used on all kinds of building supports. The new special screw is suitable for the professional fixing of cable holder ducts, ribs, clips and many other components and accessories used in plant electricity.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T6/VKC	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _a /(mm)	pcs.	pcs.
568686	T6/VKC 6x30	6	30	40	6	4,5x40	200	2.400

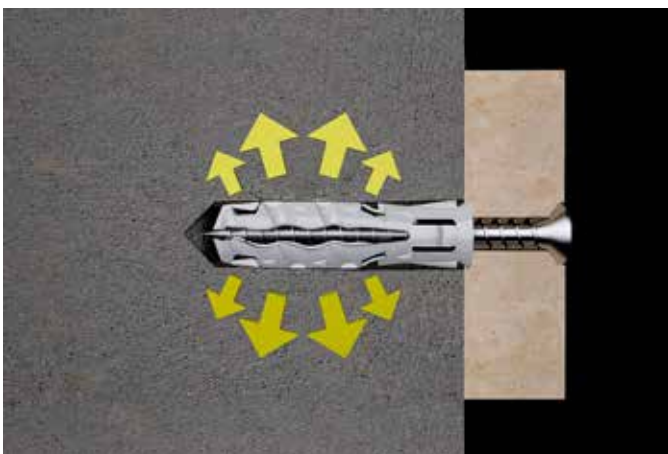
T2: TRADITION AND INNOVATIVE DESIGN!



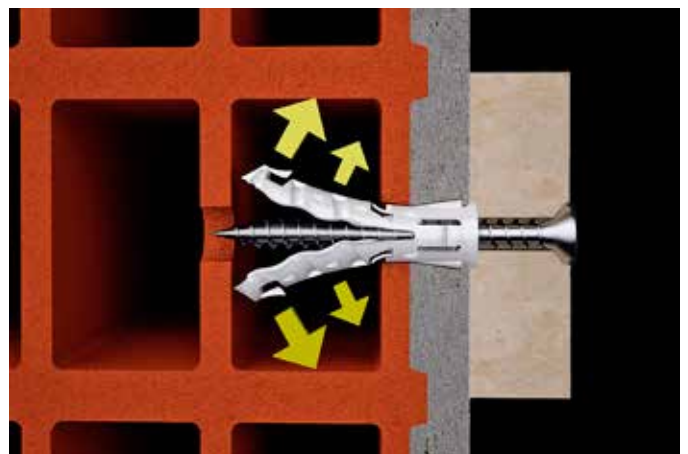
TRADITION AND INNOVATIVE DESIGN:

- ❶ New exclusive geometry with helicoidally structure for a perfect grip and versatility in different building materials.
- ❷ Driven tightening of the screw, thanks to the undulating profile of the longitudinal openings, for a more perfect and maximum expansion.
- ❸ New internal profile for a perfect installation with different types and dimensions of screws.
- ❹ Stop collar for installation with a correct depth.
- ❺ Effective and robust fins to prevent any rotation of the plug into the hole during the drilling.
- ❻ Maximum flexibility and deformability for a maximum expansion in hollow materials.

Rough surface: maximum performance thanks to the special geometry.



Helicoidally geometry: good grip and versatility on all the building materials.



T2



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

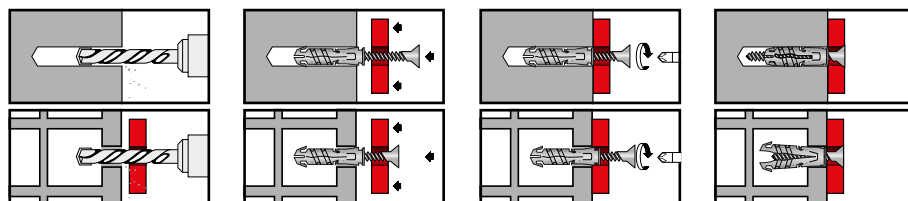
TECHNICAL DATA

Plug material: polyamide 6, grey color RAL 7035
 Screw material: carbon steel, treated with zinc plating Cr³⁺
 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 helicoidally 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

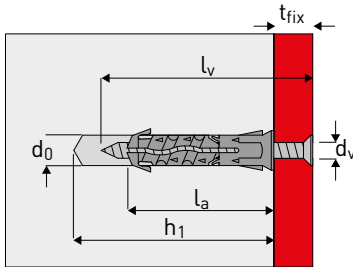
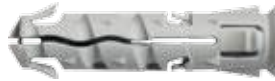
DESCRIPTION		T2/VA 5x25	T2/VA 6x30	T2/VA 8x40	T2/VA 10x50
Drill diameter	d ₀ /(mm)	5	6	8	10
Drilling depth	h ₁ /(mm)	35	40	50	60
Screw	d _v /(mm)	4,0x30	4,5x40	5,0x50	6,0x60
Concrete C20/25	daN	30	32	38	60
Solid brick	daN	28	31	37	58
Hollow block	daN	23	29	-	-
Perforated brick	daN	18	26	28	-

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

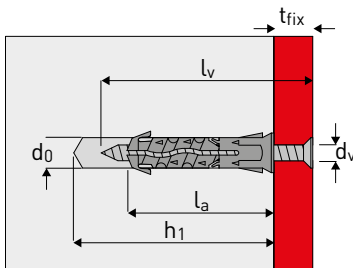


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
	T2	d _v /(mm)	l _v /(mm)	h _v /(mm)	d _v /(mm)	l _v /(mm)	pcs.	pcs.
566430	T2 5x25	5	25	35	2,5-4,0	30	200	19.200
566431	T2 6x30	6	30	40	3,5-5,0	35	100	9.600
566432	T2 8x40	8	40	55	4,5-6,0	45	100	4.800
566433	T2 10x50	10	50	65	6,0-8,0	55	50	2.400

T2/VA

Countersunk flat head screw

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



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T2/VA	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v · 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	4.800
566436	T2/VA 8x40	8	40	55	5	5,0x50	50	2.400
566437	T2/VA 10x50	10	50	65	5	6,0x60	50	1.200

E-EB



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

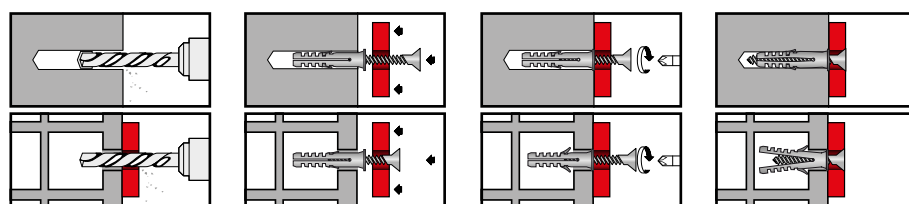
TECHNICAL DATA

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

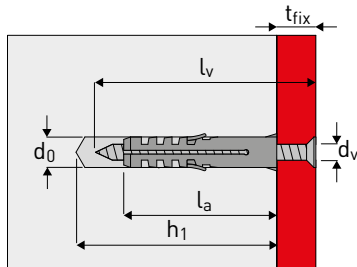
DESCRIPTION		E 4	E/EB 5	E/EB 6	E/EB 7	E/EB 8	E/EB 10	E/EB 12	E 14
Drill diameter	d _v /[mm]	4	5	6	7	8	10	12	14
Screw diameter (wood type)	d _v /[mm]	3	4	5	5,5	6	8	10	12
Concrete C20/25	daN	15	24	50	46	86	124	210	400
Solid brick	daN	10	23	47	44	82	112	189	-
Perforated brick	daN	8	14	22	27	28	-	-	-

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

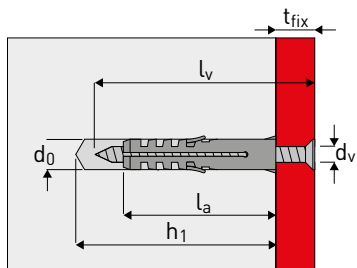


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
	E-EB	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	d _v /(mm)	l _v /(mm)	pcs.	pcs.
8701001	E 4x20	4	20	30	2,0-3,0	25	200	19.200
8701002	E 5x25	5	25	35	2,5-4,0	30	200	19.200
8701003	E 6x30	6	30	40	3,5-5,0	35	100	9.600
8701000	E 7x30	7	30	40	4,0-5,5	35	100	9.600
8701004	E 8x40	8	40	55	4,5-6,0	50	100	4.800
8701005	E 10x50	10	50	65	6,0-8,0	60	50	2.400
8701008	E 10x60	10	60	75	6,0-8,0	70	50	2.400
8701006	E 12x60	12	60	75	8,0-10,0	70	25	1.200
8701007	E 14x75	14	75	90	10,0-12,0	90	20	960
8701037	E 14x100	14	100	120	10,0-12,0	115	25	600
8701009	E 16x80	16	80	100	12,0-14,0	95	10	480
8701036	E 16x110	16	110	130	12,0-14,0	125	10	480
8701052	EB 5x25	5	25	35	2,5-4,0	30	200	19.200
8701053	EB 6x30	6	30	40	3,5-5,0	35	100	9.600
8701050	EB 7x30	7	30	40	4,0-5,5	35	100	9.600
8701054	EB 8x40	8	40	55	4,5-6,0	50	100	4.800
8701055	EB 10x50	10	50	65	6,0-8,0	60	50	2.400
8701058	EB 10x60	10	60	75	6,0-8,0	70	50	2.400
8701056	EB 12x60	12	60	75	8,0-10,0	70	25	1.200

E/VA - EB/VA

Countersunk flat head screw

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

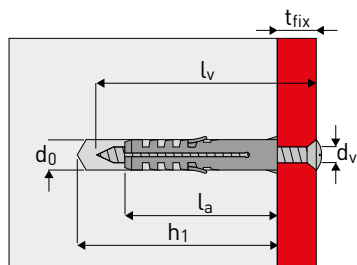


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	E-EB/VA	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8702052	E/VA 5x25	5	25	35	2	4,0x30	100	6.400
8702053	E/VA 6x30	6	30	40	5	4,5x40	100	3.200
8702054	E/VA 8x40	8	40	55	5	5,0x50	50	1.600
8702055	E/VA 10x50	10	50	65	5	6,0x60	50	800
8702262	EB/VA 5x25	5	25	35	2	4,0x30	100	6.400
8702263	EB/VA 6x30	6	30	40	5	4,5x40	100	3.200
8702264	EB/VA 8x40	8	40	55	5	5,0x50	50	1.600
8702265	EB/VA 10x50	10	50	65	5	6,0x60	50	800

E/VN

Countersunk head screw with combined slot cap

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

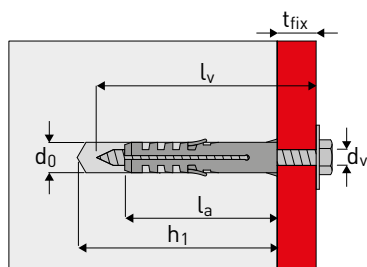


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	E/VN	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8702077	VN 6x30	6	30	40	5	4,5x40	100	4.000

E/VTE R

Hexagonal head screw with washer

Plug with zinc-plated hexagonal head screw with washer.

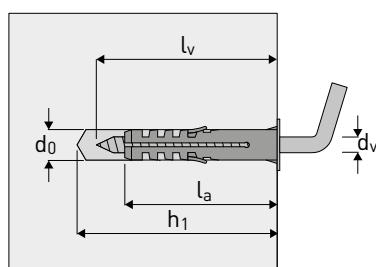


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	E/VTE R	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8702065	VTER 10x50	10	50	65	15	7,0x70	50	400
8702066	VTER 12x60	12	60	75	15	8,0x80	50	400
8702067	VTER 14x75	14	75	95	5	10,0x100	25	200
8702068	VTER 14x100	14	100	120	10	10,0x120	25	150

EB/P

With accessories

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

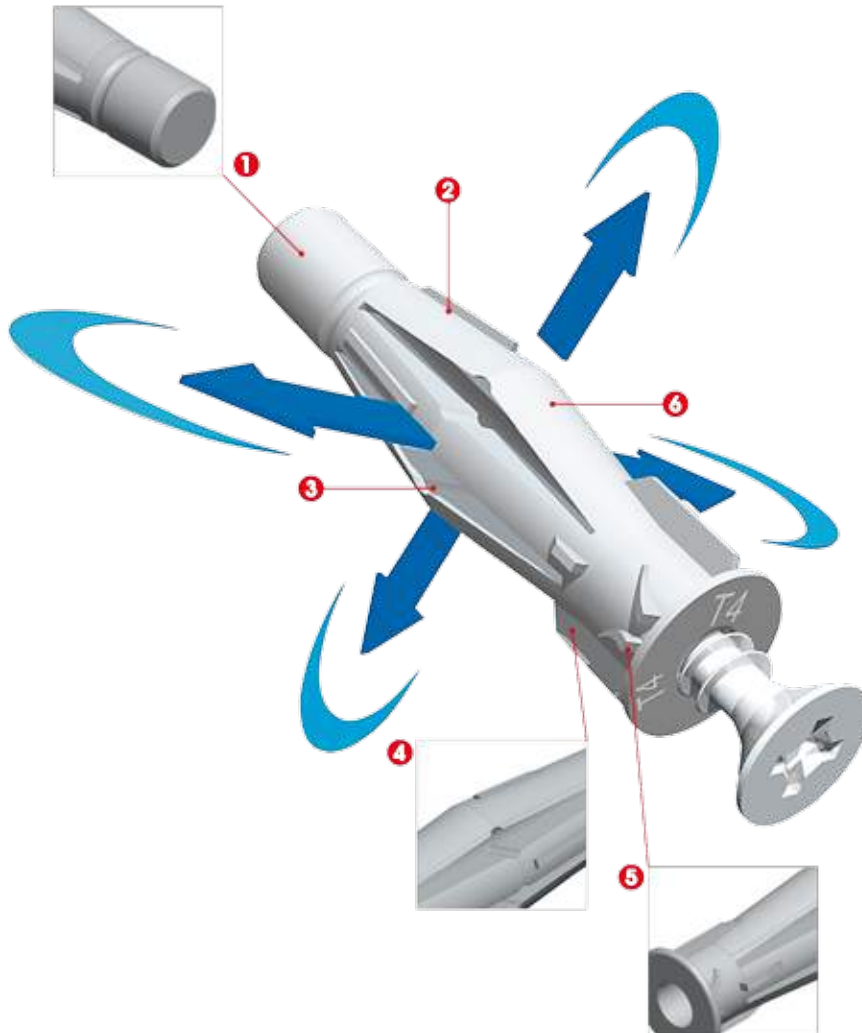


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	EB/P	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8702423	EB/OA 6x30	6	30	40	-	4,0x35	100	2.400
8702413	EB/GM 6x30	6	30	40	-	4,0x35	100	2.400
8702433	EB/OC 6x30	6	30	40	-	4,0x35	100	2.400
8702403	EB/GC 6x30	6	30	40	-	4,0x35	100	2.400
8702443	E/GO 4x20	4	20	30	-	2,5x30	10	600

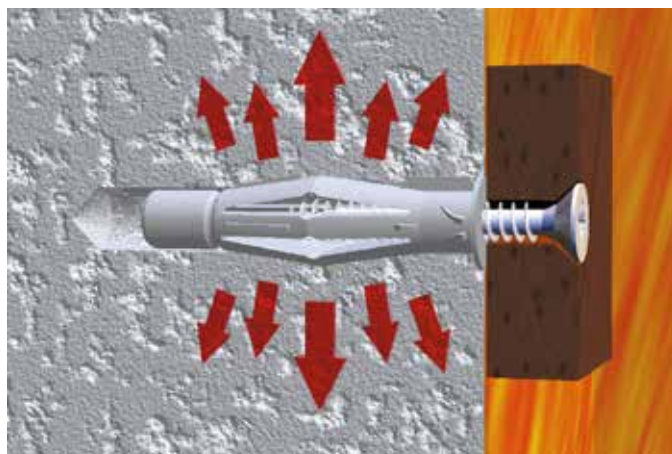
T4: THE SPECIALIST FOR FIXING ON HOLLOW MATERIALS!

THE SPECIALIST FOR FIXING ON HOLLOW MATERIALS!

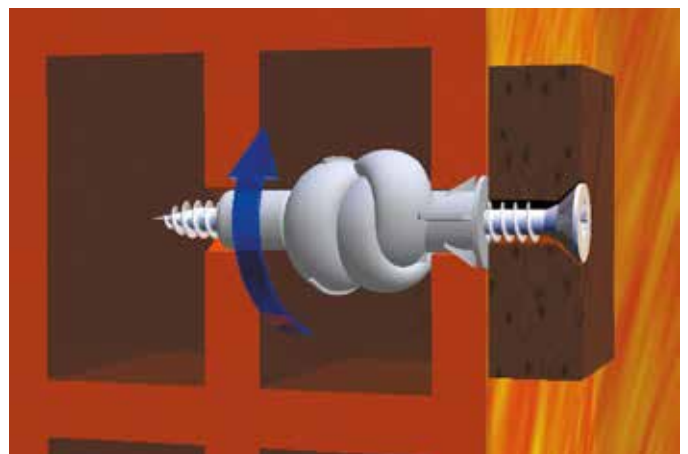
- ❶ **Differential expansion:** the 4 split tails grant anchoring capability by expansion or shape, according to the support material.
- ❷ **Multiscrew:** 4 fins to obtain maximum grip mainly with chipboard screw. The tip's inner structure allows the use of a wide range of screws (also wood-thread screws).
- 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.



Knotting expansion: knotting expansion for high loads on full materials.



Knotting expansion: special geometry for knotting fixings on hollow materials.



T4



Universal light-duty fixing for anchoring in hollow materials.

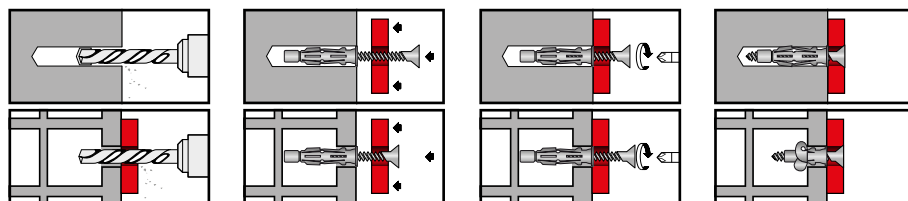
TECHNICAL DATA

Plug material:	polyamide 6, grey colour RAL 7035.
Screw material:	Carbon steel, treated with zinc-plating $\text{Cr}^{3+} \geq 5\mu\text{m}$ thick
Installation temperature:	$-5^{\circ}\text{C} \div +40^{\circ}\text{C}$
Working temperature:	$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$

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

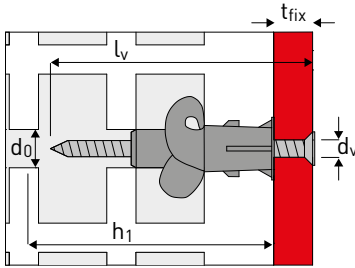
DESCRIPTION		T4/VA 6x35	T4/VA 6x45	T4/VA 8x50	T4/VA 10x60
Drill diameter	d_p /(mm)	6	6	8	10
Drilling depth	h_p /(mm)	45	55	60	80
Screw	d_s /(mm)	3,5x45	3,5x55	4,5x60	6,0x80
Concrete C20/25	daN	26	32	50	66
Solid brick	daN	26	32	48	56
Hollow block	daN	26	40	50	64
Perforated brick	daN	30	30	38	42
Hollow 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 \approx 250 kg/cm² • 1 daN \approx 1 kg



T4

Plug without screw

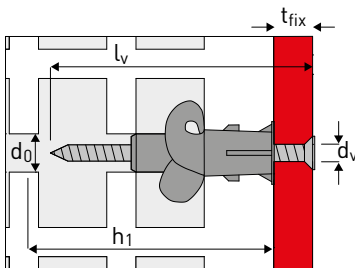


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
	T4	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	d _v /(mm)	l _v /(mm)	pcs.	pcs.
566130	T4 6x35	6	35	45	3,0 - 3,5	40	100	4.800
566131	T4 6x45	6	45	55	3,0 - 3,5	50	100	4.800
566132	T4 8x50	8	50	60	4,0 - 5,0	55	50	2.400
566133	T4 10x60	10	60	80	5,0 - 6,0	60	25	1.200

T4/VA

Countersunk flat head screw

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



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T4/VA	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
566135	T4/VA 6x35	6	35	45	10	3,5x45	100	4.800
566136	T4/VA 6x45	6	45	55	10	3,5x55	50	2.400
566137	T4/VA 8x50	8	50	65	10	4,5x60	50	2.400
566138	T4/VA 10x60	10	60	75	20	6,0x80	25	1.200

TPF - TPFC



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

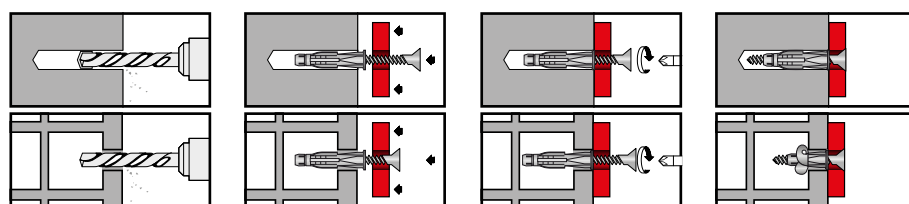
TECHNICAL DATA

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

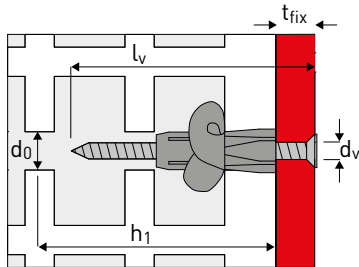
DESCRIPTION		TPFC 5	TPF/TPFC 6	TPF/TPFC 8	TPF/TPFC 10	TPFC 12
Drill diameter	d _g /(mm)	5	6	8	10	12
Screw diameter (wood type)	d _v /(mm)	4	4,5	6	7	8
Concrete C20/25	daN	16	28	40	60	70
Solid brick	daN	16	28	40	60	68
Perforated brick	daN	16	22	30	32	32
Plasterboard (13 mm)	daN	4	4	9	9	9

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

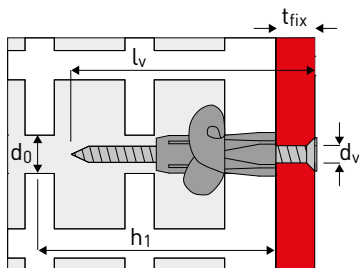


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
	TPF-TPFC	d ₀ /(mm)	l _p /(mm)	h ₁ /(mm)	d _s /(mm)	l _s /(mm)	pcs.	pcs.
8705011	TPF 6x37	6	37	50	4,0 - 4,5	45	100	9.600
8705015	TPF 6x50	6	50	60	4,0 - 4,5	55	50	4.800
8705012	TPF 8x50	8	50	65	5,0 - 6,0	55	50	2.400
8705013	TPF 10x60	10	60	75	6,0 - 7,0	65	25	1.200
8705114	TPFC 5x31	5	31	40	3,0 - 4,0	35	100	9.600
8705111	TPFC 6x38	6	38	50	4,0 - 4,5	45	100	9.600
8705115	TPFC 6x51	6	51	60	4,0 - 4,5	55	50	4.800
8705112	TPFC 8x51	8	51	65	5,0 - 6,0	55	50	2.400
8705113	TPFC 10x61	10	61	75	6,0 - 7,0	65	25	1.200
8705117	TPFC 12x71	12	71	85	7,0 - 8,0	75	25	1.200

TPFC/V

Countersunk flat head screw

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

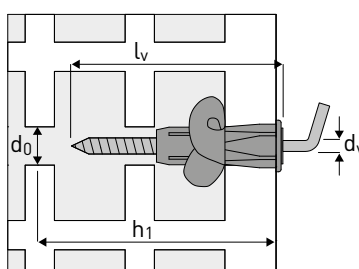


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	TPFC/V	d ₀ /(mm)	l _p /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _s · l _s /(mm)	pcs.	pcs.
8705101	TPFC/V 6x38	6	38	50	5	4,0x50	100	3.200
8705105	TPFC/V 6x51	6	51	60	5	4,0x60	50	1.600
8705102	TPFC/V 8x51	8	51	65	5	5,0x60	50	1.600
8705103	TPFC/V 10x61	10	61	75	5	6,0x70	25	800

TPFC/P

With accessories

Plug with zinc-plated accessories.



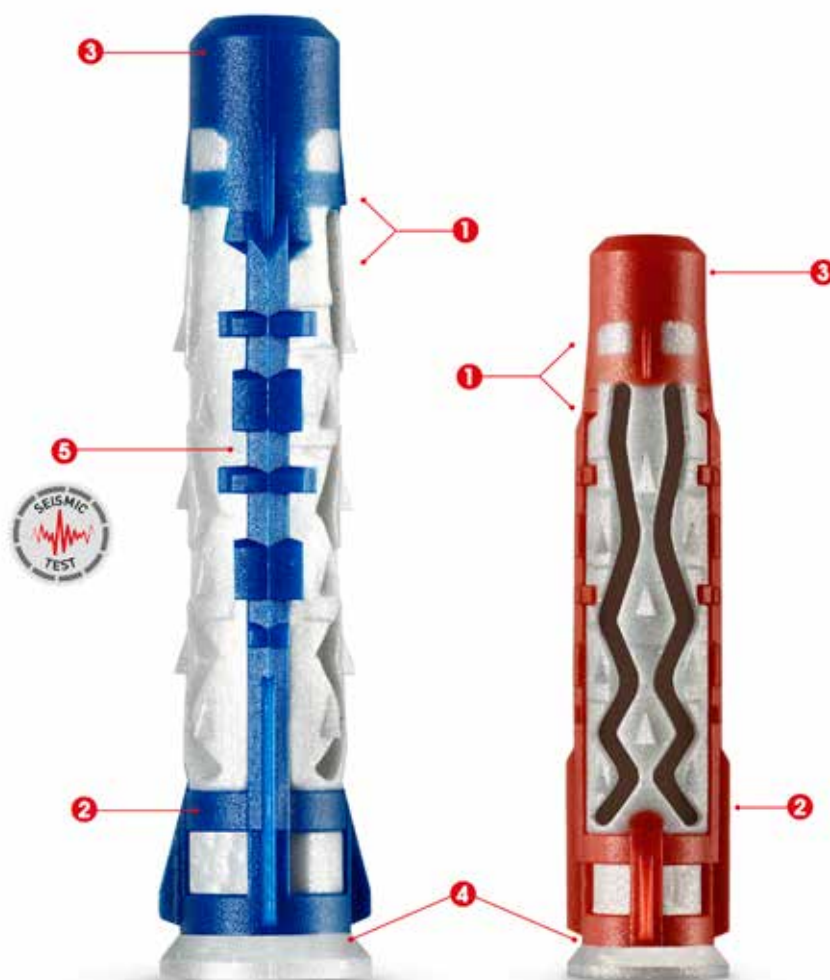
Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	TPFC/P	d ₀ /(mm)	l _p /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _s · l _s /(mm)	pcs.	pcs.
8705161	OA 6x38	6	38	50	-	4,0x45	50	1.600
8705162	OA 8x51	8	51	65	-	5,0x55	50	800
8705151	GM 6x38	6	38	50	-	4,0x45	50	1.600
8705152	GM 8x51	8	51	65	-	5,0x55	50	800
8705171	OC 6x38	6	38	50	-	4,0x45	50	1.600
8705172	OC 8x51	8	51	65	-	5,0x55	50	800

BLUEFIX ^{NEW}

THE FIRST 2-MATERIAL PLASTIC ANCHOR!

THE ULTIMATE TECHNOLOGY EVOLUTION!

