RAWLPLUG®

Lightweight Fixings

Trust & Innovation

1887- 1897
RAWLINGS BROTHERS started out in London as a small firm of plumbers

1910
JOHN RAWLINGS invented the world's first expansion plug

1911
THE WORLD'S FIRST EXPANSION PLUG
Patent filed by Rawlings Brothers

1912
RAWLPLUG® Trademark registration

1919
Rawlings Brothers changed company name to THE RAWLPLUG COMPANY LTD

1930's
Invention of the first ever mechanical anchor - RAWLBOLT®

1948
The world's first metal anchor for drywall

1969
First production of expansion plastic plugs in GLASGOW factory

1980's
Extension of the offer of Safety Plus and R-HPT mechanical anchors

1993
First hammer-in fixing in Central Europe

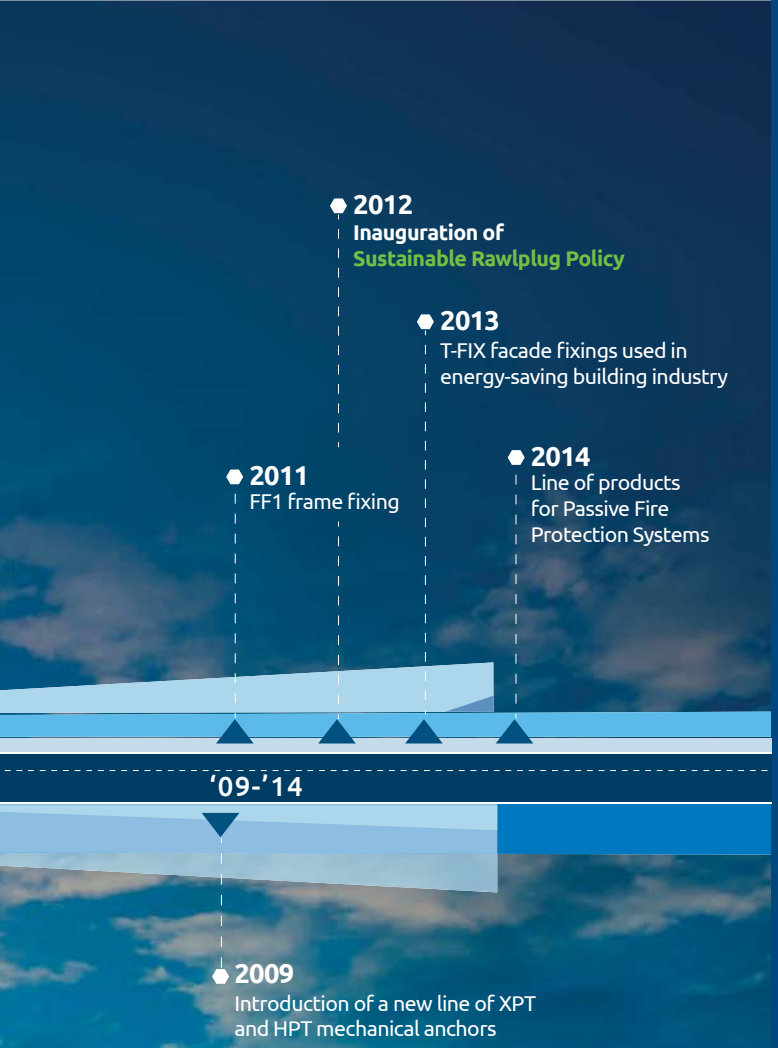
1998
RAWLPLUG became first UK manufacturer with ETA

2004
Debut on Warsaw Stock Exchange

2005
Uno® Plug no. 1 in UK

2007
Rawlplug Cartridge Free System

1887 | 1912-'20 | '20-'50 | '50-'80 | '80-'07



- Since 1911, when John Rawlings invented and filed an application to patent the world's first wall plug, the history of fixings has been inextricably linked with the RAWLPLUG® brand. Following the tremendous success of this revolutionary product in Europe, the RAWLPLUG company was founded in 1919 and quickly became renowned across the world for its innovative and reliable fixings.

  Over the years, a small family company became an international organisation whose power is reflected in **13 companies** on four continents, over **1.900 employees** and almost **30.000 lines**, making up our diverse range of products. The Group's present-day know-how is a synergy of knowledge and experience based on the best practices of its subsidiaries whose main activity is developing innovative solutions in the field of fixing technologies, including their **design, production and distribution.**

  Since it was founded, Rawlplug has placed great emphasis on the **quality and innovation** of its products, developing research centres in Glasgow, Wroclaw and Lancut. R&D teams consisting of experienced engineers, in the quest to find innovative solutions, design products intended for a wide range of substrates and applications. Pioneering Rawlplug solutions, imitated all over the world, have been defining the direction for the entire fixings industry for over 100 years.

- Nowadays Rawlplug's® products are used in construction, automotive, machine and electro-machine, mining, shipyard, road, timber and power industries, including around 30.000 product listings divided into 3 key groups:

  Fixings & Anchors

  Thermal insulation fixings for facades and roofs, self- drilling screws, lightweight & domestic fixings, frame fixings, medium & heavy-duty anchors, resin-bonded anchors and many others.

  Fasteners

  DIN bolts, nuts & washers, special bolts and many others (including bespoke solutions).

  Tools

  Hand & power tools, power tool accessories (drills, saws, chisels, etc.) and direct fastening systems.

Today Rawlplug continues in its fine tradition of innovation through constant research and development of technologies and processes that minimise the company's impact on the natural environment, making sustainable development one of the pillars of its existence.

Sustainable Rawlplug:

- employs a strategy of successful management and ethical business practices;
- builds long-lasting relationships based on common respect and trust with customers, suppliers and business partners thanks to an effectively designed and operated supply chain;
- cares for its employees and provides help and support to develop local communities;
- is concerned for the natural environment, focusing on areas involving production processes, employee education and cooperation with experts in the field of waste management.

Thanks to its constant emphasis on innovative solutions and customer care together with keen concern over sustainable development and environmental issues, RAWLPLUG'S® products continue to be acknowledged around the globe making them a world-class, first choice for the fixings industry.

Sustainable RAWLPLUG

RAWLPLUGS

WALL PLUGS

For almost 100 years the Rawlplug brand, named after the inventors of the world's first expansion plug, has been inextricably linked with the history of fixings and fixing technology.

A Revolutionary Invention

At the start of the 20th century the British Museum commissioned the Rawlings Brothers, owners of a small electrical engineering and plumbing firm, to install electrical fittings in the famous London museum. At that time, attaching objects to a stone or brick wall in a discrete and unobtrusive way with as little damage as possible was quite a challenge.

The widely used wooden bungs of the day were not always adequate to the task and so John Joseph Rawlings came up with an ingenious new technique which was to revolutionise fixings technology. Made of jute soaked in animal blood and bonded with glue before being rolled into a tube, the new wall plug was designed to fit in to a hand-drilled hole in the wall. It was an ideal solution to the problem..

The ingenuity of this invention lay in the elasticity of the material, allowing it to expand outwards, pressing against the inside of the hole. Thus when necessity once again became the mother of invention, the world's first expansion plug was created, paving the way to for increasingly advanced solutions in the years to follow.

The Original Rawlplug Patent (No. 22680/11)

John Rawlings filed a patent for his invention in 1911, which was granted on 14th January 1913 (patent number 22680/11). Now, more than 100 years later, the essence of this original innovation remains unchanged. The plugs, with diameters ranging from 3mm to 30mm, were initially made from natural materials, which were only replaced with plastic in 1960s, all around the world ever since.

Fibre wallplug

The Search for the Perfect Material

The Rawlings brothers did not stop at that. In 1912 The Rawlplug Company Ltd. (as it was to become known soon thereafter) embarked on a quest to create the perfect plug. Thousands of trials were conducted using many diverse materials, ultimately guiding the evolution of the expansion plug. Among the many solutions tested were plugs made of lead, zinc, natural and synthetic rubber, bitumen, glass, wood, paper, casein, wire, tar and asbestos, with many combinations using various proportions and blending techniques.

Extraordinary Innovations

Many of the ideas tested by the Rawlings brothers during the interwar period were eventually patented. Practically all materials that were known at that time had been investigated for their potential applications in fixing technology. Extraordinary innovations arising from some early projects include:

1. A plug made of jute bonded with glue, pitch, rubber, metallic soap, shellac, viscose, etc.
2. Plugs made of various thicknesses of paper in combination with glue and other compounds.
3. A plug of jute fibres in spiral form and plaited, with glue.
4. A plug of hemp fibres around a core made of paper and metal.
5. A plug made of spongy metal combined with asbestos, pitch and other compounds.
6. A plug made using an asbestos mixture.
7. A plug made of casein, glue and synthetic rubber.
8. A plug of vulcanized rubber.
9. A plug made from extruded lead in various forms.
10. A wooden dowel, slit longitudinally.

... to name just a few.

The Evolution of the Perfect Rawlplug

Over time, the myriad of materials and concepts gradually evolved into a complete range of natural plugs and an ancillary assortment of plugs made of white bronze.

The development of the range of natural materials centred on mitigating the effects of exposure to mould and other organic factors whilst determining the appropriate turning and ridging features of the fibres in order to obtain optimal outward expansion and surface grip. Indian jute (which, due to the tropical environment, possessed natural resistance to the effects of humidity) was imported for production, before being coated with an additional waterproof layer.

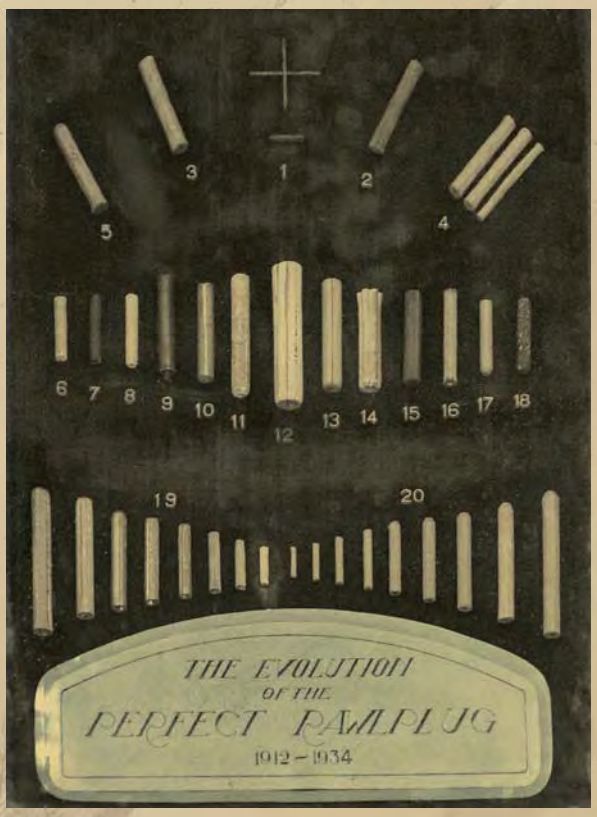
White Bronze

For more challenging service conditions a range of **white bronze plugs** was created, which were widely used in the construction of swimming pools, boiler installations and heated water systems. These designs based on the alloy of copper, tin and zinc provided a solution for the user requiring lightweight fixings suitable for use in damp conditions.

Used today mostly in the manufacture of jewellery as a substitute for nickel and silver, white bronze is corrosion-resistant and non-porous, making it a very durable material for use in fixing applications.

White bronze plug

Nonetheless these fixings, along with those made from natural fibres, were eventually to be replaced by a much more modern material - 1967 saw the introduction of the plastic plug. Over further years of constant evolution this has led to the innovative and technologically advanced fixings seen today in the Rawlplug range, such as the FF1, UNO and 4ALL.



Early Solutions for Hollow Walls

While the original Rawlplug concepts had been designed for use in solid walls, trends in 20th century construction would eventually give rise to a new challenge. The increasing popularity of plasterboard and other board materials for interiors led to demand for a fixing solution for hollow walls.

Spring Toggle - SPO

This prompted the development of classic fixings such as the Rawlanchor (an early version of today's Interset) and the self-expanding Spring Toggle (still available as the 'SPO'). These innovative designs are ideal for fixing in to various thicknesses of board and operate on a principle of spreading the applied load over a wide surface area. For example, after insertion in to the hole, the arms of the Rawlanchor/ Interset expand like an umbrella, spreading outwards and pressing back against the rear of the wall. Innovations such as this as well as the Spring Toggle thereby provided the ideal solution for mounting considerable loads to thin board walls and ceilings.

New Products for New Markets

The RAWLNUT, another classic Rawlplug invention, found many applications in the growing automotive, aviation and telecommunication industries. Originally added to the traditional range for fixing in to brittle or unknown substrates, to this day its design remains essentially unchanged.

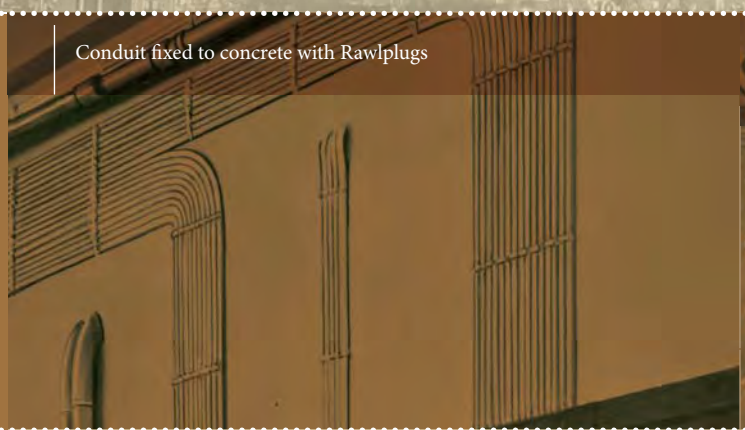
Rawlanchor

Thanks to its flexibility this rubber plug with a bonded brass insert is highly resistant to corrosion and vibration and was particularly popular in the automotive industry during its dynamic development at the beginning of the 20th century. These water resistant and soundproof fixings were used on all sorts of interior elements, door handles, mirrors, registration plates lights in vehicles around the world.

Rawlnuts, made using natural rubber, are also particularly resistant to high temperatures (up to approx. 80°C, or 176°F) making them ideally suited to use in the aviation industry. This suitability was at one time attested by the Royal Aircraft Establishment - a British research establishment that eventually came under the aegis of the UK Ministry of Defence.

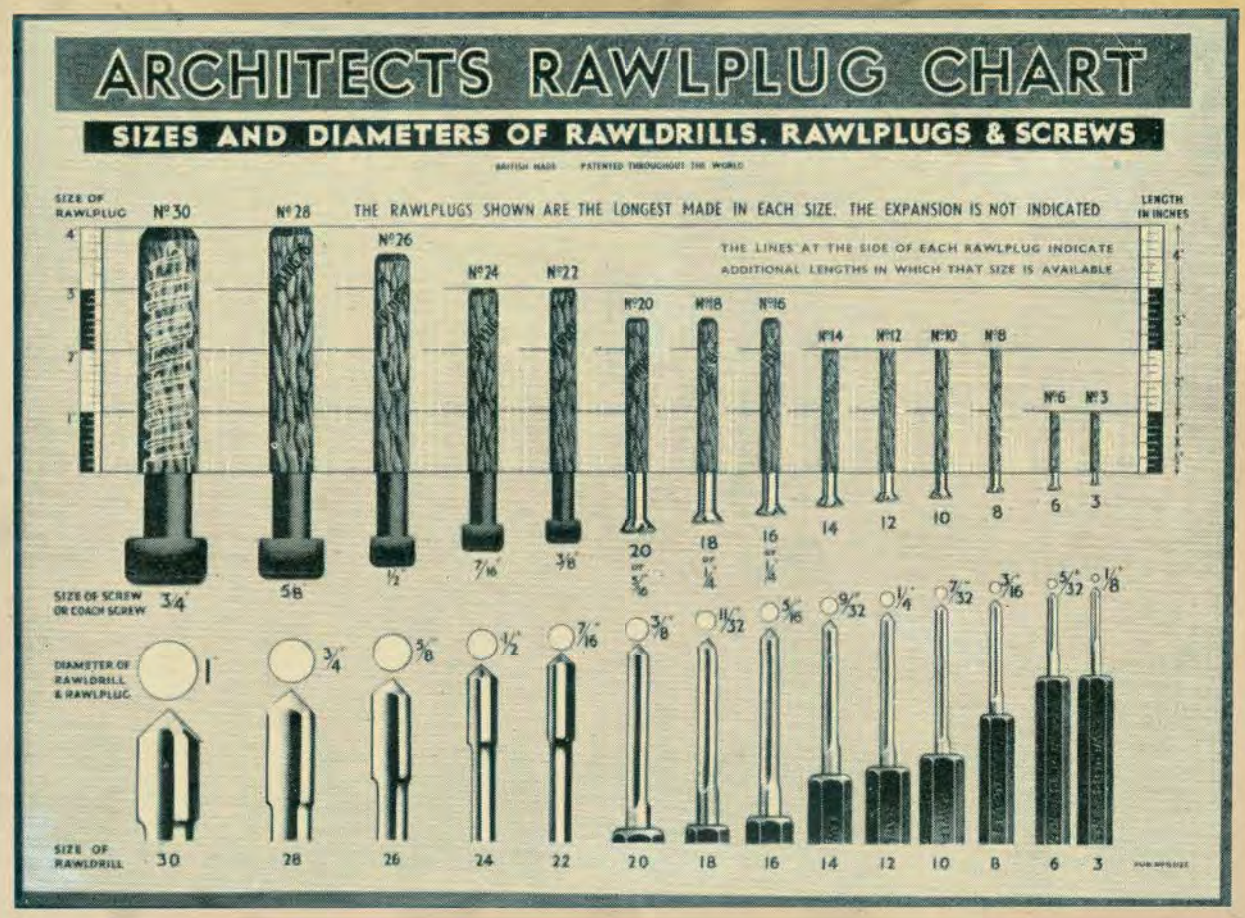
Rawlnut

Variants of the Rawlnut made of neoprene rubber were resistant to oil and gasoline and were used in the construction of petrol stations, while those made from non-silver natural rubber proved their worth in the telecommunications industry due to their conductivity.



Conduit fixed to concrete with Rawlplugs

Intricate wiring fixed to steel girders using Rawlplug fixings and screws

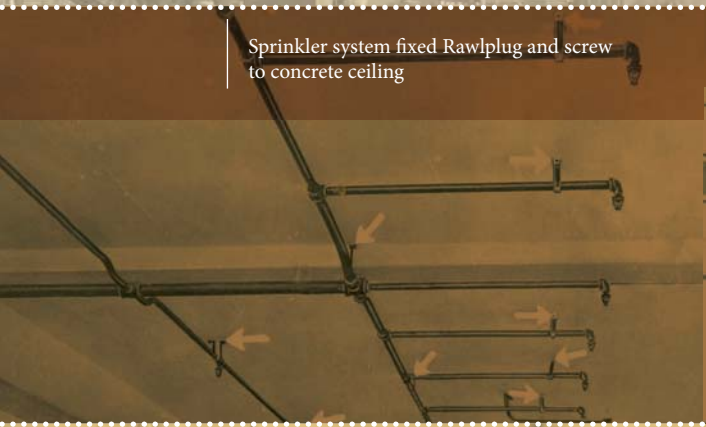


Sydney Harbour Bridge

Buckingham Palace London

The Houses of Parliament, London

The Royal Palace, Stockholm



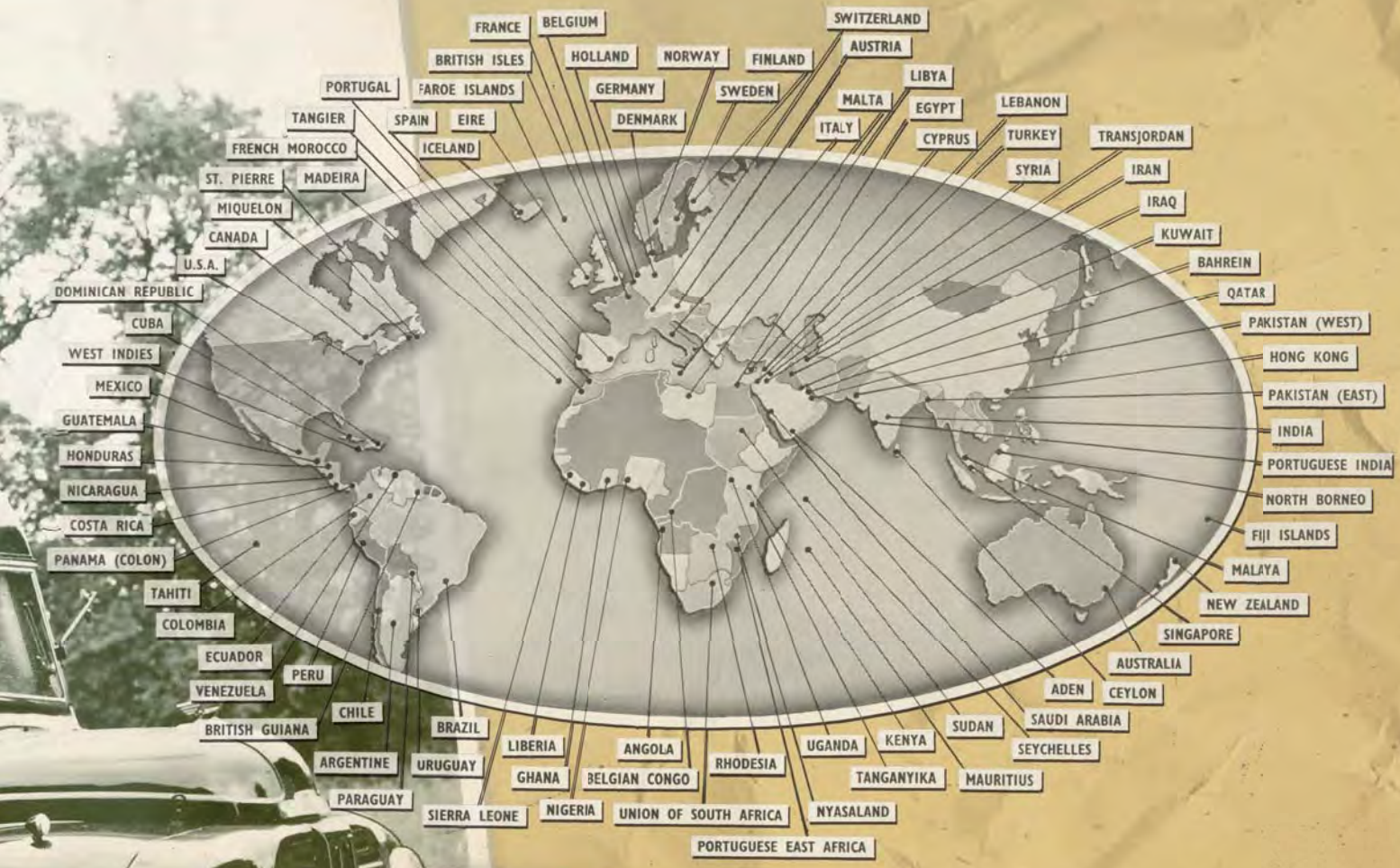
Sprinkler system fixed Rawlplug and screw to concrete ceiling

Overhead lighting and conduit fixed with Rawlplug

Fixing Devices That Gripped the World

The RAWLPLUG brand legacy dates back to the 1920s and 30s, a time when the RAWLPLUG van - one of the first showcase vehicles in the history of brand awareness marketing - could be seen on the streets as it reached the furthest corners of the civilised world. Presentations in Europe, Asia, Africa, Australia and the Americas popularised the Rawlings brothers' inventions, giving rise to many similar manufacturers who to this day continue to derive benefits from the substantial history and heritage of the RAWLPLUG name.

Traveling Showvans in use in France and directed from Cheville Rawl Paris headquarters



One of the new fleet of Showvans on tour the British Isles

Traveling Showvans now being used for tour of Australasia

Major achievements built around the smallest details

Numerous minor but significant elements define our capabilities in all construction disciplines

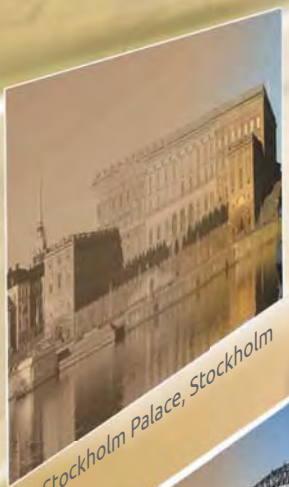
White House, Washington

Statue of Liberty, New York

Houses of Parliament, London

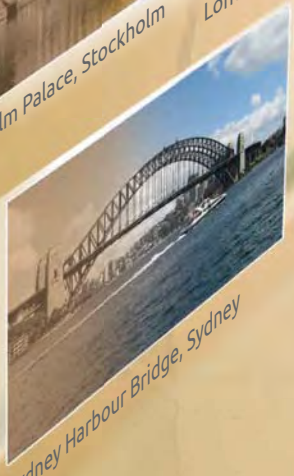
Buckingham Palace, London

Eiffel Tour, Paris



The Stockholm Palace, Stockholm

Westminster Abbey, London



Sydney Harbour Bridge, Sydney

photos: Wikipedia

Rawlplug is fully aware that successful accomplishments in the construction industry begin with the correct selection of materials and equipment. Over the years we have developed a comprehensive range of lightweight fixings to meet the expectations of all our customers

Since 1911 our solutions have answered specific requirements from the market utilizing state of the art technology.

Close cooperation with engineers and contractors helps us understand market needs. Our **dedicated research and development team** generates solutions to match and often exceed these requirements.

The finest confirmation of our unparalleled quality comes from our client endorsements. For example our lightweight fixings are recommended by Europe's leading suppliers of drywall systems.

RAWLPLUG®

Trust & Innovation. Since 1919.

Contents

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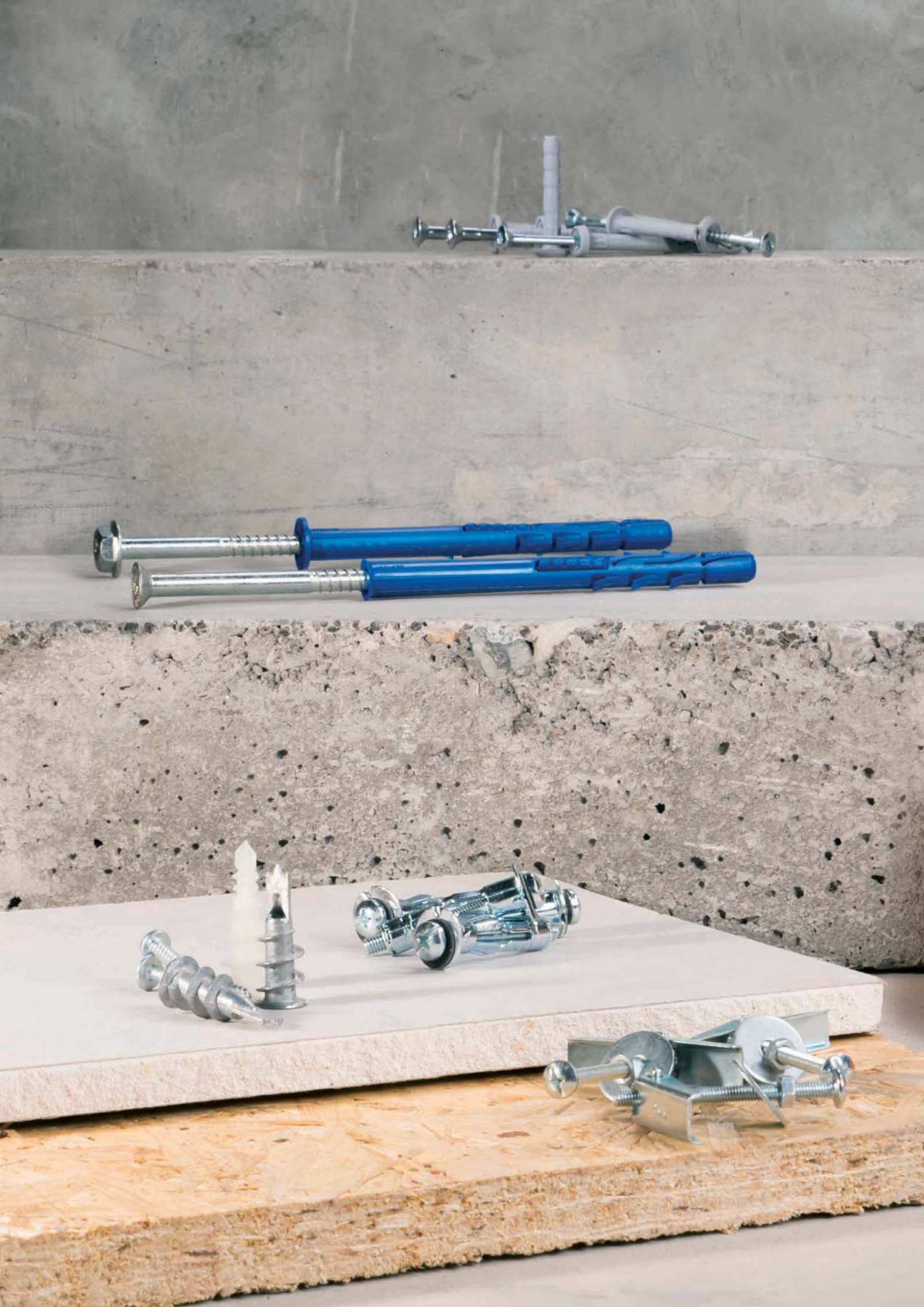
PLASTERBOARD FIXING

SPECIAL FIXING



Rawlplug first brand in the lightweight fixings. Historically and technically.

Impressive 100 years of Rawlplug's history could be a sufficient explanation as to why one should choose our lightweight fixings. Our company is the one which had recognized the need for, invented and popularized lightweight fixings across the world.

However, impressive historic evidence does not satisfy our pursuit for the title of world's most innovative producer of fasteners and fixings. Our key focus throughout the year has been to offer a complete range of reliable and effective products for any substrate and application.

Rawlplug's lightweight fixings provide ease of installation, high load capacity and reliability in the long time perspective. We strongly focus on the practical aspects of product's application in reality instead of generating multiple solutions for the same use.

Therefore, choosing solutions offered by Rawlplug is a decision which.

RAWLPLUG®

Trust & Innovation. Since 1919.

Development, Testing, Approvals, Quality Assurance & Technical Support

RAWLPLUG's® newest additions to the bonded, mechanical and plastic anchor ranges are developed and tested in our comprehensively equipped research and development centres in Glasgow (Scotland) and Wroclaw/Lancut (Poland).

The resultant technical data has been approved in various European Member States and by the following organisations: BBA (UK), CSTB (France), DIBT (Germany), FM Global (USA), SINTEF (Norway) and ITB (Poland).

Our extensive set of European Technical Approvals and Assessments (ETAs) cover our fixings and anchors concrete, as well as masonry and hollow substrates. (See individual products for approved uses.) Meanwhile our mechanical anchor range also holds several ETAs indicating their suitability for applications in cracked and non-cracked concrete.

Furthermore, we are proud that our production is subject to the control of a quality assurance system approved by the following bodies: BSI (UK), TÜV Rheinland (Germany), AFNOR (France) and ITB (Poland).

Our team of technical consultants are at your disposal for advice, seminars and on-site installer training to support our extensive range of fasteners and fixings. On-site product testing can also be arranged.

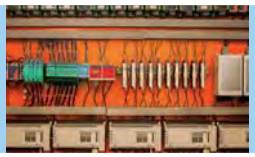
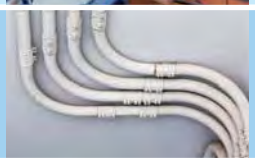
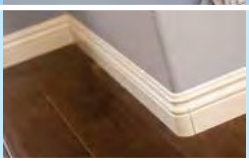
Ultimately, the RAWLPLUG® team will help you to ensure that you choose the best solution for your application.

RAWLPLUG®

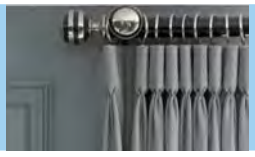
APPLICATIONS		FRAME FIXINGS	FRAME SCREW	FRAME ANCHORS	CEILING WEDGE ANCHOR	METAL HAMMER FIXING	BRASS EXPANSION FIXING	LIGHTWEIGHT BLOCK ANCHOR	HAMMER-IN FIXINGS	UNIVERSAL PLUG	HIGH PERFROMANCE NYLON PLUG	SELF-DRILL PLASTERBOARD FIXING	INTERSET CAVITY FIXINGS	SPRING TOGGLE	FLEXI PLUG	SANITARY FIXINGS	STAIR-TREAD FIXINGS	DOOR-STOP FIXINGS
																		
	LIGHT TYPE:	FF1	WHO	O	GS	KMW	SRC	KGS	FX	UNO	4ALL	DRA	SM	SPO	RAWL-NUT	KPU	LSM	ODBK
	INDUSTRIAL DOORS		V	V														
	AIR CONDITIONER		V	V														
	WINDOWS		V	V	V													
	GARAGE DOORS		V	V														
	GARAGE DOORS		V	V														
	GATES		V	V	V														
	DOORS		V	V	V														
	SUSPENDED CEILING				V		V												
	CONDUIT AND PIPE CLAMPS				V		V												
	TIMBER/METAL BATTENS		V	V		V	V			V				V					

Lightweight Fixings

	LIGHT TYPE:	FF1	WHO	O	GS	KMW	SRC	KGS	FX	UNO	4ALL	DRA	SM	SPO	RAWL-NUT	KPU	LSM	ODBK
		FRAME FIXINGS	FRAME SCREW	FRAME ANCHORS	CEILING WEDGE ANCHOR	METAL HAMMER FIXING	BRASS EXPANSION FIXING	LIGHTWEIGHT BLOCK ANCHOR	HAMMER-IN FIXINGS	UNIVERSAL PLUG	HIGH PERFROMANCE NYLON PLUG	SELF-DRILL PLASTERBOARD FIXING	INTERSET CAVITY FIXINGS	SPRING TOGGLE	FLEXI PLUG	SANITARY FIXINGS	STAIR-TREAD FIXINGS	DOOR-STOP FIXINGS
APPLICATIONS	STAIRS																V	
	HANDRAILS																	
	RADIATORS	V								V	V							
		V					V			V	V							
	TV BRACKETS	V									V							
	LIGHT SHELVES	V	V							V	V		V					
	SANITARY INSTALLATION															V		
	BATHROOM FITTINGS					V		V	V	V	V	V	V	V	V	V		
	TOWER RAILS							V	V	V	V	V	V	V	V			
	LIGHTING	V				V		V	V	V	V	V	V	V	V			

		FRAME FIXINGS	FRAME SCREW	FRAME ANCHORS	CEILING WEDGE ANCHOR	METAL HAMMER FIXING	BRASS EXPANSION FIXING	LIGHTWEIGHT BLOCK ANCHOR	HAMMER-IN FIXINGS	UNIVERSAL PLUG	HIGH PERFROMANCE NYLON PLUG	SELF-DRILL PLASTERBOARD FIXING	INTERSET CAVITY FIXINGS	SPRING TOGGLE	FLEXI PLUG	SANITARY FIXINGS	STAIR-TREAD FIXINGS	DOOR-STOP FIXINGS
																		
	LIGHT TYPE:	FF1	WHO	O	GS	KMW	SRC	KGS	FX	UNO	4ALL	DRA	SM	SPO	RAWL-NUT	KPU	LSM	ODBK
APPLICATIONS						V		V	V	V	V	V		V	V			
						V		V	V	V	V	V	V	V	V			
						V		V	V	V	V	V	V	V	V			
					V	V				V	V	V	V		V			
	PLINTS							V	V	V		V			V			
										V	V	V	V	V	V			
						V		V	V	V	V	V	V	V	V			
	PICTURES					V		V	V	V	V	V	V	V	V			
	WALL SHELVES					V		V	V	V	V	V	V	V	V			
	DOOR STOP																	V

Lightweight Fixings

APPLICATIONS		FRAME FIXINGS	FRAME SCREW	FRAME ANCHORS	CEILING WEDGE ANCHOR	METAL HAMMER FIXING	BRASS EXPANSION FIXING	LIGHTWEIGHT BLOCK ANCHOR	HAMMER-IN FIXINGS	UNIVERSAL PLUG	HIGH PERFROMANCE NYLON PLUG	SELF-DRILL PLASTERBOARD FIXING	INTERSET CAVITY FIXINGS	SPRING TOGGLE	FLEXI PLUG	SANITARY FIXINGS	STAIR-TREAD FIXINGS	DOOR-STOP FIXINGS
	LIGHT TYPE:	FF1	WHO	O	GS	KMW	SRC	KGS	FX	UNO	4ALL	DRA	SM	SPO	RAWL-NUT	KPU	LSM	ODBK
CLADDING		V																
TEMPORARY WORKS			V															
RAINSCREENS		V	V		V				V									
SHUTTERS		V	V	V														
MASONRY SUPPORT		V																
SATELITE DISHES		V						V	V	V	V					V	V	V
KITCHEN UNITS		V	V								V							
DRYWALL											V	V	V	V	V			
LIGHTTING		V	V						V		V	V						
COURTAINS		V	V		V						V		V					

Overview of our range

FRAME FIXINGS

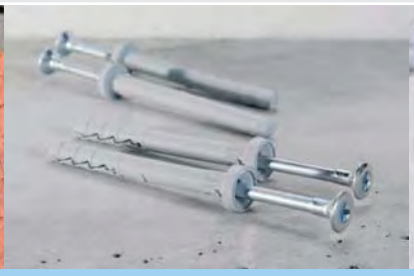
FRAME FIXINGS	FRAME SCREW	FRAME ANCHORS
Universal frame fixing for installation of door and window frames and many more applications	Frame screw for quick and easy window & door installation in concrete, perforated brick, solid brick and aerated block	Metal frame anchor for distortion-free fixing of metal frames, directly through the fixture into the substrate
		
FEATURES & BENEFITS:		
▪ The countersunk plug for flush fixing of soft material (eg. timber) ▪ The plug is collared for fixing of hard materials such as steel ▪ Specially-formulated Ultramid nylon allows best performance installation for use in all base material categories according to ETAG 020 (A, B, C, D) ▪ Internal plug geometry designed to fit the screw head and ensure multi-axis expansion ▪ A4 stainless steel offers improved load-bearing capacities (relative to standard carbon steel) ▪ Special zinc flake corrosion-resistant coating ▪ Embedment depth markings facilitate precise installation ▪ Plug design ensures multi-axis expansion	▪ Cylinder head for flush installation with the window and door frames. ▪ Flat head for metal window and door frames ▪ No additional plugs required ensuring quick and simple installation ▪ Expansion-free fixing imposes less stress on substrate during installation ▪ Easily for temporary works	▪ Metal sleeve design guards against distortion of the frame ▪ Anti-rotation lugs ensure quick and easy installation ▪ Quick and easy installation. ▪ Cover caps available separately for discreet installations
FRAME FIXINGS AVAILABLE:		
FF1-L , FF1-K	WHO, WHS	O

LIGHTWEIGHT METAL FIXINGS

CEILING WEDGE ANCHOR	METAL HAMMER FIXING	BRASS EXPANSION FIXING	LIGHTWEIGHT BLOCK ANCHOR
All steel anchor for fixing lightweight ceilings and suspended ceilings to solid building materials	Lightweight metal anchor consisting of a zinc alloy expanding body with hammer-in steel pin. For light duty fastenings in concrete and masonry	Brass anchor for medium loads suitable for all screws and studs with a metric thread	Steel fixing giving good performance in the most challenging base materials, especially light weight blocks and aerated concrete blocks
			
FEATURES & BENEFITS:			
▪ Reliable installation with high safety in use due to simple visual check ▪ Approved for installation in cracked and non cracked concrete ▪ Fire resistance class A1 ▪ Hammer set for fast and simple installation	▪ Low-profile mushroom head provides clean finish and tamper proof fastening ▪ Hammer set, no setting tool required ▪ Designed for easy push-through fastenings, even in bottomless holes	▪ All brass construction for corrosion resistance ▪ Shallow embedment reduces drilling time ▪ Internal thread suitable for all metric thread screws	▪ Suitable for overhead applications ▪ Fire resistant class A1
LIGHTWEIGHT METAL FIXINGS AVAILABLE:			
GS	KMW	TM	KGS

Overview of our range

HAMMER-IN FIXINGS

HAMMER-IN FIXINGS WITH CYLINDER HEAD	HAMMER-IN FIXING WITH MUSHROOM HEAD	HAMMER-IN FIXING WITH COUNTERSUNK HEAD
The hammer fixing for fast, simple, cost-effective installations		
		

FEATURES & BENEFITS:

- Rapid hammer-set installation reduces the time required and allows for cost-effective, high-volume installation
- Combination of Phillips recess and the helical thread makes removal of the nail possible, facilitating disassembly when necessary
- The extensive range of lengths and diameters ensures availability of the correct fixing for every application
- Designed for push-through installation
- Nylon material for highest quality

HAMMER-IN FIXINGS AVAILABLE:

FX-N-C	FX-N-K	FX-N-L

PLASTIC PLUG

UNIVERSAL PLUG	HIGH PERFORMANCE NYLON PLUG	TRADITIONAL PLASTIC PLUG
Truly universal plug which fixes into any base material, solid or hollow with unique expansion at the top giving instant grip	High performance universal nylon plug which expands in solid materials and forms a reliable knot formation in all cavities	Easy-to-install plugs available with screws, eye screws and hooks giving exceptional performance in solid base materials
		

FEATURES & BENEFITS:

▪ Unique geometry guarantees maximum expansion and grip. ▪ Instant grip resulting from split plug design. ▪ Anti-rotation features prevent spinning in the hole. ▪ Lip prevents plug slipping into over-sized holes.	▪ Unique internal design provides positive grip for screws. ▪ Anti-rotational lugs promote grip in wide range of substrates including soft masonry materials. ▪ Rib detail at plug head provides added grip. ▪ Expanding section designed to collapse in hollow materials and provide positive grip behind surfaces. ▪ Unique 4 way expansion allowing application in any substrate material and type. ▪ Solid head design provides strength whilst plug is installed.	▪ Two-way expansion mechanism provides a strong anchorage in solid base materials. ▪ Small edge distances achievable.

PLASTIC PLUG PRODUCTS AVAILABLE:

UNO	4ALL	RIO, R-OLD

Overview of our range

PLASTERBOARD FIXING

SELF-DRILL PLASTERBOARD FIXING	INTERSET CAVITY FIXINGS	SPRING TOGGLE	PLASTIC TOGGLE
Self-drilling light-duty fixing for use in plasterboard sheets and gypsum fibreboards	Interset fixing for permanent anchorages in cavity walls	Spring toggle for cavity walls and large fixtures with pan head metric screw	Spring toggle for cavity walls and large fixtures with pan head metric screw
			
FEATURES & BENEFITS:			
▪ Large flange ensures correct clamping to plasterboard ▪ Short length ideally suited for dry lined walls ▪ Can be used in single and double thickness plasterboard ▪ Supplied complete with screw	▪ Wide range available to accommodate all thickness 2mm-30mm ▪ One piece stamping, with integral thread and flange for increased reliability ▪ Hinged legs designed to maximise load-bearing capacity in single or double thickness plasterboard. ▪ Fixtures can be removed and re-fitted ▪ Supplied complete with screw	▪ Supplied with fully threaded screw for wide range of applications ▪ High carrying capacity due to wide load bearing legs ▪ Allows easy installation for fastenings behind thick panels in very flat cavities	▪ Fixing body made of impact resistant co-polymer of polypropylene ▪ Available in combination with countersunk screw or angle hook. ▪ Light duty plasterboard fixing ▪ Fixtures can be removed and replaced for redecoration ▪ Quick and easy installation for household applications
PLASTERBOARD FIXINGS AVAILABLE:			
DRA, DRA-M	SM, SM-K, SN	SPO, SPO-K	GK, GL

SPECIAL FIXING

FLEXI PLUG	SANITARY FIXINGS	STAIR-TREAD FIXINGS	DOOR-STOP FIXINGS
Easy-to-install plug giving exceptional resistance to vibration and corrosion	Sanitary fixings giving exceptional performance in solid base materials	Stair-tread fixings for installation on concrete or steel staircase stringers	Doorstop to prevent damage to walls
			
FEATURES & BENEFITS:			
▪ Resistant to vibration and corrosion ▪ Ideal for unknown substrates and irregular or oversized holes ▪ Flush collar ensures secure clamping ▪ Made from synthetic rubber with a bonded brass insert for corrosion resistance	▪ Anti-rotation fins allow easy installation ▪ Engineered grip feature for extra holding power ▪ Two-way expansion mechanism provides a strong anchorage in solid base materials	▪ Short expansion element to work in all materials including narrow steel profiles ▪ Elastic shaft geometry absorbs vibration and prevents creaking ▪ Plastic washers are included to compensate for surface irregularities	▪ Concealed fixing element for aesthetic appeal ▪ Wide range of colours ▪ Small edge distances possible ▪ Elastic shaft geometry absorbs impact
SPECIAL FIXINGS AVAILABLE:			
R-RNT	KPU, KPM	LSB, LSM	FIX-ODBK

Introduction - Materials

The base material/substrate

Consideration of the base material (and its associated properties) is critical in the selection of an fixing or connector technology. It is therefore important to correctly define the material in order to ensure correct fixing installation without substrate damage, as well as safe and reliable subsequent performance under load.

Concrete


concrete

Concrete, in its standard form, is a compound of cement, aggregates and water. It usually possesses high compressive strength, while tensile strength is comparatively low.


lightweight concrete

Lightweight concrete is another derivative, in which case heavy aggregate is replaced by light additives like pumice, slag or Styrofoam. Due to the lower compressive strength of these materials, lightweight concrete shows lower strength parameters in general when compared to plain concrete.

This document presents anchor performance data for the following concrete grades: C20/25, C30/37, C40/50 and C50/60 (according to ENV 206 standard). In this format, the values before and after the oblique signify characteristic compressive strengths measured for cylinders (150mm diameter, 300mm height) and cubes (150mm edge), respectively.

The table below lists concrete compressive strengths traditionally applied in different countries.

Products suitable for use in cracked concrete:
FF1, WHO, GS, UNO, 4ALL

Grade CE	Characteristic compressive strength F_{ck} (cylinder)	Characteristic compressive strength F_{ck} (cube)	Great Britain	Germany	France	Poland
			Mean compressive strength, tested (150mm cube)	Mean compressive strength, tested (200mm cube)	Mean resistance, tested (cylinder 16×32cm)	PN-B-03264:2002
C12/15	12	15	20	19	17	B15
C16/20	16	20	25	24	21	B20
C20/25	20	25	30	29	25	B25
C25/30	25	30	35	33	30	B30
C30/37	30	37	42	40	35	B37
C35/45	35	45	50	48	40	B45
C40/50	40	50	55	54	45	B50
C45/55	45	55	60	57	50	B55
C50/60	50	60	65	62	55	B60

Masonry

Masonry walls are multi-layer substrates consisting of blocks of heterogeneous material, built in to the desired structure using mortar.

The compressive strength of the block material is usually higher than that of the mortar. Thus the connectors should, as a rule, be installed within the body of the block.

Blocks may take several forms:

- Solid blocks with compact structure. Blocks of various dimensions, without internal cavities, made from ceramic (ceramic or clinker bricks) or sand-lime (silica) materials. These possess relatively high compressive strength.
- Hollow blocks with compact structure. Blocks of various dimensions and shapes, with several internal cavities. Blocks possess reasonably low compressive strength, despite being made from relatively high compressive strength materials (ceramic or silica).
- Solid blocks with porous structure. Blocks of various dimensions, without internal cavities but with high concentrations of pores or inclusions of other materials. Examples include aerated concrete or solid blocks of lightweight concrete. Materials of this category possess low compressive strengths.
- Hollow blocks with porous structure. Similarly to solid porous blocks these elements have low compressive strength, weakened further by internal cavities. In most cases these blocks are made from lightweight concrete.