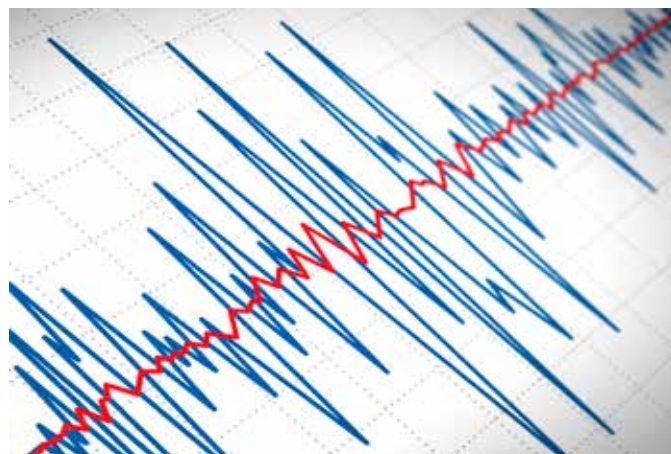
- ❶ **The first 2-material light-duty anchor:** thanks to the combination of two materials, BLUEFIX is able to show off a special flexibility and the highest performance at the same time, for safe and universal fixing.
- ❷ **Maximum versatility:** thanks to reinforced nylon, the tightening torque is progressive and easy to control and the installation is reliable even with various screw sizes.
- ❸ **Highest performance:** major four-direction expansion allows high resistance to be achieved in solid base materials. In plasterboard walls and hollow materials the capability to work as an undercut thanks to the screw fixed in the reinforced end of the plastic sleeve, ensuring always a perfect installation.
- ❹ **Setting reliability:** rotation is avoided during the setting thanks to the 4 rigid fins. No swelling of the wall surface on plasterboard thanks to the rigid collar controlling the undercut. Perfect installation with flat finishing or through the fixture thanks to the flexible collar.
- ❺ **Safe, tested beyond limits:** in addition to ordinary severe testing in several base materials, BLUEFIX 8 is the first universal light-duty anchor to be tested on shaking table under seismic actions in non-cracked and cracked concrete and in hollow brick walls.



Always reliable: in every type of support, even in extreme loading conditions.



Tested under seismic actions: included in shake-table testing (Ø 8 with screw Ø 5mm)



BLUEFIX NEW



BLUEFIX is the first 2-material light-duty anchor ensuring high performance in every base material thanks to the combination of different stiffness of the two components: the grey material guarantees high flexibility for a perfect undercut, whereas the coloured reinforced material lends to the anchor the right stiffness for a solid setting with a progressive and controlled torque. Furthermore BLUEFIX diameter 8 is tested on shaking table under seismic actions in non-cracked and cracked concrete and in hollow brick masonry.

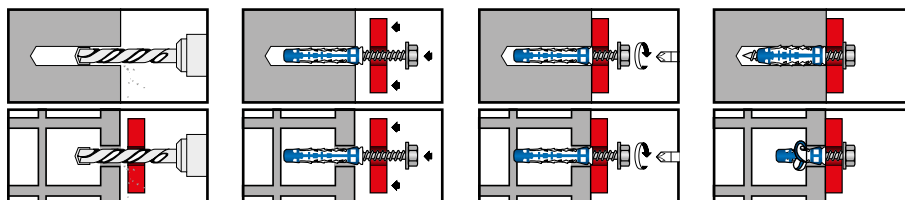
TECHNICAL DATA

Plug material:	polyamide grey-coloured (RAL 7035) reinforced polyamide: Ø 6 red-coloured (RAL 3000) / Ø 8 blue-coloured (RAL 5005)
Screw material:	Carbon steel, treated with zinc-plating Cr ³⁺ ≥5µm thick
Installation temperature:	-0°C ÷ +40°C
Working temperature:	-20°C ÷ +70°C

BUILDING MATERIALS



INSTALLATION METHOD



RECOMMENDED TENSION LOADS

DESCRIPTION		BLUEFIX/KS 6x35	BLUEFIX/HS 8x50
Drill diameter	d ₀ /[mm]	6	8
Drilling depth	h ₁ /[mm]	35	50
Screw	d _s /[mm]	4,5x45	5,0x60
Concrete C20/25	daN	44	70
Solid brick	daN	42	44
Hollow block	daN	31	42
Perforated brick	daN	30	40
Aerated Concrete	daN	11	20
Plasterboard (13 mm)	daN	10	12
Plasterboard (13 + 13 mm)	daN	12	20

Recommended Tensile Resistance, including a safety factor equals to 5. 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

CHARACTERISTICS

- ▶ 2-material anchor: the use of two high performing components (nylon) ensures flexibility, reliability and extreme resistance.
- ▶ Anti-rotation rigid fins to prevent any rotations during the screwing and reinforced collar to avoid any damages to the plasterboard.
- ▶ Dynamic collar for a perfect flat finishing.

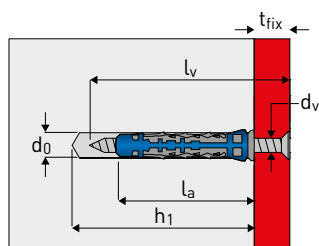
BENEFITS

- ▶ Versatility and performance in hollow base materials, solid materials, lightweight materials, plasterboard, aerated concrete.
- ▶ The tightening torque is progressive and exponential, ensuring a controlled and easy setting.
- ▶ Functionality and high strength guaranteed.
- ▶ Tested on shaking table under seismic actions in non-cracked and cracked concrete and hollow brick masonry.



BLUEFIX NEW

Plug without screw

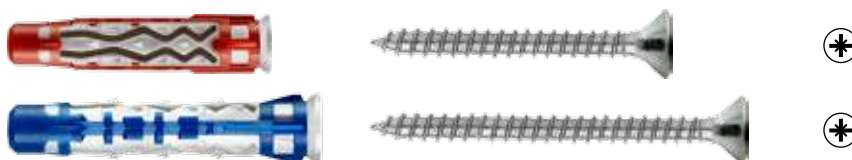
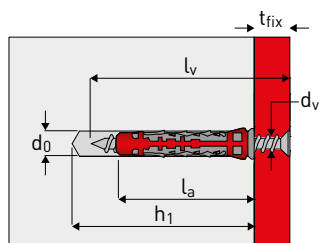


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
	BLUEFIX	d _v /(mm)	l _v /(mm)	h _v /(mm)	d _v /(mm)	l _v /(mm)	pcs.	pcs.
568286	6x35	6	35	45	4,0-5,0	40	100	1.600
568287	8x50	8	50	65	4,5-6,0	55	50	800

BLUEFIX/VA NEW

Countersunk flat head screw

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

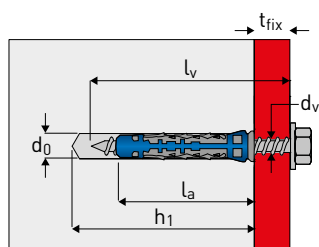


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	BLUEFIX/VA	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
565540	6x35	6	35	50	10	4,5x50	100	1.600
565541	8x50	8	50	65	10	5,0x65	50	800

BLUEFIX/HS NEW

Hexagonal flanged head screw

Anchor sleeve with hexagonal head zinc coated screw with TORX shape.

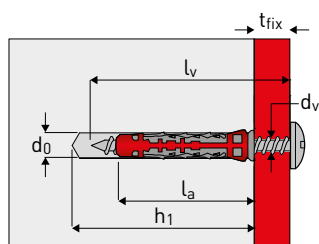


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	BLUEFIX/HS	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
568172	8x50	8	50	65	5	5,0x60	50	800

BLUEFIX/KS NEW

Cylindrical flanged head screw

Anchor sleeve with cylindrical head zinc coated screw with PZ shape.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	BLUEFIX/KS	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
568179	6x35	6	35	50	5	4,5x45	50	800

ENP



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

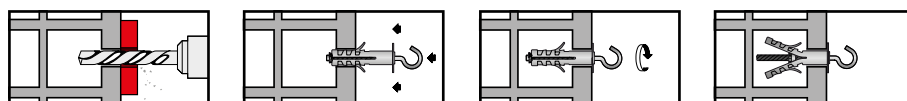
TECHNICAL DATA

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_s /(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

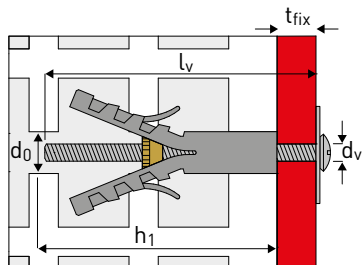
*Representative value of accessories range: for a more detailed information ask for the technical data sheet.
Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related 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 \approx 250 kg/cm² • 1 daN \approx 1 kg • 1da duplicazione!



ENP/V

Countersunk head screw with combined slot cap

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

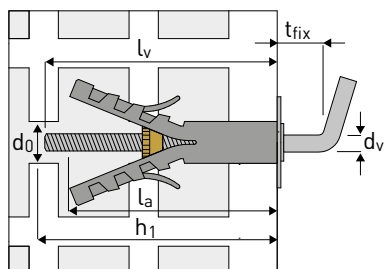


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/V	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
8700051	V 8x40	8	40	55	10	M4x52	200	1.600
8700001	V 9x40	9	40	55	10	M4x52	200	1.600
8700016	VP 9x50	9	50	65	10	M4x60	100	1.200
8700020	V 12x45	12	45	60	10	M5x55	100	800
8700035	VP 12x55	12	55	70	10	M5x62	50	600

ENP/GC

With short hook

Plug with zinc-plated short hook.

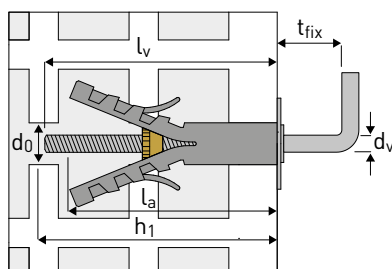


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/GC	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
8700052	GC 8x40	8	40	55	4	M4x43	200	1.600
8700003	GC 9x40	9	40	55	4	M4x43	200	1.600
8700017	GCP 9x50	9	50	65	4	M4x57	100	1.200
8700022	GC 12x45	12	45	60	4,5	M5x46	100	800
8700036	GCP 12x55	12	55	70	4,5	M5x60	50	600

ENP/GM

With medium hook

Plug with zinc-plated medium hook.

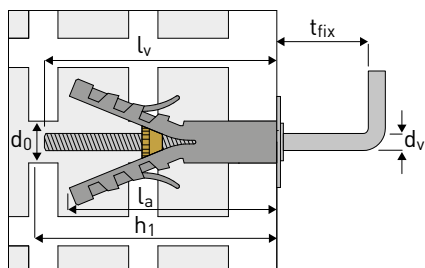


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/GM	d _v /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
8700053	GM 8x40	8	40	55	10	M4x43	200	1.600
8700005	GM 9x40	9	40	55	10	M4x43	200	1.600
8700018	GMP 9x50	9	50	65	10	M4x57	100	1.200
8700024	GM 12x45	12	45	60	10	M5x46	100	800
8700037	GMP 12x55	12	55	70	10	M5x60	50	600

ENP/GL

With long hook

Plug with zinc-plated long hook.

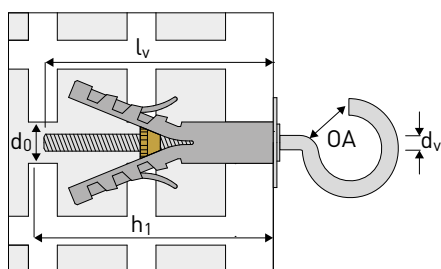


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/GL	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _a /(mm)	pcs.	pcs.
8700054	GL 8x40	8	40	55	17	M4x43	100	1.200
8700007	GL 9x40	9	40	55	17	M4x43	100	1.200
8700026	GL 12x45	12	45	60	19	M5x46	50	600

ENP/OA

With open eye hook

Plug with zinc-plated open eye hook.

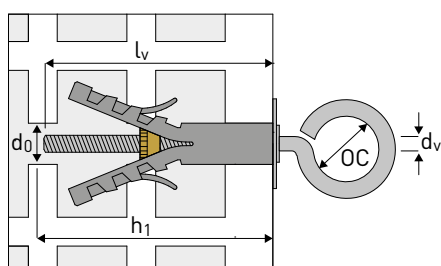


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/OA	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	OA/(mm)	d _v · l _a /(mm)	pcs.	pcs.
8700055	OA 8x40	8	40	55	9	M4x43	100	1.200
8700009	OA 9x40	9	40	55	9	M4x43	100	1.200
8700028	OA 12x45	12	45	60	9	M5x46	50	600

ENP/OC

With closed eye hook

Plug with zinc-plated closed eye hook.

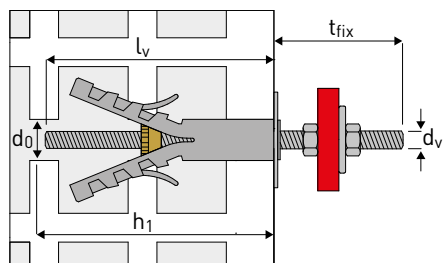


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/OC	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	OC/(mm)	d _v · l _a /(mm)	pcs.	pcs.
8700056	OC 8x40	8	40	55	13	M4x43	100	2.400
8700011	OC 9x40	9	40	55	13	M4x43	100	2.400
8700041	OC 9x50	9	50	65	13	M4x57	100	800
8700030	OC 12x45	12	45	60	13	M5x46	50	1.200
8700045	OC 12x55	12	55	70	13	M5x60	50	400

ENP/DD

With threaded bar

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

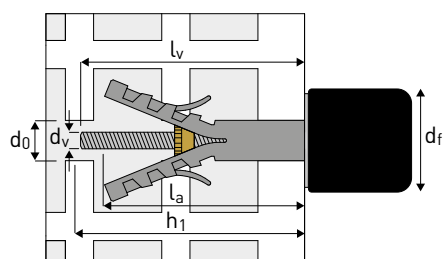


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ENP/DD	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8700013	DD 9x40	9	40	55	35	M4x78	100	1.200
8700032	DD 12x45	12	45	60	40	M5x85	50	600

ENP/FP

With door stoppers

Plug with rubber door stoppers in white and black colour.



Code	Type		Ø Drilling	Length Plug	Depth Drilling	Ø Door stoppers	Dim. Screw	Pack	Carton
	ENP/FP		d _v /(mm)	l _v /(mm)	h _v /(mm)	d _f /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8700039	FP 9x40	○	9	40	55	25	M4x60	50	600
8700040	FP 9x40	●	9	40	55	25	M4x60	50	600

T61



Professional light-duty fixing, suitable for solid materials, where different accessories are required.

Safe and reliable anchorage even near a heat source.

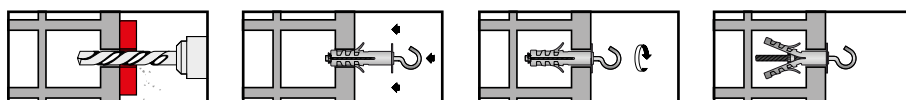
TECHNICAL DATA

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_s /(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.

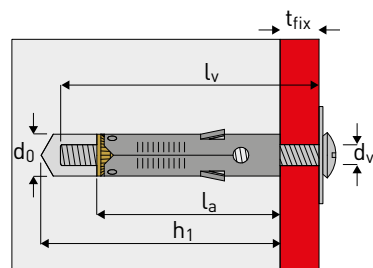
Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires,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



T61/V

Countersunk head metric screw with cross-imprint cap

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

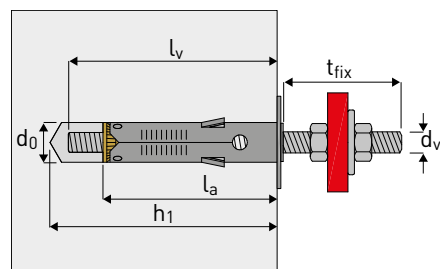


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/V	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _a /(mm)	pcs.	pcs.
8712047	V 6x25	6	25	35	5	M3x30	100	3.200
8712050	V 8x35	8	35	50	5	M4x40	100	800
8712051	VP 8x35	8	35	50	10	M4x52	100	800
8712052	V 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.

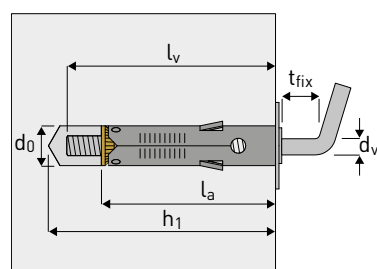


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/DD	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _a /(mm)	pcs.	pcs.
8712064	DD 8x35 M4	8	35	50	30	M4x70	100	600
8712065	DD 9x40 M5	9	40	55	25	M5x80	50	300
8712066	DD 9x40 M6	9	40	55	20	M6x70	50	300

T61/GC

With short hook

Plug with zinc-plated short hook.

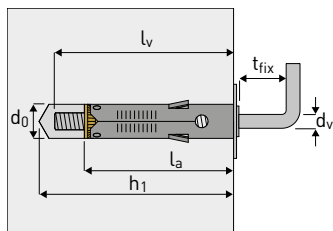


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/GC	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _a /(mm)	pcs.	pcs.
8712048	GC 6x25	6	25	35	3	M3x42	100	1.600
8712054	GC 8x35	8	35	50	4	M4x43	100	800
8712055	GC 9x40	9	40	55	4,5	M5x46	100	600

T61/GM

With medium hook

Plug with zinc-plated medium hook.

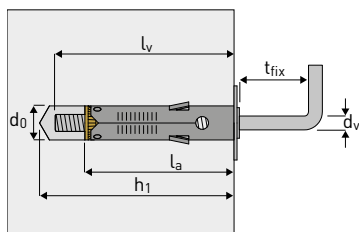


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/GM	d ₀ /(mm)	l _a /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8712056	GM 8x35	8	35	50	10	M4x43	100	800
8712057	GM 9x40	9	40	55	10	M5x46	100	600

T61/GL

With long hook

Plug with zinc-plated long hook.

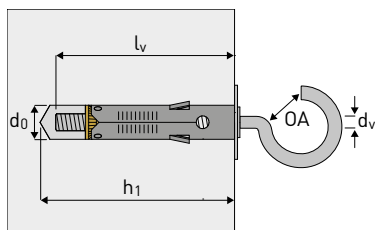


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/GL	d ₀ /(mm)	l _a /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8712058	GL 8x35	8	35	50	17	M4x43	100	800
8712059	GL 9x40	9	40	55	19	M5x46	100	400

T61/OA

With open eye hook

Plug with zinc-plated open eye hook.

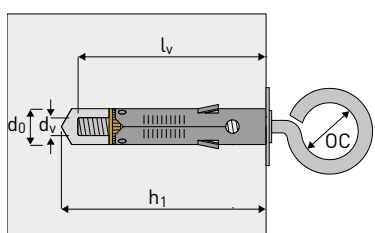


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/OA	d ₀ /(mm)	l _a /(mm)	h ₁ /(mm)	OA/(mm)	d _v · l _v /(mm)	pcs.	pcs.
8712060	OA 8x35	8	35	50	17	M4x43	100	600
8712061	OA 9x40	9	40	55	19	M5x46	100	400

T61/OC

With closed eye hook

Plug with zinc-plated closed eye hook.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	T61/OC	d ₀ /(mm)	l _a /(mm)	h ₁ /(mm)	OC/(mm)	d _v · l _v /(mm)	pcs.	pcs.
8712049	OC 6x25	6	25	35	6	M3x42	100	1.600
8712062	OC 8x35	8	35	50	13	M4x43	100	600
8712063	OC 9x40	9	40	55	13	M5x46	100	400

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.

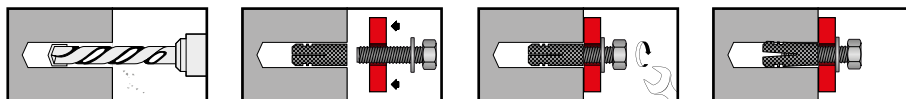
TECHNICAL DATA

Plug material: brass OT58

BUILDING MATERIALS



INSTALLATION METHOD



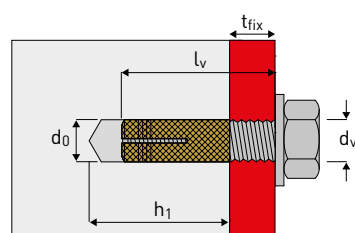
CHARACTERISTICS/BENEFITS

- ▶ 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 5	T51 6	T51 8	T51 10	T51 12
Drill diameter	d_0 /(mm)	6	8	10	12	15
Screw diameter	d_v /(mm)	M5	M6	M8	M10	M12
Concrete C20/25	kN	0,96	1,02	1,95	2,65	2,95

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 \approx 250 kg/cm² • 1 daN \approx 1 kg



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screws	Length Min. Screw	Pack	Carton
	T51	d_0 /(mm)	l_v /(mm)	h_1 /(mm)	d_v /(mm)	l_v /(mm)	pcs.	pcs.
8727002	T51 M5	6,5	21	30	M5	25	200	3.200
8727003	T51 M6	8	24	40	M6	30	300	2.400
8727004	T51 M8	10	29	45	M8	35	200	1.600
8727005	T51 M10	12	32	50	M10	40	100	800
8727006	T51 M12	15	40	60	M12	45	50	400



MINI DRIVA



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

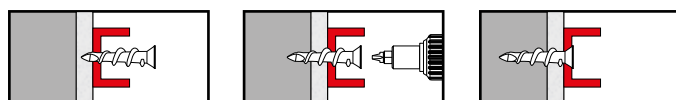
TECHNICAL DATA

Plug material: zinc-aluminum alloy (zamak)

BUILDING MATERIALS



INSTALLATION METHOD



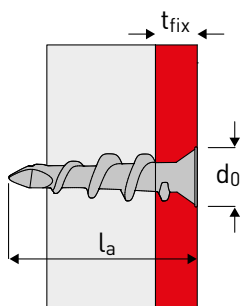
CHARACTERISTICS/BENEFITS

- 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	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. collar	Pack	Carton
		d_0 /(mm)	l_p /(mm)	h_d /(mm)	t_{fix} /(mm)	d_c /(mm)	pcs.	pcs.
565398	MINI DRIVA	6*	26	30*	5	7,5	200	6.400

*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

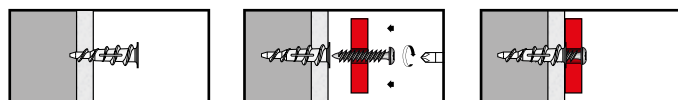
TECHNICAL DATA

Plug material: polyamide 6.6 fiber glass reinforced, neutral color
Screw material: carbon steel, treated with zinc plating Cr³⁺
thickness ≥5μm
Installation temperature: 0°C ÷ +40°C
Working temperature: -40°C ÷ +80°C

BUILDING MATERIALS



INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

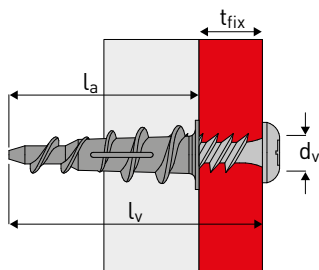
- ▶ Zinc-plated steel rounded head screw.
- ▶ Self-drilling special geometry.
- ▶ Easy and quick installation with a screwdriver with no pre-drilling.
- ▶ The white color prevents imperfections of the plug on the wall.
- ▶ The screw with washer under head allows a sure anchorage of flexible objects in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

RECOMMENDED TENSION LOADS

DESCRIPTION		DRIVA NYLON
Drill diameter*	d _v /(mm)	5
Drilling depth*	h _i /(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



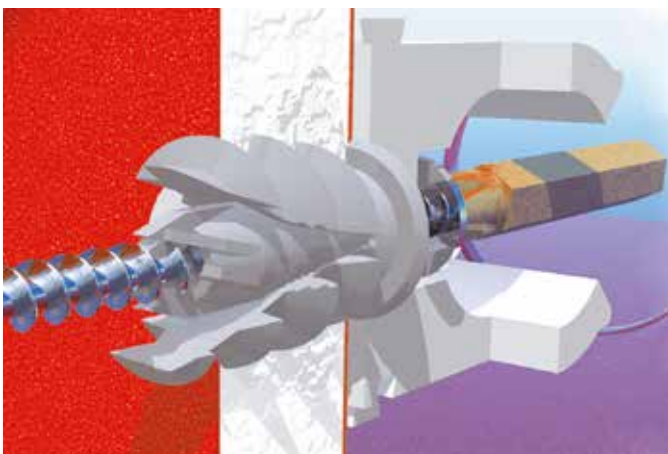
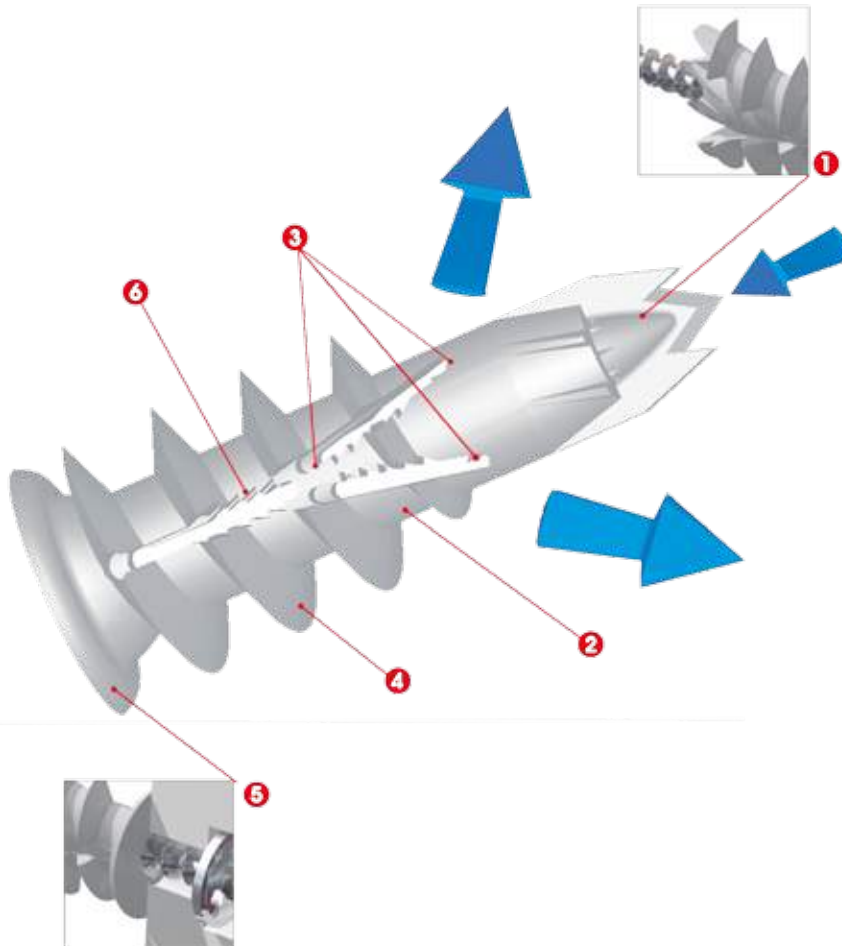
Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	DRIVA	d _v /(mm)	l _v /(mm)	h _i /(mm)	t _m /(mm)	d _v · l _v /(mm)	pcs.	pcs.
569442	NYLON	5*	30	35*	12	3,0x25	200	800

*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.

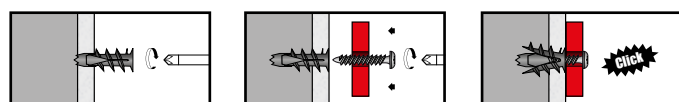
TECHNICAL DATA

Plug material:	polyamide 6.6 fibre glass reinforced, grey colour 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



BENEFITS

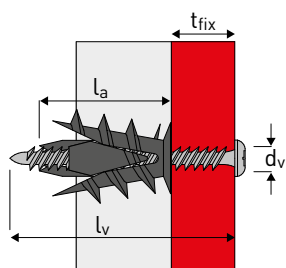
- It can be used without drilling the panel; the application can be performed with both screwdriver and electrical tool.
- Easy and fast installation.
- High load capacity because of the wide panel area affected by the expansion.
- Perfect adherence to the wall without damaging and swelling the panel.

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/cm² • 1 daN □ 1 kg



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. collar	Pack	Carton
	T-CLICK	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v - l _v /(mm)	pcs.	pcs.
566261	TP 10	8*	40	45*	10	4,5x45	25	2.400
566301	TP 10	8*	40	45*	10	4,5x45	100	2.400

*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.

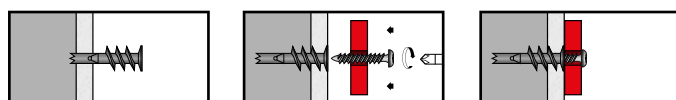
TECHNICAL DATA

Plug material: zinc-aluminum alloy (zamak)
Screw material: carbon steel, treated with zinc plating Cr³⁺ thickness ≥5µm

BUILDING MATERIALS



INSTALLATION METHOD



CHARACTERISTICS/BENEFITS

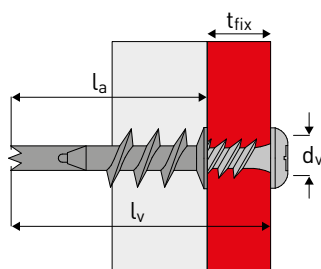
- Fixing for plasterboard and aerated concrete for medium loads
- Quick and easy installation using only a screwdriver.
- Effective harpoon fixing to the panels structure.
- Available with rounded head screw (TP) and countersunk head screw (TF).
- Screws suitable for every application.

RECOMMENDED TENSION LOADS

DESCRIPTION		DRIVA
Drill diameter*	d _o /(mm)	6
Drilling depth*	h _i /(mm)	35
Aerated Concrete	daN	6
Plasterboard (13 mm)	daN	6

*Necessary drilling depth 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	Ø Drilling d _o /(mm)	Length Plug l _v /(mm)	Depth Drilling h _i /(mm)	Max Thick. Fixable t _{fix} /(mm)	Dim. Screw d _v · l _v /(mm)	Pack pcs.	Carton pcs.
569443	TP 12	6*	31	35*	12	4,5x35	100	400
569444	TF 5	6*	31	35*	5	4,5x25	100	400
569445	TF 27	6*	31	35*	27	4,5x50	100	400

*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.

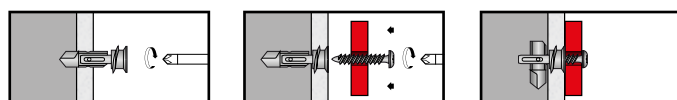
TECHNICAL DATA

Plug material: zinc-aluminum alloy (zamak)
Screw material: carbon steel, treated with zinc plating Cr³⁺ thickness ≥5μm

BUILDING MATERIALS



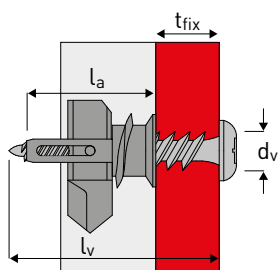
INSTALLATION METHOD



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	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	DRIVA PLUS	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v • l _v /(mm)	pcs.	pcs.
569446	TP 12	-	39	-	12	4,5x45	100	800



ETPV/V

Metric screw flat head



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:

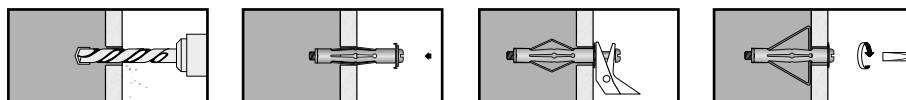
zinc plating steel

Tool for the installation:

cod. 707070



INSTALLATION METHOD



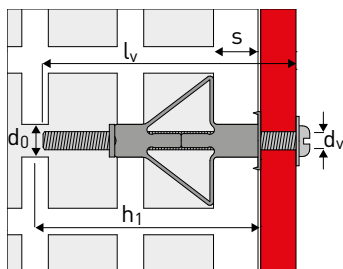
CHARACTERISTICS/BENEFITS

- 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

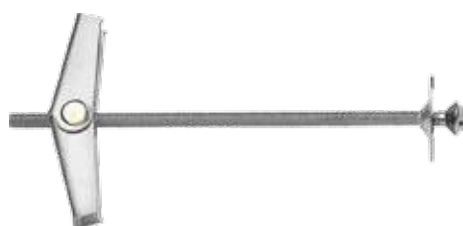
DESCRIPTION		ETPV M4/8	ETPV M5/10	ETPV M6/12
Drill diameter	d_0 /(mm)	8	10	12
Screw diameter	d_v /(mm)	M4	M5	M6
Plasterboard (10 mm)	daN	20	20	15
Plasterboard (13 mm)	daN	20	20	20
Plasterboard (13 + 13 mm)	daN	-	40	30

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. $C20/25 \approx 250 \text{ kg/cm}^2 \cdot 1 \text{ daN} \approx 1 \text{ kg}$



Code	Type	Ø Drilling	Length Plug	Min - Max Thickn. Support	Dim. Screw	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	1.600
568618	M4/8x40-47	8	40	10-16	M4x47	100	1.600
568621	M5/10x50-59	10	50	11-16	M5x59	50	800
568622	M5/10x63-72	10	63	21-27	M5x72	50	800

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.

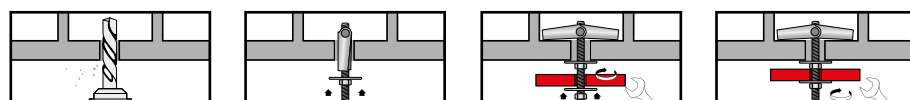
TECHNICAL DATA

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_v /(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.

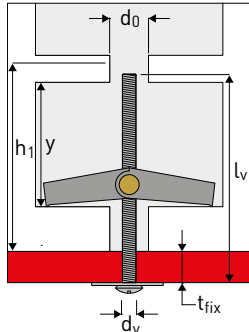
Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires,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



ETAF/V

Countersunk head screw with combined slot cap

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

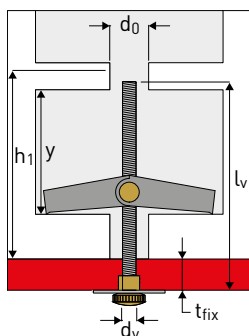


Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETAF/V	d _v /(mm)	y/(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8706001	V 4/12	12	25	80	45	M4x75	50	600
8706002	V 4/14	14	32	80	40	M4x75	50	600

ETAF/DC

Countersunk head screw with nut

Toggle with countersunk head screw and brass blind nut.

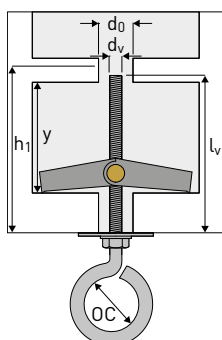


Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETAF/DC	d _v /(mm)	y/(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8706351	DC 4/12	12	25	100	55	M4x95	50	600
8706352	DC 4/14	14	32	100	50	M4x95	50	600

ETAF/OC

With closed eye hook

Toggle with zinc-plated closed eyebolt.

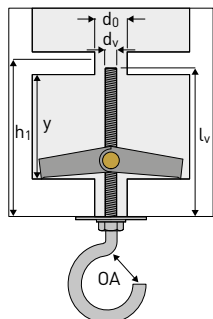


Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETAF/OC	d _v /(mm)	y/(mm)	h ₁ /(mm)	OC/(mm)	d _v · l _v /(mm)	pcs.	pcs.
8706101	OC 4/12	12	25	70	15	M4x65	50	600
8706102	OC 4/14	14	32	70	15	M4x65	50	600

ETAF/OA

With open eye hook

Toggle with zinc-plated open eyebolt.

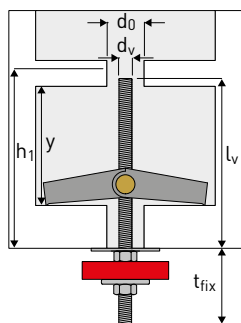


Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETAF/OA	d _v /(mm)	y/(mm)	h _v /(mm)	OA/(mm)	d _v · L _v /(mm)	pcs.	pcs.
8706201	OA 4/12	12	25	100	11	M4x65	50	600
8706202	OA 4/14	14	32	100	11	M4x65	50	600

ETAF/DD

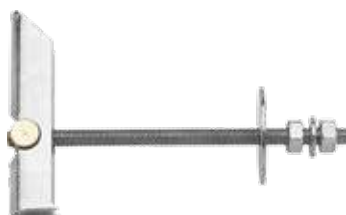
Threaded bar with double nut

Toggle with zinc-plated threaded bar.



Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETAF/DD	d _v /(mm)	y/(mm)	h _v /(mm)	t _{fix} /(mm)	d _v · 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.

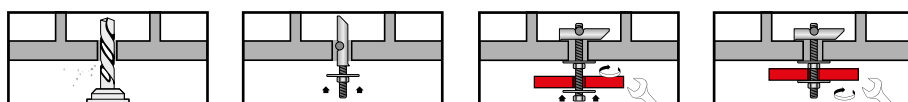
TECHNICAL DATA

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_v /(mm)	16	20
Screw diameter	d_v /(mm)	M6	M8
Perforated brick	daN	72	120
Break of the accessory*	daN	20	35

*Necessary drilling depth only on aerated concrete.

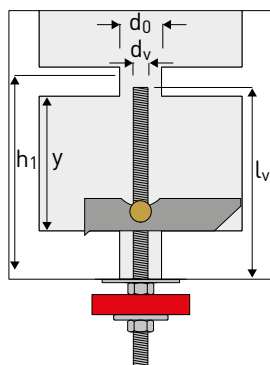
Recommended Tension Resistance, including a safety factor equals to 5. Values refer to testing carried out on commonly used materials and with steel screws class 8.8. Indicative value related to materials consisting of different structure. Check the technical documentation and, as the case requires,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



ETR/DD

Threaded bar with double nut

Toggle with zinc-plated threaded bar.

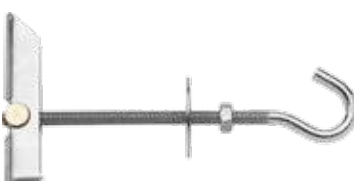
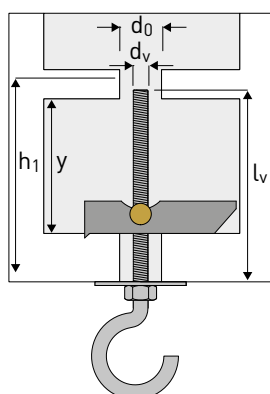


Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Thickness Max wall	Dim. Screw	Pack	Carton
	ETR/DD	d_v (mm)	y (mm)	h_v (mm)	sp (mm)	$d_v \cdot l_v$ (mm)	pcs.	pcs.
8706303	ETR/DD 6	16	69	105	31	M6x100	25	300
8706304	ETR/DD 8	20	75	105	55	M8x100	25	200

ETR/OA

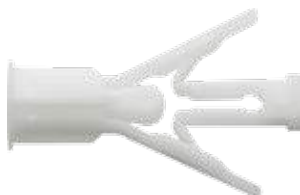
With open eye hook

Toggle with zinc-plated open eyebolt.



Code	Type	Ø Drilling	Space Cavity	Depth Drilling	Thickness Max wall	Dim. Screw	Pack	Carton
	ETR/OA	d_v (mm)	y (mm)	h_v (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	200

ETNF



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

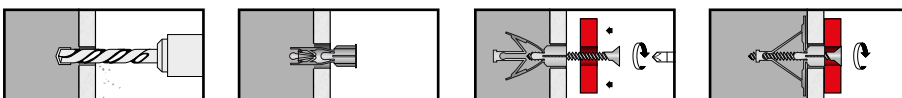
TECHNICAL DATA

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

BUILDING MATERIALS



INSTALLATION METHOD



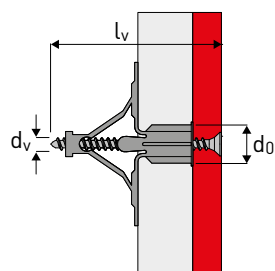
CHARACTERISTICS/BENEFITS

- 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.

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/cm² • 1 daN = 1 kg



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screws	Length Min. Screw	Pack	Carton
	ETNF	d_0 /(mm)	l_v /(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

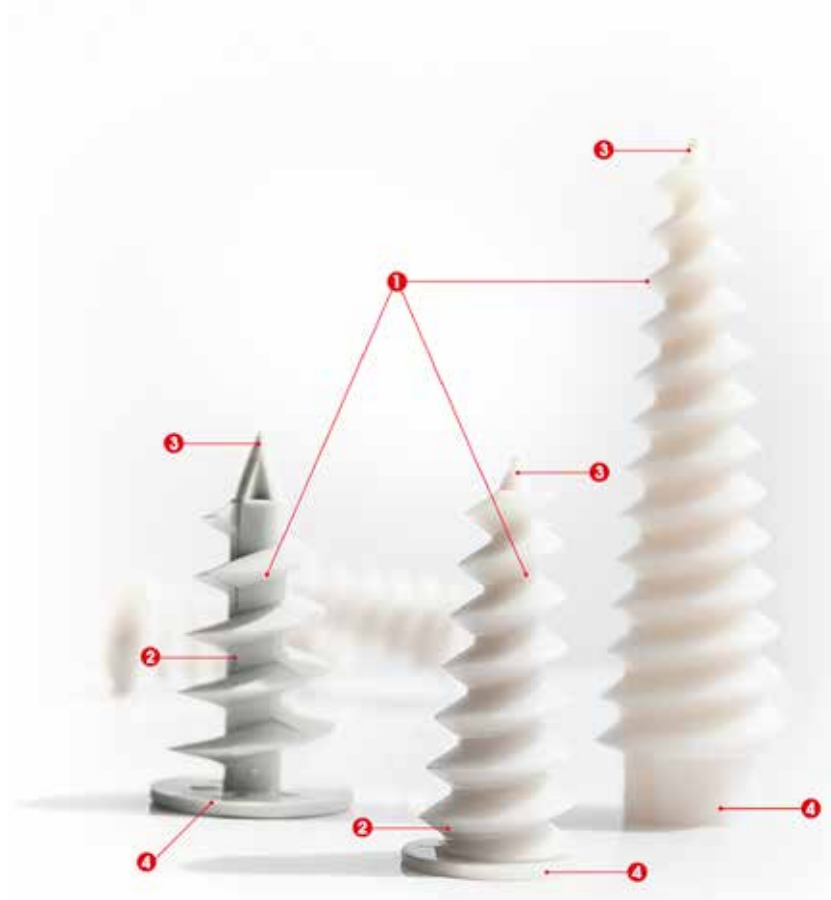


EIS-D NEW

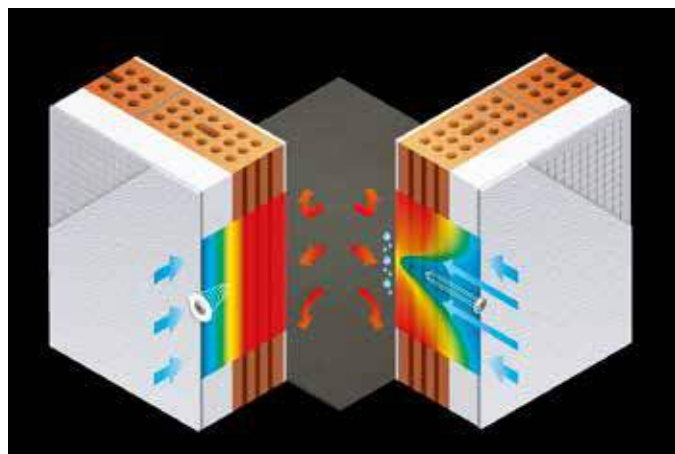
FIXINGS ON EXTERNAL INSULATION

SELF-DRILLING FIXINGS ON EXTERNAL INSULATION WITHOUT THERMAL BRIDGES

- ❶ **No thermal transfer:** made of insulating polymer, can be directly applied and fixed on insulation panels and underlying masonry. No thermal transfer will occur. The external facade will be protected from mildew spots and possible damage.
- ❷ **Minimum lengths and anchoring depth:** applications are also permitted on insulations with thinner panels.
- ❸ **No drilling:** plugs are self-drilling and self-threading, easy installation with an electrical tool or screwdriver. On panels with thicker plasters, a superficial drilling is suggested.
- ❹ **Suitable for different kind of screws:** chipboard screws or wood self-drilling screws can be used, stainless steel or galvanized screws, following the sizes reported on the table, to fix external lamps, different kind of electrical appliances, alarms, boxes, etc. while with EIS-D 95 it is possible to use threaded bars or double thread screws to fix different kind of collars.



No thermal bridge: the underlying masonry thermally protected, is not affected in any way.



No pre-drilling: the anchoring is done directly on the external insulation without pre-drilling.



EIS-D NEW

Fixing of light appliances on external insulation of low density.



EIS-D 50 is particularly suitable to fix on insulations composed with polyiso foam board, EPS loaded, polystyrene and high-density panels.

Particularly indicated to fix lamps, cameras, detectors, sensors, alarms, control units, switches and controls, collars and hose stop clips, signage.

TECHNICAL DATA

Plug material:

high strength polymer, WHITE colour

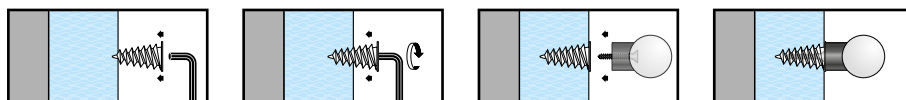
Screw material:

carbon steel with hardening treatment and subsequent electrolytic zinc Cr3 +, thickness $\geq 5\mu$

BUILDING MATERIALS



INSTALLATION METHOD



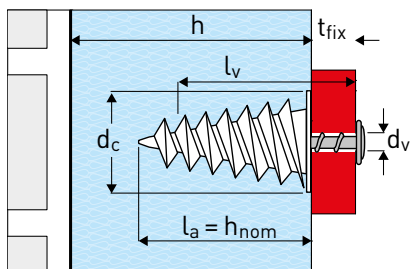
CHARACTERISTICS

- Self-drilling : with thicker plasters no need to pre-drilling. The installation is directly done on the insulation with electrical tool or screwdriver.
- The particular geometric spiral wedge penetrates effectively into the isolation ensuring performance both on medium-high and low density panels
- The compact size of the plug and head have a smaller esthetical impact on the surfaces already plastered and are ideal to fix small appliances.
- Suitable for chipboard screws, wood screws, self-threaded \varnothing from 4,0 up to 4,5 mm galvanized or in stainless steel.

RECOMMENDED TENSION LOADS

DESCRIPTION		EIS-D 50
Drill diameter	d_v /(mm)	8 (only for thicker plasters)
Installation depth	h_{nom} /(mm)	50
Polystyrene cl. EPS 80	daN	3,5
Polystyrene cl. EPS 100	daN	5,0

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



ANCHOR ONLY BODY RECESS TX 30

Code	Type	Length Plug	Dim. Collar	Thickness Insulation	Dim. Screw	Pack	Carton
	EIS-D	l_v /(mm)	d_c /(mm)	h /(mm)	$d_v \times l_v$ /(mm)	pcs.	pcs.
568176	$\varnothing 24 \times 50$	50	24	≥ 55	4-4,5 x $\geq 35 + t_{fix}$	50	400

Pre-drilling $\varnothing 8$ mm necessary for thicker plasters.

ANCHOR RECESS TX 30 WITH HEAD CAP SCREW FLAT RECESS PH 2

Code	Type	Length Plug	Thickness Insulation	Dim. Screw	Max Thick. Fixable	Pack	Carton
	EIS-D/V	l_v /(mm)	h /(mm)	$d_v \times l_v$ /(mm)	t_{fix} /(mm)	pcs.	pcs.
568177	$\varnothing 24 \times 50$	50	≥ 55	4,5 x 45	10	50	300

Pre-drilling $\varnothing 8$ mm necessary for thicker plasters.



EIS-D LT NEW

Fixing on external insulation, of low and medium density, of light appliances



EIS-D LT is a plug ideal to fix on external insulation, realized with panels in EPS, XPS, polystyrene HD, Styrofoam.

Particularly indicated to fix lamps, cameras, detectors, sensors, alarms, control units, switches and controls, collars and hose stop clips, signage,

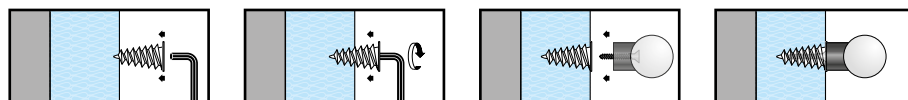
TECHNICAL DATA

Plug material: high strength polymer, GREY colour
Screw material: carbon steel with hardening treatment and subsequent electrolytic zinc Cr3 +, thickness $\geq 5\mu$

BUILDING MATERIALS



INSTALLATION METHOD



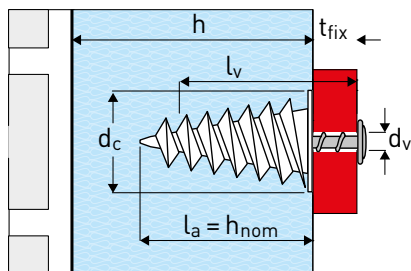
CHARACTERISTICS/BENEFITS

- Easy use and setting: self-drilling plug, to be directly screwed on the insulation panels with a screwdriver or electrical tool with hexagonal insert 5.
- The short plug length allows applications on insulations panels of thin thickness. Suitable on insulations realized with low density panels.
- The self-threaded spiral geometry, combined with the expansion, allow an anchoring to a larger volume of the insulating panel and, compacting the fibres, allow a more effective fixing.
- The flush surface installation is facilitated by the special geometry of the spiral and allows to fix the objects perfectly.
- EIS-D LT can be used with different kind of screws, galvanized or stainless steel, from $\varnothing 4,5$ up to 5,0 mm.

RECOMMENDED TENSION LOADS

DESCRIPTION		EIS-D LT 50
Drill diameter	d_v /(mm)	8 (only for thicker plasters)
Installation depth	h_{nom} /(mm)	50
Polystyrene cl. EPS 80	daN	3,5
Polystyrene cl. EPS 100	daN	5,0

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



ANCHOR ONLY BODY RECESS HEX 5

Code	Type	Length Plug	Dim. Collar	Thickness Insulation	Dim. Screw	Pack	Carton
	EIS-D LT	l_v /(mm)	d_c /(mm)	h_{nom} /(mm)	$d_v \times l_d \times d_v \times d_d$ /(mm)	pcs.	pcs.
568174	$\varnothing 28 \times 50$	50	28	≥ 55	4-4,5x $\geq 35+t_{fix}$	50	400

Pre-drilling $\varnothing 8$ mm necessary for thicker plasters.

ANCHOR RECESS HEX5 WITH HEAD CAP SCREW FLAT RECESS PH 2

Code	Type	Length Plug	Thickness Insulation	Dim. Screw	Max Thick. Fixable	Pack	Carton
	EIS-D LT/V	l_v /(mm)	h_{nom} /(mm)	$d_v \times l_d \times d_v \times d_d$ /(mm)	t_{fix} /(mm)	pcs.	pcs.
568175	$\varnothing 28 \times 50$	50	≥ 55	4,5x45	5	50	300

Pre-drilling $\varnothing 8$ mm necessary for thicker plasters.



EIS-D 95 NEW

Fixing on external insulation, especially suitable to fix collars.



Particularly indicated to fix downpipes, collars or gas tubes, metal collars for heating or cooling pipes, threaded rods or various clips.

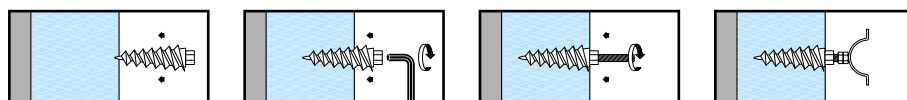
TECHNICAL DATA

Plug material: high strength polymer, WHITE colour

BUILDING MATERIALS



INSTALLATION METHOD



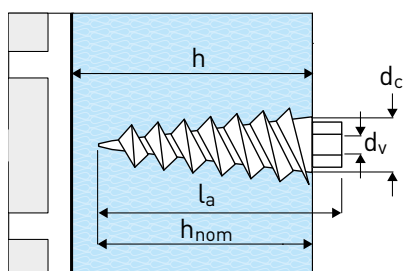
CHARACTERISTICS/BENEFITS

- ▶ Need to be screwed directly on the insulation panels with screwdriver bush HEXAGON SW17 or Torx insert 55.
- ▶ The extra length allows are in deeper and stable fixing with efficient loads up to 6.5 kg.
- ▶ Associated with wood screws or double thread diameter 8 or M8 bars, it is particularly suitable to fix metal collars and downpipes.
- ▶ Flush surface installed, then applying a seal around the hexagon, it blocks any infiltration.

RECOMMENDED TENSION LOADS

DESCRIPTION		EIS-D 95
Drill diameter	d_v /(mm)	8 (only for thicker plasters)
Installation depth	h_{nom} /(mm)	95
Polystyrene cl. EPS 80	daN	5,0
Polystyrene cl. EPS 100	daN	6,5

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



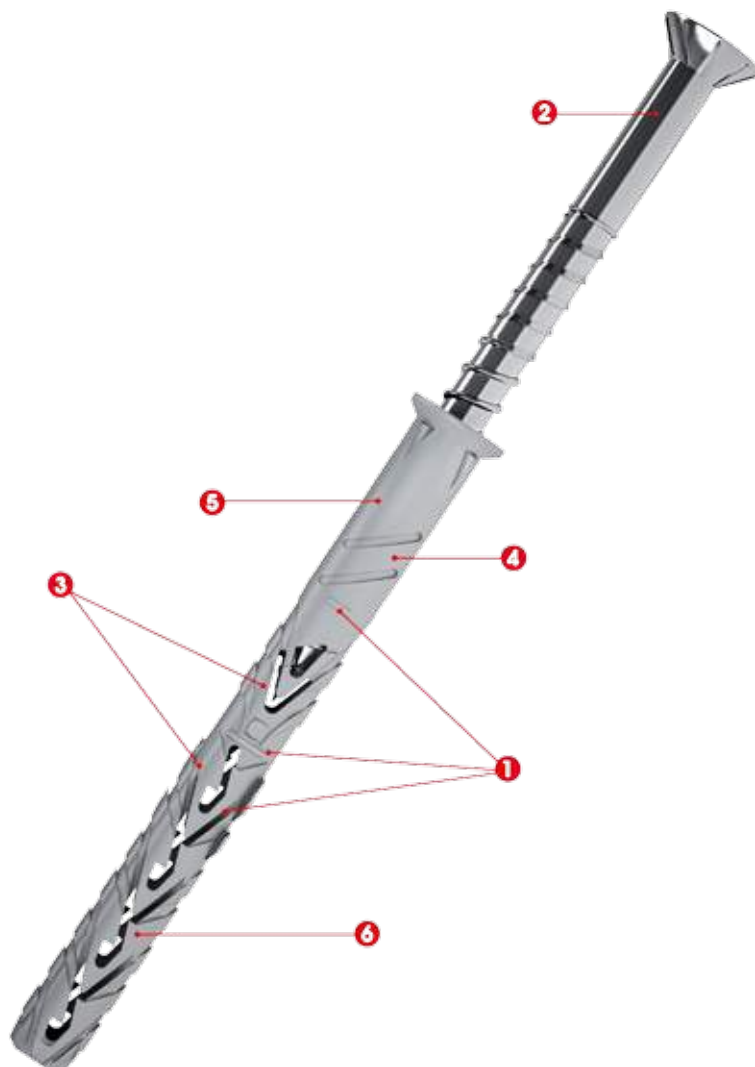
ANCHOR ONLY BODY RECESS HEX 17 + TX 55

Code	Type	Length Plug	Dim. Collar	Thickness Insulation	Dim. Screw	Pack	Carton
	EIS-D 95	l_p /(mm)	d_c /(mm)	h_{nom} /(mm)	$d_v \times l_d d_v d_d$ /(mm)	pcs.	pcs.
568178	Ø30x95	95	30	≥100	8-M8x≥60+tfix	50	200

Pre-drilling Ø 8 mm necessary for thicker plasters.