Products suitable for masonry and hollow walls:
FF1, UNO, 4ALL


solid brick (ceramic or silica)


lightweight concrete


hollow brick


hollow block

Introduction - Materials

Drywall

Drywall (also known as **plasterboard, wallboard, gypsum board, or LAGYP**) is basically an inner layer of gypsum sandwiched between two outer layers of lining paper including various additives in the gypsum layer and varying the weight and strength of the lining paper, will give the finished board different properties .

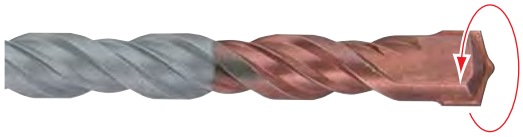
Glass-fibre reinforced gypsum board, is not made in the traditional way with lining paper. Instead, the boards are strengthened with layers of glass fibre immediately below each surface. This gives them good all-round performance, a high quality durable plaster finish, and enables them to be easily bent for use on curved structures. They are excellent for semi-exposed areas, such as soffits and the like.

Our full range of fixing products provide everything needed to fix wall lining, partition, floor and ceiling systems, regardless of the size and complexity of the project.
From screws specially designed for optimum fixing strength and reliability (Interset, Spring toggles, Self-drill fixings, ceiling wedge anchors); adhesives and jointing compounds that offer unique workability for predictable performance and maximum productivity on site; primer and sealer for board treatment prior to decoration, every component has been specially designed and fully tested to provide the perfect balance of durability in use and on-site productivity.

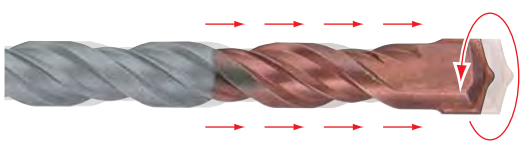
Drilling

The method of drilling a hole for the installation of an anchor depends on the type of substrate material. There are drilling techniques:

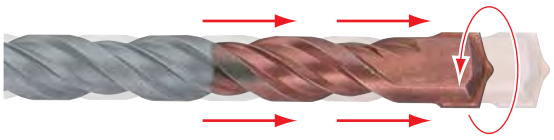
- rotary drilling – drilling by rotation and without percussion (or hammer action), recommended for drilling in materials of low mechanical strength such as bricks & aerated concrete due to the fact that it does not enlarge the hole, nor damage the structure of the material;



- percussive drilling – drilling by rotation with multiple light strikes with the drill bit into the substrate; recommended for drilling materials with high mechanical strength and solid structure such as concrete & solid brick;



- hammer drilling – drilling by rotation with a small number of high energy strikes with the drill bit into the substrate; recommended for drilling in extremely hard structures such as concrete;



A drill bit is a tool, which is subject to wear – its degree and frequency is a derivative of the hardness of the substrate material. The harder the substrate, the greater the wear of the drill bit. Be sure to monitor wear and replace the drill bit whenever necessary.

In the process of drilling a hole for embedding an anchor it is important to be aware of and achieve the correct diameter and depth of the hole.

After the drilling is finished it is essential to clear the hole of dust and drill debris. Failure to do this can be the cause of improper anchoring of the fastener in the substrate.

Introduction - Fixings installation

Fixings installation methods:

1. Push-through installation – convenient and time-efficient method, which allows user to drill and install directly through the fixture without marking out hole locations and pre-positioning anchors. If the fixture is pre-drilled then it may be used as a drilling template, before the anchors are installed directly through the clearance holes. RAWLPLUG® R-XPT, R-XPTII and R-HPTII throughbolt families are all examples of push-through fixings.

2. Pre-positioning installation – this method requires the installation of the anchors in the base material, before the fixture is moved into place. In this case the anchor diameter and the drill hole diameter are different. Our RAWLBOLT (R-RBP) and all bonded anchors are examples of products that require pre-positioning.

3. Stand-off installation – attachment of the fixture at an offset distance from the surface of the base material. One common offset application is the use of internally threaded anchors with long rods, studs or bolts. The anchor is installed in the base material before assembling with threaded rod or bolt. The RAWLPLUG® internally threaded wedge anchors - R-DCA, R-DCA-A4 & R-DCL - may be used for stand-off applications.

Fixings spacing and edge distances

Due to the expansion forces induced by the functioning of anchorage connections, the following parameters shall be taken into account while determining load bearing capacity for a particular product:

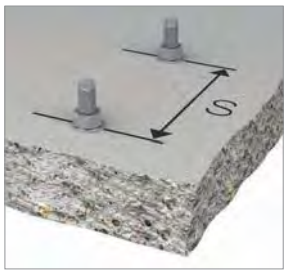
- thickness of base material (determined by fixing's effective embedment depth h_{ef})
- spacing of anchored joints (s)
- distance of connections from the edge (c_1, c_2) and corners (c_3) of the base material.

Overlapping of tension cones of neighbouring anchorages in concrete reduces the load bearing capacity of such fasteners.

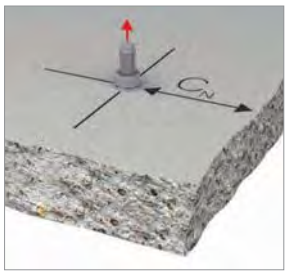
Introduction - Fixings installation/Corrosion

Reduction of fixings spacing and edge distances
In some cases the anchor spacing and distance from edges and corners can be reduced. Such a reduction will impact the anchor's load bearing capacity and, in order to account for the impact, one or more reduction factors will have to be applied.

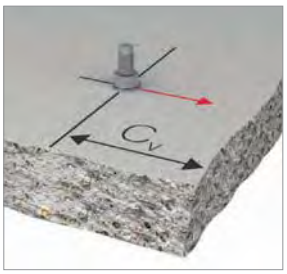
Effective embedment of fixing h_{ef}
For each connection the minimum fixing depth is determined, which ensures safe load resistance. Some types of anchors can be fixed at greater depth, which increases the load bearing capability (R-SPL, in particular). For more information, please contact RAWLPLUG® technical consultant.



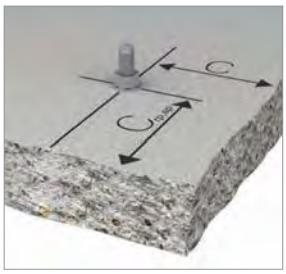
Reduction factors related to the fixing spacing: fs



Reduction factor related to the distance c_N of the fixing from the edge, in cases where load is not being applied towards a free edge: fc_N



Reduction factor related to the distance c_V of the fixing from the edge, in cases where load is being applied towards a free edge: fc_V



Reduction factor related to the distance $c_{cr,sp}$ of the fixing from a corner: $fc_{cr,sp}$

Protection layers prevent from corrosion

Corrosion causes gradual degradation of steel elements leading to crumbling and loss of technical parametres, exposing user to risk or damage during exploitation. Therefore one of the key parameters demanded from Rawlplug products is the highest quality of anti-corrosion protection.

Care for the quality of final product requires constant supervision of the coating process on its every stage. In our factory, there is an infrastructure providing any kind of anti-corrosion protection accordingly to requirements of specification from the customer. Wide range of anti-corrosion protections offered by Rawlplug and technological processes accompanying them guarantee the highest quality of final product.

Introduction - Corrosion

Classification of protection coatings

Basing on the ingredients, following types of coatings can be distinguished:

Metallic coatings

a) Electrolytic – zinc
b) Non-electrolytic
- Zinc-flake system (Geomet / Deltatone)
- Galvanizing

Non-metallic coating

a) Thermal blackening
b) Oxidising
c) Phosphorizing

Organic coatings

a) Delta-Seal
b) Magni
d) KTL (cathodic immersion painting)

Multi-layer coatings

Covering metallic coatings with anti-corrosion organic layers

During preparation of the specification of a product it has to be kept in mind that use of CR(VI) in protection coating needs to be limited. Accordingly to EU Parliament and European Council directive it is prohibited to use hexavalent chromium Cr(VI) as anti-corrosion coating in any car, that would be allowed for sale after the 1st of July, 2007.

Accordingly to the directive, the same restriction applies to any electro-mechanic and electronic industry products since 1st of July, 2006. Trend of limiting use of CR(VI) spreads among industries and development areas.

Characteristic of Rawlplug Coatings

1. Electrolytic zinc coatings

Universal standard
Various options of use

So far, galvanic zinc-plating is a standard for most of lightweight fixings. Electrolytic zinc plating is qualified as protection, therefore aiming only to protect metal from the corrosion.

Anodic dissolution of zinc plating on a metal allows protection of the substrate. Therefore it is easy to realize, that the thicker the layer of zinc plating, the longer it can protect a covered surface.

In order to determine average time of efficient protection provided by zinc plating (presuming the coating does not contain damages) both the thickness of layer has – averagely 5 to 30 micrometers, and kind of natural atmosphere, in which the product will be used, have to be known. There are 4 kinds of natural atmospheres, for which we can disclose different speed of corrosion of the zinc coating:

- **Industrial** – corrosion speeds equals 5-7 micrometers per year,
- **Urban** – corrosion speed equals 3-5 micrometers per year,
- **Coastal**– corrosion speed equals 3-7 micrometers per year,
- **Rural** – corrosion speed equals 1-2 micrometers per year.

Average speeds of corrosion described above do not include specific agents acting locally.

Introduction - Corrosion

2. Zinc flaked coating placed non-electrolytically

Very good corrosion resistance
Elimination of hydrogen embrittlement

Zinc-flaked coatings

Flaked zinc-aluminum coatings have gained worldwide recognition in specialist automotive, aviation and construction industry. Various base products and surface paints of numerous characteristic are used, among others, on fixings and pressed elements. They meet high requirements of industrial use. Organic and non-organic surface coating were improved due to specific characteristic of lamellar zinc coatings. Connection of base and surface coating meets majority of requirements of industry, which could not be met before.

Zinc coating applied non-electrolytically finds broad use in industry, due an extraordinary anticorrosion characteristic (resistance for salt fog far above 1000 hours, accordingly to PH-EN ISO 9227), very good thermal resistance, option of choosing demanded friction parameter and possibility to use modern methods of application. Non-electrolytically applied zinc-flake plating are one of the most advanced methods of anti-corrosion protection.

Zinc coating contains mainly a mix of zinc and aluminum (usually with 95:5 ratio), binder conducting electricity and depending on the needs, integrated lubricant in order to correct the friction factor.

Non-electrolytically applied zinc-flake plating:

- Does not contain harmful substances – not just chromium, but also lead and cadmium;
- Has exceptional resistance for high temperature;
- Provides outrageous mechanical and chemical resistance
- Does not present hydrogen embrittlement
- Allows to provide necessary friction parameter
- Can be placed with popular methods such as dipping, whirling or spraying,
- Is ecologic – meets requirements of environmental norms in automotive industry and European Directive nr 2000/53/WE regarding cars withdrawn from use.

Basic layers

Main goal of using basic layers is protect steel substrate from corrosion by active dissolution of zinc. As zinc is less rare than steel, it corrodes first, when two metals are in electric contact. When the coating becomes scratched, zinc corrodes instead of steel. Such situation occurs as long as entire matrix is not destroyed. Zinc is incorporated into the surface as small flakes of few micrometres thickness.
Small dimensions of the flakes allows reaching very thin layers of ca. 4 µm. The flakes touch each other, as a result creating a layer working as zinc matrix. In order to reach level

of protection comparable to conventional plating containing chrome (VI), surface plating is put on basic zinc layers, not containing chromium, as supplement.

Surface plating

Surface plating should protect metal (iron, steel) from corrosion. Corrosion process is quickened by the presence of environmental water (air humidity, environment influence etc.). So that surface coating creates bareer isolating metal from corrosion agents.
Surface coating extends the duration of electrochemical activity of zinc coating, thus increasing the durability of protection. Temperature of hardening of surface layer meets levels of base lacquers.

Initial parts processing

Coatings, as in case of most applications are put on clean, dry clear of dust and fat steel surfaces. Depending on the history, aim and geometry of a part there are various kinds of initial processing used.

Introduction - Corrosion

Methods of placing coatings

Dipping and whirling

Elements with large area of coating are usually covered using dipping method. Elements are placed in a basket. Basket is dipped in special tank. Paint covers whole surface of the elements. Move caused by slow twist of the basket can improve the process of painting and lead to removal of air bubbles.

Once applied, the coating needs to be hardened. There are several parametres influencing dipping process. The most important of them are: time of immersion, speed of whirling, time of whirling and size of the load.

Dipping

Immersion in the paint and drying, whilst keeping recommended conditions is particularly beneficial in case of parts with unique geometry, such as screws, bolts or more complicated elements.

Hardening

Coating hardening is an obligatory step regardless of the technique of applying. Hardening of the coating is performed in different stoves. Painted elements are transferred from the basket to the stove on a slowly moving band.

First part of the stove is the so called, evaporation zone, in which the dissolvent, or water in case of water systems evaporates in the temperature of ca. 80-100*C. Consecutively, coatings are hardened in particular temperature, depending on paint used. Once hardened, elements are cooled down to 25* or less.

Introduction - Corrosion

Choosing optimum protecting layer

Having a wide variety of anti-corrosion protections it is essential to optimize choice towards particular application of a product. Taking care of proper quality and cost ratio our R&D department optimizes quality of coatings adequately to specification of product provided by the client. The chart below presents differences in resistance of protections, guaranteed by Rawlplug coatings.

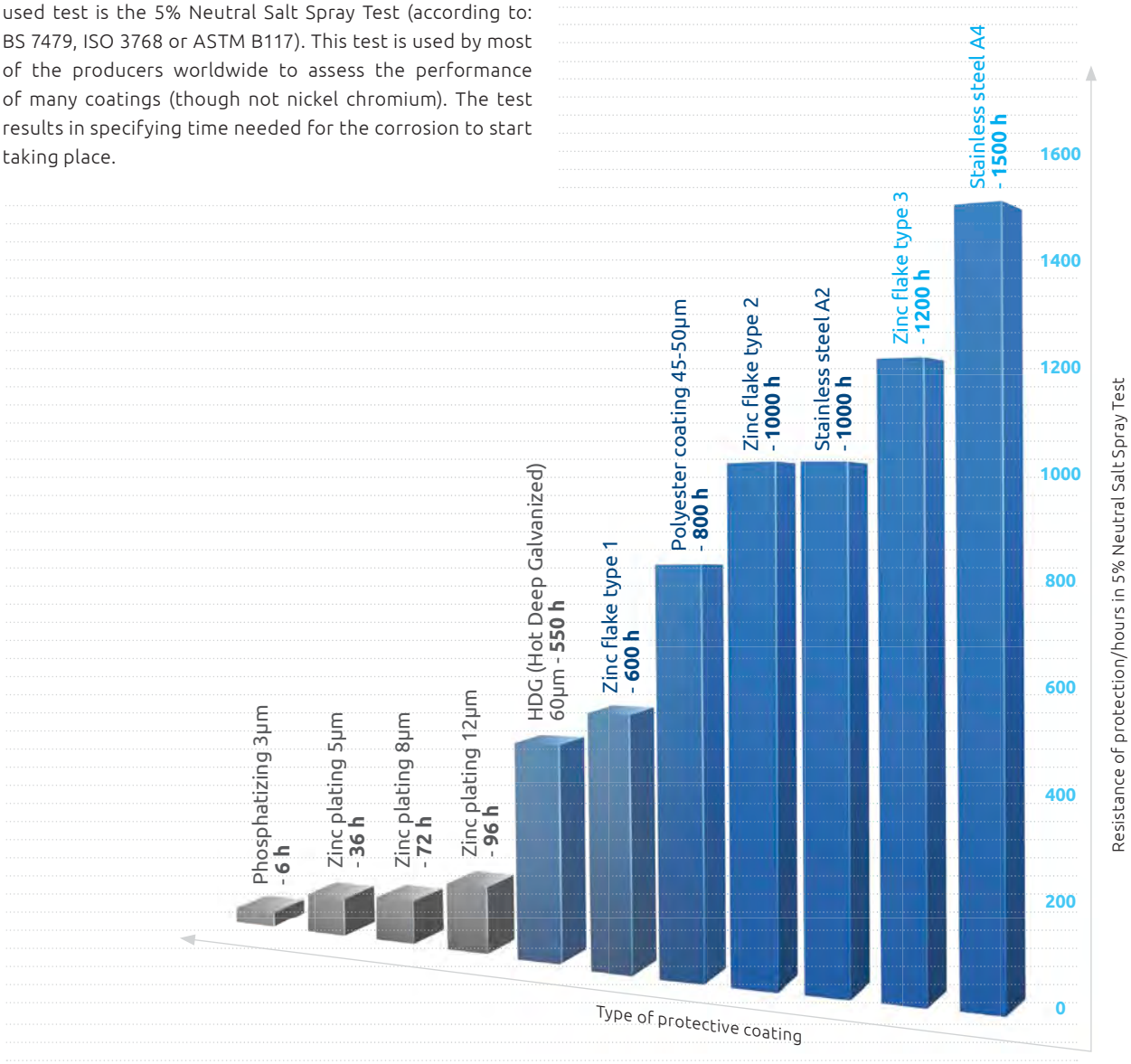
Increased speed corrosion examination

Increased speed corrosion examinations are performed to present the differences between quality of particular coatings. Thus giving an idea as to the relative performance of different coatings. They are also used as a "quick" test for quality control purposes. Even though latest advanced coatings are lasting for 500- 1000 hours in accelerated tests, making the tests not so quick. The most commonly used test is the 5% Neutral Salt Spray Test (according to: BS 7479, ISO 3768 or ASTM B117). This test is used by most of the producers worldwide to assess the performance of many coatings (though not nickel chromium). The test results in specifying time needed for the corrosion to start taking place.

Other corrosion tests are:

- Kesternich – examination performed in sulphur dioxide fog.
- A.S.S. Acetic Acid Salt Spray BS 7479 ISO 3769.
- C.A.S.S. Copper Accelerated Acetic Acid Salt Spray (BS 7479, ISO 3770). A fairly aggressive test used mostly for nickel chromium coatings.

Ingredients of the coatings are chosen accordingly to it's desired mechanical parametres, malleability, plasticity, resistance capacity, etc. Consecutive layers made of various materials deliver protection and extend longevity during exposure for harmful agents. Protective coating often has to deliver more than one parameter to provide proper resistance. In order to achieve that, it consists of numerous different layers providing a variety of attributes.



Introduction - Corrosion

Powder coatings

Offer versatility of use due to possibility of achieving coating with various level of shining in wide variety of structures, entire RAL palette and special dedicated colours MTO such as NCS, RR.

Lacquer powder coating Rawlplug delivers following characterisitcs:

- Perfectly fits the colour of fixed element
- High anti-corrosion resistance - one application of powder paint provides thickness comparable with 3 layers of dissolvent paint,
- Contains UV stabilizators, which guarantee constant color over long-term exploitation
- Is disguised by high installation toughness – entire hardness of paint is achieved after just 1 hour from completion of hardening process
- Elasticity and very good mechanical characteristics – smooth surface with no cavity, bulbs, cracks, blisters, etc.
- Option to paint without priming
- High chemical and thermal resistance (for temperatures up to 100*C)

Powder lacquering is a modern technology, allowing to create even and resistant surface. Paint in the form of powder is placed on metal fixing elements and thermally hardened afterwards.

Rawlplug protection coating quality control

In order to provide the highest quality of our products, from every basket set are taken few units to control their quality and thickness of their coating. The examination is performed with daltoscopes and special tests.

In order to receive 100% control of quality, everyday examinations include concentration and parametres of processes, particularly tests are performed in chemical laboratory. Rawlplug factory cooperates with world class selected suppliers of ingredients and chemical coatings and science institutes which help us in constant pursuit to surpass the expectations of customers towards resistance coatings of Rawlplug Lightweight fixings.

Introduction - Terminology & symbols

The notations and symbols frequently used in catalogue are given below. Further notations are given in the text.

Indices

c	Concrete
cp	Concrete pry-out
d	Design value
k	Characteristic value
M	Material
p	Pull-out
R	Resistance
s	Steel
S	Action
sp	Splitting
u	Ultimate
y	Yield

Loads

N	Normal force (positive: tension load, negative: compression load)
N_{Rk}	Characteristic value of resistance of a single anchor or an anchor group (tension load)
$N_{Rk,p}$	Characteristic resistance in case of failure by pull-out (tension load)
$N_{Rk,c}$	Characteristic resistance in case of concrete cone failure (tension load)
$N_{Rk,s}$	Characteristic resistance of an anchor in case of steel failure (tension load)
N_{Rd}	Design value of resistance of a single anchor or an anchor group (tension load)
$N_{Rd,p}$	Design resistance of an anchor in case of failure by pull-out (tension load)
$N_{Rd,c}$	Design resistance for an anchor or an group of anchors in the case of concrete cone failure (tension load)
$N_{Rd,s}$	Design resistance of an anchor in case of steel failure (tension load)
V	Shear force
V_{Rk}	Characteristic resistance of a single anchor or an anchor group (shear load)
$V_{Rk,c}$	Characteristic resistance in case of concrete edge failure (shear load)
$V_{Rk,cp}$	Characteristic resistance in case of failure by pry-out (shear load)
$V_{Rk,s}$	Characteristic resistance in case of steel failure (shear load)

Safety factors

γ_{Mc}	Partial safety factor for concrete cone failure
γ_{Ms}	Partial safety factor for steel failure

Concrete and steel (mechanical properties)

f_{yk}	Characteristic steel yield strength (nominal value)
f_{uk}	Characteristic steel ultimate tensile strength (nominal value)
A_s	Stressed cross-sectional area of steel
W_{el}	Elastic section modulus calculated from the stressed cross-sectional area of steel
$M^0_{Rk,s}$	Characteristic bending resistance of an individual anchor
M	Allowable bending moment

Characteristic values of anchors

c	Edge distance
c_N	Edge distance (tensile resistance)
c_V	Edge distance (shear resistance)
c_{cr}	Edge distance for ensuring the transmission of the characteristic resistance
$c_{cr,N}$	Edge distance for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects.
$c_{cr,V}$	Edge distance for ensuring the transmission of the characteristic shear resistance of a single anchor without spacing and edge effects.
c_{min}	Minimum allowable edge distance
d	Diameter of anchor bolt or thread diameter
d_f	Drill hole diameter in fixture
d_0	Drill hole diameter in substrate
h	Thickness of substrate
h_{min}	Minimum thickness of substrate
h_{ef}	Effective anchorage depth
h_{nom}	Embedment depth
h_0	Minimum drilled hole depth
k	Factor to be taken from the relevant ETA (pry-out failure)
L	Anchor length
s	Spacing of anchors in a group
s_{cr}	Spacing for ensuring the transmission of the characteristic resistance
s_{min}	Minimum allowable spacing
$s_{cr,N}$	Spacing for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects.
t_{fix}	Fixture thickness
T_{inst}	Installation torque

Approved Body Symbols

ETA	European Technical Approval
CE	CE Marking
	Building Research Institute (Poland, Warsaw)
B	Building sign
	Resistance to fire exposure
FM	FM Approved

FRAME FIXING

- FF1
- KKS-R
- WHO/WHS
- O
- KO

FF1 Nylon frame fixing

Universal frame fixing for many applications

Approvals and Reports

- ETA-12/0398

Versions

- Stainless steel
- Delta-tone coating
- Zinc-plated steel

Installation movie

Product information

Features and benefits

- The countersunk plug for flush fixing of soft material (eg. timber)
- Collared plug for fixing hard materials (eg. steel)
- Specially-formulated Ultramid nylon allows best performance installation for use in all base material categories according to ETAG 020 (A, B, C, D)
- Internal plug geometry designed to fit the screw head and ensures multi-axis expansion
- A4 Stainless steel screw version for the highest corrosion resistance and outdoor applications
- DT Unique zinc-flake coated screw version for applications where basic zinc-plated screw is not enough
- Embedment depth markings facilitate precise installation

Applications

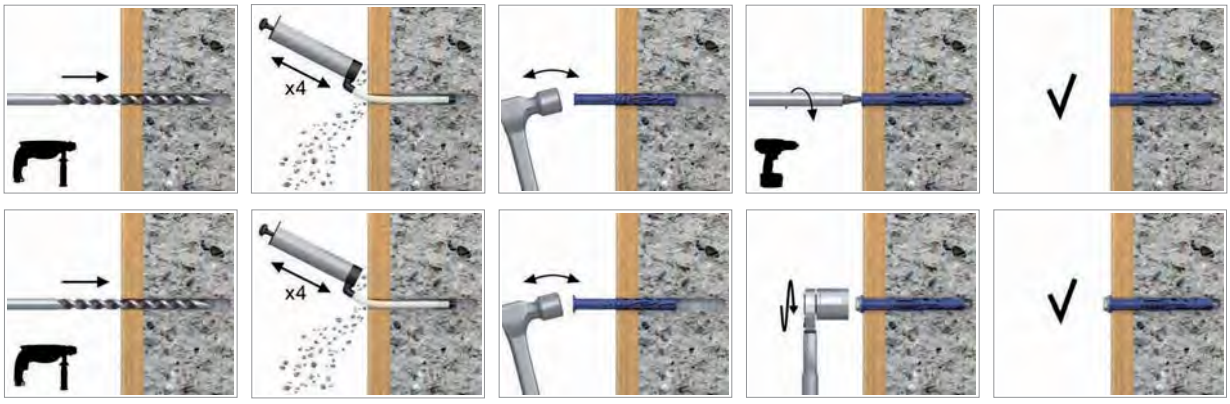
- Door and window frames
- Garage doors
- Gates
- Industrial doors
- Facade (substructures made of wood and metal)
- Wall cabinets
- Satelite dishes
- Shelves
- Handrails
- Cable trays
- Gates, wickets, fences
- Trunking

Base materials

Approved for use in:

- Concrete
- Hollow-core Slab
- Solid Brick
- Solid Sand-lime Brick
- Vertically-perforated clay block
- Hollow Sand-lime Brick
- Aerated Concrete Block

Installation guide

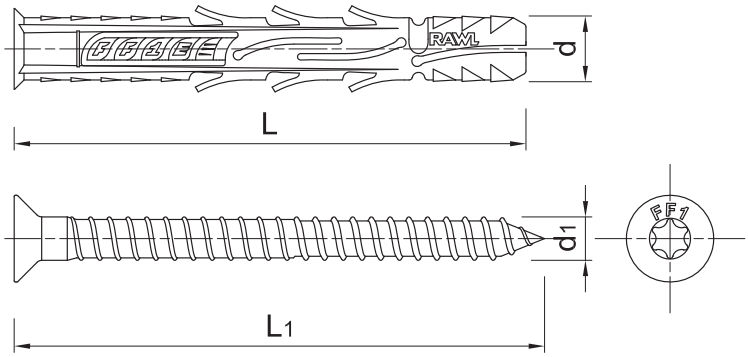


Installation guide (cont.)

1. Drill a hole of required diameter and depth
2. With a hammer, lightly tap the plug through the fixture into hole until fixing depth is reached
3. Tighten the FF1 screw

Product information

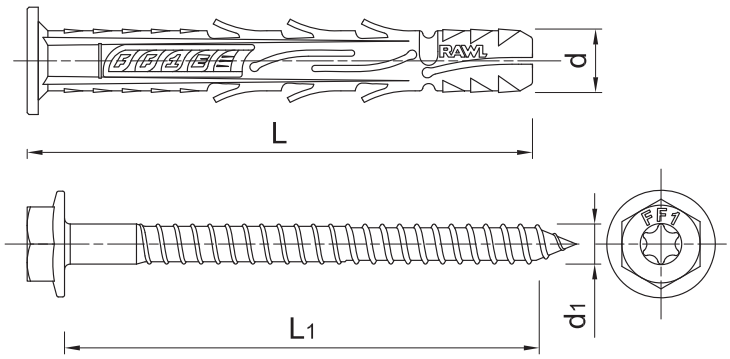
COUNTERSUNK VERSION



Size	Product Code	Plug		Screw		Fixture		
		Diameter	Length	Diameter	Length	Max. thickness		Hole diameter
		d	L	d_1	L1	t_{fix} 50	t_{fix} 70	d_f
		[mm]						
FF1-N Frame Fixing countersunk - Stainless Steel								
Ø10	R-FF1-N-10L080-A4	9.8	80	7	89	30	10	10
	R-FF1-N-10L100-A4	9.8	100	7	109	50	30	10
	R-FF1-N-10L120-A4	9.8	120	7	129	70	50	10
	R-FF1-N-10L140-A4	9.8	140	7	149	90	70	10
	R-FF1-N-10L160-A4	9.8	160	7	169	110	90	10
	R-FF1-N-10L200-A4	9.8	200	7	209	150	130	10
	R-FF1-N-10L240-A4	9.8	240	7	249	190	170	10
	R-FF1-N-10L300-A4	9.8	300	7	309	250	230	10
FF1-N Frame Fixing countersunk - Delta Tone								
Ø10	R-FF1-N-10L080/DT	9.8	80	7	89	30	10	10
	R-FF1-N-10L100/DT	9.8	100	7	109	50	30	10
	R-FF1-N-10L120/DT	9.8	120	7	129	70	50	10
	R-FF1-N-10L140/DT	9.8	140	7	149	90	70	10
	R-FF1-N-10L160/DT	9.8	160	7	169	110	90	10
	R-FF1-N-10L200/DT	9.8	200	7	209	150	130	10
	R-FF1-N-10L240/DT	9.8	240	7	249	190	170	10
	R-FF1-N-10L300/DT	9.8	300	7	309	250	230	10
FF1-N Frame Fixing countersunk - Zinc Plated								
Ø10	R-FF1-N-10L080	9.8	80	7	89	30	10	10
	R-FF1-N-10L100	9.8	100	7	109	50	30	10
	R-FF1-N-10L120	9.8	120	7	129	70	50	10
	R-FF1-N-10L140	9.8	140	7	149	90	70	10
	R-FF1-N-10L160	9.8	160	7	169	110	90	10
	R-FF1-N-10L200	9.8	200	7	209	150	130	10
	R-FF1-N-10L240	9.8	240	7	249	190	170	10
	R-FF1-N-10L300	9.8	300	7	309	250	230	10

Product information (cont.)

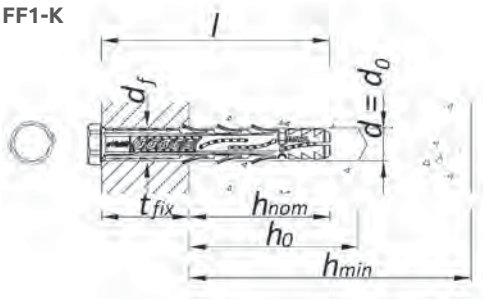
HEX HED VERSION WITH COLLARED PLUG



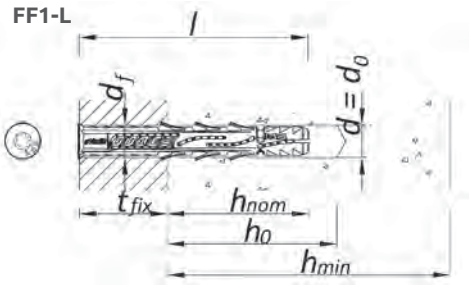
Size	Product Code	Plug		Screw		Fixture		
		Diameter	Length	Diameter	Length	Max. thickness		Hole diameter
		d	L	d_1	L1	t_{fix} 50	t_{fix} 70	d_f
		[mm]						
FF1-N-K Frame Fixing with collar - Stainless Steel								
Ø10	R-FF1-N-10K080-A4	9.8	80	7	89	30	10	10
	R-FF1-N-10K100-A4	9.8	100	7	109	50	30	10
	R-FF1-N-10K120-A4	9.8	120	7	129	70	50	10
	R-FF1-N-10K140-A4	9.8	140	7	149	90	70	10
	R-FF1-N-10K160-A4	9.8	160	7	169	110	90	10
	R-FF1-N-10K200-A4	9.8	200	7	209	150	130	10
	R-FF1-N-10K240-A4	9.8	240	7	249	190	170	10
	R-FF1-N-10K300-A4	9.8	300	7	309	250	230	10
FF1-N-K Frame Fixing with collar - Delta Tone								
Ø10	R-FF1-N-10K080/DT	9.8	80	7	89	30	10	10
	R-FF1-N-10K100/DT	9.8	100	7	109	50	30	10
	R-FF1-N-10K120/DT	9.8	120	7	129	70	50	10
	R-FF1-N-10K140/DT	9.8	140	7	149	90	70	10
	R-FF1-N-10K160/DT	9.8	160	7	169	110	90	10
	R-FF1-N-10K200/DT	9.8	200	7	209	150	130	10
	R-FF1-N-10K240/DT	9.8	240	7	249	190	170	10
	R-FF1-N-10K300/DT	9.8	300	7	309	250	230	10
FF1-N-K Frame Fixing with collar - Zinc Plated								
Ø10	R-FF1-N-10K080	9.8	80	7	89	30	10	10
	R-FF1-N-10K100	9.8	100	7	109	50	30	10
	R-FF1-N-10K120	9.8	120	7	129	70	50	10
	R-FF1-N-10K140	9.8	140	7	149	90	70	10
	R-FF1-N-10K160	9.8	160	7	169	110	90	10
	R-FF1-N-10K200	9.8	200	7	209	150	130	10
	R-FF1-N-10K240	9.8	240	7	249	190	170	10
	R-FF1-N-10K300	9.8	300	7	309	250	230	10

Installation data

FF1-K



FF1-L



Embedment depth			Embedment depth 50 mm	Embedment depth 70 mm
Fixing diameter	d	[mm]	9.8	9.8
Hole diameter in substrate	d_0	[mm]	10	10
Min. hole depth in substrate	h_0	[mm]	60	80
Installation depth	h_{nom}	[mm]	50	70
Min. substrate thickness	h_{min}	[mm]	100	115
Min. spacing	s_{min}	[mm]	90	200
Min. edge distance	c_{min}	[mm]	80	100

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Concrete C12/15	Concrete C20/25	Solid brick min. 50MPa	Sand-lime brick min. 30MPa	Hollow clay block min. 7.5MPa	Hollow brick min. 15MPa	Hollow brick min. 12MPa	Sand-lime hollow block min. 20MPa	Hollow lightweight concrete min. 2MPa	Perforated brick MAX	Perforated brick PW25	Autoclaved aerated concrete AAC 2	Autoclaved aerated concrete AAC 6
MEAN ULTIMATE LOAD $F_{Ru,m}$														
Ø10, Embedment depth 50 mm	[kN]	-	3.35	-	3.07	-	-	-	-	-	-	-	-	-
Ø10, Embedment depth 70 mm	[kN]	-	-	9.95	-	1.02	1.04	1.24	4.50	1.22	2.13	2.07	0.56	1.73
CHARACTERISTIC LOAD F_{Rk}														
Ø10, Embedment depth 50 mm	[kN]	0.90	1.50	-	1.20	-	-	-	-	-	-	-	-	-
Ø10, Embedment depth 70 mm	[kN]	-	-	4.50	-	0.60	0.60	0.60	2.00	0.60	0.90	0.90	0.30	0.90
DESIGN LOAD F_{Rd}														
Ø10, Embedment depth 50 mm	[kN]	0.50	0.83	-	0.48	-	-	-	-	-	-	-	-	-
Ø10, Embedment depth 70 mm	[kN]	-	-	1.80	-	0.24	0.24	0.24	0.80	0.24	0.36	0.36	0.15	0.45
RECOMMENDED LOAD F_{rec}														
Ø10, Embedment depth 50 mm	[kN]	3.60	0.60	-	0.34	-	-	-	-	-	-	-	-	-
Ø10, Embedment depth 70 mm	[kN]	-	-	1.29	-	0.17	0.17	0.17	0.57	0.17	0.26	0.26	0.11	0.32

Product commercial data

Size	Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
FF1-N Frame Fixing countersunk - Stainless Steel												
Ø10	R-FF1-N-10L080-A4	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675079165
	R-FF1-N-10L100-A4	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675079172
	R-FF1-N-10L120-A4	9.8	120	7	129	25	400	9600	1.55	24.8	625.2	5906675079189
	R-FF1-N-10L140-A4	9.8	140	7	149	25	300	7200	1.22	14.7	382.5	5906675079196
	R-FF1-N-10L160-A4	9.8	160	7	169	25	300	7200	1.56	18.7	479.3	5906675079202
	R-FF1-N-10L200-A4	9.8	200	7	209	25	25	7800	1.90	1.90	622.8	5906675039152
	R-FF1-N-10L240-A4	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675039169
	R-FF1-N-10L300-A4	9.8	300	7	309	10	10	40800	1.08	1.08	4416.0	5906675039176

Product commercial data (cont.)

Size	Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
	FF1-N Frame Fixing countersunk - Delta Tone											
Ø10	R-FF1-N-10L080/DT	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675039015
	R-FF1-N-10L100/DT	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675039022
	R-FF1-N-10L120/DT	9.8	120	7	129	25	400	9600	1.55	24.8	625.2	5906675039039
	R-FF1-N-10L140/DT	9.8	140	7	149	25	300	7200	1.41	16.9	435.2	5906675039046
	R-FF1-N-10L160/DT	9.8	160	7	169	25	300	7200	1.56	18.7	479.3	5906675039053
	R-FF1-N-10L200/DT	9.8	200	7	209	25	25	7800	1.90	1.90	622.8	5906675039060
	R-FF1-N-10L240/DT	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675039077
	R-FF1-N-10L300/DT	9.8	300	7	309	10	10	40800	1.08	1.08	4416.0	5906675039084
	FF1-N Frame Fixing countersunk - Zinc Plated											
Ø10	R-FF1-N-10L080	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675266909
	R-FF1-N-10L100	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675266916
	R-FF1-N-10L120	9.8	120	7	129	25	300	7200	1.55	18.6	476.4	5906675266923
	R-FF1-N-10L140	9.8	140	7	149	25	300	7200	1.22	14.7	382.5	5906675266930
	R-FF1-N-10L160	9.8	160	7	169	25	25	5250	1.56	1.56	357.6	5906675266947
	R-FF1-N-10L200	9.8	200	7	209	25	25	2250	1.90	1.90	201.0	5906675033983
	R-FF1-N-10L240	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675034102
	R-FF1-N-10L300	9.8	300	7	309	10	10	40800	1.17	1.17	4803.6	5906675034119
	FF1-N-K Frame Fixing with collar - hex head - Stainless Steel											
Ø10	R-FF1-N-10K080-A4	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675079110
	R-FF1-N-10K100-A4	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675079127
	R-FF1-N-10K120-A4	9.8	120	7	129	25	400	9600	1.55	24.8	625.2	5906675079134
	R-FF1-N-10K140-A4	9.8	140	7	149	25	300	7200	1.41	16.9	435.2	5906675079141
	R-FF1-N-10K160-A4	9.8	160	7	169	25	300	7200	1.56	18.7	479.3	5906675079158
	R-FF1-N-10K200-A4	9.8	200	7	209	25	25	7800	1.90	1.90	622.8	5906675039121
	R-FF1-N-10K240-A4	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675039138
	R-FF1-N-10K300-A4	9.8	300	7	309	10	10	40800	1.08	1.08	4416.0	5906675039145
	FF1-N-K Frame Fixing with collar - hex head - Delta Tone											
Ø10	R-FF1-N-10K080/DT	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675023472
	R-FF1-N-10K100/DT	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675023489
	R-FF1-N-10K120/DT	9.8	120	7	129	25	25	5250	1.55	1.55	355.5	5906675023496
	R-FF1-N-10K140/DT	9.8	140	7	149	25	300	7200	1.41	16.9	435.2	5906675023502
	R-FF1-N-10K160/DT	9.8	160	7	169	25	25	5250	1.56	1.56	357.6	5906675023519
	R-FF1-N-10K200/DT	9.8	200	7	209	25	25	7800	1.90	1.90	622.8	5906675039091
	R-FF1-N-10K240/DT	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675039107
	R-FF1-N-10K300/DT	9.8	300	7	309	10	10	40800	1.08	1.08	4416.0	5906675039114
	FF1-N-K Frame Fixing with collar - hex head - Zinc Plated											
Ø10	R-FF1-N-10K080	9.8	80	7	89	50	400	9600	1.40	11.2	298.8	5906675266985
	R-FF1-N-10K100	9.8	100	7	109	25	400	9600	1.07	17.0	439.0	5906675266992
	R-FF1-N-10K120	9.8	120	7	129	25	300	7200	1.55	18.6	476.4	5906675267005
	R-FF1-N-10K140	9.8	140	7	149	25	300	7200	1.41	16.9	435.2	5906675267012
	R-FF1-N-10K160	9.8	160	7	169	25	300	7200	1.56	18.7	479.3	5906675267029
	R-FF1-N-10K200	9.8	200	7	209	25	25	7800	1.90	1.90	622.8	5906675018249
	R-FF1-N-10K240	9.8	240	7	249	25	25	4800	2.3	2.3	468.3	5906675019307
	R-FF1-N-10K300	9.8	300	7	309	10	10	40800	1.08	1.08	4416.0	5906675019321

KKS-R Frame fixing with short expansion zone

Frame fixing with short expansion zone for installation of door and window frames

Product information

Features and benefits

- Durable, high quality PA6 grade nylon plug for extended fixing life
- Tough nylon sleeve prevents frame distortion during tightening
- Zig-zag design ensures enhanced expansion
- Special design with anti-rotation lugs
- No marking out required - drill straight through the frame

Applications

- Door and window frames

Base materials

Approved for use in:

- Concrete
- Solid Brick

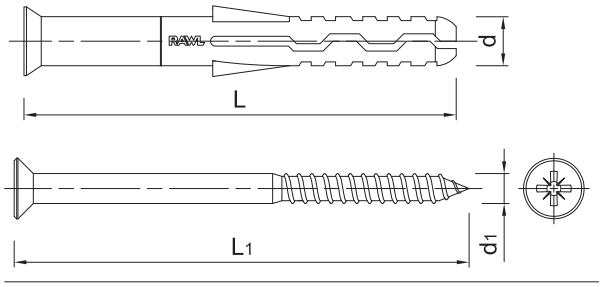
Also suitable for use in:

- Natural Stone

Installation guide

1. Drill a hole of required diameter and depth
2. Lightly tap the plug through the fixture into hole with a hammer, until fixing depth is reached
3. Tighten the screw

Product information



Size	Product Code	Plug		Screw		Fixture
		Diameter	Length	Diameter	Length	Max. thickness
		d	L	d_1	L1	t_{fix}
		[mm]				
Ø8	R-KKS-08060-R	8	60	5.5	65	20
	R-KKS-08080-R	8	80	5.5	85	40
	R-KKS-08100-R	8	100	5.5	105	60
	R-KKS-08120-R	8	120	5.5	125	80
Ø10	R-KKS-10080-R	10	80	7	85	30
	R-KKS-10100-R	10	100	7	105	50
	R-KKS-10120-R	10	120	7	125	70
	R-KKS-10135-R	10	135	7	140	85
	R-KKS-10160-R	10	160	7	165	110

Installation data

Size			Ø8	Ø10
Fixing diameter	d	[mm]	8	10
Hole diameter in substrate	d_0	[mm]	8	10
Min. hole depth in substrate	h_0	[mm]	50	60
Installation depth	h_{nom}	[mm]	40	50

Product commercial data

Size	Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø8	R-KKS-08060-R	8	60	5.5	65	50	800	19200	0.51	8.1	223.9	5010445213205
	R-KKS-08080-R	8	80	5.5	85	50	800	19200	0.68	10.9	291.1	5010445213236
	R-KKS-08100-R	8	100	5.5	105	50	800	19200	0.67	10.7	287.3	5010445213267
	R-KKS-08120-R	8	120	5.5	125	50	800	19200	0.67	10.7	287.3	5010445213298
Ø10	R-KKS-10080-R	10	80	7	85	50	600	14400	1.42	17.0	439.0	5010445213359
	R-KKS-10100-R	10	100	7	105	50	600	14400	1.42	17.0	439.0	5010445213380
	R-KKS-10120-R	10	120	7	125	50	400	9600	1.22	9.8	264.2	5010445213403
	R-KKS-10135-R	10	135	7	140	50	400	9600	2.0	16.0	414.0	5010445213441
	R-KKS-10160-R	10	160	7	165	50	400	9600	2.9	23.5	594.5	5010445213472

WHO/WHS Frame screws

Special frame screws for window and door installation


WHO


WHS

Approvals and Reports

- AT-15-6977/2012 + Annex no 1

Versions:

- WHO - Flat head
- WHS - Cylinder head

Product information

Features and benefits

- Cylinder head for flush installation with the window and door frames
- Flat head for easy installation into metal window and door frames
- Flat head for the comfortable installation in matal window and door frames
- No additional plugs required, making the WHO screw a user-friendly and time-efficient fixing solution
- Expansion-free fixing imposes less stress on substrate during installation
- High load resistances from a relatively small hole diameter
- Easily removed for temporary works

Applications

- Door and window frames
- Securing formwork
- Suspended ceilings
- Lightweight steel angles
- Timber constructions

Base materials

Approved for use in:

- Concrete
- Solid Brick
- Hollow Brick
- Aerated Concrete Block

Also suitable for use in:

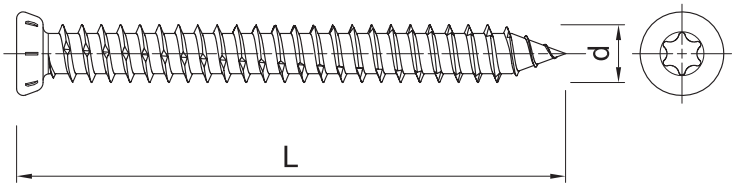
- Natural Stone
- Hollow-core Slab
- Timber

Installation guide

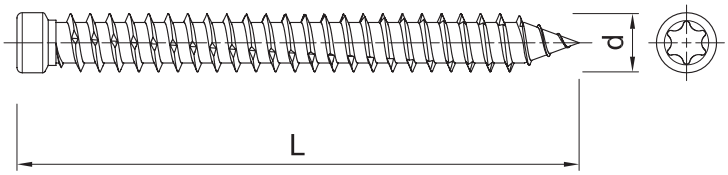
1. Drill a hole of required diameter and depth
2. Lightly screw into hole through the fixture, until fixing depth is reached and fixture is secure

Product information

WHO



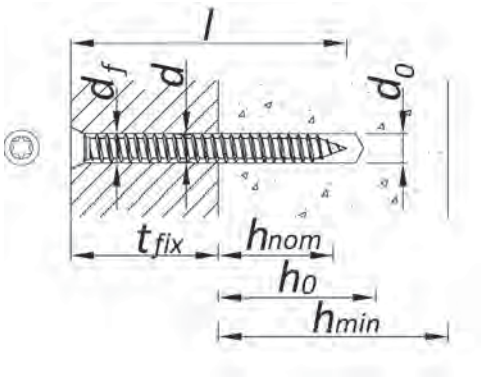
WHS



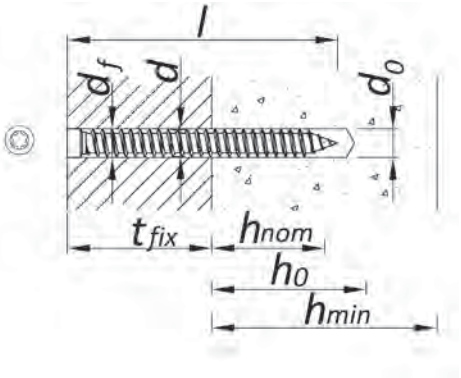
Size	Product Code	Screw		Fixture		
		Diameter	Length	Max. thickness		Hole diameter
		d	L	t_{fix} Concrete	t_{fix} Other	d_f
		[mm]				
WHO Screw						
Ø7.5	R-WHO-75052	7.5	52	22	-	8
	R-WHO-75072	7.5	72	42	12	8
	R-WHO-75092	7.5	92	62	32	8
	R-WHO-75112	7.5	112	82	52	8
	R-WHO-75132	7.5	132	102	72	8
	R-WHO-75152	7.5	152	122	92	8
	R-WHO-75182	7.5	182	152	122	8
	R-WHO-75202	7.5	202	172	142	8
	R-WHO-75212	7.5	212	182	152	8
WHS Screw						
Ø7.5	R-WHS-75052	7.5	52	22	-	8
	R-WHS-75072	7.5	72	42	12	8
	R-WHS-75092	7.5	92	62	32	8
	R-WHS-75112	7.5	112	82	52	8
	R-WHS-75132	7.5	132	102	72	8
	R-WHS-75152	7.5	152	122	92	8
	R-WHS-75182	7.5	182	152	122	8
	R-WHS-75202	7.5	202	172	142	8
	R-WHS-75212	7.5	212	182	152	8

Installation data

WHO



WHS



Installation data (cont.)