T66: VERSATILE, PERFORMING, MULTI-MATERIAL!



- ❶ **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!
- ❷ **Speed:** quick screwing without rotation; progressive driving torque, easy to control.
- ❸ **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.
- ❹ **Practical:** easy through-fixing application on any object to fix such as metal and wood structures, frames, stirrups, strips.
- ❺ **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!
- ❻ **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

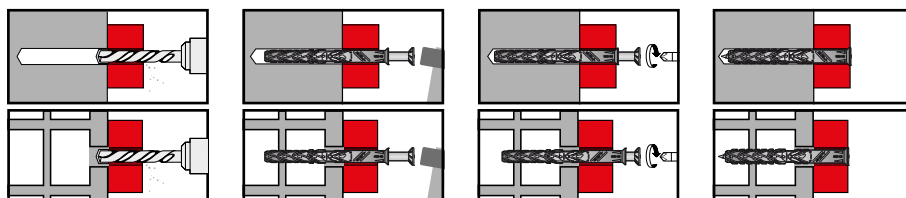
CERTIFICATIONS



BUILDING MATERIALS



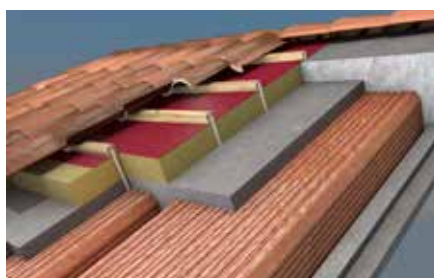
INSTALLATION METHOD



RECOMMENDED LOADS

DESCRIPTION		T66/V 8	T66/V 10
Drill diameter	d ₀ /(mm)	8	10
Drilling depth	h _v /(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



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.

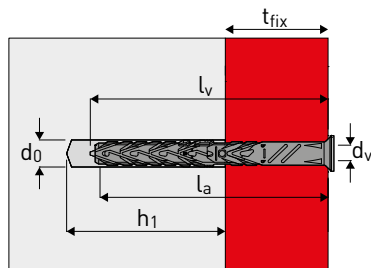
BENEFITS

- 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.

T66/V TORX

With countersunk head screw

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



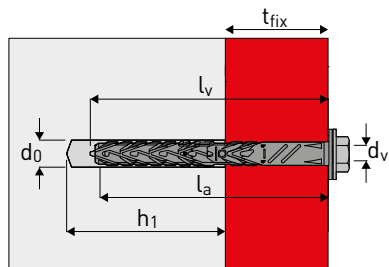
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T66/V TORX	d _g /(mm)	l _p /(mm)	h _{nom} /(mm)	h _p /(mm)	t _{fix} /(mm)	pcs.	pcs.
567850	8x60/10	8	60	50	60	10	50	400
567851	8x80/30	8	80	50	60	30	50	300
567852	8x100/50	8	100	50	60	50	50	300
567853	8x120/70	8	120	50	60	70	50	300
567854	8x150/100	8	150	50	60	100	50	300
567857	10x80/30	10	80	50*	60	30	50	300
567858	10x100/50	10	100	50*	60	50	50	200
567859	10x120/70	10	120	50*	60	70	50	200
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.



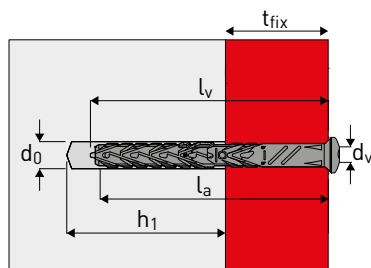
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T66/V TER W	d _g /(mm)	l _p /(mm)	h _{nom} /(mm)	h _p /(mm)	t _{fix} /(mm)	pcs.	pcs.
567868	10x60/10	10	60	50*	60	10	50	300
567869	10x80/30	10	80	50*	60	30	50	200
567870	10x100/50	10	100	50*	60	50	50	200
567871	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	200

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

T66/V AM NEW

With anti-tampering screw

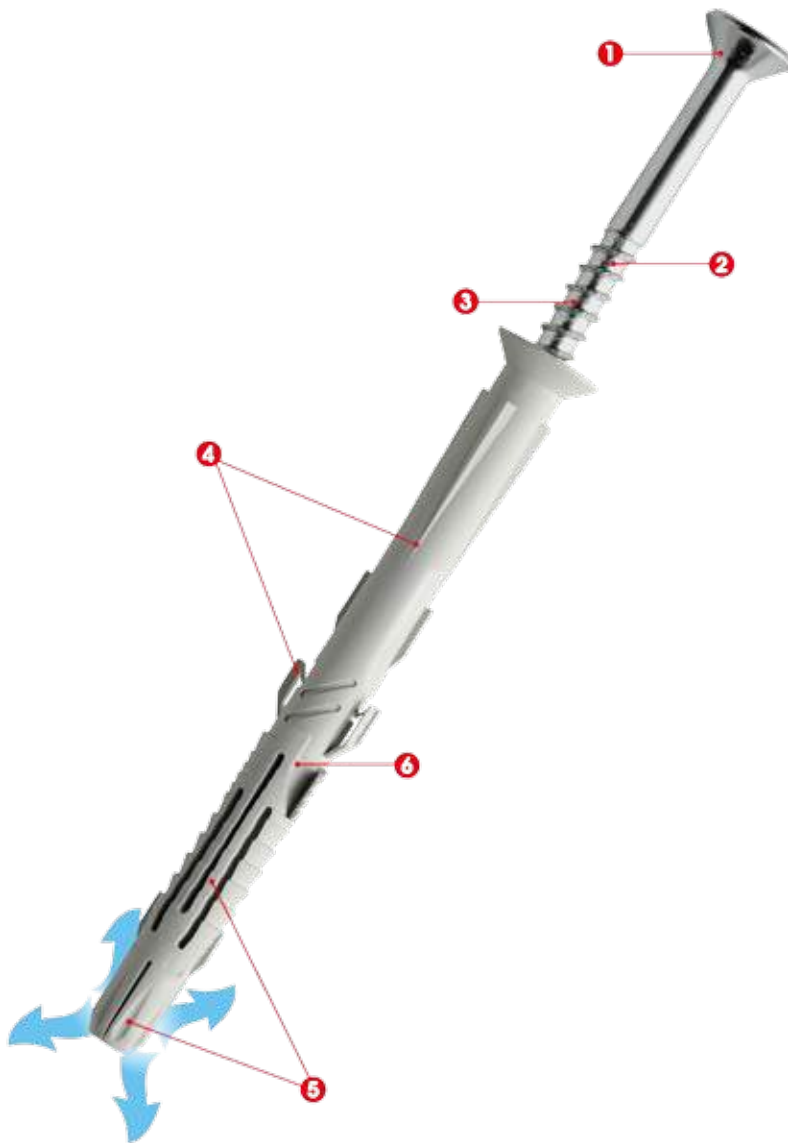
Anchor with rounded head, antitampering, galvanized steel.
Final sealing insert, zamak galvanized.



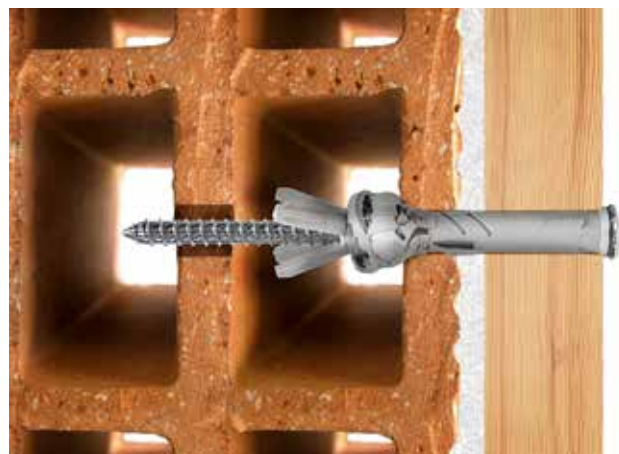
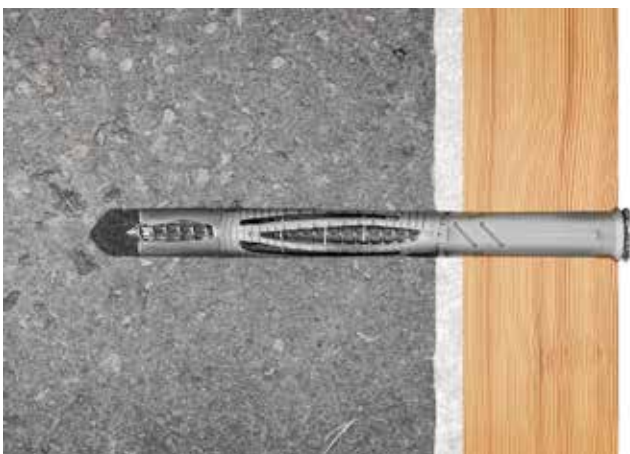
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T66/V AM	d _g /(mm)	l _p /(mm)	h _{nom} /(mm)	h _p /(mm)	t _{fix} /(mm)	pcs.	pcs.
569465	10x100/50	10	100	50*	60	50	25	300
569466	10x120/70	10	120	50*	60	70	25	300
569467	10x140/90	10	140	50*	60	90	25	150
569468	10x160/110	10	160	50*	60	110	25	150
569469	10x180/130	10	180	50*	60	130	25	150

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

T88: UNIVERSAL, UNBEATABLE FOR HOLLOW MATERIALS!



- ❶ **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.
- ❷ **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.
- ❸ **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.
- ❹ **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.
- ❺ **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.
- ❻ **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 Cr³⁺, thickness ≥5μm
 Installation temperature: +0°C ÷ +40°C
 Working temperature: -40°C ÷ +80°C

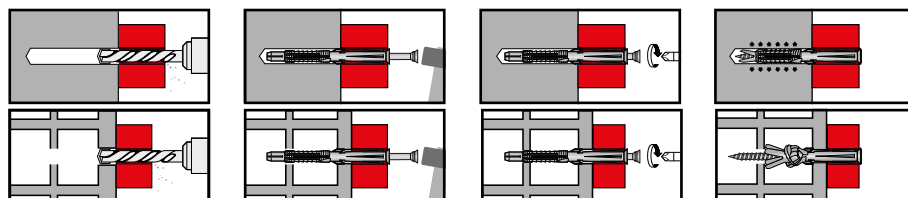
CERTIFICATIONS



BUILDING MATERIALS



INSTALLATION METHOD



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 _i /(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



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.

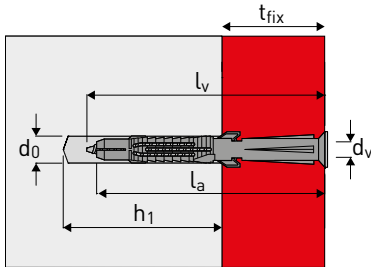
APPLICATIONS

- 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.

T88/V TORX

Countersunk flat head screw

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



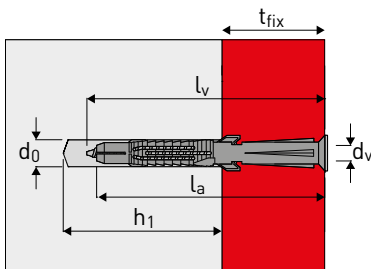
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T88/V TORX	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h ₁ /(mm)	t _{fix} /(mm)	pcs.	pcs.
567001	8x80	8	80	70	85	10	50	400
567002	8x100	8	100	70	85	30	50	400
567003	8x120	8	120	70	85	50	50	300
567004	10x80*	10	80	70	85	10	50	300
567005	10x100*	10	100	70	85	30	50	200
567006	10x115*	10	115	70	85	45	50	200
567007	10x145*	10	145	70	85	75	50	250
567008	10x160*	10	160	70	85	90	50	250
567009	10x185*	10	185	70	85	115	50	250
567010	10x210*	10	210	70	85	140	50	250

*Certified in accordance with ETAG 020

T88/V

Countersunk flat head screw

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



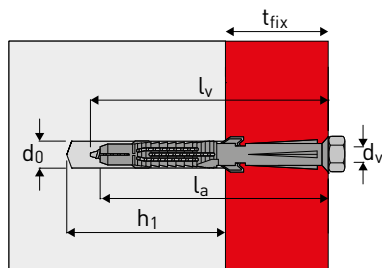
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T88/V Pozidriv	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h ₁ /(mm)	t _{fix} /(mm)	pcs.	pcs.
566736	8x80	8	80	70	85	10	50	400
566737	8x100	8	100	70	85	30	50	400
566738	8x120	8	120	70	85	50	50	300
566753	10x80*	10	80	70	85	10	50	300
566754	10x100*	10	100	70	85	30	50	200
566755	10x115*	10	115	70	85	45	50	200
566756	10x145*	10	145	70	85	75	50	250
566757	10x160*	10	160	70	85	90	50	250
566758	10x185*	10	185	70	85	115	50	250
566759	10x210*	10	210	70	85	140	50	250

*Certified in accordance with ETAG 020

T88/V TE

With hexagonal head screw

Plug with zinc-plated hexagonal head screw.



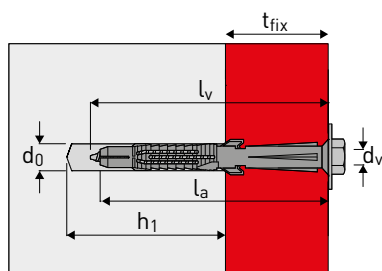
Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T88/V TE	d ₀ /(mm)	l _v /(mm)	h _{an} /(mm)	h _d /(mm)	t _{fix} /(mm)	pcs.	pcs.
566733	8x80	8	80	70	85	10	50	400
566734	8x100	8	100	70	85	30	50	400
566735	8x120	8	120	70	85	50	50	300
566746	10x80*	10	80	70	85	10	50	300
566747	10x100*	10	100	70	85	30	50	200
566748	10x115*	10	115	70	85	45	50	200
566749	10x145*	10	145	70	85	75	50	250
566750	10x160*	10	160	70	85	90	50	250
566751	10x185*	10	185	70	85	115	50	250
566752	10x210*	10	210	70	85	140	50	250

*Certified in accordance with ETAG 020

T88/V TER

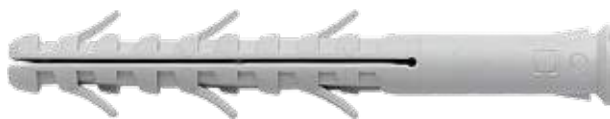
With hexagonal head screw and washer

Plug with zinc-plated hexagonal head screw with washer.



Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	T88/V TER	d ₀ /(mm)	l _v /(mm)	h _{an} /(mm)	h _d /(mm)	t _{fix} /(mm)	pcs.	pcs.
566765	12x120	12	120	70	85	50	25	100
566766	12x145	12	145	70	85	75	25	100
566767	12x165	12	165	70	85	95	25	100
566768	12x185	12	185	70	85	115	25	125
566769	12x210	12	210	70	85	140	25	100
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.

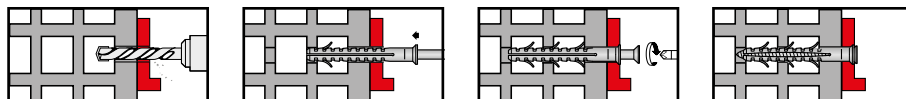
TECHNICAL DATA

Plug material: polyamide 6, grey color RAL 7035
 Screw material: carbon steel, cl. 5.8, treated with zinc plating Cr³⁺ 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

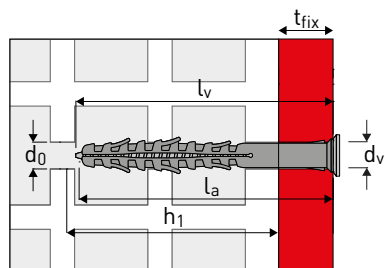
DESCRIPTION		APS/V 8	APS/V 10
Drill diameter	d _g /(mm)	8	10
Anchorage depth	h _{nom} /(mm)	70	70
Drilling depth	h _v /(mm)	90	90
Concrete C20/25	daN	90	110
Solid brick	daN	80	95
Perforated brick*	daN	23	30

*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

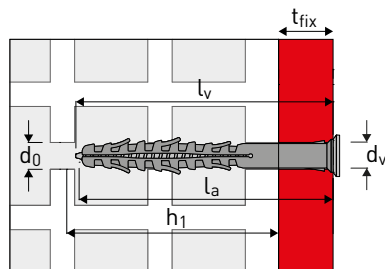


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Anchor h_{nom} /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dimensions Screw $d_s \times l_s$ /(mm)	Pack pcs.	Carton pcs.
8722505	8x80	8	80	70	10	5,5x85	100	2.400
8722506	8x100	8	100	70	30	5,5x105	50	1.200
8722512	8x120	8	120	70	50	5,5x125	50	1.200
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	900
8722511	10x160	10	160	70	90	7x165	50	900

APS/V

With countersunk head screw

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

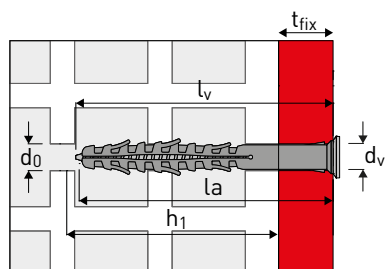


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Anchor h_{nom} /(mm)	Depth Drilling h_d /(mm)	Max Thick. Fixable t_{fix} /(mm)	Pack pcs.	Carton pcs.
8722555	8x80	8	80	70	85	10	50	1.200
8722556	8x100	8	100	70	85	30	25	600
8722562	8x120	8	120	70	85	50	25	600
8722557	10x80	10	80	70	85	10	25	600
8722558	10x100	10	100	70	85	30	25	600
8722559	10x115	10	115	70	85	45	25	400
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.

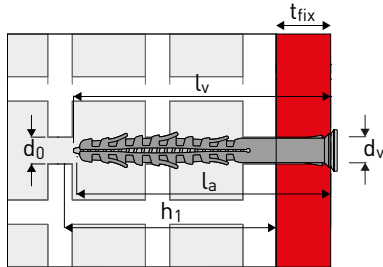


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Anchor h_{nom} /(mm)	Depth Drilling h_d /(mm)	Max Thick. Fixable t_{fix} /(mm)	Pack pcs.	Carton pcs.
8722545	8x80	8	80	70	85	10	50	1.200
8722546	8x100	8	100	70	85	30	25	600
8722552	8x120	8	120	70	85	50	25	600
8722547	10x80	10	80	70	85	10	25	600
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	200

APS/V AM

With anti-tampering screw

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

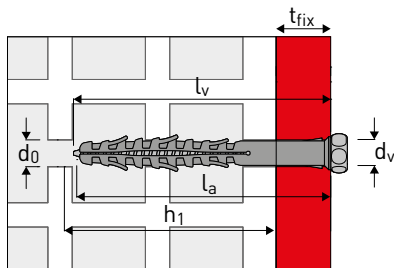


Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	APS/V AM	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	t _{fix} /(mm)	pcs.	pcs.
565765	10x100	10	100	70	85	30	25	400
565766	10x115	10	115	70	85	45	25	300
565767	10x135	10	135	70	85	65	25	300

APS/V TE

With hexagonal head screw

Plug with zinc-plated hexagonal head screw.

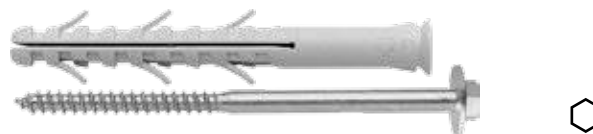
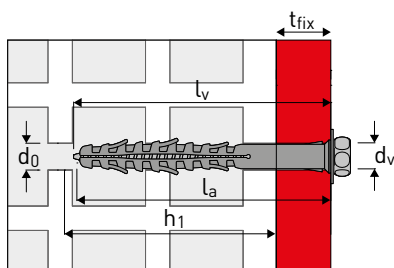


Code	Type	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	APS/V TE	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	t _{fix} /(mm)	pcs.	pcs.
8722575	8x80	8	80	70	85	10	50	800
8722576	8x100	8	100	70	85	30	25	600
8722582	8x120	8	120	70	85	50	25	600
8722577	10x80	10	80	70	85	10	25	600
8722578	10x100	10	100	70	85	30	25	400
8722579	10x115	10	115	70	85	45	25	400
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	Ø Drilling	Length Plug	Depth Anchor	Depth Drilling	Max Thick. Fixable	Pack	Carton
	APS/V TER	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	t _{fix} /(mm)	pcs.	pcs.
8722584	12x130	12	130	70	85	60	25	-
8722585	12x200	12	200	70	85	130	20	-
8722586	12x240	12	240	70	85	170	20	-
8722587	16x140	16	140	80	100	60	20	-
8722588	16x160	16	160	80	100	80	20	-
8722589	16x200	16	200	80	100	120	20	-
8722590	16x240	16	240	80	100	160	20	-

APR/V

Countersunk flat head screw



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.

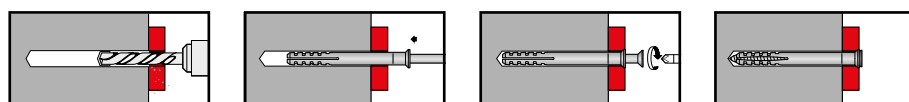
TECHNICAL DATA

Plug material: polyamide 6, grey color RAL 7035
 Screw material: carbon steel, cl. 5.8, treated with zinc plating Cr³⁺ 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.

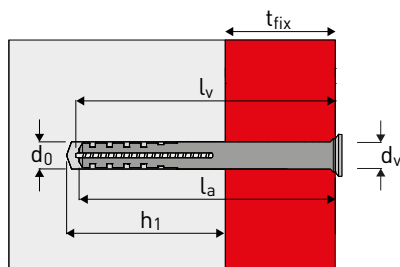
CHARACTERISTICS/BENEFITS

- ▶ 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.
- ▶ 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

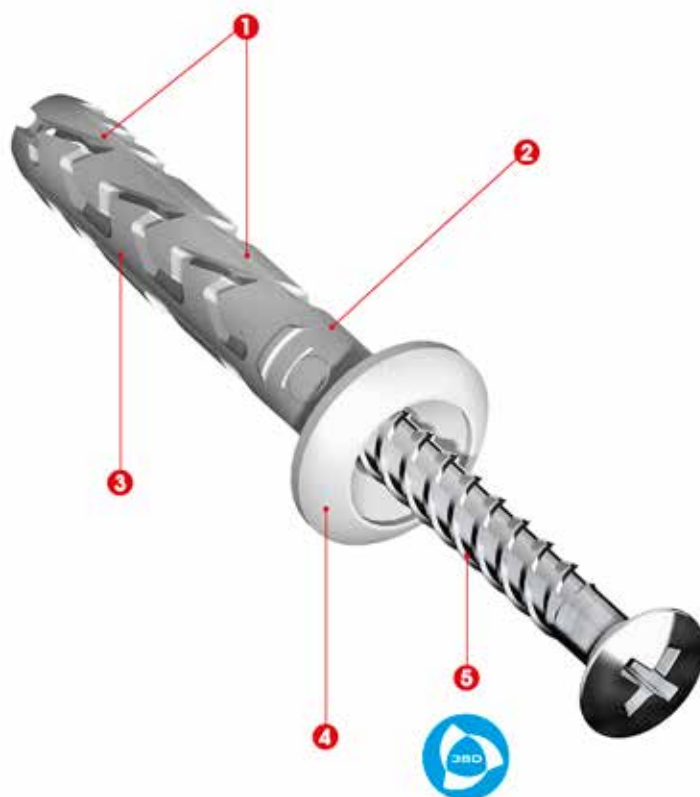
Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg



Code	Type	Ø Drilling	Length Plug	Depth install.	Depth Drilling	Max Thick. Fixable	Pack	Carton
	APR/V	d ₀ /(mm)	l _p /(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	800
8722012	8x120	8	120	40	55	80	25	800
8722013	8x135	8	135	40	55	95	25	600
8722014	8x160	8	160	40	55	120	25	450
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	360
8722011	10x160	10	160	50	65	110	20	360

JTX 

UNIVERSAL HAMMER-IN ANCHOR!



UNIVERSAL HAMMER-IN ANCHOR: FAST AND PERFORMING IN EVERY BASE MATERIAL!

- ❶ **Quick setting:** installation by one hammer hit: fast expansion in two directions with symmetrical widening of two lateral components in two additional directions. That allows to better adapt to various base materials!
 - ❷ **No problems:** no pre-expansion of the plastic sleeve before the completed installation, no eccentricity issues for the screw.
 - ❸ **More thickness of the fixture:** with JTX it is possible to use shorter anchors to fix thicker elements. E.g.: with JTX 6x35mm, light-duty trays and metal brackets can be fixed also through layers of cladding and plaster up to 8mm thick.
- Save time:** minor embedment depth in every material, just 25mm. Therefore it allows to reduce the setting time and the drilling procedure.
- ❹ **Flat finishing:** the geometry and the head size, cylindrical or rounded, are the most adequate to applications where no overhang is needed with a perfect fastening of the fixture.
 - ❺ **3SD technology:** special screw with rounded 3-spiral thread and anti-pre-expansion block: thanks to the new design the screw drops in the sleeve more easily leading to an increase in the expansion.

Safe and reliable: perfect fixing, limited encumbrance with minimum embedment depth.



Fast setting: asymmetrical expansion and special 3SD screw



JTX

NEW



JTX TB



JTX TP

Universal light-duty anchor, with nylon sleeve, hammer-in type, to fix in all material frame studs and substructures for drywalls, small cable trays, electrical equipment, etc.

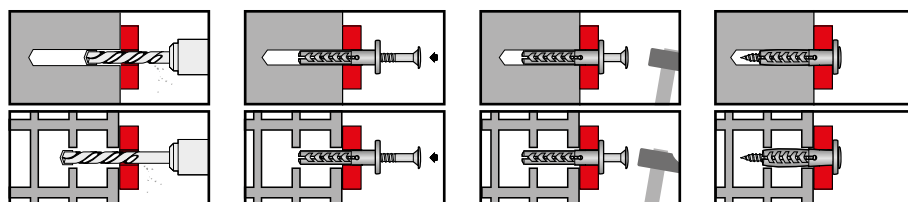
TECHNICAL DATA

Plug material:	polyamide 6 (nylon) grey coloured RAL 7035.
Screw material:	Carbonated steel, electrolytic zinc coating Cr3+ >5 thick
Installation temperature:	-5°C ÷ +40°C
Working temperature:	-40°C ÷ +80°C

BUILDING MATERIALS



INSTALLATION METHOD



CHARACTERISTICS

- ▶ An efficacious hammer-in anchor suitable for all base materials: concrete, solid bricks, hollow bricks, light weighted blocks, aerated concrete.
- ▶ With JTX one can use shorter anchors to fix thicker fixtures.