Substrate			Concrete	Aerated concrete	Other
Fixing diameter	d	[mm]	7.5	7.5	7.5
Hole diameter in substrate	d_0	[mm]	6	-	6
Min. hole depth in substrate	h_0	[mm]	40	-	70
Installation depth	h_{nom}	[mm]	30	60	60
Min. substrate thickness	h_{min}	[mm]	60	90	90
Min. spacing	s_{min}	[mm]	15	30	30
Min. edge distance	c_{min}	[mm]	15	50	50

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

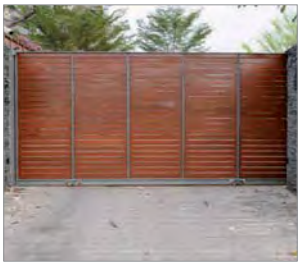
Substrate		Concrete C20/25	Solid brick 7.5MPa	Aerated concrete 400	Perforated brick K3
MEAN ULTIMATE LOAD $F_{Ru,m}$					
Ø7.5, Embedment depth 30 mm	[kN]	6.15	-	-	-
Ø7.5, Embedment depth 60 mm	[kN]	-	2.58	1.27	1.02
CHARACTERISTIC LOAD F_{Rk}					
Ø7.5, Embedment depth 30 mm	[kN]	5.21	-	-	-
Ø7.5, Embedment depth 60 mm	[kN]	-	2.11	1.14	0.90
DESIGN LOAD F_{Rd}					
Ø7.5, Embedment depth 30 mm	[kN]	2.08	-	-	-
Ø7.5, Embedment depth 60 mm	[kN]	-	0.84	0.46	0.36
RECOMMENDED LOAD F_{rec}					
Ø7.5, Embedment depth 30 mm	[kN]	1.49	-	-	-
Ø7.5, Embedment depth 60 mm	[kN]	-	0.60	0.33	0.26

Product commercial data

Size	Product Code	Screw	Quantity [pcs]			Weight [kg]			Bar Codes
		Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-WHO									
Ø7.5	R-WHO-75052	52	100	1600	89600	1.09	17.4	1006.6	5906675174648
	R-WHO-75072	72	100	1600	38400	1.53	24.5	617.5	5906675174662
	R-WHO-75092	92	100	100	36400	2.0	2.0	750.7	5906675174686
	R-WHO-75112	112	100	100	36400	2.5	2.5	925.4	5906675174709
	R-WHO-75132	132	100	100	36400	2.9	2.9	1071.0	5906675174723
	R-WHO-75152	152	100	100	36400	3.3	3.3	1231.2	5906675174747
	R-WHO-75182	182	100	100	36400	4.0	4.0	1471.4	5906675174761
	R-WHO-75202	202	100	100	27300	4.1	4.1	1157.5	5906675174785
	R-WHO-75212	212	100	100	27300	4.1	4.1	1157.5	5906675174808
R-WHS									
Ø7.5	R-WHS-75052	52	100	1600	89600	1.04	16.6	961.8	5906675174822
	R-WHS-75072	72	100	1600	89600	1.47	23.5	1347.1	5906675174846
	R-WHS-75092	92	100	100	15000	1.84	1.84	306.0	5906675174860
	R-WHS-75112	112	100	100	36000	2.2	2.2	818.4	5906675174884
	R-WHS-75132	132	100	100	6000	2.6	2.6	186.6	5906675174907
	R-WHS-75152	152	100	100	27000	3.1	3.1	856.2	5906675174921
	R-WHS-75182	182	100	100	21600	3.7	3.7	827.0	5906675174945
	R-WHS-75202	202	100	800	21600	4.1	32.8	915.6	5906675208787
	R-WHS-75212	212	100	800	21600	4.3	34.4	958.8	5906675208794

O Metal frame anchor

Metal frame anchor for window and door installation



Approvals and Reports

- AT-15-7553/2013 + Annex no 1

Product information

Features and benefits

- Metal sleeve design guards against distortion of the frame
- Anti-rotation lugs prevent rotation during tightening
- All-steel construction for strength and durability
- Quick and easy installation
- The cover caps (available separately) can be used to discreetly cover the head of anchor

Applications

- Door and window frames

Base materials

Approved for use in:

- Reinforced concrete
- Concrete

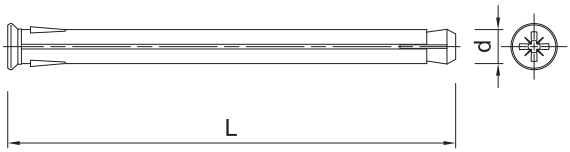
Also suitable for use in:

- Natural Stone

Installation guide

1. Drill a hole of required diameter and depth
2. Lightly tap the anchor through the fixture into hole with hammer, until fixing depth is reached
3. Tighten screw until secure

Product information



Size	Product Code	Anchor		Fixture		
		Diameter	Length	Max. thickness		Hole diameter
		d	L	t_{Fix} Concrete	t_{Fix} Solid brick	d_f
		[mm]				
M10	R-O-10072	10	72	32	12	11
	R-O-10092	10	92	52	32	11
	R-O-10112	10	112	72	52	11
	R-O-10132	10	132	92	72	11
	R-O-10152	10	152	112	92	11
	R-O-10182	10	182	142	122	11
	R-O-10202	10	202	162	142	11

Installation data

Substrate			Concrete	Solid brick
Diameter	d	[mm]	10	10
Hole diameter in substrate	d_0	[mm]	10	10
Min. hole depth in substrate	h_0	[mm]	50	70
Installation depth	h_{nom}	[mm]	40	60
Min. substrate thickness	h_{min}	[mm]	70	90
Min. spacing	s_{min}	[mm]	40	40
Min. edge distance	c_{min}	[mm]	60	60

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Concrete C20/25	Solid brick 15MPa
MEAN ULTIMATE LOAD $F_{Ru,m}$			
M10, Embedment depth 40 mm	[kN]	5.40	-
M10, Embedment depth 60 mm	[kN]	-	2.10
CHARACTERISTIC LOAD F_{Rk}			
M10, Embedment depth 40 mm	[kN]	4.80	-
M10, Embedment depth 60 mm	[kN]	-	2.00
DESIGN LOAD F_{Rd}			
M10, Embedment depth 40 mm	[kN]	1.60	-
M10, Embedment depth 60 mm	[kN]	-	0.70
RECOMMENDED LOAD F_{rec}			
M10, Embedment depth 40 mm	[kN]	1.14	-
M10, Embedment depth 60 mm	[kN]	-	0.50

Product commercial data

Size	Product Code	Anchor		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
M10	R-O-10072	10	72	100	1200	28800	1.59	19.1	487.9	5010445211003
	R-O-10092	10	92	100	100	36400	2.0	2.0	739.8	5010445211010
	R-O-10112	10	112	100	100	36400	2.3	2.3	859.9	5010445211027
	R-O-10132	10	132	100	100	16800	2.6	2.6	471.8	5010445211041
	R-O-10152	10	152	100	100	22400	6.0	6.0	1367.3	5010445211065
	R-O-10182	10	182	100	100	36400	7.0	7.0	2567.1	5010445211089
	R-O-10202	10	202	100	100	36400	7.7	7.7	2829.2	5906675172064

KO Cover CAP for metal frame anchor

Cover cap for aesthetic installation of metal frame anchor

Product information

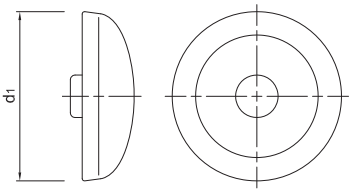
Features and benefits

- Aesthetic finishing after installation of metal frame anchor

Applications

- Door and window frames

Product information



Product commercial data

Product Code	Cap diameter [mm]	Colour	Quantity [pcs]			Weight [kg]			Bar Codes
			Box	Outer	Pallet	Box	Outer	Pallet	
R-KO-WHITE	15	White	100	4800	230400	0.05	2.4	145.2	5906675090696
R-KO-BROWN	15	Brown	100	4800	230400	0.05	2.4	145.2	5906675090702

LIGHTWEIGHT METAL FIXINGS

- GS
- KMW
- TM
- SRS
- KGS

Engineered surface construction prevents rotation in the hole

Low installation depth reduces drilling time

Fire resistance class A1

Reliable setting thanks to the large collar and simple visual check.

External teeth expand into the base material to ensure high carrying capacity

Special design of the expansion pin ensures high and stable load carrying capacity

Approved for installation in cracked and non-cracked concrete

GS Ceiling wedge anchor

All steel anchor for lightweight and suspended ceilings

Approvals and Reports

- ETA-11/0268

Product information

Features and benefits

- During installation, when the nail is flush with the head, it signifies the complete expansion of the anchor
- Approved for installation in cracked and non-cracked concrete
- Fire resistance class A1
- Reliable setting thanks to the big collar and simple visual check
- Impact expansion by hammer, no setting tool is needed

Applications

- Suspended ceilings
- Coffered ceilings
- Conduit and pipe clamps
- Ventilation systems
- Metal roof profiles
- Punched straps

Base materials

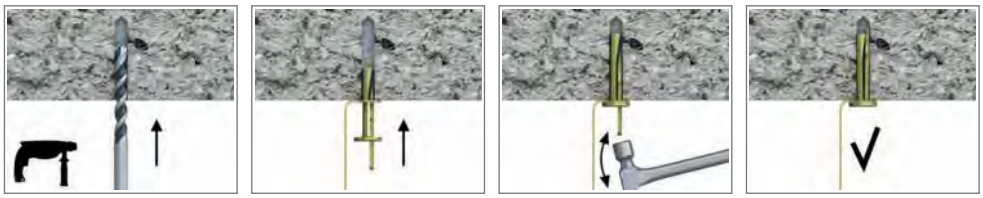
Approved for use in:

- Cracked concrete C20/25-C50/60
- Non-cracked concrete C20/25-C50/60

Also suitable for use in:

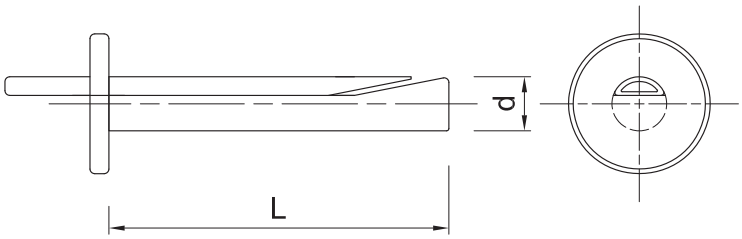
- Natural Stone
- Concrete

Installation guide



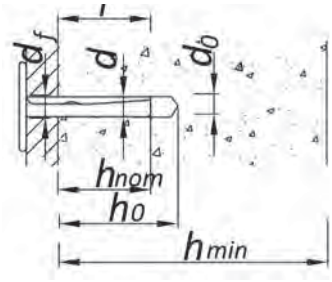
1. Drill a hole of required diameter and depth.
2. Insert anchor through fixture into hole until fixing depth is reached.
3. Hammer in the nail until flush with head.
4. Remove as not sure what this means.

Product information



Size	Product Code	Anchor		Fixture	
		Diameter	Length	Max. thickness	Hole diameter
		d	L	t_{fix}	d_f
		[mm]			
Ø6	R-GS-06040	5.8	36	4.5	7
	R-GS-06065	5.8	65	35	7

Installation data



Size			Ø6
Fixing diameter	d	[mm]	5.8
Hole diameter in substrate	d_0	[mm]	6
Min. hole depth in substrate	h_0	[mm]	40
Installation depth	h_{nom}	[mm]	32
Min. substrate thickness	h_{min}	[mm]	100
Min. spacing	s_{min}	[mm]	200
Min. edge distance	c_{min}	[mm]	150

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Cracked concrete	Non-cracked concrete
MEAN ULTIMATE LOAD $F_{Ru,m}$			
Ø06, Embedment depth 32 mm	[kN]	4.27	4.27
CHARACTERISTIC LOAD F_{Rk}			
Ø06, Embedment depth 32 mm	[kN]	3.00	3.00
DESIGN LOAD F_{Rd}			
Ø06, Embedment depth 32 mm	[kN]	2.00	2.00
RECOMMENDED LOAD F_{rec}			
Ø06, Embedment depth 32 mm	[kN]	1.43	1.43

Product commercial data

Size	Product Code	Anchor	Quantity [pcs]			Weight [kg]			Bar Codes
		Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø6	R-GS-06040	36	100	3200	76800	1.26	40.3	997.7	5906675169347
	R-GS-06065	65	100	1600	38400	1.13	18.1	463.9	5906675158105

KMW Metal hammer fixing

Steel and alloy metal fixing for solid materials

Approvals and Reports

- AT-15-7637/2008+ Annex no 1 and 2
- AT-15-7637/2014

Product information

Features and benefits

- Low-profile mushroom head provides a nice finish and tamper proof fastening
- Consistent load values ensure safe light-duty fastenings in concrete and masonry
- Product is not recommended for ceilings applications
- Impact expansion by hammer, no setting tool is needed
- Designed for easy push-through fastenings, even in bottomless holes

Applications

- Metal roof profiles
- Pipework
- Cable trays
- Cable conduits and wires
- Cladding and panelling

Base materials

Approved for use in:

- Non-cracked concrete C20/25-C50/60

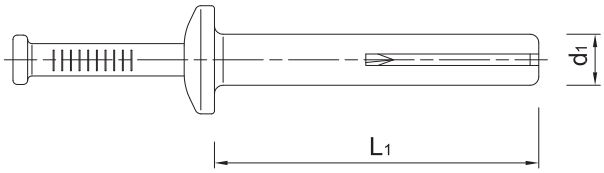
Also suitable for use in:

- Concrete Slab
- Solid Brick
- Solid Concrete Block

Installation guide

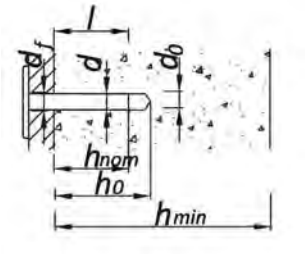
1. Drill a hole of required diameter and depth
2. Insert fixing through fixture into hole until fixing depth is reached.
3. Hammer-in the nail. Drive the expansion wedge in flush to the nail head.

Product information



Size	Product Code	Anchor		Fixture	
		Diameter	Length	Max. thickness	Hole diameter
		d_1	L_1	t_{fix}	d_f
		[mm]			
Ø5	R-KMW-05020	5	20	1	6
Ø6	R-KMW-06030	6	30	1	7
	R-KMW-06040	6	40	10	7
	R-KMW-06050	6	50	20	7
	R-KMW-06065	6	65	35	7

Installation data



Size			Ø5	Ø6
Fixing diameter	d	[mm]	5	6
Hole diameter in substrate	d_0	[mm]	5	6
Min. hole depth in substrate	h_0	[mm]	25	35
Installation depth	h_{nom}	[mm]	20	30
Min. substrate thickness	h_{min}	[mm]	40	50
Min. spacing	s_{min}	[mm]	20	30
Min. edge distance	c_{min}	[mm]	20	30

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

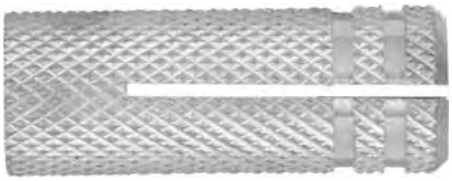
Substrate		Concrete C20/25	Solid brick 15MPa
MEAN ULTIMATE LOAD $F_{Ru,m}$			
Ø05	[kN]	3.85	2.85
Ø06	[kN]	3.85	2.85
CHARACTERISTIC LOAD F_{Rk}			
Ø05	[kN]	3.55	2.00
Ø06	[kN]	3.55	2.00
DESIGN LOAD F_{Rd}			
Ø05	[kN]	1.40	0.80
Ø06	[kN]	1.40	0.80
RECOMMENDED LOAD F_{rec}			
Ø05	[kN]	1.00	0.57
Ø06	[kN]	1.00	0.57

Product commercial data

Size	Product Code	Anchor		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø5	R-KMW-05020	5	20	100	3200	76800	0.95	30.4	759.6	5906675170404
Ø6	R-KMW-06030	6	30	100	1600	38400	0.84	13.4	352.6	5906675170428
	R-KMW-06040	6	40	100	1600	38400	0.98	15.7	406.3	5906675170442
	R-KMW-06050	6	50	100	1600	38400	1.39	22.2	563.8	5906675170466
	R-KMW-06065	6	65	100	1200	28800	1.50	18.0	462.0	5906675170480

TM Brass expansion sleeve

Brass anchor for use with metric thread screws



Product information

Features and benefits

- Fixing allows the attached item to be reusable
- Special surface structure prevents from rotating in the hole
- Low installation depth reduces amount of drilling
- The internal thread allows for the use of standard metric screws or threaded rods, and for surface flush removal and reuse of the fixing point. This provides great flexibility
- Suitable for pre-positioned and push-through installation

Applications

- Handrails
- Shelves
- Light shelving, brackets and hooks
- Curtain rails
- Bathroom fittings
- Control boxes

Base materials

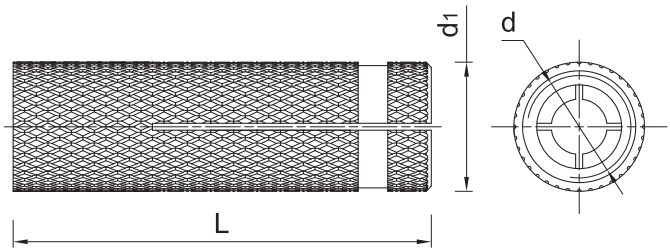
Suitable for use in:

- Concrete
- Natural Stone
- Concrete Slab
- Solid Brick

Installation guide

1. Drill a hole of required diameter and depth
2. Remove debris and thoroughly clean hole with brush and pump
3. Insert anchor, slotted end first
4. Insert bolt or stud through fixture and tighten to the recommended torque

Product information



Product Code	Anchor Length L [mm]	Hole diameter d [mm]
R-TM-05	20	7
R-TM-06	22	8
R-TM-08	30	10
R-TM-10	32	12

Product commercial data

Product Code	Anchor Length [mm]	Hole diameter [mm]	Quantity [pcs] Box	Quantity [pcs] Outer	Quantity [pcs] Pallet	Weight [kg] Box	Weight [kg] Outer	Weight [kg] Pallet	Bar Codes
R-TM-05	20	7	100	2400	108000	0.19	4.6	236.9	5906675158587
R-TM-06	22	8	100	100	150	15.0	15.0	52.5	5906675206844
R-TM-08	30	10	100	2400	72000	0.85	20.4	642.0	5906675172828
R-TM-10	32	12	100	100	48	15.0	15.0	37.2	5906675206851

SRS Ceiling fixing

Wire hanger for suspended ceilings to solid materials

Product information

Features and benefits

- Hanger for concrete soffit enabling suspended grid system to be hung with wire coil
- Special conical shape ensures an adequate anchor expansion
- Expansion of anchor occurs upon loading
- Material: electro-zinc coated steel
- Fire resistant

Applications

- Suspended ceilings

Base materials

Suitable for use in:

- Concrete
- Solid Concrete Block
- Concrete Slab
- Natural Stone

Installation data

Substrate			Concrete C20/25
Diameter	d	[mm]	6
Hole diameter in substrate	d_0	[mm]	6
Min. hole depth in substrate	h_0	[mm]	45
Installation depth	h_{nom}	[mm]	40
Min. substrate thickness	h_{min}	[mm]	100
Min. spacing	s_{min}	[mm]	100
Min. edge distance	c_{min}	[mm]	100

Basic performance data

Substrate		Concrete C20/25
MEAN ULTIMATE LOAD $F_{Ru,m}$		
SRS-06063, Embedment depth 40 mm	[kN]	0.57
CHARACTERISTIC LOAD F_{Rk}		
SRS-06063, Embedment depth 40 mm	[kN]	0.16
DESIGN LOAD F_{Rd}		
SRS-06063, Embedment depth 40 mm	[kN]	0.06
RECOMMENDED LOAD F_{rec}		
SRS-06063, Embedment depth 40 mm	[kN]	0.05

Product commercial data

Product Code	Hanger		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-SRS-06063	6	63	100	1600	38400	1.31	21.0	533.0	5906675172804

KGS Metal plug

Metal plug for use in many masonry materials

Product information

Features and benefits

- External teeth expend in base materials ensures high pull-out loads
- The ribbed internal geometry suitable for screws makes it possible to guide the screw securely
- High holding strength even in oversized holes
- Used in areas where fire considerations disallow the use of plastic anchors
- Removable - screw may be removed and reinserted
- Quick and easy installation with wood and chipboard screws

Applications

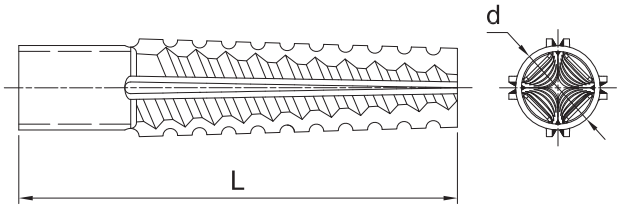
- Light shelving, brackets and hooks
- Water pipes
- Gas pipes
- Cable and pipe clamps

Base materials

Suitable for use in:

- Aerated Concrete Block
- Hollow Lightweight Concrete Block
- Lightweight Concrete Block
- Vertically-perforated clay block
- Hollow Sand-lime Brick
- Solid Sand-lime Brick
- Hollow Brick
- Solid Brick

Product information



Product commercial data

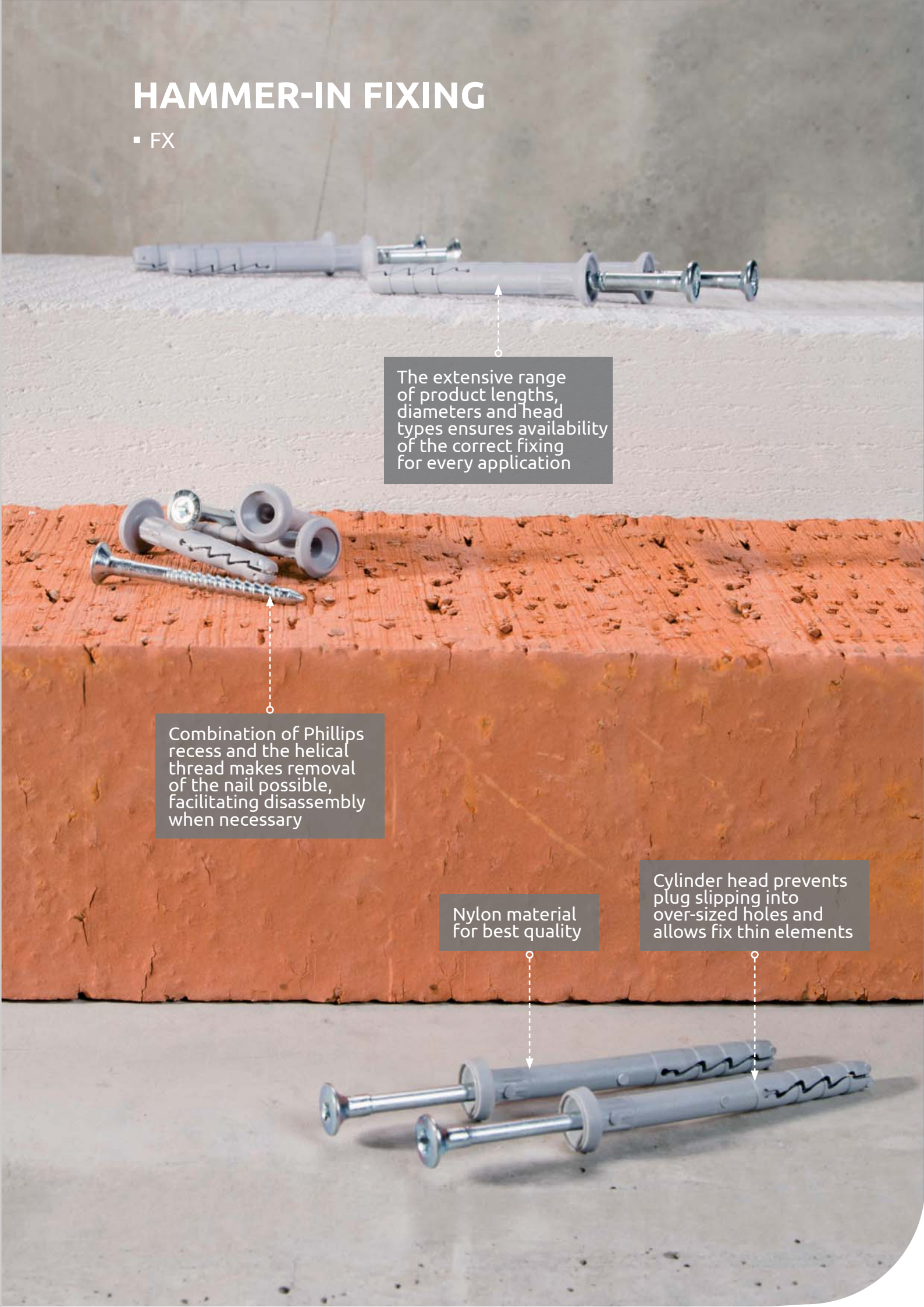
Product Code	Drill diameter [mm]	Plug	Screw diameter [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
		Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
R-KGS-0632	6	32	4,5-5,0	200	3200	76800	0.51	8.1	223.9	5906675170008
R-KGS-0838	8	38	5,0-6,0	200	3200	76800	1.22	19.5	498.5	5906675170022
R-KGS-0860	8	60	5,0-6,0	100	1600	38400	0.98	15.7	406.3	5906675170046
R-KGS-1060	10	60	6,0-8,0	50	800	19200	0.64	10.2	275.8	5906675170060

Installation guide

1. Drill a hole of required diameter.
2. Insert KGS anchor into hole and tap home.
3. Insert screw of required diameter into anchor through fixture and tighten.
4. The drill diameter is relative to the compressive strength of the building material. The higher the compressive strengths, the greater the drill diameter.

HAMMER-IN FIXING

- FX



FX Hammer-in fixings

The hammer fixing for fast, simple, cost-effective installations


CYLINDER HEAD


MUSHROOM HEAD


COUNTERSUNK HEAD

Approvals and Reports

- ETA-12/0457
- ETA-13/0088

Versions:

- FX-N-C with cylinder head
- FX-N-K with mushroom head
- FX-N-L with countersunk head

Product information

Features and benefits

- Rapid hammer-set installation reduces the time required and allows for cost-effective, high-volume installation
- Cylinder head prevents plug slipping into over-sized holes and allows the fixing of thin elements.
- Combination of Phillips recess and the helical thread makes removal of the nail possible, facilitating disassembly when necessary
- The extensive range of product lengths, diameters and head types ensures availability of the correct fixing for every scenario
- Designed for push-through installation
- Nylon material for best quality

Applications

- Timber or metal battens
- Drywall structures
- Skirting / Dado railing
- Cable clamps
- Pipe clamps
- Sheeting

Base materials

Approved for use in:

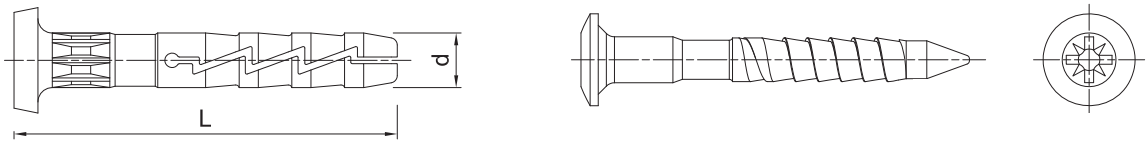
- Concrete
- Solid Brick
- Solid Sand-lime Brick
- Hollow Sand-lime Brick
- Lightweight Concrete Block
- Hollow Lightweight Concrete Block
- Aerated Concrete Block

Installation guide

1. Drill a hole of required diameter.
2. Insert FX plug into hole through fixture.
3. Hammer the nail into the plastic sleeve until fixing is secure and flush with the fixture.

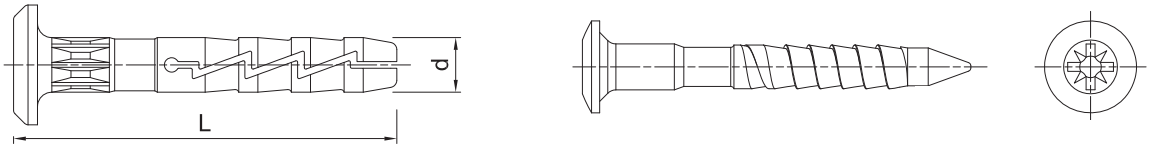
Product information

FX-N-C Nylon hammer-in fixing with cylinder head



Size	Product Code	Plug		Fixture	
		Diameter	Length	Max. thickness	Hole diameter
		d	L	t_{Fix}	d_f
		[mm]			
Ø5	R-FX-N-05C030	5	30	5	6
	R-FX-N-05C035	5	35	10	6
	R-FX-N-05C050	5	50	25	6
Ø6	R-FX-N-06C035	6	35	6	7
	R-FX-N-06C040	6	40	11	7
	R-FX-N-06C045	6	45	16	7
	R-FX-N-06C060	6	60	31	7
	R-FX-N-06C080	6	80	51	7
Ø8	R-FX-N-08C045	8	45	5	9
	R-FX-N-08C060	8	60	20	9
	R-FX-N-08C080	8	80	40	9
	R-FX-N-08C100	8	100	60	9
	R-FX-N-08C120	8	120	80	9
	R-FX-N-08C140	8	140	100	9
	R-FX-N-08C160	8	160	120	9

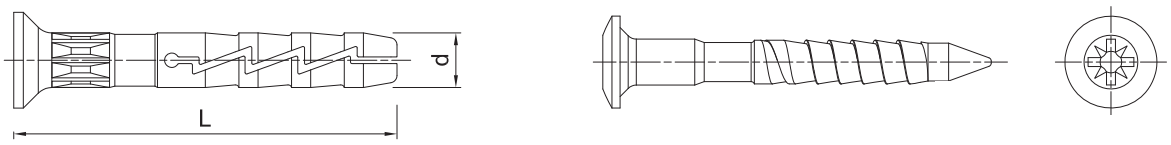
FX-N-K Nylon hammer-in fixing with mushroom head



Size	Product Code	Plug		Fixture	
		Diameter	Length	Max. thickness	Hole diameter
		d	L	t_{Fix}	d_f
		[mm]			
Ø6	R-FX-N-06K040	6	40	11	7
	R-FX-N-06K045	6	45	16	7
	R-FX-N-06K060	6	60	31	7
	R-FX-N-06K080	6	80	51	7

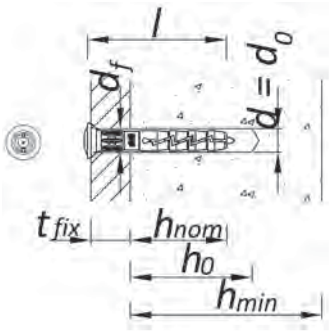
Product information (cont.)

FX-N-L Nylon hammer-in fixing with countersunk head

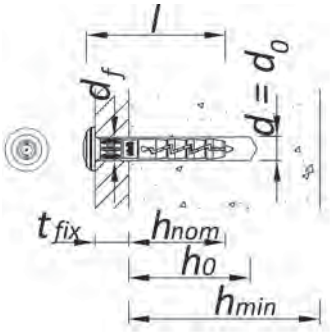


Size	Product Code	Plug		Fixture	
		Diameter	Length	Max. thickness	Hole diameter
		d	L	t_{fix}	d_f
		[mm]			
Ø5	R-FX-N-05L025	5	25	1	6
	R-FX-N-05L030	5	30	5	6
	R-FX-N-05L035	5	35	10	6
	R-FX-N-05L040	5	40	15	6
	R-FX-N-05L050	5	50	25	6
Ø6	R-FX-N-06L035	6	35	6	7
	R-FX-N-06L040	6	40	11	7
	R-FX-N-06L045	6	45	16	7
	R-FX-N-06L050	6	50	21	7
	R-FX-N-06L055	6	55	26	7
	R-FX-N-06L060	6	60	31	7
	R-FX-N-06L080	6	80	51	7
Ø8	R-FX-N-08L045	8	45	5	9
	R-FX-N-08L060	8	60	20	9
	R-FX-N-08L080	8	80	40	9
	R-FX-N-08L100	8	100	60	9
	R-FX-N-08L120	8	120	80	9
	R-FX-N-08L140	8	140	100	9
	R-FX-N-08L160	8	160	120	9

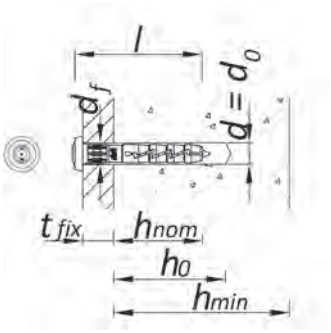
Installation data



FX-N-C



FX-N-K



FX-N-L

Size			Ø5	Ø6	Ø8
Fixing diameter	d	[mm]	5	6	8
Hole diameter in substrate	d_0	[mm]	5	6	8
Min. hole depth in substrate	h_0	[mm]	30	35	45
Installation depth	h_{nom}	[mm]	25	29	40
Min. substrate thickness	h_{min}	[mm]	100	100	100
Min. spacing	s_{min}	[mm]	100	100	100
Min. edge distance	c_{min}	[mm]	100	100	100

Basic performance data

Performance data for single fixing in tension without influence of edge distance and spacing

Substrate		Concrete C12/15	Concrete C20/25 - C50/60	Solid brick	Sand-lime solid brick	Sand-lime hollow brick	Lightweight concrete hollow block	Lightweight concrete block	Autoclaved aerated concrete
FX-N-C, FX-N-K, FX-N-L									
MEAN ULTIMATE LOAD $N_{Ru,m}$									
Ø05, Embedment depth 25 mm	[kN]	0.36	0.51	0.41	0.44	0.49	0.35	0.42	-
Ø06, Embedment depth 29 mm	[kN]	0.37	0.53	0.39	0.55	0.53	0.40	0.49	0.14
Ø08, Embedment depth 40 mm	[kN]	0.55	0.78	0.82	0.55	-	0.50	0.74	0.17
CHARACTERISTIC LOAD N_{Rk}									
Ø05, Embedment depth 25 mm	[kN]	0.20	0.30	0.20	0.20	0.30	0.20	0.20	-
Ø06, Embedment depth 29 mm	[kN]	0.20	0.30	0.20	0.40	0.30	0.30	0.30	0.10
Ø08, Embedment depth 40 mm	[kN]	0.30	0.50	0.50	0.40	-	0.30	0.50	0.10
DESIGN LOAD N_{Rd}									
Ø05, Embedment depth 25 mm	[kN]	0.15	0.15	0.10	0.10	0.15	0.10	0.10	-
Ø06, Embedment depth 29 mm	[kN]	0.15	0.15	0.10	0.20	0.15	0.15	0.15	0.05
Ø08, Embedment depth 40 mm	[kN]	0.25	0.25	0.25	0.20	-	0.15	0.25	0.05
RECOMMENDED LOAD N_{rec}									
Ø05, Embedment depth 25 mm	[kN]	0.11	0.11	0.07	0.07	0.11	0.07	0.07	-
Ø06, Embedment depth 29 mm	[kN]	0.11	0.11	0.07	0.14	0.11	0.11	0.11	0.04
Ø08, Embedment depth 40 mm	[kN]	0.18	0.18	0.18	0.14	-	0.11	0.18	0.04

Product commercial data

Size	Product Code	Plug		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
FX-N-C Nylon hammer-in fixing with cylinder head										
Ø5	R-FX-N-05C030	5	30	100	2400	57600	0.80	19.2	490.8	5906675176963
	R-FX-N-05C035	5	35	100	2400	57600	0.32	7.7	214.3	5906675176987
	R-FX-N-05C050	5	50	100	2400	57600	0.35	8.5	233.3	5906675212791
Ø6	R-FX-N-06C035	6	35	100	2400	57600	0.80	19.2	490.8	5906675177328
	R-FX-N-06C040	6	40	100	2400	76800	0.80	19.2	644.4	5906675177342
	R-FX-N-06C045	6	45	100	2400	57600	0.44	10.6	283.4	5906675177366
	R-FX-N-06C060	6	60	100	1200	28800	0.80	9.6	260.4	5906675177380
	R-FX-N-06C080	6	80	100	1200	28800	0.80	9.6	260.4	5906675177403
Ø8	R-FX-N-08C045	8	45	100	1200	28800	0.76	9.1	248.9	5906675177601
	R-FX-N-08C060	8	60	100	1200	28800	0.80	9.6	260.4	5906675177625
	R-FX-N-08C080	8	80	50	600	14400	0.68	8.2	227.0	5906675177564
	R-FX-N-08C100	8	100	50	600	14400	0.80	9.7	261.6	5906675177663
	R-FX-N-08C120	8	120	50	600	14400	0.93	11.2	298.7	5906675177588
	R-FX-N-08C140	8	140	50	600	14400	1.05	12.6	333.1	5906675119069
FX-N-K Hammer-in fixing with mushroom head										
Ø6	R-FX-N-06K040	6	40	100	2400	76800	0.80	19.2	644.4	5906675177427
	R-FX-N-06K045	6	45	100	1800	57600	0.47	8.5	300.7	5906675169163
	R-FX-N-06K060	6	60	100	1200	28800	0.65	7.8	217.2	5906675177441
	R-FX-N-06K080	6	80	100	1200	28800	0.80	9.6	260.4	5906675177465

Product commercial data

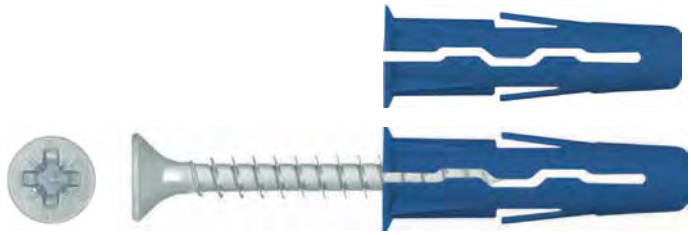
Size	Product Code	Plug		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
FX-N-L hammer-in fixing with countersunk head										
Ø5	R-FX-N-05L025	5	25	100	2400	57600	1.50	36.0	894.0	5906675177045
	R-FX-N-05L030	5	30	100	2400	57600	1.50	36.0	894.0	5906675177069
	R-FX-N-05L035	5	35	100	2400	57600	1.50	36.0	894.0	5906675177144
	R-FX-N-05L040	5	40	100	2400	57600	0.40	9.6	260.4	5906675177168
	R-FX-N-05L050	5	50	100	2400	57600	0.33	7.9	219.8	5906675177021
Ø6	R-FX-N-06L035	6	35	100	2400	57600	0.43	10.3	277.7	5906675177489
	R-FX-N-06L040	6	40	100	2400	57600	0.43	10.3	277.7	5906675169224
	R-FX-N-06L045	6	45	100	2400	57600	0.44	10.6	283.4	5906675205182
	R-FX-N-06L050	6	50	100	1200	28800	0.44	5.3	156.7	5906675253428
	R-FX-N-06L055	6	55	100	1200	38400	0.56	6.7	245.0	5906675177526
	R-FX-N-06L060	6	60	100	1200	28800	0.80	9.6	260.4	5906675169248
	R-FX-N-06L080	6	80	100	1200	28800	0.77	9.2	251.8	5906675177540
Ø8	R-FX-N-08L045	8	45	100	1200	28800	0.84	10.1	271.9	5906675155807
	R-FX-N-08L060	8	60	100	1200	28800	1.04	12.5	329.5	5906675169262
	R-FX-N-08L080	8	80	50	600	14400	0.68	8.2	225.8	5906675169286
	R-FX-N-08L100	8	100	50	600	14400	0.84	10.1	271.9	5906675169309
	R-FX-N-08L120	8	120	50	600	14400	0.81	9.7	263.3	5906675169323
	R-FX-N-08L140	8	140	50	600	14400	1.05	12.6	332.4	5906675171708
	R-FX-N-08L160	8	160	50	600	14400	1.22	14.6	381.4	5906675171746

PLASTIC EXPANSION PLUG

- UNO
- 4ALL
- RAWL-IN-ONE
- R-OLD

UNO Universal plug

Truly universal plug which fixes into any base material, solid or hollow



Approvals and Reports

- AT-15-8093/2009 + Annex no 1

Versions:

- Plug
- Plug with screw

Installation movie

Product information

Features and benefits

- Unique geometry guarantees maximum expansion and grip
- Instant grip resulting from split plug design
- Anti-rotation features prevent spinning in the hole
- Lip prevents plug slipping into over-sized holes

Applications

- Shelves
- Suspended ceilings
- Electrical fittings
- Cable trays
- Boilers
- Radiators
- Lighting
- Bathroom fittings

Base materials

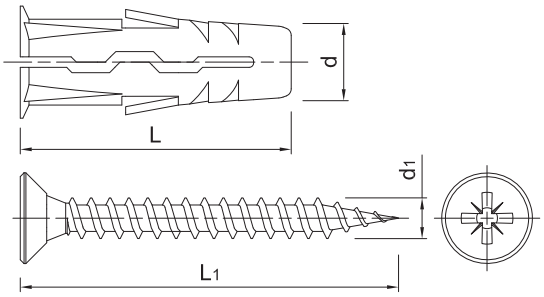
Suitable for use in:

- Concrete
- Hollow-core Slab
- High-Density Natural Stone
- Solid Brick
- Solid Sand-lime Brick
- Hollow Brick
- Vertically-perforated clay block
- Lightweight Concrete Block
- Hollow Lightweight Concrete Block
- Aerated Concrete Block
- Plasterboard

Installation guide

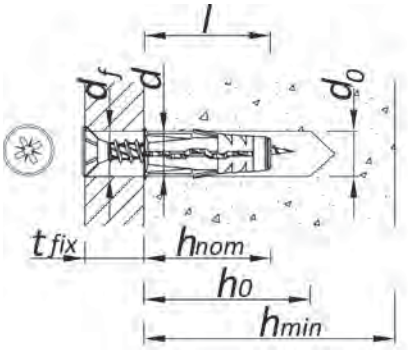
1. Drill a hole of required diameter.
2. Insert UNO plug into hole and tap home.
3. Insert screw of required diameter into plug through fixture and tighten.

Product information



Size	Product Code	Plug		Screw		Fixture	
		Diameter	Length	Diameter	Length	Max. thickness	Hole diameter
		d	L	d_1	L_1	t_{fix}	d_f
		[mm]					
R-UNO-K Plug							
Ø5	UNO-K-05	5	24	3	25 - 40	1 - 16	4
		5	24	3.5	25 - 50	1 - 26	4
		5	24	4	25 - 80	1 - 56	5
		5	24	4.5	25 - 80	1 - 56	5
Ø6	UNO-K-06	6	28	3.5	25 - 50	1 - 22	4
		6	28	4	25 - 80	1 - 52	5
		6	28	4.5	25 - 80	1 - 52	5
		6	28	5	30 - 260	1 - 232	6
Ø7	UNO-K-07	7	30	4	25 - 80	1 - 50	5
		7	30	4.5	25 - 80	1 - 50	5
		7	30	5	30 - 260	1 - 230	6
		7	30	6	30 - 200	1 - 170	7
Ø8	UNO-K-08	8	32	4.5	25 - 80	1 - 48	5
		8	32	5	30 - 260	1 - 228	6
		8	32	6	30 - 200	1 - 168	7
Ø10	UNO-K-10	10	36	5	30 - 260	1 - 224	6
		10	32	6	30 - 260	1 - 224	7
		10	32	8	30 - 260	1 - 224	9
R-UNO Plug with screw							
Ø6	UNO-06+430	6	28	4	30	1	5
	UNO-06+435	6	28	4	35	5	5
	UNO-06+445	6	28	4	45	15	6
Ø8	UNO-08+435	8	32	4.5	35	2	5
	UNO-08+450	8	32	4.5	50	15	6
	UNO-08+560	8	32	5	60	25	7
Ø10	UNO-10+540	10	36	5	40	2	6
	UNO-10+650	10	36	6	50	15	7
	UNO-10+660	10	36	6	60	25	9

Installation data



Installation data (cont.)