BENEFITS

- ▶ The minor embedment depth allows the drilling depth to be reduced so that to reduce time and costs in the setting phase.
- ▶ The geometry and the size of the heads, rounded or cylindrical, are specifically thought for applications demanding flat finishing and high performance.
- ▶ No pre-expansion of the sleeve before the installation is completed and no eccentricity when setting the screw.
- ▶ Safe and performing also in the low temperature setting.

RECOMMENDED TENSION LOADS

DESCRIPTION		JTX 6
Drill diameter	d_v /(mm)	6
Installation depth	h_{nom} /(mm)	25
Drilling through the object to fix	h_i /(mm)	Plug length + 8 mm
Concrete C20/25	daN	25
Solid brick	daN	20
Hollow block	daN	14
Perforated brick	daN	12
Hollow brick	daN	14
Aerated Concrete AA5	daN	14
Aerated Concrete AA2	daN	5

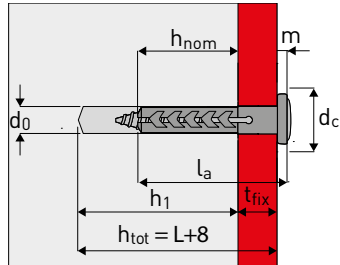
Recommended Tensile Resistance, including a safety factor equals to 5. Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors. C20/25 \approx 250 kg/cm² • 1 daN \approx 1 kg



JTX TP NEW

Cylindrical flat head

Polyamide (nylon) sleeve with cylindrical flat head, assembled with zinc coated steel screw, PH shape.

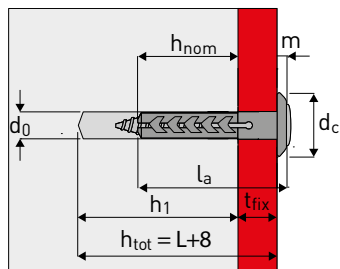


Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	JTX TP	d ₀ /(mm)	l/(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	no. PH	pcs.	pcs.
569435	6x30	6	31	25	35	10x2,5	3	2	200	3.200
569536	6x35	6	36	25	35	10x2,5	8	2	200	3.200
569437	6x40	6	41	25	35	10x2,5	13	2	100	1.600

JTX TB NEW

Rounded head screw

Polyamide (nylon) sleeve with rounded head, assembled with zinc coated steel screw, PH shape.



Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	JTX TB	d ₀ /(mm)	l/(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	no. PH	pcs.	pcs.
568666	6x30	6	31	25	35	12x2,5	3	2	200	3.200
568667	6x35	6	36	25	35	12x2,5	8	2	200	3.200
568669	6x40	6	41	25	35	12x2,5	13	2	100	1.600

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.

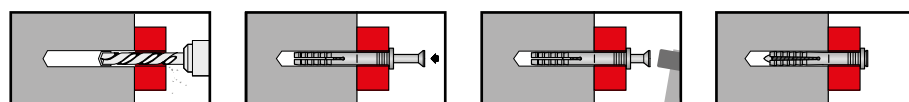
TECHNICAL DATA

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 _g /(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

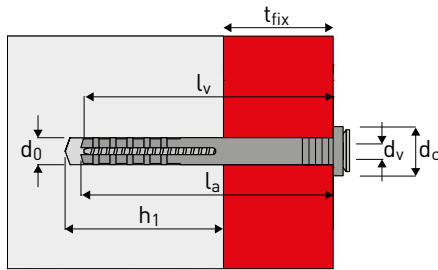
Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≈ 1 kg



UCX/V

Cylindrical head screw

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

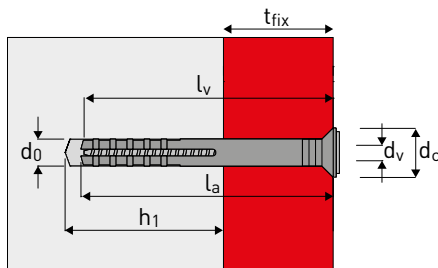


Code	Type	Ø Drilling	Length Plug	Depth install.	Depth Drilling	Max Thick. Fixable	Ø Collar	Slot	Pack	Carton
	UCX	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	t _{fix} /(mm)	d _c /(mm)	n. POZI	pcs.	pcs.
8710001	5x25	5	25	24	35	1	9	2	100	4.800
8710002	5x36	5	36	30	40	5	9	2	100	4.800
8710003	5x45	5	45	30	40	15	9	2	100	2.400
8710004	6x35	6	35	30	40	5	10	2	100	2.400
8710005	6x45	6	45	30	40	15	10	2	100	2.400
8710006	6x55	6	55	30	40	25	10	2	100	2.400
8710007	6x70	6	70	30	40	40	10	2	100	1.800
8710008	8x45	8	45	40	55	5	11	3	100	1.800
8710009	8x60	8	60	40	55	12	11	3	50	1.200
8710010	8x75	8	75	40	55	30	11	3	50	1.200
8710011	8x100	8	100	40	55	60	11	3	50	1.200
8710012	8x120	8	120	40	55	80	11	3	50	900
8710013	8x135	8	135	40	55	95	11	3	50	900

UCX TS/V

With countersunk collar

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



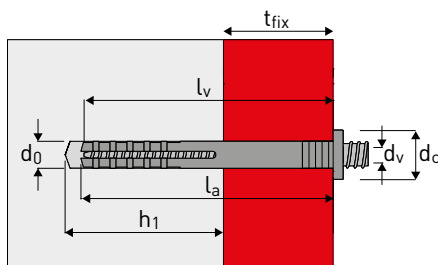
Code	Type	Ø Drilling	Length Plug	Depth install.	Depth Drilling	Max Thick. Fixable	Ø Collar	Slot	Pack	Carton
	UCX TS	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	t _{fix} /(mm)	d _c /(mm)	n. POZI	pcs.	pcs.
8710500	4x35*	4	35	25	35	10	9	2	100	9.600
8710501	5x25	5	25	24	35	1	9	2	100	4.800
8710502	5x30	5	30	25	35	5	9	2	100	4.800
8710503	5x45	5	45	30	40	15	9	2	100	2.400
8710504	6x35	6	35	30	40	5	10	2	100	2.400
8710505	6x40	6	40	30	40	10	10	2	100	2.400
8710506	6x55	6	55	30	40	25	10	2	100	2.400
8710507	6x70	6	70	30	40	40	10	2	100	1.800
8710508	8x45	8	45	40	55	5	11	3	100	1.800
8710509	8x60	8	60	40	55	12	11	3	50	1.200
8710510	8x75	8	75	40	55	30	11	3	50	1.200
8710511	8x100	8	100	40	55	60	11	3	50	1.200
8710512	8x120	8	120	40	55	80	11	3	50	900
8710513	8x135	8	135	40	55	95	11	3	50	900

*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	Ø Drilling	Length Plug	Depth install.	Depth Drilling	Ø Collar	Thread Screw	Pack	Carton
	UCX VM	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _v /(mm)	d _c /(mm)	MxL/mm	pcs.	pcs.
8710014	M6/6x35	6	35	35	45	10	M6x10	100	2.400

HCX



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

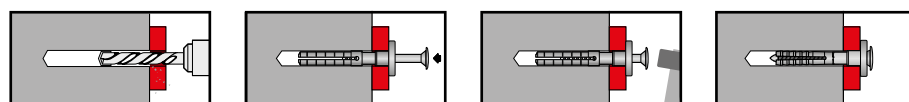
TECHNICAL DATA

Plug material: polyamide 6, neutral color
Screw material: carbon steel, treated with zinc plating Cr³⁺, 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.

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

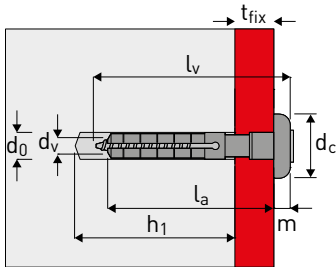
Check the technical documentation and, as the case requires, design properly and/or adopt other relevant safety factors • 1 daN ≅ 1 kg



HCX TB/V

Rounded head screw

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

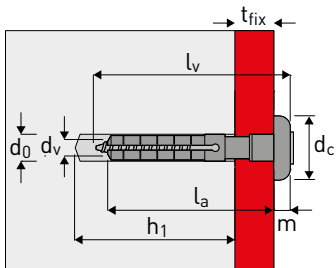


Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	HCX TB V	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	no. PH	pcs.	pcs.
8709001	6x35	6	36	25	35	Ø14x3	8	2	100	2.400
8709002	6x45	6	46	27	35	Ø14x3	15	2	100	2.400
8709003	6x60	6	62	27	35	Ø14x3	30	2	100	1.800
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.

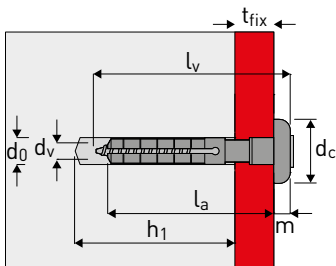


Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	HCX VZN	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	n. PH	pcs.	pcs.
8709306	6x35	6	35	25	35	Ø13x3	8	2	100	2.400
8709307	6x45	6	45	27	35	Ø13x3	15	2	100	2.400

HCX TB/VR

Rounded head screw

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

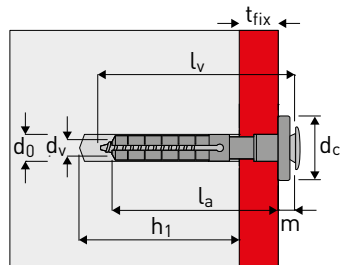


Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	HCX TB VR	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	n. PH	pcs.	pcs.
8709301	6x35	6	36	25	35	Ø14x3	8	2	100	2.400
8709302	6x45	6	46	27	35	Ø14x3	15	2	100	2.400

HCX TPL/V

Flat large head

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

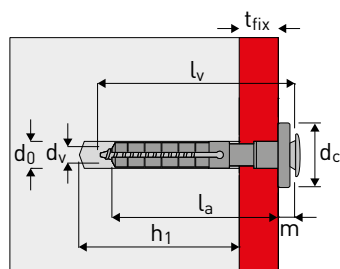


Code	Type	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	HCX TPLV	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	n. PH	pcs.	pcs.
8709201	6x35	6	36	25	35	Ø14x3	8	2	100	2.400
8709202	6x45	6	46	27	35	Ø14x3	15	2	100	2.400
8709203	6x60	6	62	27	35	Ø14x3	30	2	100	1.800
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	Ø Drilling	Length Plug	Depth Install.	Depth Drilling	Dim. Head	Max Thick. Fixable	Slot	Pack	Carton
	HCX TPSV	d ₀ /(mm)	l _v /(mm)	h _{nom} /(mm)	h _i /(mm)	d _c * m/(mm)	t _{fix} /(mm)	n. PH	pcs.	pcs.
8709101	6x35	6	36	24	35	Ø9x2	8	2	100	2.400
8709102	6x45	6	46	27	35	Ø9x2	15	2	100	2.400
8709103	6x60	6	62	27	35	Ø9x2	30	2	100	1.800
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.

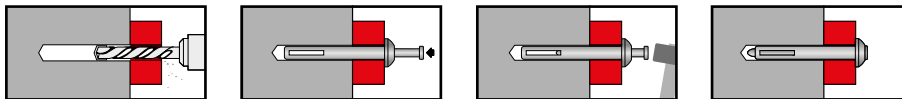
TECHNICAL DATA

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

BUILDING MATERIALS



INSTALLATION METHOD



CHARACTERISTICS

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

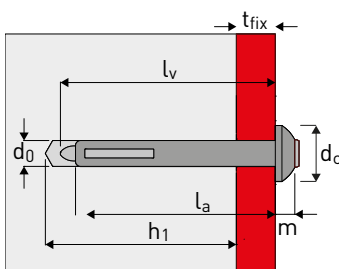
BENEFITS

- 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_v /(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	Ø Drilling	Length Plug	Depth install.	Depth Drilling	Ø Collar	Max Thick. Fixable	Pack	Carton
	ETCD	d_v /(mm)	l /(mm)	h_{nom} /(mm)	h_v /(mm)	d_c /(mm)	t_{fix} /(mm)	pcs.	pcs.
704004		6	30	22	30	14	5	100	1.600
704005		6	40	22	30	14	15	100	1.600
704006		6	50	22	30	14	20	100	800
704007		6	65	22	30	14	35	100	800



ETFP

Countersunk flat head screw



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

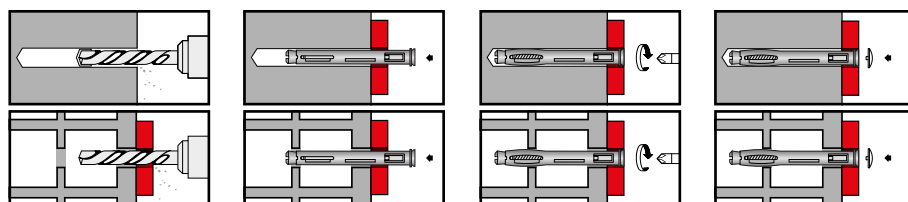
TECHNICAL DATA

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



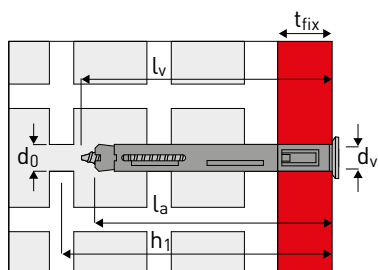
CHARACTERISTICS/BENEFITS

- ▶ 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.

RECOMMENDED LOADS

DESCRIPTION		ETFP 8	ETFP 10
Drill diameter	d _p /(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/cm² • 1 daN = 1 kg



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETFP	d _p /(mm)	l _p /(mm)	h _d /(mm)	t _{max} /(mm)	d _s · l _s /(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



MEDIUM HEAVY DUTY ANCHORS/CHEMICALS

► Medium-heavy duty anchors	
Dynabolt Plus	315
T21	317
EDC	318
► Heavy duty non-through anchors	
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HPM	325
T101 Piovra	327
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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.

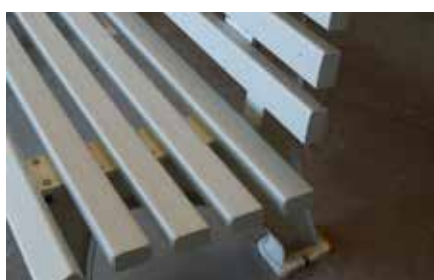
BENEFITS

- ▶ 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_o /(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

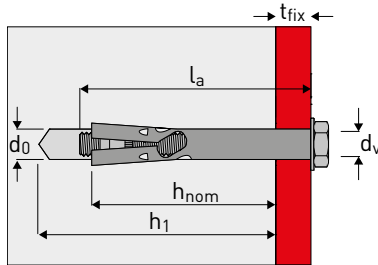
Refer to the technical data and where applicable, verify or adopt different adequate safety factors. C20/25 \approx 250 kg/cm² • 1 kN \approx 100 kg



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.

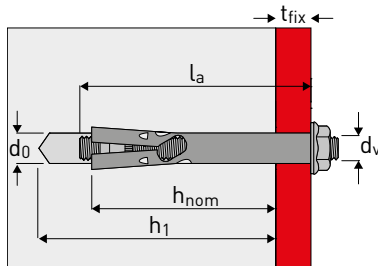


Code	Type	Depth Anchor	Max Thick. Fixable	Depth Drilling	Ø Drilling	Tightening	Dim. Screw	Pack	Carton
	DYNABOLT/B	$h_{nom}/(mm)$	$t_{fix\ max}/(mm)$	$h_1/(mm)$	$d_0/(mm)$	$T_{inst}/(Nm)$	$d_v \cdot l_v/(mm)$	pcs.	pcs.
050489	8x45	26	8	45	8	9	M6x45	100	800
050491	8x70	30	30	45	8	9	M6x70	50	400
050492	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	300
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.

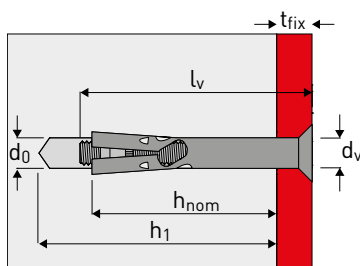


Code	Type	Depth Anchor	Max Thick. Fixable	Depth Drilling	Ø Drilling	Tightening	Dim. Screw	Pack	Carton
	DYNABOLT/D	$h_{nom}/(mm)$	$t_{fix\ max}/(mm)$	$h_1/(mm)$	$d_0/(mm)$	$T_{inst}/(Nm)$	$d_v \cdot l_v/(mm)$	pcs.	pcs.
565252	8x45	40	4	50	8	6	M6x57	100	-
565253	8x65	40	24	50	8	6	M6x73	100	-
565255	10x50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

DYNABOLT PLUS/E

With countersunk head screw cl 10.9

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



Code	Type	Depth Anchor	Max Thick. Fixable	Depth Drilling	Ø Drilling	Tightening	Dim. Screw	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	-
8723092	8x65	40	25	45	8	10	M6x70	100	-
8723093	10x50	45	10	45	10	25	M8x60	50	-
8723094	10x70	45	25	50	10	25	M8x80	50	-
8723096	12x80	55	25	60	12	40	M10x80	50	-

T21

With hexagonal head screw cl 8.8



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



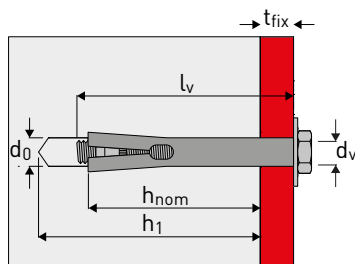
INSTALLATION METHOD



RECOMMENDED TENSION LOADS

DESCRIPTION		T21 08	T21 10	T21 12	T21 14	T21 16
Drill diameter	d_v /(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 \approx 250 kg/cm² • 1 kN \approx 100 kg



Code	Type	Depth Anchor	Max Thick. Fixable	Depth Drilling	Ø Drilling	Dim. Screw	Pack	Carton
	T21	h_{ef} /(mm)	t_{fix} max/(mm)	h_v /(mm)	d_v /(mm)	$d_v \cdot l_v$ /(mm)	pcs.	pcs.
8723050	8x45	30	5	40	8	M6x45	100	600
8723051	8x60	30	20	40	8	M6x60	100	600
8723052	8x70	30	30	40	8	M6x80	100	600
8723053	8x95	30	55	40	8	M6x95	100	300
8723063	8x120	30	80	40	8	M6x120	25	150
8723054	10x60	35	10	45	10	M8x60	50	300
8723056	10x80	35	30	45	10	M8x80	50	300
8723057	10x105	35	55	45	10	M8x105	25	150
8723064	10x120	35	70	45	10	M8x120	25	150
8723065	10x140	35	90	45	10	M8x140	25	150
8723058	12x70	40	10	50	12	M10x70	25	150
8723059	12x100	40	35	50	12	M10x100	25	150
8723066	12x120	40	55	50	12	M10x120	25	75
8723067	12x150	40	85	50	12	M10x150	20	120
8723068	14x70	40	15	50	14	M10x70	25	150
8723060	14x100	40	45	50	14	M10x100	25	150
8723069	14x120	40	65	50	14	M10x120	25	75
8723070	14x150	40	95	50	14	M10x150	25	75
8723061	16x80	42	20	52	16	M12x80	25	75
8723062	16x110	42	50	52	16	M12x110	20	60
8723071	16x130	42	70	52	16	M12x130	15	45
8723072	16x150	42	90	52	16	M12x150	15	45

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.

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.

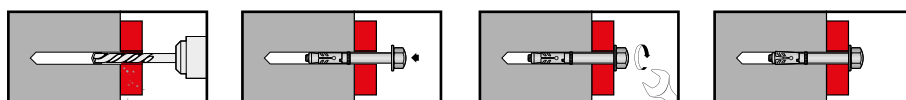
TECHNICAL DATA

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.

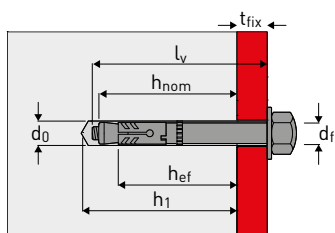
BENEFITS

- 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 \approx 250 kg/cm² • 1 kN \approx 100 kg



Code	Type	Depth Anchor	Max Thick. Fixable	Depth Drilling	Ø 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	-
8750002	8x85	50	30	70	8	10	13	50	-
8750003	10x85	60	15	80	10	20	17	50	-
8750004	10x120	60	50	80	10	20	17	50	-
8750005	12x100	70	15	90	12	35	19	50	-
8750006	12x135	70	50	90	12	35	19	50	-
8750007	14x115	80	20	100	14	50	22	25	-
8750008	14x145	80	50	100	14	50	22	25	-
8750009	16x130	90	20	110	16	75	24	25	-
8750010	16x150	90	40	110	16	75	24	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 ($\geq 5\mu$)

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

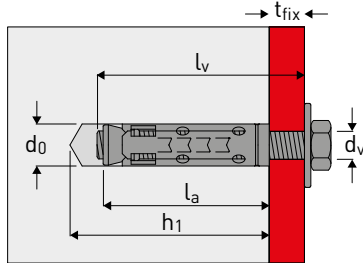
* Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 \approx 250 kg/cm² • 1 kN \approx 100 kg



LE - LEX

Plug without screw

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

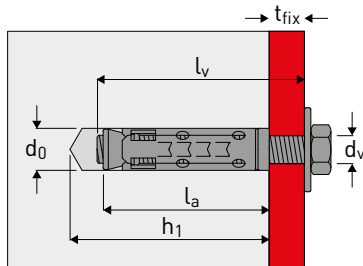


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screws	Length Min. Screw	Pack	Carton
		d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	d _v /(mm)	l _v /(mm)	pcs.	pcs.
8717001	LE 6	10	45	55	M6	50	100	800
8717002	LE 8	12	50	60	M8	55	100	800
8717003	LE 10	15	60	75	M10	70	50	400
8717004	LE 12	18	74	90	M12	80	25	200
8717011	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**).

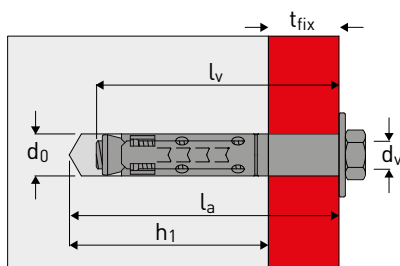


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Tightening	Pack	Carton
		d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	T _{max} /(Nm)	pcs.	pcs.
8717101	LE/B 6	10	45	55	5	M6x55	10	50	400
8717102	LE/B 8	12	50	60	10	M8x60	25	50	400
8717103	LE/B 10	15	60	75	20	M10x80	45	25	200
8717104	LE/B 12	18	74	90	15	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	15	M12x90	75	20	160

LE/BP

With hexagonal head spacer

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

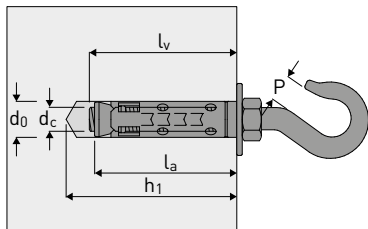


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Tightening	Pack	Carton
		d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	T _{max} /(Nm)	pcs.	pcs.
8717106	LE/BP 6	10	70	80	25	M6x70	10	50	400
8717107	LE/BP 8	12	75	85	25	M8x80	25	25	200
8717108	LE/BP 10	15	85	100	25	M10x90	45	25	150
8717109	LE/BP 12	18	105	120	30	M12x110	75	20	80

LE/G

With hook

Anchor complete with galvanized pressed steel hook.

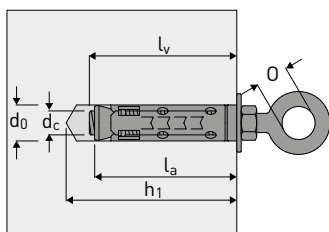


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Tightening t_{inst} /(Nm)	Pack pcs.	Carton pcs.
8717301	LE/G 6	10	45	55	7,5	M6x55	5	50	400
8717302	LE/G 8	12	50	60	9,0	M8x60	12	25	200
8717303	LE/G 10	15	60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

LE/OC

With eye-hook

Anchor complete with pressed galvanized steel eye-hook.

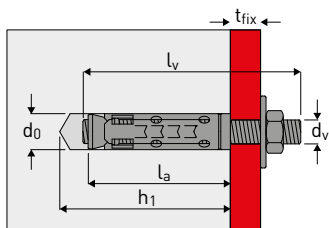


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Ø Eye-hook $Ø$ /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Tightening t_{inst} /(Nm)	Pack pcs.	Carton pcs.
8717401	LE/OC 6	10	45	55	Ø 10,0	M6x55	5	50	400
8717402	LE/OC 8	12	50	60	Ø 11,0	M8x60	12	25	200
8717403	LE/OC 10	15	60	75	Ø 14,5	M10x80	20	20	120
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.

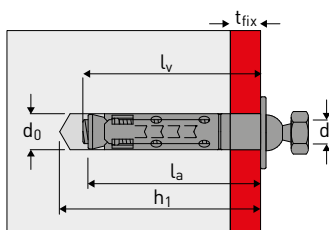


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Torque Tightening T_{inst} /(Nm)	Pack pcs.	Carton pcs.
8717501	LE/D 6	10	45	55	5	M6x60	6	25	200
8717502	LE/D 8	12	50	60	10	M8x70	15	25	200
8717503	LE/D 10	15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

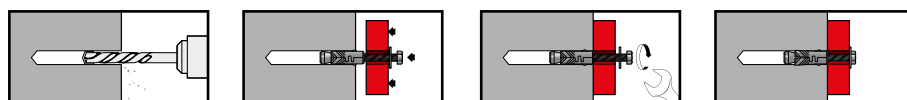
TECHNICAL DATA

Raw material: electrolytic zinc plating steel ($\geq 5\mu$)

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_v /(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	

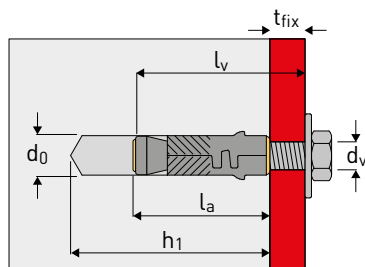
* Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 \approx 250 kg/cm² • 1 kN \approx 100 kg



EFPM

Plug without screw

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

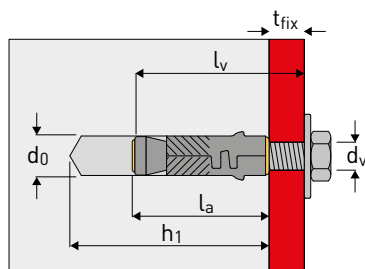


Code	Type	Ø Drilling d_v /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Ø Screws d_v /(mm)	Length Min. Screw l_v /(mm)	Pack pcs.	Carton pcs.
8715000	6	12	45	55	M6	50	50	400
8715001	8	14	50	60	M8	55	50	400
8715002	10	16	65	75	M10	70	25	200
8715003	12	20	75	90	M12	80	25	200

EFPM/B

With hexagonal head screw cl 8.8

Anchor with hexagonal head screw class 8.8.