Size			Ø5	Ø6	Ø07	Ø8	Ø10
Fixing diameter	d	[mm]	5	6	7	8	10
Hole diameter in substrate	d_0	[mm]	5	6	7	8	10
Min. hole depth in substrate	h_0	[mm]	34	38	40	42	46
Installation depth	h_{nom}	[mm]	24	28	30	32	36
Min. substrate thickness	h_{min}	[mm]	50	55	60	65	70
Min. spacing	s_{min}	[mm]	24	28	30	32	36
Min. edge distance	c_{min}	[mm]	24	28	30	32	36

Basic performance data

Performance data for single fixing in tension without influence of edge distance and spacing

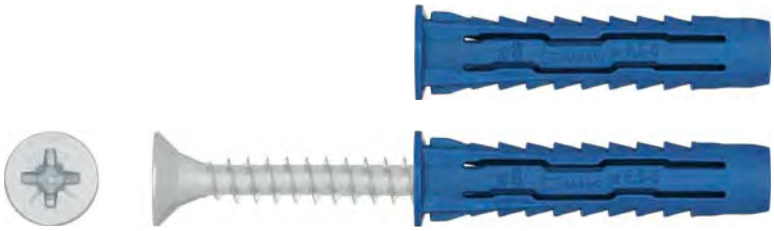
Substrate		Concrete C20/25	Solid clay brick 15MPa	Hollow brick 15MPa	Perforated brick 15MPa	Aerated concrete 600 Mark V	Plasterboard min. 12.5 mm
MEAN ULTIMATE LOAD $N_{Ru,m}$							
Plug Ø5 + screw Ø3.5	[kN]	1.77	0.79	0.94	0.62	0.28	0.24
Plug Ø6 + screw Ø3.5	[kN]	1.63	1.18	0.87	0.72	0.73	0.30
Plug Ø7 + srcew Ø4.0	[kN]	1.67	0.88	1.32	0.87	0.86	0.37
Plug Ø8 + screw Ø4.5	[kN]	2.49	1.39	1.15	0.94	0.84	0.40
Plug Ø10 + screw Ø5.0	[kN]	6.81	1.50	1.42	1.66	0.73	0.45
CHARACTERISTIC LOAD N_{Rk}							
Plug Ø5 + screw Ø3.5	[kN]	1.39	0.47	0.72	0.39	0.27	0.17
Plug Ø6 + screw Ø3.5	[kN]	1.48	0.85	0.51	0.21	0.63	0.21
Plug Ø7 + srcew Ø4.0	[kN]	0.89	0.32	0.71	0.60	0.51	0.25
Plug Ø8 + screw Ø4.5	[kN]	1.25	0.68	0.95	0.81	0.48	0.26
Plug Ø10 + screw Ø5.0	[kN]	3.59	0.69	1.18	0.92	0.42	0.34
DESIGN LOAD N_{Rd}							
Plug Ø5 + screw Ø3.5	[kN]	0.77	0.19	0.29	0.15	0.13	0.07
Plug Ø6 + screw Ø3.5	[kN]	0.82	0.34	0.20	0.20	0.31	0.08
Plug Ø7 + srcew Ø4.0	[kN]	0.49	0.13	0.28	0.24	0.25	0.10
Plug Ø8 + screw Ø4.5	[kN]	0.69	0.38	0.38	0.32	0.24	0.10
Plug Ø10 + screw Ø5.0	[kN]	1.99	0.38	0.47	0.37	0.21	0.13
RECOMMENDED LOAD N_{rec}							
Plug Ø5 + screw Ø3.5	[kN]	0.55	0.14	0.21	0.11	0.09	0.05
Plug Ø6 + screw Ø3.5	[kN]	0.59	0.24	0.14	0.14	0.22	0.06
Plug Ø7 + srcew Ø4.0	[kN]	0.35	0.09	0.20	0.17	0.18	0.07
Plug Ø8 + screw Ø4.5	[kN]	0.49	0.27	0.27	0.23	0.17	0.07
Plug Ø10 + screw Ø5.0	[kN]	1.42	0.27	0.34	0.26	0.15	0.09

Product commercial data

Size	Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Length [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
UNO Plug												
Ø5	UNO-K-05	5	24	-	25 - 40	200	6400	153600	0.32	10.2	275.8	5906675009513
Ø6	UNO-K-06	6	28	-	25 - 50	200	6400	153600	0.32	10.2	275.8	5906675009544
Ø7	UNO-K-07	7	30	-	25 - 80	100	3200	76800	0.32	10.2	275.8	5906675009575
Ø8	UNO-K-08	8	32	-	25 - 80	100	3200	76800	0.32	10.2	275.8	5906675009599
Ø10	UNO-K-10	10	36	-	30 - 260	50	1600	38400	0.32	10.2	275.8	5906675009612
UNO Plug with screw												
Ø6	UNO-06+430	6	28	4	30	100	3200	76800	0.32	10.2	275.8	5906675250236
	UNO-06+435	6	28	4	35	100	3200	76800	0.32	10.2	275.8	5906675199641
	UNO-06+445	6	28	4	45	100	3200	76800	0.32	10.2	275.8	5906675199634
Ø8	UNO-08+435	8	32	4.5	35	100	1600	38400	0.32	5.1	152.9	5906675250243
	UNO-08+450	8	32	4.5	50	100	1600	38400	0.32	5.1	152.9	5906675199658
	UNO-08+560	8	32	5	60	100	1600	38400	0.95	15.2	394.8	5906675199665
Ø10	UNO-10+540	10	36	5	40	100	1600	38400	1.81	29.0	725.0	5906675250250
	UNO-10+650	10	36	6	50	100	1600	38400	1.81	29.0	725.0	5906675199672
	UNO-10+660	10	36	6	60	100	1600	38400	1.81	29.0	725.0	5906675199689

4ALL Universal plug

High performance nylon plug for all types of substrates



Approvals and Reports

- Pending

Versions:

- Plug
- Plug with screw

Installation movie

Product information

Features and benefits

- Unique internal design provides positive grip for screws
- Anti-rotational lugs promote grip in wide range of substrates including soft masonry materials
- Rib detail at plug head provides added grip
- Expanding section designed to collapse in hollow materials and provide positive grip behind surfaces
- Unique 4 way expansion allowing application in any substrate material and type
- Solid head design provides strength whilst plug is installed

Applications

- Lighting
- Wall cabinets
- Wardrobes
- Letterboxes
- TV brackets
- Bathroom fittings
- Electrical fittings
- Shelves

Base materials

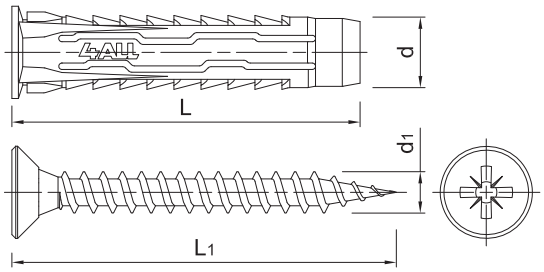
Suitable for use in:

- Concrete
- Natural Stone
- Solid Brick
- Hollow Brick
- Lightweight Concrete Block
- Hollow Lightweight Concrete Block
- Aerated Concrete Block
- Plasterboard

Installation guide

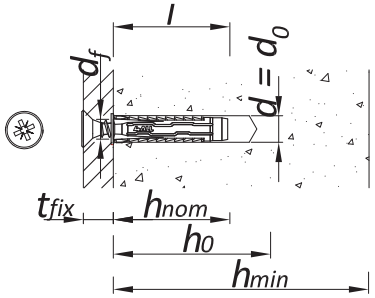
1. Drill a hole of required diameter.
2. Insert 4ALL plug into hole and tap home.
3. Insert screw of required diameter into plug through fixture and tighten.

Product information



Size	Product Code	Plug		Screw		Fixture	
		Diameter	Length	Diameter	Length	Max. thickness	Hole diameter
		d	L	d_1	L_1	t_{fix}	d_f
		[mm]					
4ALL							
Ø5	4ALL-05	5	25	3	25 - 40	1 - 15	4
		5	25	3.5	25 - 50	1 - 25	4
		5	25	4	25 - 80	1 - 55	5
Ø6	4ALL-06	6	30	4	30 - 80	1 - 50	5
		6	30	4.5	30 - 80	1 - 50	5
		6	30	5	30 - 260	1 - 230	6
Ø8	4ALL-08	8	40	4.5	40 - 80	1 - 40	5
		8	40	5	40 - 260	1 - 220	6
		8	40	6	40 - 200	1 - 160	7
Ø10	4ALL-10	10	50	6	50 - 200	1 - 150	7
		10	50	8	50 - 260	1 - 210	9
Ø12	4ALL-12	12	60	8	min. 60		9
		12	60	10	min. 60		11
Ø14	4ALL-14	14	70	10	min. 70		11
4ALL with screw							
Ø5	4ALL-05+3530	5	25	3.5	30	10	4
Ø6	4ALL-06+4540	6	30	4.5	40	10	5
Ø8	4ALL-08+5060	8	40	5	60	20	6
Ø10	4ALL-10+6060	10	50	6	60	10	7
Ø12	4ALL-12/80	12	60	8	80	20	9
Ø12	4ALL-12/100	12	60	8	100	40	9
Ø14	4ALL-14/100	12	70	10	100	30	11

Installation data



Size			Ø5	Ø6	Ø8	Ø10	Ø12	Ø14
Fixing diameter	d	[mm]	5	6	8	10	12	14
Hole diameter in substrate	d_0	[mm]	5	6	8	10	12	14
Min. hole depth in substrate	h_0	[mm]	35	40	50	60	70	80
Installation depth	h_{nom}	[mm]	25	30	40	50	60	70
Min. substrate thickness	h_{min}	[mm]	65	70	80	90	100	100
Min. spacing	s_{min}	[mm]	25	30	40	50	60	70
Min. edge distance	c_{min}	[mm]	25	30	40	50	60	70

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Concrete C20/25 - C50/60	Solid clay brick min 20MPa (eg Mz20/2.0)	Sand-lime solid brick	Perforated brick 15MPa	Sand-lime hollow block min. 20MPa	Aerated concrete 600 Mark V	Plasterboard min. 12.5 mm	Plasterboard min. 2x12.5 mm
CHARACTERISTIC LOAD F_{Rk}									
Ø5, Embedment depth 25mm	[kN]	0.10	-	0.20	0.15	0.50	0.20	0.11	-
Ø6, Embedment depth 30mm	[kN]	0.20	0.15	0.60	0.30	0.60	0.30	0.12	-
Ø8, Embedment depth 40mm	[kN]	0.50	0.75	0.90	0.50	0.75	0.50	0.15	-
Ø10, Embedment depth 50mm	[kN]	0.50	0.90	1.20	0.50	0.75	0.60	0.26	-
Ø12, Embedment depth 60mm	[kN]	4.50	4.00	7.00	2.50	4.50	3.50	-	0.66
Ø14, Embedment depth 70mm	[kN]	5.50	6.00	10.5	1.50	5.00	5.50	-	0.74
DESIGN LOAD F_{Rd}									
Ø5, Embedment depth 25mm	[kN]	0.06	-	0.08	0.06	0.20	0.10	0.06	-
Ø6, Embedment depth 30mm	[kN]	0.11	0.06	0.24	0.12	0.24	0.15	0.06	-
Ø8, Embedment depth 40mm	[kN]	0.28	0.30	0.36	0.20	0.30	0.25	0.08	-
Ø10, Embedment depth 50mm	[kN]	0.28	0.36	0.48	0.20	0.30	0.30	0.13	-
Ø12, Embedment depth 60mm	[kN]	2.50	1.60	2.80	1.00	1.80	1.75	-	0.33
Ø14, Embedment depth 70mm	[kN]	3.06	2.40	4.20	0.60	2.00	2.75	-	0.37
RECOMMENDED LOAD F_{rec}									
Ø5, Embedment depth 25mm	[kN]	0.04	-	0.06	0.04	0.14	0.07	0.04	-
Ø6, Embedment depth 30mm	[kN]	0.08	0.04	0.17	0.09	0.17	0.11	0.04	-
Ø8, Embedment depth 40mm	[kN]	0.20	0.21	0.26	0.14	0.21	0.18	0.05	-
Ø10, Embedment depth 50mm	[kN]	0.20	0.26	0.34	0.14	0.21	0.21	0.09	-
Ø12, Embedment depth 60mm	[kN]	1.79	1.14	2.00	0.71	1.29	1.25	-	0.24
Ø14, Embedment depth 70mm	[kN]	2.18	1.71	3.00	0.43	1.43	1.96	-	0.26

Product commercial data

Size	Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
4ALL Plug												
Ø5	4ALL-05	5	25	-	-	100	3200	204800	0.07	2.1	165.6	5906675028408
Ø6	4ALL-06	6	30	-	-	100	3200	204800	0.08	2.7	201.0	5906675028903
Ø8	4ALL-08	8	40	-	-	100	1600	102400	0.19	3.1	229.0	5906675028910
Ø10	4ALL-10	10	50	-	-	50	800	51200	0.19	3.0	223.2	5906675028927
Ø12	4ALL-12	12	40	-	-	20	320	17920	0.10	1.60	119.6	5906675159454
Ø14	4ALL-14	10	14	-	-	10	160	8960	0.08	1.22	98.1	5906675159478
4ALL Plug with screw												
Ø5	4ALL-05+3530	5	25	3.5	30	50	1600	102400	0.11	3.5	253.5	5906675028934
Ø6	4ALL-06+4540	6	30	4.5	40	50	1600	76800	0.20	6.3	333.5	5906675028941
Ø8	4ALL-08+5060	8	40	5	60	50	800	38400	0.37	6.0	315.8	5906675028958
Ø10	4ALL-10+6060	10	50	6	60	25	400	19200	0.30	4.8	260.5	5906675028965
Ø12	4ALL-12/80	12	60	8	80	10	160	8960	0.32	5.0	312.2	5906675159492
Ø12	4ALL-12/100	12	60	8	100	10	160	8960	0.59	9.4	557.7	5906675159515
Ø14	4ALL-14/100	14	70	10	100	10	160	8960	0.62	9.8	581.0	5906675159539

RAWL-IN-ONE Multi purpose plug

The all-purpose plug which accepts a variety of screw sizes

Product information

Features and benefits

- Flange ensures flush fit to surface. Can be collapsed for deep setting in solid materials
- Anti-rotation fins prevent spinning when tightening screw
- Engineered grip feature for extra holding power
- Twin expansion points for a strong fix in hollow, solid or combination materials
- Hollow walls (plasterboard, plywood, chipboard etc) sizes 5 & 6mm only
- Solid walls (brickwork, blockwork, concrete ets) and combination walls (dry lined walls) all plugs

Applications

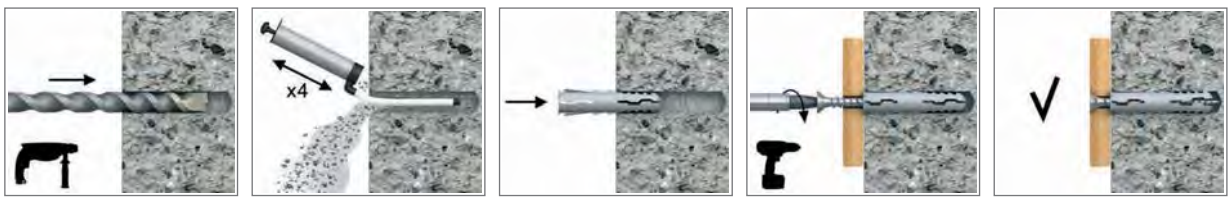
- Lighting
- Pictures
- Skirting / Dado railing
- Shelves
- Trunking
- Cable trays
- Electrical fittings

Base materials

Approved for use in:

- Concrete
- Solid Brick
- Hollow Brick
- Lightweight Concrete Block
- Aerated Concrete Block
- Chipboard
- Plasterboard
- Plywood

Installation guide



1. Drill a hole of required diameter.
2. Insert FIX plug into hole and tap home.
3. Insert screw of required diameter into plug through fixture and tighten.

Product information

Product Code	Plug	Screw	Hole diameter	
	Diameter	Range	Solid substrates	Hollow & Combination substrates
	[mm]			
R-RIO-48-C	5	3.0-5.0	5	4.5
	6	3.5-5.5	6	5.5
	8	4.5-6.0	8	7
	10	5.0-8.0	10	9

Basic performance data

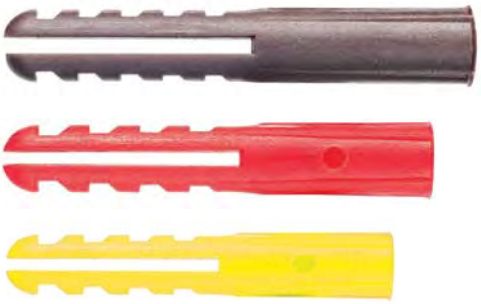
Substrate	5 mm	6 mm	8 mm	10 mm
MAXIMUM RECOMMENDED LOAD [kg]$_{rec}$				
Blockwork (Solid)	20	25	30	40
Brickwork (Solid)	25	30	35	50

Product commercial data

Size	Product Code	Plug	Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø5-Ø10	R-RIO-48-C	5-10	1	1	168	0,62	0,62	104,16	5010445676147

R-OLD Plastic Plug

All purpose cost effective fixing for medium and lightweight applications



Product information

Features and benefits

- Profiled Body for extra grip
- Anti-rotation fins prevent spinning during tightening of the screw
- Tree colour coded sizes for screws from 3-6mm diameter
- Additional sizes for screws 3-10mm

Applications

- Pictures
- Lighting
- Skirting / Dado railing
- Shelves
- Trunking
- Cable trays
- Electrical fittings

Base materials

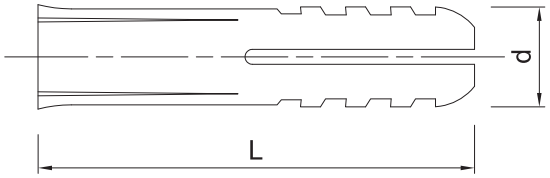
Suitable for use in:

- Concrete
- Solid Brick

Installation guide

1. Drill a hole of required diameter.
2. Insert FIX plug into the hole and tap home.
3. Insert screw of required diameter into plug through fixture and tighten.

Product information



Product Code	Description	Screw dimensions	Plug	Hole diameter
			Length	
			L	d
		[mm]		
R-OLD-YEL-20-NC	YELLOW	3.0-5.0	25	5
R-OLD-YEL-100-NC	YELLOW	3.0-5.0	25	5
R-OLD-YEL-100-C	YELLOW	3.0-5.0	25	5
R-OLD-YEL-300	YELLOW	3.0-5.0	25	5
R-OLD-YEL-1000	YELLOW	3.0-5.0	25	5
R-OLD-RED-20-NC	RED	3.5-5.5	35	6
R-OLD-RED-100-NC	RED	3.5-5.5	35	6
R-OLD-RED-100-C	RED	3.5-5.5	35	6
R-OLD-RED-300	RED	3.5-5.5	35	6
R-OLD-RED-1000	RED	3.5-5.5	35	6
R-OLD-BRN-20-NC	BROWN	5.0-6.0	45	7
R-OLD-BRN-100-NC	BROWN	5.0-6.0	45	7
R-OLD-BRN-100-C	BROWN	5.0-6.0	45	7
R-OLD-BRN-1000	BROWN	5.0-6.0	45	7
R-OLD-BRN-300	BROWN	5.0-6.0	45	7
R-OLD-MIX-300	ASSORTED yellow, red, brown	3.0-6.0	25.45	5.7

Product commercial data

Product Code	Description	Screw dimensions [mm]	Plug	Hole diameter [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
			Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
R-OLD-YEL-20-NC	YELLOW	3.0-5.0	25	5							5010445671258
R-OLD-YEL-100-NC	YELLOW	3.0-5.0	25	5	1	1	345	0.35	0.35	120.8	5010445671258
R-OLD-YEL-100-C	YELLOW	3.0-5.0	25	5	1	1	280	0.40	0.40	112.0	5010445671265
R-OLD-YEL-300	YELLOW	3.0-5.0	25	5	1	1	40	2.0	2.0	80.0	5010445679001
R-OLD-YEL-1000	YELLOW	3.0-5.0	25	5	1	50	320	5.4	270.0	1728.0	5010445679100
R-OLD-RED-20-NC	RED	3.5-5.5	35	6							5010445671388
R-OLD-RED-100-NC	RED	3.5-5.5	35	6	1	1	168	0.64	0.64	107.5	5010445671302
R-OLD-RED-100-C	RED	3.5-5.5	35	6	1	1	168	0.70	0.70	116.9	5010445671364
R-OLD-RED-300	RED	3.5-5.5	35	6	1	1	48	4.5	4.5	214.6	5010445679025
R-OLD-RED-1000	RED	3.5-5.5	35	6	1	24	288	0.55	13.3	159.3	5010445679131
R-OLD-BRN-20-NC	BROWN	5.0-6.0	45	7	1	10	120	1.04	10.4	124.8	5010445672378
R-OLD-BRN-100-NC	BROWN	5.0-6.0	45	7	1	1	56	1.02	1.02	57.2	5010445672316
R-OLD-BRN-100-C	BROWN	5.0-6.0	45	7	1	1	56	1.05	1.05	59.0	5010445672330
R-OLD-BRN-1000	BROWN	5.0-6.0	45	7	1	15	180	0.55	8.3	99.5	5010445679162
R-OLD-BRN-300	BROWN	5.0-6.0	45	7	1	1	21	6.24	6.24	131.0	5010445679049
R-OLD-MIX-300	ASSORTED yellow, red, brown	3.0-6.0	25.45	5.7	1	1	24	4.18	4.18	100.3	5010445679056

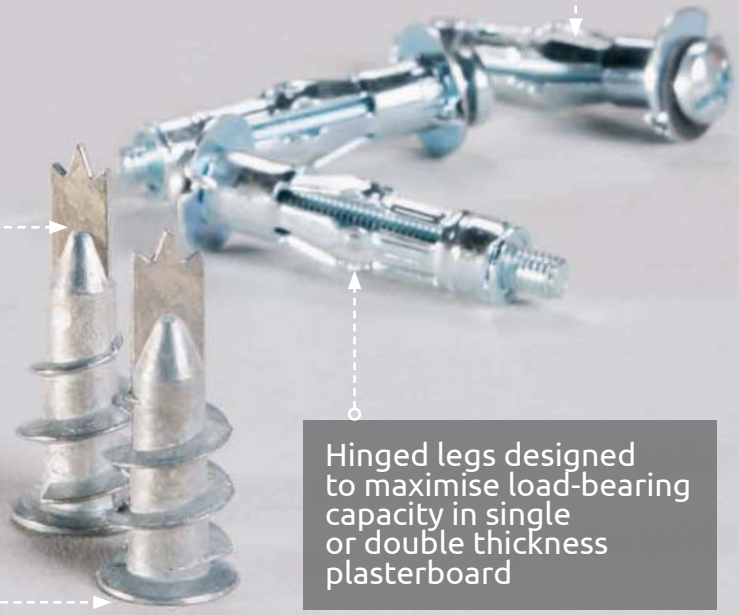
PLASTERBOARD FIXING

- DRA
- SM/SN Interset
- Tools
- SPO
- R-PB

Large contact area of expanded arms increases load-bearing capacity and security

No drill required - simply pierce paper skin and screw home

Flange prevents accidental pull through in plasterboard



Hinged legs designed to maximise load-bearing capacity in single or double thickness plasterboard

DRA Nylon self-drill fixing

Self-drilling light-duty nylon fixing for use in plasterboard and gypsum fibreboards

Product information

Features and benefits

- Flange prevents accidental pull through in plasterboard
- Can be used in single and double thickness plasterboard
- Short length ideally suited for dry lined walls
- Installation with a standard screwdriver means that no special tools are necessary
- Recommended screw diameter: 3.5 - 4.2 mm
- Must only be used with screws provided

Applications

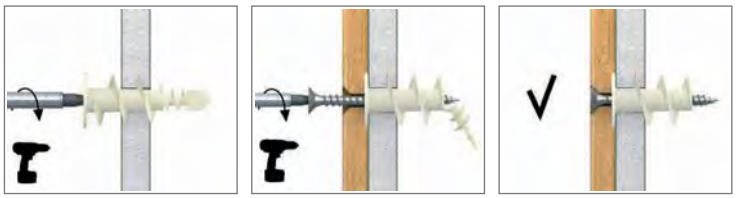
- Sockets, light switches and other electrical fittings
- Shelves and bathroom accessories on standard plasterboard
- Installation of ceiling fixtures, such as light fittings
- Light shelving, brackets and hooks
- Pictures
- Wood battens

Base materials

Suitable for use in:

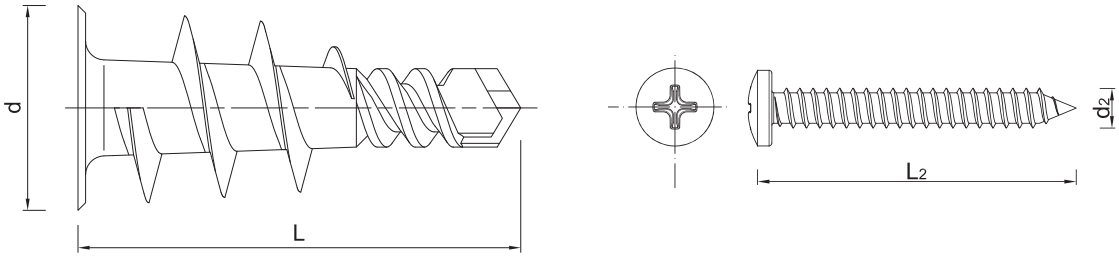
- Plasterboard
- Gypsum fibreboards

Installation guide



1. Using a PZ2 screwdriver, push fixing point firmly into the board until thread engages.
2. Maintaining a firm pressure, screw in fixing until flush with the base material.
3. Place fixture in position, insert screw and tighten until secure.