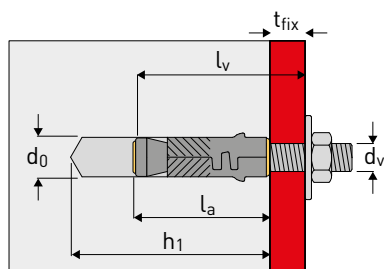


Code	Type	Ø Drilling d_v /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Tightening T_{max} /(Nm)	Pack pcs.	Carton pcs.
8715100	B 6	12	45	55	10	M6x55	10	50	400
8715101	B 8	14	50	60	10	M8x60	25	50	300
8715102	B 10	16	65	75	15	M10x80	45	25	150
8715103	B 12	20	75	90	20	M12x90	75	20	120
8715104	B 16	24	90	105	20	M16x100	120	10	60

EFPM/D

With threaded bar

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

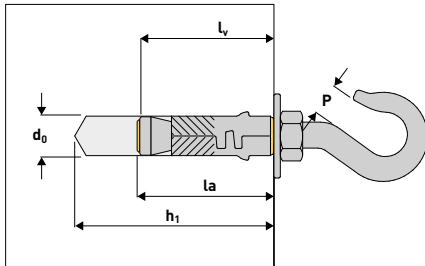


Code	Type	Ø Drilling d_v /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Tightening T_{max} /(Nm)	Pack pcs.	Carton pcs.
8715400	D 6	12	45	55	10	M6x60	5	25	200
8715401	D 8	14	50	60	15	M8x70	15	25	200
8715402	D 10	16	65	75	15	M10x90	30	20	120
8715403	D 12	20	75	90	20	M12x100	50	10	80

EFPM/G

With hook

Anchor with galvanized hook.

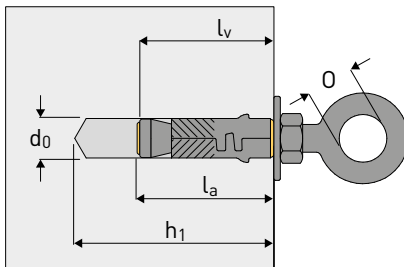


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Int. diameter Hook	Dim. Hook	Tightening	Pack	Carton
	EFPM/G	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	P/(mm)	d ₀ · l _v /(mm)	T _{inst} /(Nm)	pcs.	pcs.
8715300	G 6	12	45	55	7,5	M6x55	5	50	300
8715301	G 8	14	50	60	9	M8x60	15	25	200
8715302	G 10	16	65	75	12	M10x80	25	15	120
8715303	G 12	20	75	90	15	M12x90	35	10	60

EFPM/OC

With eye-hook

Anchor with eye-hook.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Eye-hook	Eye-hook size	Tightening	Pack	Carton
	EFPM/OC	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	Ø/(mm)	d ₀ · l _v /(mm)	T _{inst} /(Nm)	pcs.	pcs.
8715200	OC 6	12	45	55	Ø 10	M6x55	5	50	400
8715201	OC 8	14	50	60	Ø 11	M8x60	15	25	200
8715202	OC 10	16	65	75	Ø 14,5	M10x80	25	20	120
8715203	OC 12	20	75	90	Ø 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

Plug material:

zinc-aluminium alloy treated with electrolytic galvanization

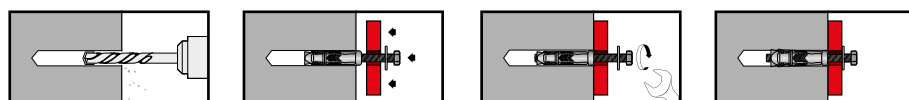
Material screw/accessory:

treated steel with electrolytic zinc plating

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 with different 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_p /(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	

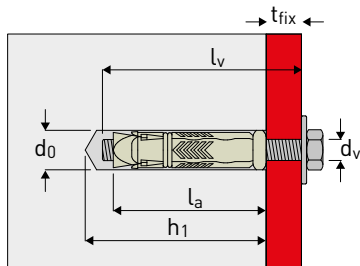
*Representative value of the accessories range: refer to the technical sheet to have detailed data. Consult the technical data according to the cases, verify or apply different adequate safety coefficients. C20/25 \approx 250 kg/cm² • 1 kN \approx 100 kg



HPM

Plug without screw

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

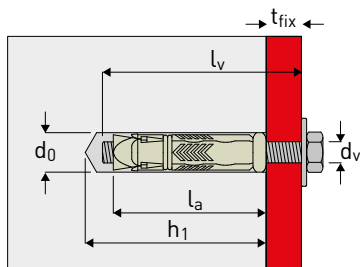


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Ø Screws d_v /(mm)	Length Min. Screw l_a /(mm)	Pack pcs.	Carton pcs.
8713000	HPM 6	12	45	55	M6	50	50	400
8713001	HPM 8	14	52	60	M8	55	50	400
8713002	HPM 10	16	60	60	M10	65	25	200
8713003	HPM 12	20	72	80	M12	75	25	200

HPM/B

With hexagonal head screw cl 8.8

Anchor with hexagonal head screw class 8.8, galvanized.

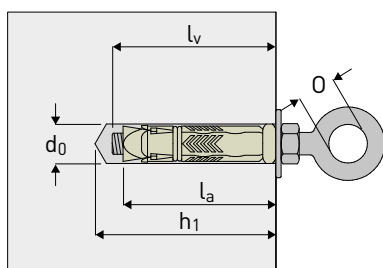


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \times l_a$ /(mm)	Tightening T_{inst} /(Nm)	Pack pcs.	Carton pcs.
8713010	HPM/B 6	12	45	55	10	M6x55	10	50	400
8713011	HPM/B 8	14	52	60	10	M8x60	25	50	300
8713012	HPM/B 10	16	60	60	15	M10x80	40	25	200
8713013	HPM/B 12	20	72	80	20	M12x90	70	20	120

HPM/OC

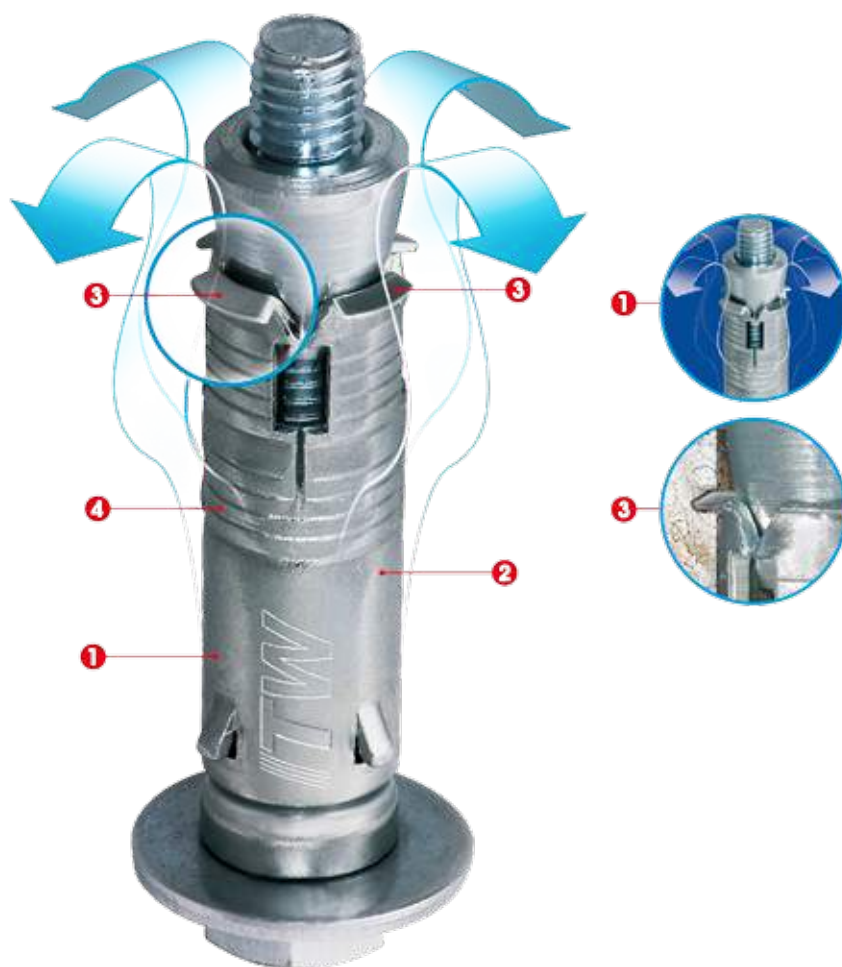
With eye-hook

Anchor with galvanized eye-hook.



Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Ø Eye-hook $Ø$ /(mm)	Eye-hook size $d_v \times l_a$ /(mm)	Tightening T_{inst} /(Nm)	Pack pcs.	Carton pcs.
8713040	HPM/OC 6	12	45	55	Ø 10	M6x55	5	50	400
8713041	HPM/OC 8	14	52	60	Ø 11	M8x60	10	25	200
8713042	HPM/OC 10	16	60	60	Ø 14,5	M10x80	20	10	80

T101 PIOVRA



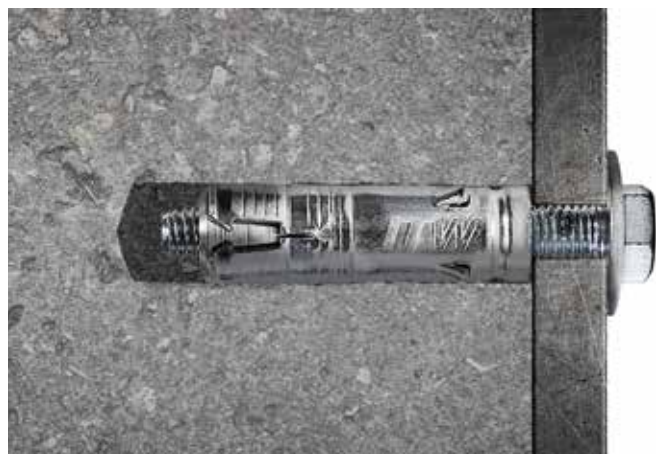
1 Body: increased thickness of the body to resist to considerable stress load, with special internal clamp that grants more stability to the screw. Hexagonal head screw in high quality steel cl 8.8. big size cone, projected with a specific geometry to guarantee a balancing in the different expansion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

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

3 Exclusive fins: designed to anchor inside the hole, "digging" the concrete. This anchoring grants superior performance of resistance respect to the traditional fixings.

4 Surface: knurled body for better grip inside the hole.

Safe anchoring: the special fins firmly anchor inside the concrete.



High performances: the structure is designed to ensure high load resistance.



T101 PIOVRA

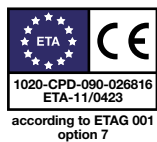


Heavy duty anchor for concrete, reinforced concrete and stone with high resistance to compression. Particularly suitable to fix industrial shelving, external balustrades, gates and railings, safety barriers. Supplied with cup to protect from dust.

TECHNICAL DATA

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

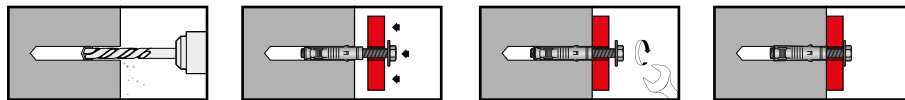
CERTIFICATIONS



BUILDING MATERIALS



INSTALLATION METHOD



RECOMMENDED TENSION LOADS

Description		PIOVRA 6	PIOVRA 8	PIOVRA 10	PIOVRA 12
Drill diameter	d_f /(mm)	12	14	16	20
Embedment depth	h_e /(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 \approx 250 kg/cm² • 1 kN \approx 100 kg

CHARACTERISTICS

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

BENEFITS

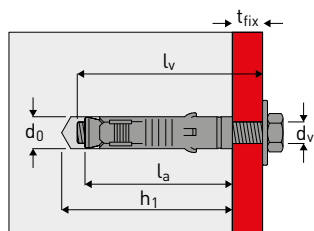
- Anchoring with many possibilities of installation thanks to the different available accessories.
- Very high resistance to load.



T101 PIOVRA

Plug without screw

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

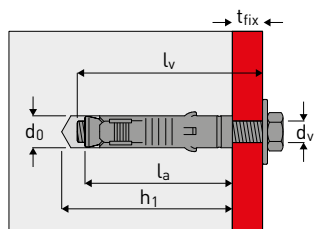


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Screws	Length Min. Screw	Pack	Carton
	PIOVRA	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	d _v /(mm)	l _a /(mm)	pcs.	pcs.
8716000	6	12	48	60	M6	55	50	400
8716001	8	14	55	65	M8	60	50	400
8716002	10	16	65	75	M10	70	25	200
8716003	12	20	77	85	M12	85	25	200

T101 PIOVRA/B

With hexagonal head screw

Anchor with hexagonal head screw cl. 8.8, galvanized.

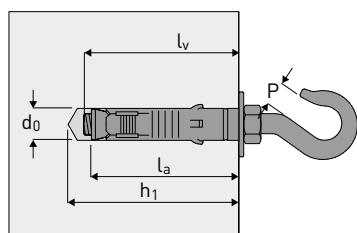


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Tightening torque	Pack	Carton
	PIOVRA/B	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	t _{fix} /(mm)	d _v · l _a /(mm)	T _{max} /(Nm)	pcs.	pcs.
8716010	B 6	12	48	60	10	M6x60	10	50	400
8716011	B 8	14	55	65	15	M8x65	23	50	300
8716012	B 10	16	65	75	15	M10x80	40	25	150
8716013	B 12	20	77	85	20	M12x90	65	20	120

T101 PIOVRA/G

With hook

Anchor with galvanized hook.

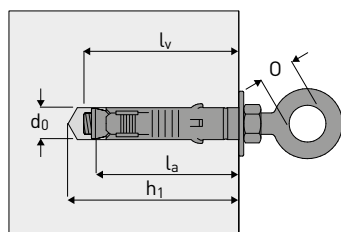


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Hook passage	Dim. Hook	Tightening torque	Pack	Carton
	PIOVRA/G	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	P/(mm)	d _v · l _a /(mm)	T _{max} /(Nm)	pcs.	pcs.
8716020	G 6	12	48	60	7,5	M6x55	10	50	300
8716021	G 8	14	55	65	9	M8x60	23	25	200
8716022	G 10	16	65	75	12	M10x80	40	15	120
8716023	G 12	20	77	85	15	M12x90	65	10	60

T101 PIOVRA/OC

With closed eye hook

Anchor with eye-hook.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Ø Eye-hook	Dim. Eye-hook	Tightening torque	Pack	Carton
	PIOVRA/OC	d ₀ /(mm)	l _v /(mm)	h ₁ /(mm)	Ø/(mm)	d _v · l _a /(mm)	T _{max} /(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	60

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.

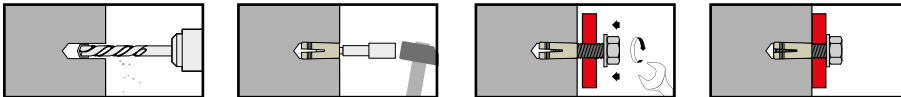
TECHNICAL DATA

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 through the percussion with the suitable tool.

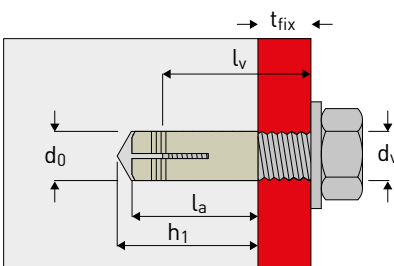
BENEFITS

- ▶ 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_{er} /(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 \approx 250 kg/cm² • 1 kN \approx 100 kg



Code	Type	Tool code	Ø Drilling	Length Plug	Depth Drilling	Ø Screw	Length Min. Screw	Pack	Carton
			d_0 /(mm)	l_v /(mm)	h_v /(mm)	d_s /(mm)	l_s /(mm)	pcs.	pcs.
8724001	ETHD 6	050922	8	30	32	M6	13	200	1.600
8724002	ETHD 8	050923	10	30	32	M8	13	100	800
8724003	ETHD 10	050924	12	40	42	M10	15	100	800
8724004	ETHD 12	050925	15	50	53	M12	18	50	400
8724005	ETHD 16	050926	20	65	70	M16	28	50	200



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

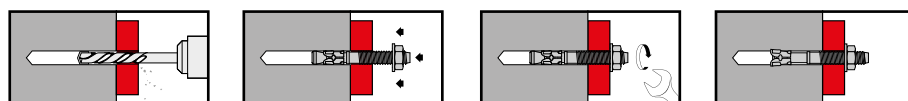
CERTIFICATIONS



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.

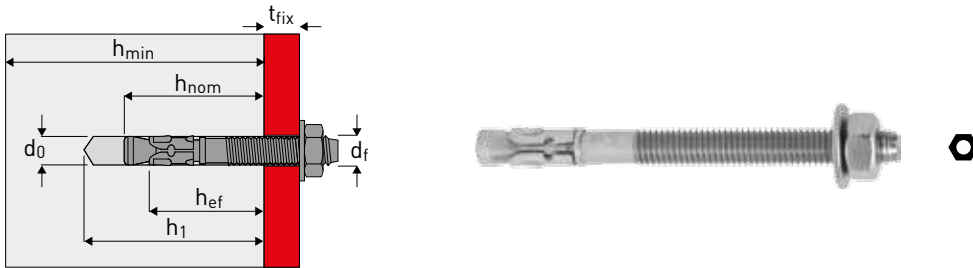
RECOMMENDED TENSION LOADS

DESCRIPTION		ETD Z A4 M8	ETD Z A4 M10	ETD Z A4 M12	ETD Z A4 M16
Drill diameter	d_f /(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 \approx 250 kg/cm² • 1 kN \approx 100 kg

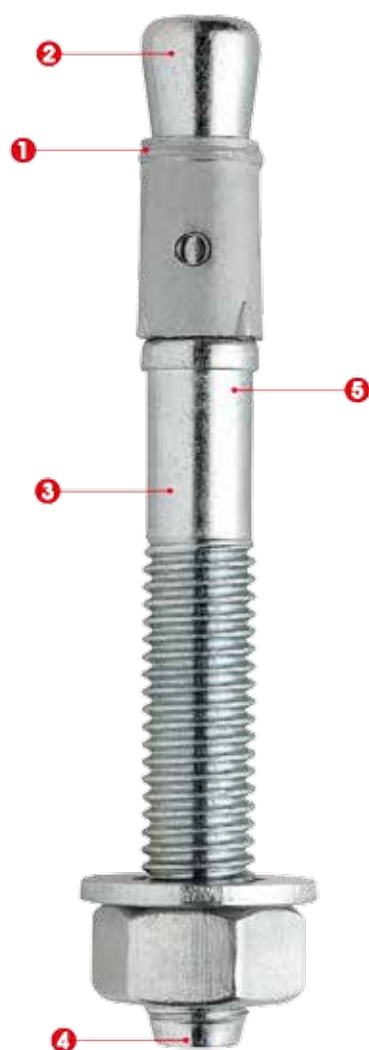


ETD Z A4



Code	Type	Ø Drilling	Ø Drill on the object	Depth Anchor	Depth Nominal Installation	Max Thick. fixable	Min thickness. support	Depth Drilling	Tightening	Pack	Carton
	ETD Z A4	d ₀ /(mm)	d ₀ /(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	8	9	35	42	5	100	52	20	100	800
050543	A4 8x70/20-7	8	9	35	42	20	100	52	20	100	800
050544	A4 8x90/40-27	8	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



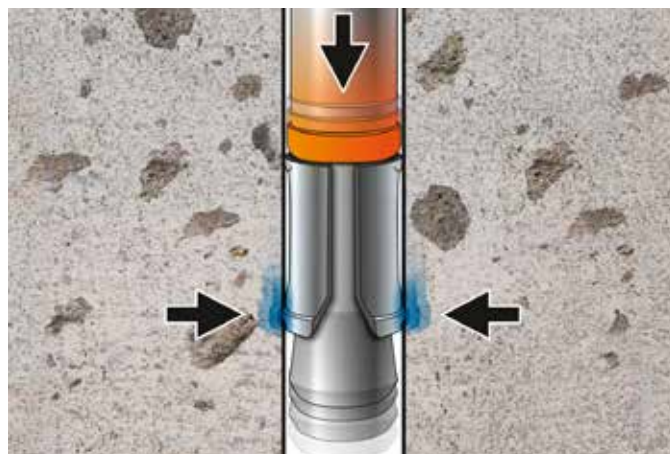
CHOOSE THE MAXIMUM, CHOOSE ETD III.

- 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.

Less wrench's turn: special assembling between plug and clamp.



High resistance and load distribution : new expansion clamp and reduced angle of the cone.



ETD III



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 blue-white zinc plating of thickness $\geq 5\mu\text{m}$

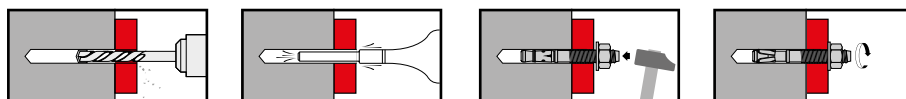
CERTIFICATIONS



BUILDING MATERIALS



INSTALLATION METHOD



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	$h_{ef}/(\text{mm})$	30	40	50	65	75
Concrete C20/25 - min. thickness	$h_{min}/(\text{mm})$	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 \approx 250 kg/cm² • 1 kN \approx 100 kg

APPLICATIONS

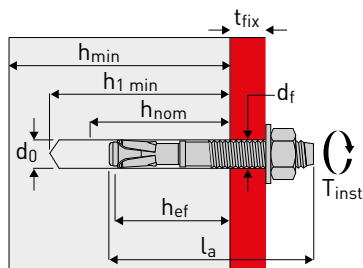
- ▶ Through-fixings of metal structures, shelves, plates in medium heavy and heavy carpentries and in the industrial plants.
- ▶ Through-fixings of elements and wood beams already positioned.

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.



ETD III



MINIMUM EMBEDMENT DEPTH

Code	Type	Ø Drilling	Length Plug	Ø Drill on the object	Depth anchoring	Depth drill	Max Thick. fixable	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
060162	12x180/105-90	12	180	14	50	75	105	100	50	20	80
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.

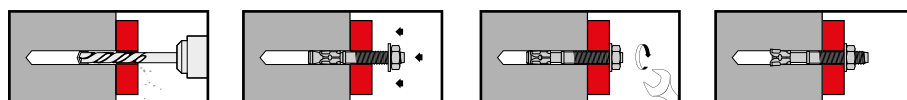
TECHNICAL DATA

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.

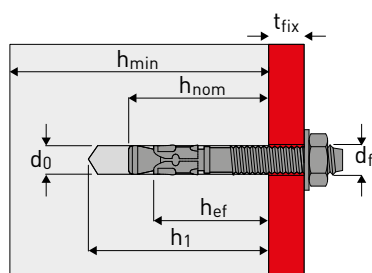
RECOMMENDED TENSION LOADS

DESCRIPTION		T11 M6	T11 M8	T11 M10	T11 M12	T11 M14	T11 M16
Drill diameter	d_v /(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 \approx 250 kg/cm² • 1 kN \approx 100 kg



T11



Code	Type	Ø Drilling	Depth Drilling	Ø Hole on the object	Depth Anchor	Depth Nominal Installation	Max Thick. fixable	Min thickness. support	Tightening	Pack	Carton
	T11	d ₀ /(mm)	h _d /(mm)	d ₁ /(mm)	h _a /(mm)	h _{nom} /(mm)	t _{fix} max/(mm)	h _{min} /(mm)	T _{max} /(Nm)	pcs.	pcs.
8716300	6x45	6	55	7	40	49,5	2	100	7	100	600
8716301	6x55	6	55	7	40	49,5	2	100	7	100	600
8716325	6x65	6	55	7	40	49,5	7	100	7	100	600
8716303	6x85	6	55	7	40	49,5	27	100	7	100	600
8716326	6x100	6	55	7	40	49,5	42	100	7	100	600
8716327	6x120	6	55	7	40	49,5	62	100	7	100	600
8716304	8x53	8	65	9	48	59,5	5	100	20	100	600
8716305	8x65	8	65	9	48	59,5	5	100	20	100	600
8716328	8x75	8	65	9	48	59,5	5	100	20	100	300
8716306	8x90	8	65	9	48	59,5	20	100	20	100	300
8716329	8x120	8	65	9	48	59,5	50	100	20	50	300
8716330	10x65	10	75	12	55	66,5	5	110	35	50	300
8716308	10x75	10	75	12	55	66,5	5	110	35	50	150
8716309	10x95	10	75	12	55	66,5	15	110	35	50	150
8716310	10x120	10	75	12	55	66,5	40	110	35	25	150
8716311	10x140	10	75	12	55	66,5	60	110	35	25	150
8716331	10x160	10	75	12	55	66,5	80	110	35	25	150
8716314	12x75	12	85	14	65	77	5	130	60	25	150
8716315	12x110	12	85	14	65	77	18	130	60	25	150
8716316	12x140	12	85	14	65	77	48	130	60	25	75
8716333	12x160	12	85	14	65	77	68	130	60	20	120
8716334	12x180	12	85	14	65	77	88	130	60	20	80
8716318	14x100	14	100	16	75	91	5	150	90	20	120
8716319	14x120	14	100	16	75	91	12	150	90	20	60
8716320	14x160	14	100	16	75	91	52	150	90	20	60
8716335	16x90	16	110	18	75	91	5	168	120	20	60
8716336	16x110	16	110	18	84	103,5	5	168	120	20	80
8716322	16x125	16	110	18	84	103,5	5	168	120	20	60
8716323	16x145	16	110	18	84	103,5	25	168	120	20	40
8716324	16x175	16	110	18	84	103,5	53	168	120	20	40
8716337	16x220	16	110	18	84	103,5	98	168	120	15	40

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

MULTIBLOK: UNIVERSAL, ALSO FOR INTERNAL USE



Universal: use in all support materials.

Guaranteed: rigorously tested according to European and national guides: guarantee, security 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.

Fast setting: reduced time and applicable load after only 40 minutes (20 °C).



Versatile and universal: suitable on all kind of support materials, also in indoor applications.

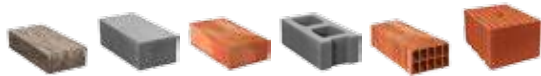


MULTIBLOK



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

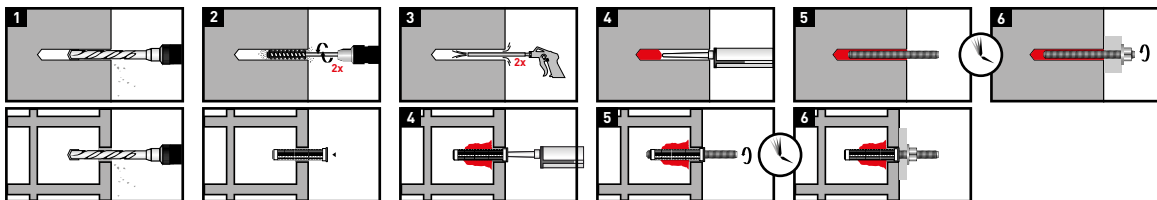
BUILDING MATERIALS



APPLICATIONS

- ▶ Anchoring of balcon, 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.

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_o /(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_o /(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 \approx 250 kg/cm² • 1 kN \approx 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 347

PRIMEBLOK: 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.

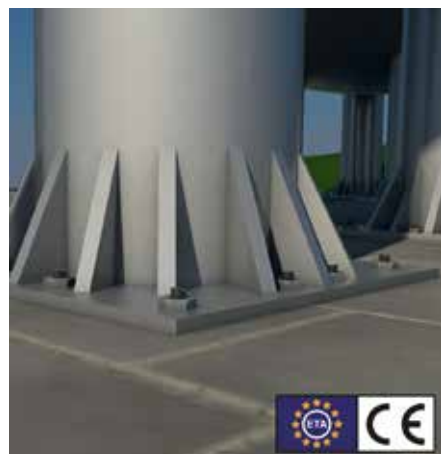
A+ Certificate for internal use: no odour, absence of organic air components (VOC). 0% styrene, 0% phthalate, 0% vinyltoluene.

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.

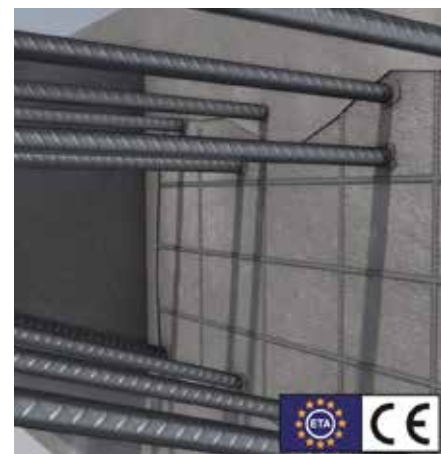
Structural Anchoring: certified in concrete.



Anchor certified in masonry.



Post-installed rebars certified system in concrete.



PRIMEBLOK



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

CERTIFICATIONS



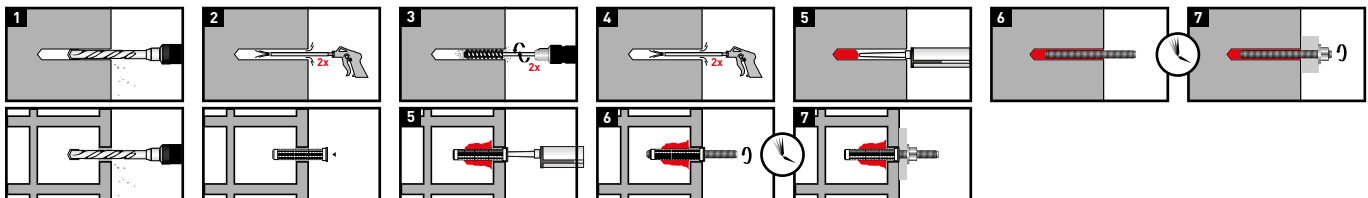
BUILDING MATERIALS



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.

INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING AND READY FOR USE

Concrete temperature T	Sequence times of installation 5 > 6	Sequence times of installation 7
-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 ml	Note	Pack 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 347

STARBLOK: NEW SYSTEM FOR CERTIFIED ANCHORINGS ON MASONRY



ETA certificate for fixing on

masonry: the StarBlock System, which combines the new chemical anchor PrimeBlok to an innovative and exclusive sleeve, is tested and certified according to the European standards for maximum safety even in hollow materials.

Less waste: + 30% of fixings. The special bulb contains the resin and avoid waste of the flows inside the hollow materials.

+ 50% of resistance: fixing at 360 ° within the hole and perfect adhesion in all conditions.

100% universal for all the hollow materials: the system is suitable for every type of installation condition and drilled or hollow material, from the block in brick-cement to the panels.

100% versatile: the opening of the tip allows you to better adjust the penetration of the bar according to the fixable thickness, without cutting the length first, or then cut the extra crop end.

Less waste: +30% of fixings: the special bulb contains the resin and prevents waste of the flows inside the hollow materials.

100% versatile: the opening of the tip allows you to better adjust the penetration of the bar according to the fixable thickness, or the use of other bars.



STARBLOK NEW

Certified System ETA-13/0741

Star Blok is the new fastening system associated with the chemical anchor PrimeBlok suitable on perforated and hollow materials, for different applications.

CERTIFICATIONS

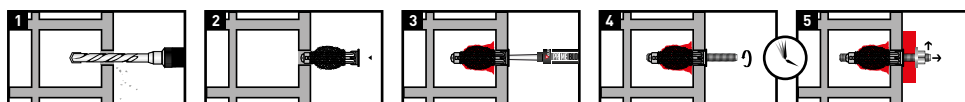
Certified system with PRIMEBLOK



BUILDING MATERIALS



INSTALLATION METHOD



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

DESCRIPTION		M8	M10
HOLLOW BRICK			
Drill diameter	d_b /(mm)	16	16
Embedment depth	h_{ef} min/(mm)	80	80
Tensile strength N_{rec}	kN	0,50	0,50
HOLLOW BLOCK			
Drill diameter	d_b /(mm)	16	16
Embedment depth	h_{ef} min/(mm)	80	80
Tensile strength N_{rec}	kN	1,00	1,00

Check the technical documentation and, as the case requires, verify properly or adopt other relevant safety factors. • 1 kN \approx 100 kg

Kit StarBlok for rods/screws M8 and M10 (not included)

Code	Type	Description	Pack	Carton
			pcs.	pcs.
568705	KIT STARBLOK for rods/ screws M8 and M10		1	6
Assortment				
	StarBlok	Sleeve to fix on hollow materials	8	
	PrimeBlok 280 ml	Chemical cartridge 280 ml	1	
	Mixer	Special Mixer	2	

Kit StarBlok for parabolas and antennas (8 rods included)

Code	Type	Description	Pack	Carton
			pcs.	pcs.
568706	KIT with STARBLOK M8 rods for parabolas and antenna poles		1	6
Assortment				
	StarBlok	Sleeve to fix on hollow materials	8	
	Rods M8x110	8 threaded rods M8x110	8	
	PrimeBlok 280 ml	Chemical cartridge PrimeBlok 280 ml	1	
	Mixer	Special Mixer for StarBlok	2	

StarBlok Sleeve

Code	Type	Description	Pack	Carton
			pcs.	pcs.
569481	StarBlok sleeve to fix on hollow materials		50	200

2 special mixers for StarBlok are included



ULTRABLOK: STRUCTURAL ANCHORINGS AT VERY HIGH PERFORMANCE



Certificate, structural for fixings in no-cracked concrete with rods up to M30: galvanized steel, for classes 5.8 to 10.9, for very high corrosion resistance stainless steel A4. Possibility of 3 anchorage depth rods for M8, M10, M12.

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.

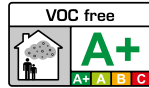
High performance vinylester formulation: it can also be used on wet and flooded holes.



Certified for critical applications: anchoring of threaded rods from M8 up to M30 in no-cracked concrete.



ULTRABLOK



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

CERTIFICATIONS



according to ETAG 001
option 7



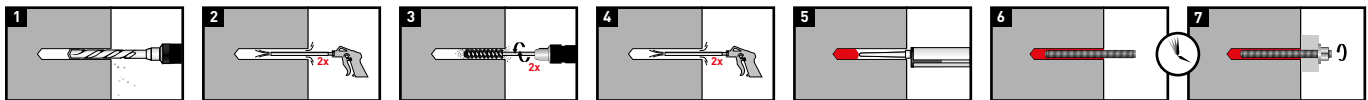
according to TR 023



BUILDING MATERIALS



INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING AND READY FOR USE

Concrete temperature T	Sequence times of installation 5 + 6	Sequence times of installation 7 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




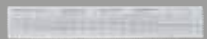

DESCRIPTION	M8	M10	M12	M16	M20	M24	M30
CONCRETE C20/25							
Drill diameter d ₀ /(mm)	10	12	14	18	25	28	35
Embedment depth h _{ef} min/(mm)	80	90	110	125	170	210	280
Tensile strength N _{rec} kN	10,50	14,80	21,70	29,30	35,10	52,00	70,40

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 ml	Note	Pack 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.

			FULL MATERIALS		HOLLOW MATERIALS							
												
Product			no accessory	 BE					 BM*			
	Dimensions		-	12x45	12x60	12x80	15x85	15x130	20x85	11x1000	15x1000	20x1000
		Code	-	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

FOR REMOVABLE AND REUSABLE FIXINGS - (see sequence of installation)**

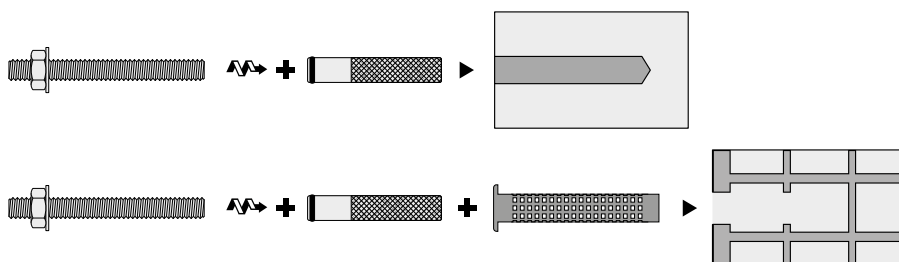
BT	M8	8708981	14						20			
	M10	8708982	16						20			
	M12	8708983	18						20			

*BM steel sleeve allows to get superior performance for rigidity and resistance to the torque.

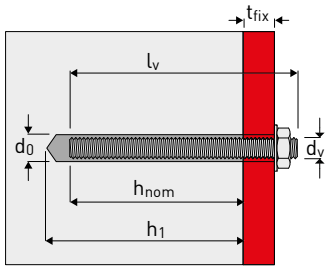
*It allows to realize fixings at very big depth to get superior performance in hollow materials. In this case should be used some bars expressly cut at the needed length.

*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 HOLLOW MATERIALS



THREADED RODS



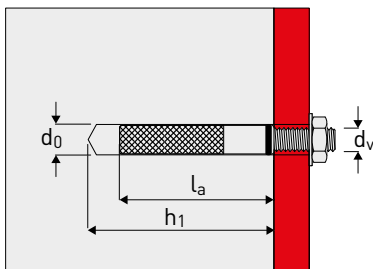
EHD

EHD - THREADED BAR WITH NUT AND WASHER

Code	Type	Ø Bar	Length bar	Ø Drill in full	Drill Depth in full	Thickness Fixable	Indicative hole volume	Indicative resin volume	Pack
	EHD	d _v /(mm)	l _v /(mm)	d _g /(mm)	h _v /(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

BT

Metallic bush with internal thread

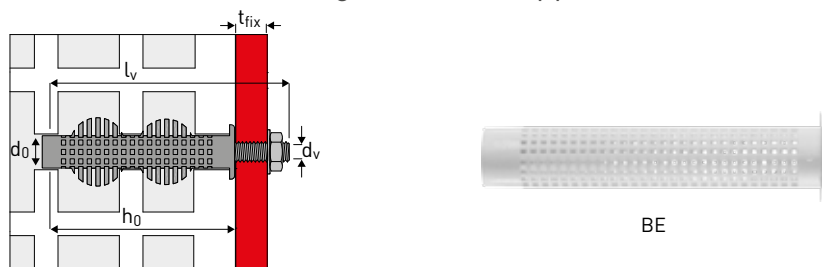


BT

Code	Type	Ø Bar	Length bush	Ø Drill in full	Drill Depth in full	Thickness Fixable	Indicative hole volume	Indicative resin volume	Pack
	BT	d _v /(mm)	l _v /(mm)	d _g /(mm)	h _v /(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



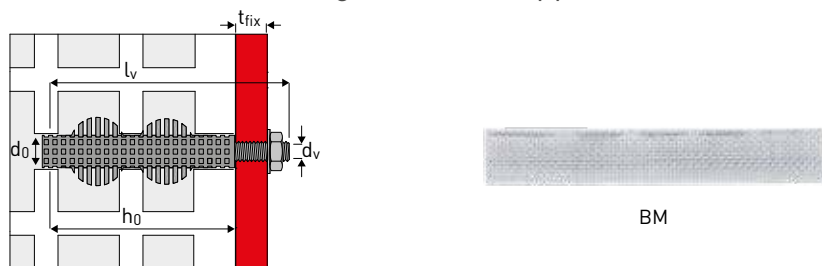
BE - NET IN PEHD

Code	Type	Ø Bar	Min. length bar	Ø Drilling	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	55	-	5,1	5,1	10
8708956	12x60	M6-M8	80	12	10	70	-	6,8	6,8	10
8708957	12x80	M6-M8	110	12	10	80	10	9,1	9,1	10
8708952	15x85	M8-M10	110-160	15	13	100	30-55	15,0	15,0	10
8708953	15x130	M8-M10	160	15	13	145	10	23,0	23,0	10
8708954	20x85	M12	115	20	18	100	10	26,7	26,7	10

*with EHD bars

BM

Bush for chemical fixing on drilled support



BM - 1 MTR METAL SLEEVE TO CUT

Code	Type	Ø Bar	Length bar	Ø Drilling	Ø internal	Depth drill	Pack	Carton
	BM	d _v /(mm)	l _v /(mm)	d ₀ /(mm)	(mm)	h ₀ /(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

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



PIPE CLEANER



Code	Description	Pack
		pcs.
8708595	New universal mixer Blok	5

MAXIMA

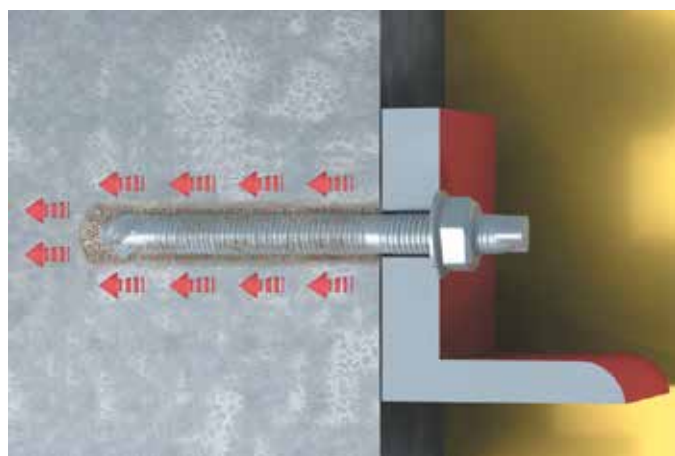


INNOVATION AND RESPECT OF THE ENVIRONMENT!

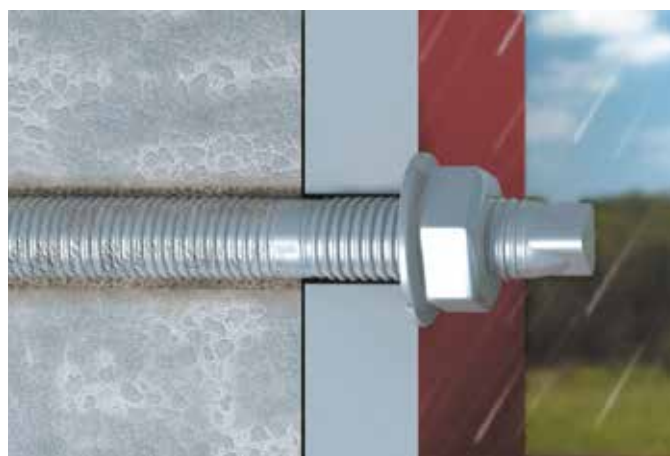
- ❶ **Faster mixing system and more effective:** the special helical conformation of the bar increases the homogeneity and thus the speed of the mixing and hardening.
- ❷ **Calibrated mixture of the components and no waste:** to ensure a safe reaction and optimal in all respects.
- ❸ **New styrene free 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-mixed 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-mixed synthetic resin. Special threaded bars class 5.8 or INOX A4 (upon request).

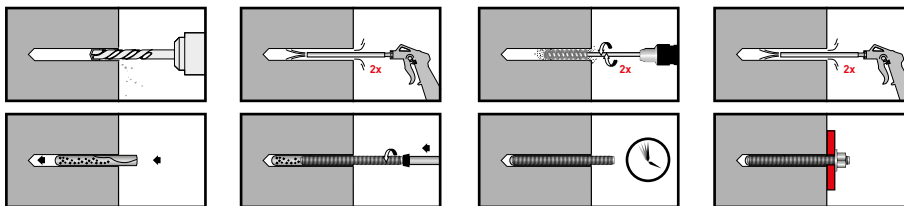
BUILDING MATERIALS



CERTIFICATIONS



INSTALLATION METHOD



WAITING TIMES FOR TIGHTENING

Concrete temperature T	100% of the resistance	
	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
CONCRETE C20/25							
Drill diameter	d _p /(mm)	10	12	14	18	25	28
Embedment depth	h _{ef} min/(mm)	80	90	110	125	170	210
Tensile strength N_{rec}	kN	7,3	10,2	14,9	22,7	32	47,5

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

APPLICATIONS

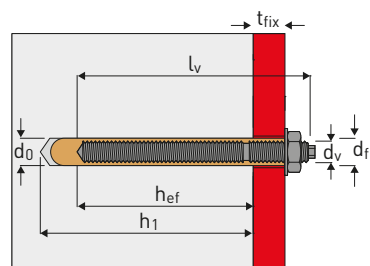
- ▶ High loads anchoring such as the fixings between concrete and stirrups/supports of industrial metallic carpentry, plants and beams in steel and/or wood.
- ▶ Anchoring of column base plate, heavy duty shelves and several structures.
- ▶ Anchoring subjected to vibrations, such as the fixings between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



MAXIMA



Code	Description	Depth Anchor	Max Thick. Fixable	Min thickness. Support	Depth Drilling	Ø Drilling	Ø Hole On the object	Torque tightening	Dim. Screw	Pack	Carton vial	Carton bar
Vial	Zinc plated bar	MAXIMA	$h_{ef}/(mm)$	$t_{fix}/(mm)$	$h_{min}/(mm)$	$h_v/(mm)$	$d_e/(mm)$	$d_f/(mm)$	$T_{max}/(Nm)$	$d_v \cdot l_v/(mm)$	pcs.	pcs.
050891	050950	M8	80	15	110	80	10	9	10	M8x110	10	480
050892	050960	M10	90	20	120	90	12	12	20	M10x130	10	480
050893	050970	M12	110	25	150	110	14	14	30	M12x160	10	200
050894	050980	M16	125	35	160	125	18	18	60	M16x190	10	200
050895	655220	M20	170	65	220	170	25	22	120	M20x260	10	60
050896	655240	M24	210	63	300	210	28	26	200	M24x300	10	60



SPECIAL FIXINGS

► Insulation anchors	
EFK	355
EFH	356
► Scaffolding anchors	
EGP	357
EOP	358
E/PN	359
► Fixing accessories for electrical installations	
Pipe fixings	
CT CLIP	360
ELEFIX	361
ECLIP	363
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Manual nailing	
Nail	366
Manual nail setting tool	366
Textile band	366
► Fixings for plumbing installations	
Collars	367
EBAN/EDS	367
For water heaters	370
For bathroom fixtures	372
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► Fixings for shelves	
EMS	376

EFK



Fixing for rigid insulation 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

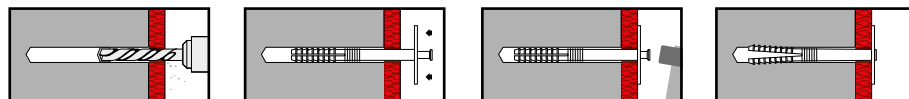
Raw material:

body in polypropylene
Screw in PS

BUILDING MATERIALS



INSTALLATION METHOD

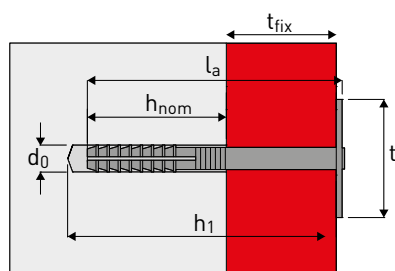


CHARACTERISTICS

- 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 lengths 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.

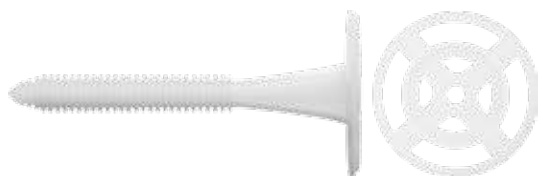


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Depth Anchor	Head	Max Thick. Fixable	Pack	Carton
	EFK	d ₀ /(mm)	l _a /(mm)	h ₁ /(mm)	h _{nom} /(mm)	t/(mm)	t _{fix} /(mm)	pcs.	pcs.
8718011	2-4	10	70	80	30	50	20-40	500	500
8718012	2-6	10	90	100	30	50	40-60	500	500
8718013	7-8	10	110	120	30	50	60-80	250	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.

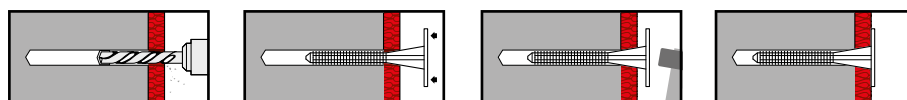
TECHNICAL DATA

Raw material: polyethylene

BUILDING MATERIALS



INSTALLATION METHOD

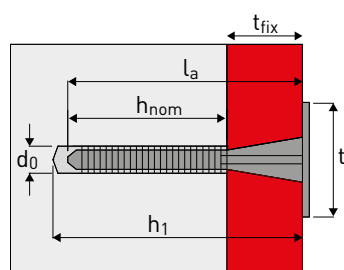


CHARACTERISTICS

- ▶ 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	Ø Drilling	Length Plug	Depth Drilling	Depth Anchor	Head	Max Thick. Fixable	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

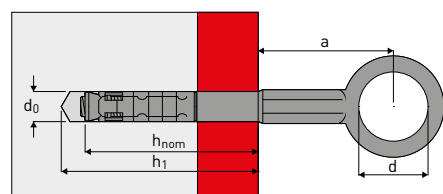
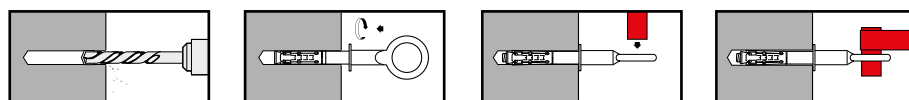
TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS



INSTALLATION METHOD



Code	Type	Ø Drilling	Depth Install.	Depth Drilling	Distance 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
8717905	PRO 50	Diameter extension 48 - Length 480mm	10	100
8717906	TAP	Extension cup	10	200



EOP



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

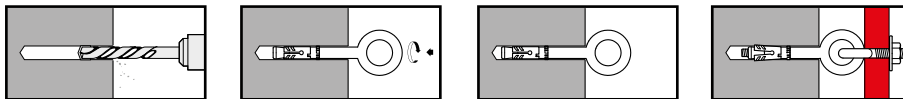
TECHNICAL DATA

Raw material: chromium zinc plated steel

BUILDING MATERIALS



INSTALLATION METHOD

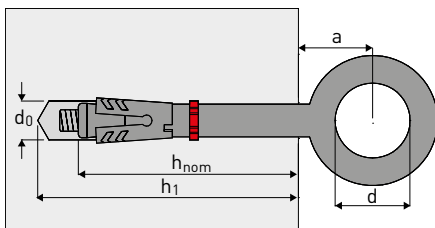


CHARACTERISTICS

- Expansion cone in zinc plated yellow galvanized steel $\geq 5 \mu$.
- Bent and welded eyelet in galvanized steel yellow passivated, $\geq 5 \mu$ 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	Ø Drilling d_0 /(mm)	Depth Install. h_{nom} /(mm)	Depth Drilling h_1 /(mm)	Distance Wall-axis a /(mm)	Eyebolt d /(mm)	Pack pcs.	Carton pcs.
8750106	12x135	12	60	80	65	22	25	-
8750116	12x180	12	60	80	110	22	25	-
8750117	12x215	12	60	80	155	22	25	-

ACCESSORIES

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

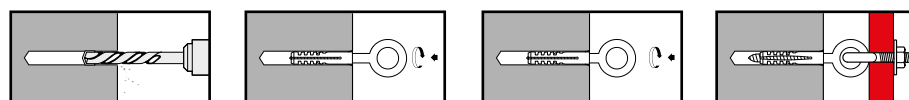
TECHNICAL DATA

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

BUILDING MATERIALS



INSTALLATION METHOD

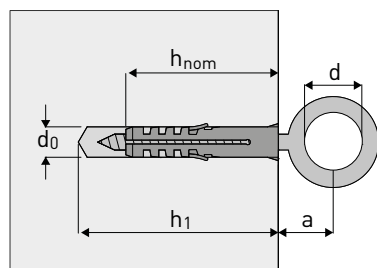


CHARACTERISTICS

- 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	Ø Drilling d ₀ /(mm)	Depth Install. h _{nom} /(mm)	Depth Drilling h ₁ /(mm)	Distance Wall-axis a/(mm)	Eyebolt d/(mm)	Pack pcs.	Carton pcs.
8701038	14/100	14	100	120	35	24	25	-
8717910	14/120	14	100	120	45	50	15	-
8717911	14/140	14	100	120	65	50	15	-
8717912	14/160	14	100	120	85	50	10	-
8717913	14/200	14	100	120	125	50	10	-

ACCESSORIES

Code	Type	Description	Pack pcs.	Carton pcs.
8730043	EYELET 12x120	Spare eyelet 12x120/24	25	-
8701037	E 14x100	Spare anchor for E/PN	25	600



CT-CLIP



CT-CLIP is an accessory for the fixing of rigid protection pipes both in plastics and in metal material, from 16 to 63 mm.

TECHNICAL DATA

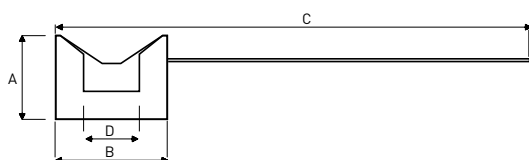
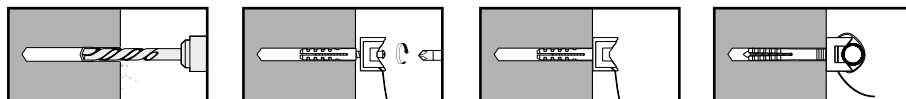
Raw material:	polyamide 6.6, grey colour RAL 7035
Installation temperature:	-5°C ÷ 35°C
Working temperature:	-40°C ÷ +70°C
Flammability rating:	HB according to UL 94
Glow wire test:	650 °C according to IEC 60695-2-12
Min tensile strength:	360 N

CERTIFICATIONS

Compliant with norm CEI EN 62275.



INSTALLATION METHOD



Code	Type	Ø Nominal	Dimensions (mm)				Tensile strength	Pack	Carton
	CT-CLIP	(mm)	A	B	C	D	(N)	pcs.	pcs.
565510	16-32 mm	16-32	17,6	24,5	180	5,9	360	100	1.000
565511	40-63 mm	40-63	17,6	40,5	280	5,9	360	100	1.000

CHARACTERISTICS

- Convenient slotted hole in order to be fixed with nylon plugs like T6, EB, T4 and UCX.
- CT-CLIP is also fixable with the gas nailer.



ELEFIX



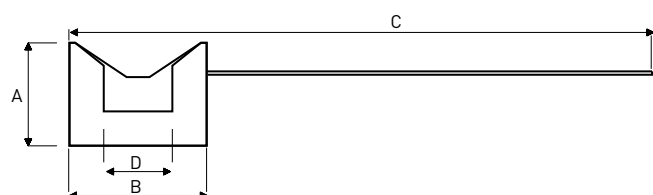
ELEFIX is an easy and quick accessory for the fixing of pipes and tubes. It is available in standard grey version for indoor applications.

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 secondo UL 94
Glow wire test:	850 °C according to IEC 60695-2-12
Min tensile strength:	360 N

CERTIFICATIONS

Compliant with norm CEI EN 62275.



Code	Type	Ø Nominal (mm)	Dimensions (mm)				Tensile strength (N)	Pack pcs.	Carton pcs.
			A	B	C	D			
565958	16-32	16-32	17,6	24,5	180	5,9	360	100	1.200
565961	40-63	40-63	17,6	40,5	280	5,9	360	100	600

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.








LINKED PRODUCTS:

Threaded wall plug M7.



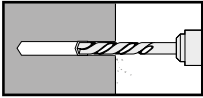
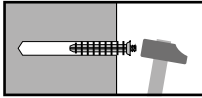
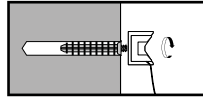
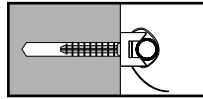
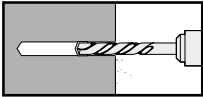
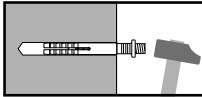
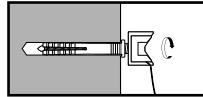
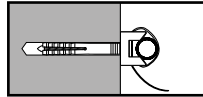
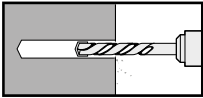
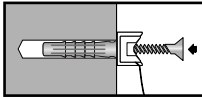
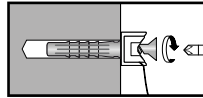
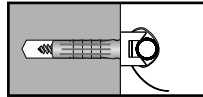
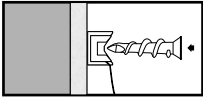
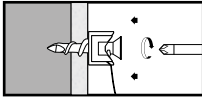
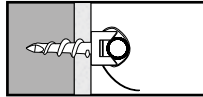

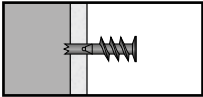
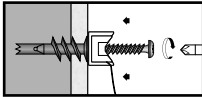
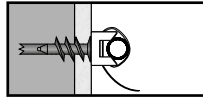

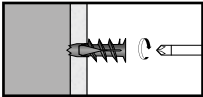
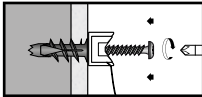
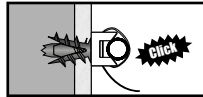

RECOMMENDED TRACTION LOADS

		Building material					
		Full material	Hollow material	Other supports			
							
Threaded anchor M7		85 N	-	-	-	-	30 N
UCX VM6		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 VM6 (cod. 8710014)				
With T6/VA 6x30 (cod. 565390)				
With Mini Driva (cod. 565398)				
With Driva (cod. 8704226)				
With T-Click (cod. 8704216)				

ECLIP

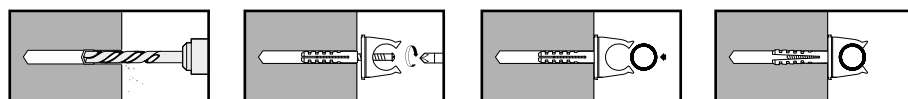


ECLIP is an open single clamp for the fixing of plastic insulated protection pipes and rigid tubes from \varnothing 16 to 50 mm; the necessary accessory for the professional end user. It can be installed with a light-duty anchor such as T6, E, UCX or with gas nailer.

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

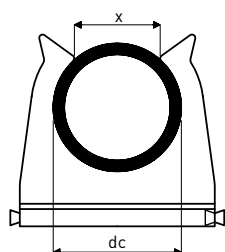


CHARACTERISTICS

- ▶ 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	Ø Internal	Int. diameter	Resistance	Pack	Carton
	ECLIP	d _i /(mm)	x/(mm)	(daN)	pcs.	pcs.
13502116	16	15	10,5	6	100	1.200
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	240



ECAV

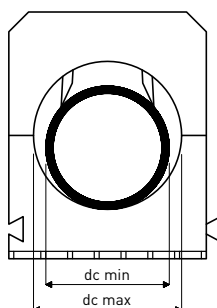
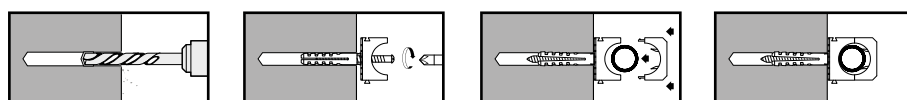


ECAV is a double clamp system to fix pipes and tubes from 4 to 60 mm \varnothing on wall and ceiling. It can be installed with light-duty anchors like T6, E, APR, UCX or with gas nailer.

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	Ø Min Pipe	Ø Max Pipe	Resistance	Pack	Carton
	ECAV	d _{min} (mm)	d _{max} (mm)	(daN)	pcs.	pcs.
13501008	8	4	8	10	200	2.400
13501012	12	8	12	10	100	1.200
13501016	16	12	16	23	75	900
13501020	20	16	23	20	50	600
13501025	25	20	25	25	50	600
13501032	32	25	32	31	25	300
13501040	40	32	40	40	20	240
13501050	50	40	60	50	15	180



COLLARS M6



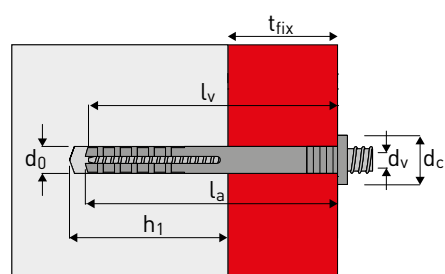
Zinc-plated steel collars with M6 connection to fix the light pipes, equipped with screws. Available also with UCX VM6 anchor. Available for pipes of a diameter from 10 to 60 mm.

Code	Type	Ø Nominal (mm)	Ø Pipes IEC423 (mm)	Pack pcs.	Carton 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	Ø Drilling d ₀ /(mm)	Length Plug l _v /(mm)	Depth install. h _{nom} /(mm)	Depth Drilling h ₁ /(mm)	Ø Collar d _c /(mm)	Thread Screw MxL/mm	Pack pcs.	Carton pcs.
8710014	M6/6x35	6	35	35	45	10	M6x10	100	2.400

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.

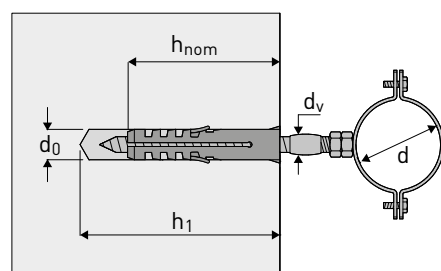
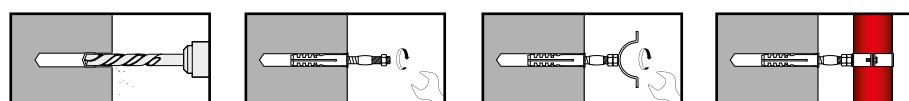
TECHNICAL DATA

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	Depth Drilling	Pack	Carton
	E/CL	d/(inch)	d _v /(mm)	d _h /(mm)	h _v /(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



APPLICATIONS

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

CL/Z

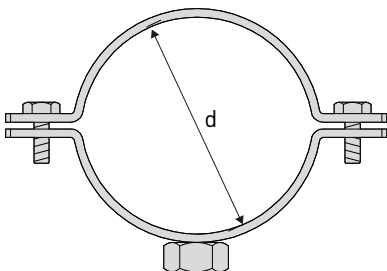
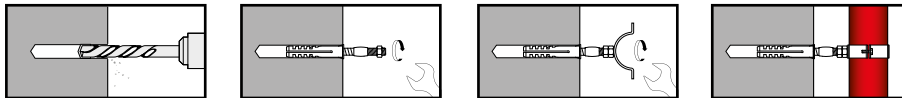


Collar with thread M8 nut for the installation of pipelines for waterworks and sanitary systems.
The standard packaging is a bag with 5 pieces.

TECHNICAL DATA

Raw material: zinc plating steel

INSTALLATION METHOD



Code	Type	Ø Pipe	Nut	Pack	Carton
		d/(inch)	d _n /(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	30



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.

TECHNICAL DATA

Raw material:

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

BENEFITS

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

Code	Type	Dimensions	Ø 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

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	Length Male thread	Length Total	Wrench	Pack	Carton
			d _f /(mm)	L _f /(mm)	L/(mm)	k/(mm)	pcs.	pcs.
8720001	8720011	6x20	M6	10	20	10	100	1.200
8720002	8720012	6x30	M6	10	30	10	100	1.200
8720003	8720013	6x40	M6	10	40	10	50	600
-	8720014	6x50	M6	10	50	10	50	600
8720004	8720015	8x20	M8	10	20	13	100	800
8720005	8720016	8x30	M8	10	30	13	100	800
8720006	8720017	8x40	M8	10	40	13	50	400
-	8720018	8x50	M8	10	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.

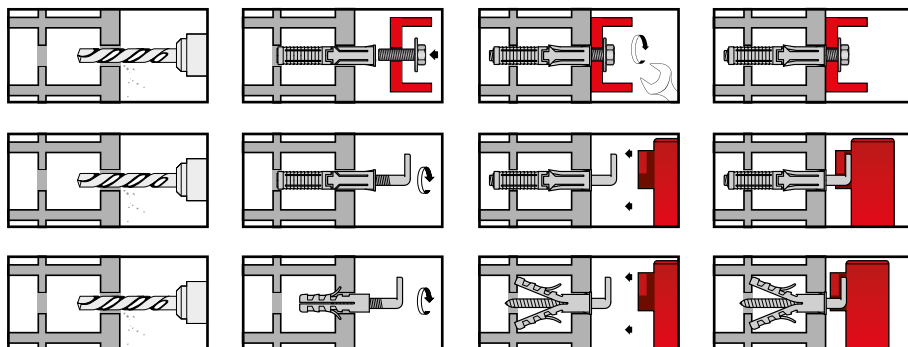
TECHNICAL DATA

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 $\geq 5 \mu$.

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.

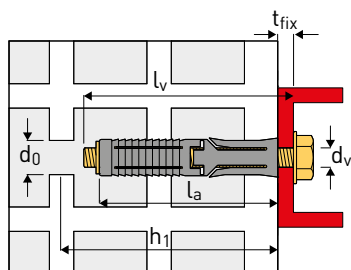
BENEFITS

- ▶ 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.

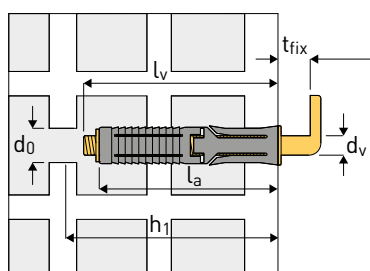


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Pack pcs.	Carton pcs.
8719812	EMB 12x70	12	70	80	3	M8x80	2	200
8719814	EMB 14x75	14	75	90	4	M10x90	2	200
8719922	EM 12x70*	12	70	80	-	-	2	200
8719924	EM 14x75*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

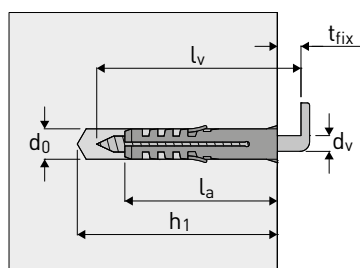


Code	Type	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Pack pcs.	Carton pcs.
8719714	EMC 14x75	14	75	90	11	M10x95	2	100
8719924	EM 14x75*	14	75	90	-	-	2	200

* 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	Ø Drilling d_0 /(mm)	Length Plug l_v /(mm)	Depth Drilling h_1 /(mm)	Max Thick. Fixable t_{fix} /(mm)	Dim. Screw $d_v \cdot l_v$ /(mm)	Pack pcs.	Carton pcs.
8714101	EB/SB 8x65	10	60	75	2	8x65	2	100
8714102	EB/SB 10x75	12	60	75	10	10x75	2	100
8714103	EB/SB 10x95	12	60	75	30	10x95	2	100
8714104	EB/SB 10x120	14	75	95	35	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.

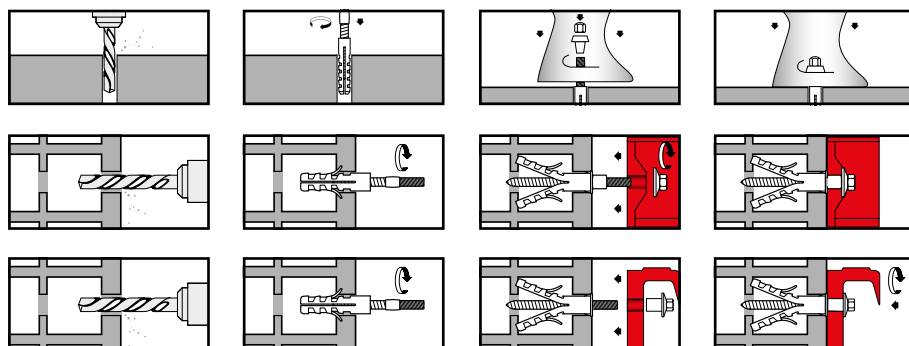
Screw in tropicalized brass steel or stainless steel (ETS/V).

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

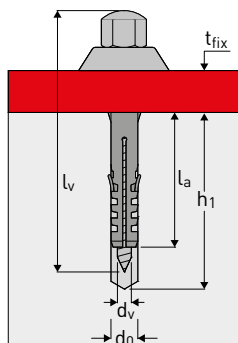
- Fixing system for the installation of bathroom fixtures to the wall.
- Components produced using high resistance materials.
- Full isolation between the appliance porcelain and the metallic screw.



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.

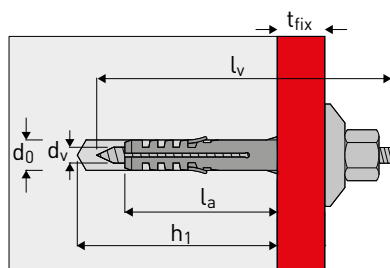


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETS/V	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8714201	Tropicalized	10	60	75	5	M6x76	4	200
8714202	Brass	10	60	75	5	M6x76	4	200
8714203	Stainless steel	10	60	75	5	M6x76	4	200

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.

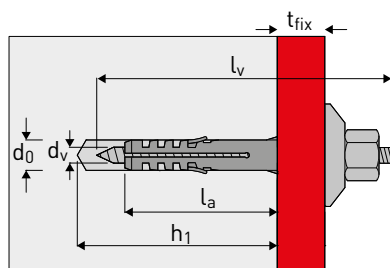


Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETS/P	d _v /(mm)	l _v /(mm)	h _v /(mm)	t _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8714000	ETS/P	10	60	75	12	M8x90	2	100

ETS/L

For wall fixings

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



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Max Thick. Fixable	Dim. Screw	Pack	Carton
	ETS/L	d _v /(mm)	l _v /(mm)	h _v /(mm)	f _{fix} /(mm)	d _v · l _v /(mm)	pcs.	pcs.
8714301	8x90	10	60	75	12	M8x90	2	100
8714302	8x100	10	60	75	22	M8x100	2	100
8714303	10x100	12	60	75	20	M10x100	2	100
8714304	10x120	12	60	75	40	M10x120	2	100
8714305	10x140	14	75	90	45	M10x140	2	100
8714306	10x180	14	75	90	85	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.

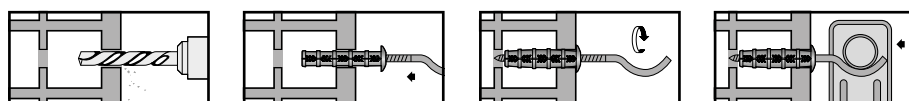
TECHNICAL DATA

Raw material: high-strength 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 $\geq 5 \mu$.

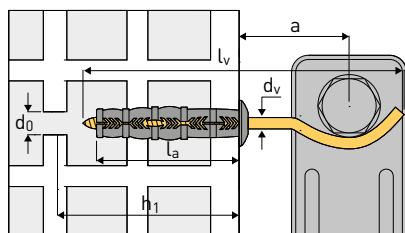
BENEFITS

- ▶ 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

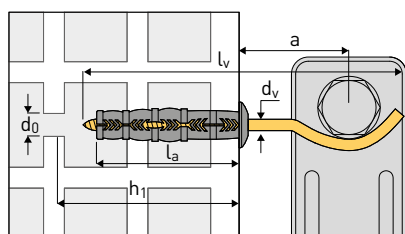
Anchor for the fixing of the aluminum radiators to the wall.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Distance Wall-axis	Dim. Screw	Pack	Carton
	EA	d_v (mm)	l_v (mm)	h_v (mm)	a (mm)	$d_v \cdot l_v$ (mm)	pcs.	pcs.
8751021	Z 7 zinc-plated	10	80	95	60	7x170	2	100
8751022	V 7 galvanized/painted	10	80	95	60	7x170	2	100

EG

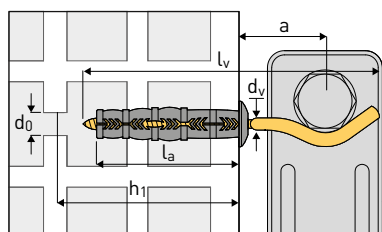
Anchoring for the fixing of the cast iron radiators to the wall.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Distance Wall-axis	Dim. Screw	Pack	Carton
	EG	d_v (mm)	l_v (mm)	h_v (mm)	a (mm)	$d_v \cdot l_v$ (mm)	pcs.	pcs.
8751001	2-3 columns	16	90	110	85	12x205	2	100
8751002	3-4 columns	16	90	110	110	12x230	2	100
8751003	4-6 columns	16	90	110	140	12x260	2	100

EP

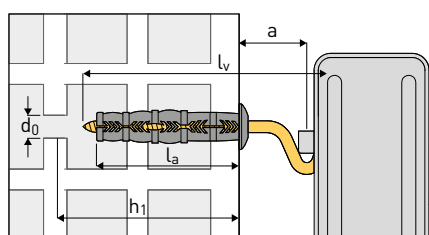
Anchor with flat shelves for the fixing of the aluminum radiators to the wall.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Distance Wall-axis	Dim. Screw	Pack	Carton
	EP	d_v (mm)	l_v (mm)	h_v (mm)	a (mm)	$d_v \cdot l_v$ (mm)	pcs.	pcs.
8751031	Z 7 zinc-plated	10	80	95	60	7x170	2	100
8751032	V 7 galvanized/painted	10	80	95	60	7x170	2	100

EML

Anchor for the fixing of lamellar radiators.



Code	Type	Ø Drilling	Length Plug	Depth Drilling	Distance Wall-axis	Dim. Screw	Pack	Carton
	EML	d_v (mm)	l_v (mm)	h_v (mm)	a (mm)	$d_v \cdot l_v$ (mm)	pcs.	pcs.
8751011	7	12	85	100	30	7x130	2	100

EMS



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

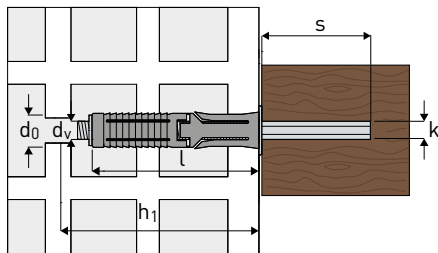
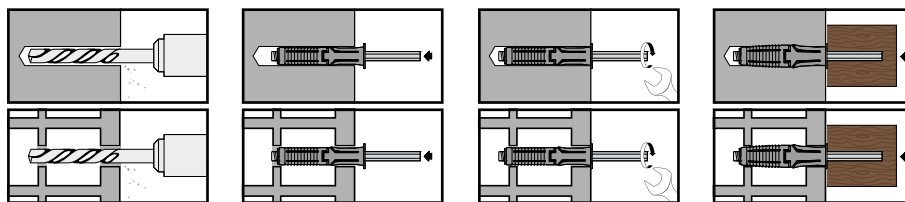
TECHNICAL DATA

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

BUILDING MATERIALS



INSTALLATION METHOD



Code	Type	Ø Drilling	Length Plug	Min. depth Drilling	Hole Shelf	Projection hex. bar	Wrench	Pack	Carton
	EMS	d _v /(mm)	l _p /(mm)	h ₁ /(mm)	d[ddd]/ (mm)	s/(mm)	k/(mm)	pcs.	pcs.
8719101	12.9.70	12	70	80	9	70	8	50	200
8719102	12.9.100	12	70	80	9	100	8	50	200
8719103	12.9.120	12	70	80	9	120	8	50	200
8719104	12.9.140	12	70	80	9	140	8	50	200
8719105	12.12.100	12	70	80	12	100	10	20	80
8719106	12.12.120	12	70	80	12	120	10	20	80
8719107	12.12.140	12	70	80	12	140	10	20	80
8719108	14.14.120	14	75	90	14	120	13	20	80
8719109	14.14.145	14	75	90	14	145	13	20	80
8719110	14.14.170	14	75	90	14	170	13	20	80

CHARACTERISTICS

- Plug in polyamide (nylon) special structure, with expansion distributed across multiple sectors.
- White zinc-plated hexagonal bracket.

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.



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NEW BRAND IMAGE: **UNIQUE AND STRONG**



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Family products identification by colours. Clear technical information to choose the right products. Easy to read.



SILICONES AND SEALANTS

► Silicones and sealants	
Acetic silicone	379
Neutral silicone.....	380
Acrylic sealant.....	381
High temperatures silicone	382
Asphalt sealant	383
Structural polyurethane adhesive	384

ACETIC SILICONE UNIVERSAL ANTI-MILDEW



TECHNICAL DATA

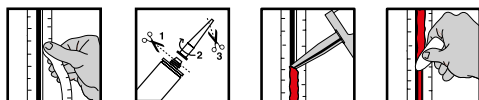
Skin formation time:	15-30 min (23°C, 50% H.R.)
Reticulation speed:	2 mm/24h (23°C, 50% H.R.)
Application temperatures:	+5 ÷ +40 °C
Operating temperatures:	-40 ÷ +100 °C
Storage:	12 months

CERTIFICATIONS

EN 15651-1: **F-EXT-INT-CC**
EN 15651-3: **S**



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	12
8708223	Acetic silicone black RAL 9.005	●	280	12
8708224	Acetic silicone beige RAL 1.013	●	280	12
8708225	Acetic silicone brown RAL 8.028	●	280	12
8708226	Acetic silicone dark brown RAL 8.019	●	280	12
8708270	Metal gun for silicones.	-	-	1

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.



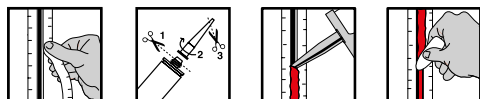
NEUTRAL SILICONE LOW FORM



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



CERTIFICATIONS

EN 15651-1: **F-EXT-INT-CC**
 EN 15651-2: **G-CC**
 EN 15651-3: **S**



Code	Description		Q.ty	Pack
			(ml)	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
8708270	Metal gun for silicones.	-	-	1

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).



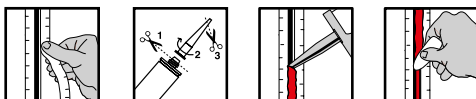
ACRYLIC SEALANT



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



CERTIFICATIONS

EN 15651-1: **F-EXT-INT**



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

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.



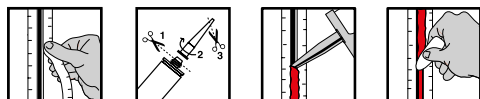
HIGH TEMPERATURES SILICONE



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



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.

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



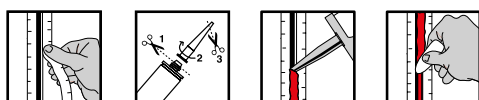
ASPHALT SEALANT



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



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.

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



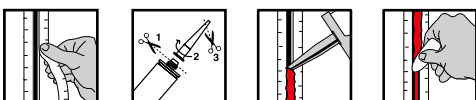
STRUCTURAL POLYURETHANE ADHESIVE CLASS D4



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



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

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.



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WALL STANDS

- ▶ Modular floor system display **NEW** 387
- ▶ Cabling system displays **NEW** 389
- ▶ Fixing system displays **NEW** 390

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

Magnetic crowner: no more stickers! A simple fixing, easy to apply, repositionable many times.

Price holder accessory : standard on each shelf, it offers the possibility of including prices and product info .



EMPTY FLOOR DISPLAY

Code	Description	Dimensions (cm)	Pack pcs.
8221801 NEW	Display structure	100 x h.225 x 50	1
	1 base depth 50cm	50	
	1 shelf depth 40cm	40	
	1 plate for crowner	100	
8221906	Pillar	h.225	1
8221896	Elematic magnetic crowner	98 x h.29	1

ACCESSORIES FOR DISPLAY

Code	Description	Dimensions (cm)	Pack pcs.
8221907	Shelf depth 40 cm with price holder	100 x depth 40	1
8221908	Shelf depth 50 cm with price holder	100 x depth 50	1
8221895	Elematic band for price holder	100 x h.4	1
8221909	Wire front to take products	100 x h.8	1
8221910	Wire divider depth 40 to separate the product packaging	8 x deep 40	1
8221911	Wire divider depth 50 to separate the product packaging	8 x deep 50	1
8221912	Wire trapezoidal divider depth 40 to separate the product packaging	8 x deep 40	1
8221913	Wire trapezoidal divider depth 50 to separate the product packaging	8 x deep 50	1
8221804	Single hook for blister and bag	length 20	10
8221803	Double hook for blister and bag	length 20	10





DISPLAYS FOR CABLING PRODUCTS



CABLE TIES ROTATING COUNTER DISPLAY

Code	Height (mm)	Width (mm)	Deep (mm)	Pack pcs.
8312500	760	260	230	1
EXPO 2-LOCK	760	260	230	1

Cable ties rotating counter display with fixed hooks. It can contain till 7 different dimensions of cable ties (from cod.5X01/CE up to 5X27E) for a max quantity of 5 cable ties bags for hook.

NOTE

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



CABLE TIES FLOOR DISPLAY IN METAL

Code	Height (mm)	Width (mm)	Deep (mm)	Pack pcs.
8222200	2.020	540	360	1

8222212 - KIT CABLE TIES ASSORTMENT FOR FLOOR DISPLAY

Code	Code	Dimensions (mm)	Ø Bundle max (mm)	Tensile strength		Q.ty
Natural	Black	(mm)	(mm)	(kg)	(N)	pcs.
5203/CE	5303/CE	2,5x98	21	8,16	80	700
5205/CE	5305/CE	2,5x135	32	8,16	80	700
5207/CE	5307/CE	2,6x200	52	18,36	180	700
5208E	5308E	3,5x370	103	18,36	180	700
5209/CE	5309/CE	3,5x140	35	18,36	180	700
5210/CE	5310/CE	3,5x290	80	18,36	180	700
5214/CE	5314/CE	3,5x200	50	18,36	180	700
5216/CE	5316/CE	4,8x250	68	22,44	220	700
5219E	5319E	4,5x360	100	22,44	220	700
5225E	5325E	7,8x240	63	55,08	540	700



CABLE TIES FLOOR DISPLAY IN CARTON

Code	Dimensions (cm)	Pack pcs.
8221823	44,5 x h.142 x p.29,5	1

NOTE

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



HEAT SHRINKABLE ET 100 FLOOR DISPLAY

Code	Height (mm)	Width (mm)	Deep (mm)	Pack pcs.
8221705	1.740	415	345	1

RECOMMENDED ASSORTMENT: cod. KIT 8221705

Code	Code	Code	Code	Q.ty (Pack)	Pack (m)
Black	Green/Yellow	Blue	Red		
12273016	-	-	-	1	30
12273024	-	-	-	1	30
12273032	-	-	-	1	30
12273048	12273048G/V	12273048BL	12273048R	1	24
12273064	12273064G/V	12273064BL	12273064R	1	24
12273095	12273095G/V	12273095BL	12273095R	1	20
12273127	12273127G/V	12273127BL	12273127R	1	16
12273190	12273190G/V	12273190BL	12273190R	1	10
12273254	-	-	-	1	6

CABLING SYSTEM DISPLAYS



PALLBOX CARTON DISPLAY T6/VA 6x30

Code	Description	Dimensions	Pack
		(cm)	pcs.
566532	36 plastic boxes of 500 T6/VA 6 x30 in carton display	60 x h.110 x p.40	500



CARTON DISPLAY FOR ANCHORS FOR DRYWALL - DRIVA TP 12

Code	Description	Dimensions	Pack
		(cm)	pcs.
568144	12 cans of 150 DRIVA TP12 in carton display	40 x h.20 x p.40	150



CARTON DISPLAY FOR UNIVERSAL ANCHORS T6/VA 5x25

Code	Description	Dimensions	Pack
		(cm)	pcs.
568639	8 plastic boxes of 700 T6/VA 5 x25 in carton display	30 x h.20 x p.40	700





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