Product information



Product Code	Plug		Screw		Fixture	
	Diameter	Length	Diameter	Length	Max. thickness	Hole diameter
	d	L	d2	L2	t_{fix}	d_f
	[mm]					
DRA Nylon self-drill fixing						
R-DRA-01	14	22	-	-	12	5
DRA Nylon self-drill fixing with screw						
R-DRA-01PLUS	14	22	3.9	32	12	5

Installation data

Size			DRA-01
Fixing diameter	d	[mm]	22
Min. substrate thickness	h_{min}	[mm]	9.5
Installation depth	h_{nom}	[mm]	9.5
Min. spacing	s_{min}	[mm]	22
Min. edge distance	c_{min}	[mm]	22

Basic performance data

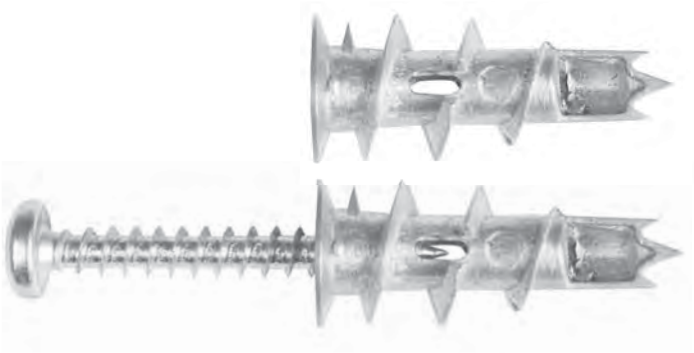
Substrate		Plasterboard min. 9.5 mm	Plasterboard min. 12.5 mm
CHARACTERISTIC LOAD F_{Rk}			
DRA-01	[kN]	0.23	0.25
DRA-01PLUS	[kN]	0.23	0.25
DESIGN LOAD F_{Rd}			
DRA-01	[kN]	0.09	0.10
DRA-01PLUS	[kN]	0.09	0.10

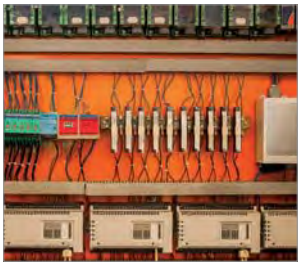
Product commercial data

Product Code	Plug		Screw	Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
DRA Nylon self-drill fixing										
R-DRA-01	14	22	-	100	1800	57600	0.15	2.7	116.4	5906675161044
DRA Nylon self-drill fixing with screw										
R-DRA-01PLUS	14	22	32	100	1600	38400	0.44	7.0	199.0	5906675161068

DRA Metal self-drill fixing for drywall

Self-drilling light-duty metal fixing for use in plasterboard sheets





Product information

Features and benefits

- Can be used in single and double thickness plasterboard
- Short length ideally suited for dry lined walls
- No drill required - simply pierce paper skin and screw home
- Ideal for use with either a power or manual PZ screwdriver in hard surfase of base materials
- Must only be used with screws provided

Applications

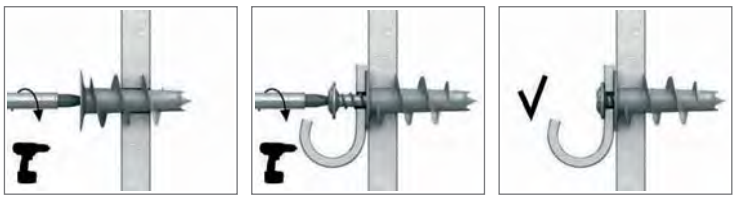
- Fixing electrical boxes, cable trunking, etc.
- Shelves and bathroom accessories on standard plasterboard
- Sockets, light switches and other electrical fittings
- Light shelving, brackets and hooks
- Timber or metal battens
- Pictures

Base materials

Suitable for use in:

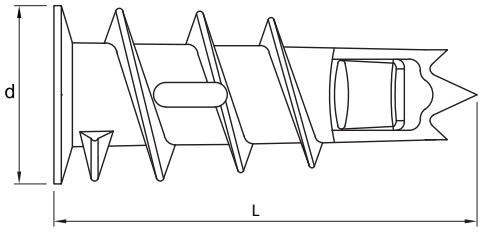
- Plasterboard
- Gypsum fibreboards
- Chipboard
- Oriented Strand Board
- Aerated Concrete Block

Installation guide



1. Using a PZ2 screwdriver, push fixing point firmly into the board until thread engages.
2. Maintaining a firm pressure, screw in fixing until flush with the base material.
3. Place fixture in position, insert screw and tighten until secure.

Product information



Product Code	Plug		Screw		Fixture	
	Diameter	Length	Diameter	Length	Max. thickness	Hole diameter
	d	L	d	L	t_{fix}	d_f
	[mm]					
R-DRA-02	14	28	-	-	12	5
R-DRA-02PLUS	14	28	4.2	32	12	5

Installation data

Size			DRA-02
Fixing diameter	d	[mm]	14
Min. substrate thickness	h_{min}	[mm]	9.5
Max. substrate thickness	h_{max}	[mm]	12
Installation depth	h_{nom}	[mm]	9.5
Min. spacing	s_{min}	[mm]	28
Min. edge distance	c_{min}	[mm]	28

Basic performance data

Substrate		Plasterboard min. 9.5 mm	Plasterboard min. 12.5 mm
CHARACTERISTIC LOAD F_{Rk}			
DRA-02	[kN]	0.15	0.19
DRA-03	[kN]	0.16	0.24
DRA-02PLUS	[kN]	0.15	0.19
DRA-03PLUS	[kN]	0.16	0.24
DESIGN LOAD F_{Rd}			
DRA-02	[kN]	0.06	0.08
DRA-03	[kN]	0.06	0.10
DRA-02PLUS	[kN]	0.06	0.08
DRA-03PLUS	[kN]	0.06	0.10

Product commercial data

Product Code	Plug		Screw	Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
DRA										
R-DRA-02	14	28	-	100	3200	76800	0.38	12.2	321.8	5906675135823
DRA with screw										
R-DRA-02PLUS	14	28	32	100	1600	38400	0.67	10.7	287.3	5906675235271

SM/SN Interset

Interset fixing for permanent anchorages in cavity walls. Zinc-plated metal fixing with metric screw

Versions:

- SM Interset with screw
- SM-K with Angle Hook
- SM-S with Eye Hook
- SN Interset

Product information

Features and benefits

- Product recommended for applications in fire resistant boards
- Due to extensive range the SM INTERSET is suitable for board building materials with a thickness 2-38mm, it allows for a number of different applications
- The fixing can be installed using normal screwdriver, or installation pliers
- One piece stamping, with integral thread and flange for increased reliability
- Hinged legs designed to maximise load-bearing capacity in single or double thickness plasterboard
- Large contact area of expanded arms increases load-bearing capacity and security
- Integral anti-rotation lugs
- Fixtures can be removed and re-fitted
- Combination head screw supplied

Applications

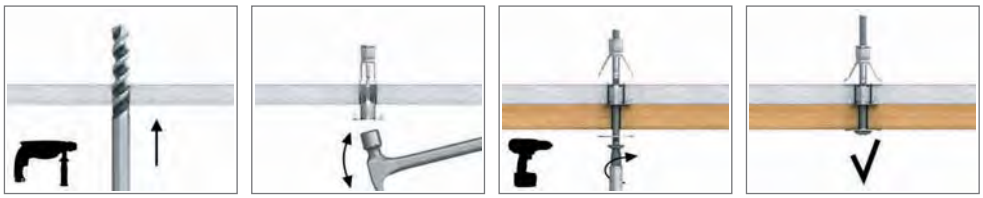
- Shelves and bathroom accessories on standard plasterboard
- Radiators and kitchen cabinets on double thickness and tiled plasterboard
- Pictures
- Lamps
- Towel rails
- Curtain rails
- Mirrors

Base materials

Suitable for use in:

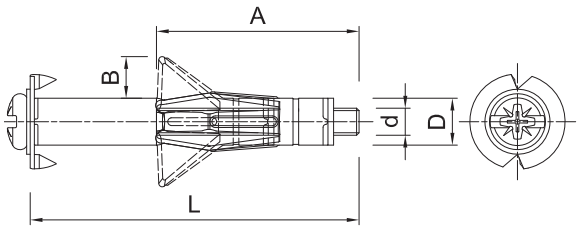
- Plasterboard
- Chipboard
- Oriented Strand Board

Installation guide



1. Drill a hole of required diameter.
2. Insert the fixing into the hole. Tap in lightly, ensuring that the anti-rotation lugs penetrate the face of the base material
3. With the hole drilled and the fixing inserted, the setting tool is used to pull the screw head, thus expanding the fixing body.

Product information



Product Code	Plug	Screw		Minimum clearance		Board thickness	Fixture	
	Diameter		Length					
	d	D	L	A	B	t_{fix}	Hole diameter	Max. thickness
R-SM-04020	8	4	20	16	5	2 - 5	8	15
R-SM-04032	8	4	32	25	7	2 - 10	8	15
R-SM-04038	8	4	40	25	8	8 - 15	8	15
R-SM-04046	8	4	54	26	7	15 - 21	8	17
R-SM-04059	8	4	66	16	8	34 - 38	8	17
R-SM-05037	10	5	40	27	9	5 - 13	10	15
R-SM-05052	10	5	52	40	13	6 - 16	10	24
R-SM-05065	10	5	65	38	15	15 - 28	10	20
R-SM-06037	12	6	37	27	8	8 - 12	12	18
R-SM-06052	12	6	52	38	13	13 - 15	12	20
R-SM-06065	12	6	65	38	13	15 - 28	12	25
R-SM-06080	12	6	80	40	12	32 - 35	12	23

Product Code	Dimensions	Drill diameter	Base material minimum thickness
	[mm]		
R-SN-04038	M4 x 38	8 - 15	8
R-SN-04046	M4 x 46	15 - 21	8
R-SN-05037	M5 x 37	5 - 13	11
R-SN-05052	M5 x 52	6 - 16	11
R-SN-06037	M6 x 37	8 - 12	13
R-SN-06052	M6 x 52	13 - 15	13
R-SN-06065	M6 x 65	15 - 28	13
R-SN-08065	M8 x 65	15 - 28	13

Installation data

Size			Ø4	Ø5	Ø6
Fixing diameter	d	[mm]	4	5	6
Hole diameter in substrate	d_0	[mm]	8	10	12
Min. substrate thickness	h_{min}	[mm]	9.5	9.5	9.5
Installation depth	$h_{nom, min}$	[mm]	9.5	9.5	9.5
Min. spacing	s_{min}	[mm]	25	25	25
Min. edge distance	c_{min}	[mm]	25	25	25

Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Plasterboard		Hollow door
		Board thickness 9.5mm	Board thickness 12mm	
CHARACTERISTIC LOAD F_{Rk}				
R-SM-04020	[kN]	-	-	10
R-SM-04032	[kN]	9	-	12
R-SM-04040	[kN]	10	12	-
R-SM-05040	[kN]	12	14	-
R-SM-05065	[kN]	-	16	-
R-SM-06052	[kN]	-	18	-

Product commercial data

Product Code	Plug	Screw	Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
SM Interset									
R-SM-04020	8	20	100	3200	76800	0.52	16.6	429.4	5906675172323
R-SM-04032	8	32	100	3200	76800	0.72	23.0	583.0	5906675172347
R-SM-04038	8	40	100	1600	38400	0.81	13.0	341.0	5906675172361
R-SM-04046	8	54	100	1600	38400	0.92	14.7	383.3	5906675004655
R-SM-04059	8	66	100	1600	38400	1.13	18.1	463.9	5906675004662
R-SM-05037	10	40	100	1600	38400	1.30	20.8	529.2	5906675172385
R-SM-05052	10	52	100	1600	38400	1.67	26.7	671.3	5906675172408
R-SM-05065	10	65	100	1200	28800	2.1	25.4	640.6	5906675172422
R-SM-06037	12	37	100	1200	28800	1.76	21.1	536.9	5906675172446
R-SM-06052	12	52	100	1200	28800	2.3	27.6	692.4	5906675172460
R-SM-06065	12	65	50	600	14400	1.31	15.7	407.3	5906675172484
R-SM-06080	12	80	50	600	14400	0.41	4.9	148.1	5906675004679
SN Interset Sleeve									
R-SN-04038	8 - 15	-	100	1800	-	-	-	-	5906675224015
R-SN-04046	15 - 21	-	100	1800	-	-	-	-	5906675172620
R-SN-05037	5 - 13	-	100	1800	-	-	-	-	5906675172644
R-SN-05052	6 - 16	-	100	1200	-	-	-	-	5906675172668
R-SN-06037	8 - 12	-	100	1200	28800	1.76	21.1	536.9	5906675172682
R-SN-06052	13 - 15	-	100	1200	28800	2.3	27.0	678.0	5906675172705
R-SN-06065	15 - 28	-	100	1200	28800	1.16	13.9	364.1	5906675172729
R-SN-08065	15 - 28	-	100	100	19600	1.58	1.58	339.7	5906675239606

Proffesional Tool for Interset

Setting tool for easy setting of interset cavity fixings

Proffesional Tool for Interset

Product Code	Use	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
AT-88RAWL	Proffesional	1	10	350	0.63	6.3	250.5	5906675906300

AT DIY Tool

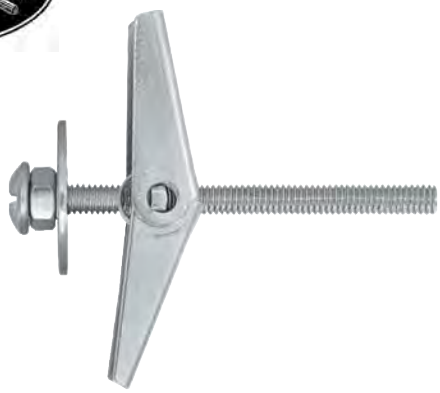
Economical setting tool for interset cavity fixing

AT DIY Tool

Product Code	Use	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
AT-88M	DIY	1	30	540	0.32	9.6	202.8	5906675906201

SPO Spring toggle

Spring toggle for cavity walls and large fixtures with pan head metric screw



Product information

Features and benefits

- The long threaded screw of the toggle fixings allows for use with different board thickness and thick attachements, offers maximum flexibility
- The wide transition beams ensure a good load distribution. This achieves a high load -bearing capacity
- Self-acting anchor with easy installation
- Suitable for overhead applications

Applications

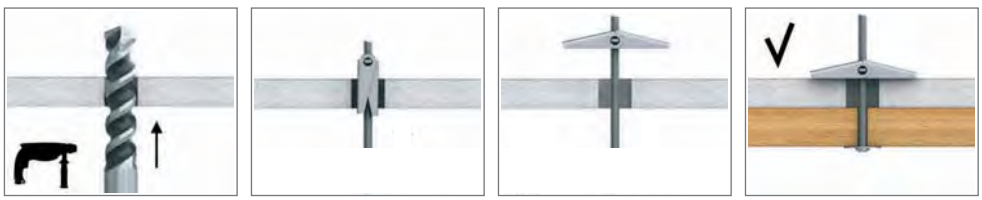
- Light shelving
- Brackets, grips and hooks
- Paintings
- Lamps
- Lighting
- Mirrors
- Shelves
- Other decorative elements

Base materials

Suitable for use in:

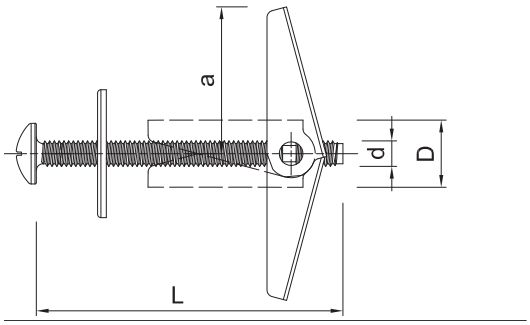
- Plasterboard
- Chipboard
- Oriented Strand Board
- Plastic

Installation guide



1. Drill a hole of the required diameter.
2. Compress the ‚wings' and push the fixing into the hole.
3. While tightening the screw, pull the fixture out from the wall or ceiling to prevent the ‚wings' spinning freely.

Product information



Product Code	Screw type	Wing		Screw		Fixture
		Diameter	Radius	Diameter	Length	Hole diameter
		d	a	d	L	d_f
		[mm]				
R-SPO450	pan head metric screw	12	25	4	50	14
R-SPO475Z	eye hook	12	25	4	75	14
R-SPO475	round hook	12	25	4	75	14
R-SPO-03050	metric screw	10	20	3	50	11
R-SPO-05050	metric screw	12	25	5	50	14
R-SPO-05080	metric screw	14	25	5	80	14
R-SPO-06060	metric screw	18	30	6	60	18
R-SPO-06080	metric screw	18	30	6	80	18

Installation data

Substrate			Plasterboard min. 9.5 mm	Plasterboard min. 12.5 mm
Fixing diameter	d	[mm]	4	4
Hole diameter in substrate	d_0	[mm]	14	14
Min. substrate thickness	h_{min}	[mm]	9.5	12
Installation depth	h_{nom}	[mm]	9.5	12
Min. spacing	s_{min}	[mm]	100	100
Min. edge distance	c_{min}	[mm]	100	100

Basic performance data

Substrate		Plasterboard min. 9.5 mm	Plasterboard min. 12.5 mm
MEAN ULTIMATE LOAD $F_{Ru,m}$			
SPO450	[kN]	0.55	0.56
SPO475Z	[kN]	0.58	0.54
SPO475	[kN]	0.59	0.58
CHARACTERISTIC LOAD F_{Rk}			
SPO450	[kN]	0.36	0.46
SPO475Z	[kN]	0.39	0.43
SPO475	[kN]	0.38	0.42
DESIGN LOAD F_{Rd}			
SPO450	[kN]	0.17	0.22
SPO475Z	[kN]	0.18	0.20
SPO475	[kN]	0.19	0.20
RECOMMENDED LOAD F_{rec}			
SPO450	[kN]	0.12	0.16
SPO475Z	[kN]	0.13	0.14
SPO475	[kN]	0.14	0.14

Product commercial data

Product Code	Wing	Screw	Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-SPO450	12	50	50	800	19200	0.67	10.7	286.3	5906675172743
R-SPO475Z	12	75	50	600	864000	0.03	0.34	522.5	5906675172781
R-SPO475	12	75	50	600	864000	0.03	0.32	487.9	5906675172767
R-SPO-03050	10	50	100	1600	38400	0.59	9.4	256.6	5010445944307
R-SPO-05050	12	50	100	100	40000	0.59	0.59	266.0	5906675206950
R-SPO-05080	14	80	100	100	40000	1.74	1.74	726.0	5010445944390
R-SPO-06060	18	60	50	50	20000	1.74	1.74	726.0	5010445944420
R-SPO-06080	18	80	50	50	11500	1.31	1.31	330.6	5010445944451

R-PB driven metal fixing for plasterboards

Metal fixing for plasterboards

Versions:

- R-BP
- R-BP-PlUS with screw

Product information

Features and benefits

- Steel fixing for medium and heavy weights
- Simple installation due to introductory thread
- Corrugated tip simplifies installation without previous drilling
- Expanding construction of the fixing prevents from its spin in the substrate during installation
- Flat head enables leveling fixing with the surface of the substrate
- Simple uninstallation without harming the substrate

Applications

- Sanitary appliances
- Wardrobes
- Curtain rods support
- Shelves support
- Heaters
- Convector heaters
- Kitchen appliances

Base materials

Suitable for use in:

- Plasterboard

Installation guide

Product commercial data

Product Code	Dimensions	Wall thickness	Screw diameter	Quantity [pcs]	Bar Codes
	mm	mm	mm	Box	
R-PB	30x12	9-13	Ø 3,5-5,0	100	5906675218977
R-PB-PLUS	30x12	9-13	Ø 4,0x40 mm	100	-

SPECIAL FIXINGS

- RAWLNUT Flexi Plug
- LSB/LSM Stair-tread fixings
- LSB-P
- FIX-ODBK
- KPM
- KPU

RAWLNUT Flexi Plug

Easy-to-install plug giving exceptional resistance to vibration and corrosion

R-RNT-RAWLNUT

R-RNT-RAWLNUT with screw

Product information

Features and benefits

- Resistant to vibration and corrosion
- Ideal for unknown substrates and irregular or oversized holes.
- Flush collar ensures secure clamping
- Made from synthetic rubber with a bonded brass insert for corrosion resistance

Applications

- Lighting
- Shelves
- Trunking
- Cable trays
- Electrical fittings
- Brackets, grips and hooks
- Pictures

Base materials

Suitable for use in:

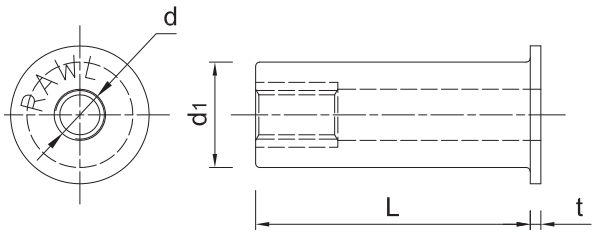
- Solid Brick
- Hollow Brick
- Vertically-perforated clay block
- Lightweight Concrete Block
- Hollow Lightweight Concrete Block
- Aerated Concrete Block
- Plasterboard
- Chipboard
- Oriented Strand Board
- Plastic

Installation guide

1. Drill appropriate hole. For solid materials, drill hole to length of screw. Clean out hole and remove sharp edges to avoid damaging fixing.
2. Insert the fixing up to its flange.
3. Place fixture in position. Insert screw and tighten to compress sleeve and form a secure fixing. Do not overtighten.
4. Work equally well in uniform or irregulary shaped holes.

Product information

R-RNT_RAWLNUT



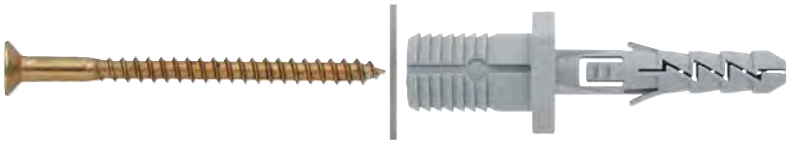
Product Code	Length	Hole diameter	Flange thickness	Grip range	Screw length
	L	d_1	t	d	l
	[m]	[mm]			
RAWLNUT Flexi Plug					
R-RNT-M4/12	12.6	8	1.4	0-4	-
R-RNT-M5/14	14.1	10	1.3	0-5	-
R-RNT-M6/16	16	13	1.3	0-3	-
R-RNT-M6/35	35	13	1.3	11-23	-
R-RNT-M6/50	50	13	1.2	26-38	-
R-RNT-M8/18	27.9	16	5	4-10	-
R-RNT-M8/50	50	18	2	15-39	-
R-RNT-M12/80	80	24	1.3	30-50	-
RAWLNUT Flexi Plug with screw					
R-RNT-M3X30	24	8	1.2	6-14	30
R-RNT-M4X20	12.6	8	1.4	0-4	20
R-RNT-M4X30	24	8	1.2	6-14	30
R-RNT-M5X40-50	39.8	10	1.3	20-30	50

Product commercial data

Product Code	Length [mm]	Hole diameter [mm]	Screw length [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
				Box	Outer	Pallet	Box	Outer	Pallet	
RAWLNUT Flexi Plug										
R-RNT-M4/12	12.6	8	-	50	900	21600	0.30	5.4	159.6	5010445090936
R-RNT-M5/14	14.1	10	-	50	900	21600	0.30	5.4	159.6	5010445091841
R-RNT-M6/16	16	13	-	50	900	21600	0.30	5.4	159.6	5906675087993
R-RNT-M6/35	35	13	-	50	900	21600	0.30	5.4	159.6	5010445094156
R-RNT-M6/50	50	13	-	50	900	21600	0.30	5.4	159.6	5906675088006
R-RNT-M8/18	27.9	16	-	50	800	19200	0.60	9.6	260.4	5906675088013
R-RNT-M8/50	50	18	-	50	900	21600	0.30	5.4	159.6	5010445095337
R-RNT-M12/80	80	24	-	20	360	8640	0.68	12.2	323.8	5010445096549
RAWLNUT Flexi Plug with screw										
R-RNT-M3X30	24	8	30	50	900	21600	0.30	5.4	159.6	5906675087986
R-RNT-M4X20	12.6	8	20	50	900	21600	0.30	5.4	159.6	5010445091001
R-RNT-M4X30	24	8	30	50	900	21600	0.30	5.4	159.6	5010445091308
R-RNT-M5X40-50	39.8	10	50	50	900	21600	0.55	9.9	267.6	5010445093173

LSB STAIR-TREAD Fixings for concrete

Easy-to-install stair-tread fixings for installation staircase stringers.



Product information

Features and benefits

- Fixing requires a very small cavity due to the short expansion element, it is suitable even for narrow steel profiles
- The elastic shaft geometry allows for the absorbtion ob vibrations, prevents creaking and increases comfort
- The plastic washer include with fixing allow to level out any unevennes in the base material
- Anti-rotation fins prevent spinning during tightening of the screw
- Engineered grip feature for extra holding power
- Two-way expansion mechanism provides a strong anchorage in solid base materials

Applications

- Wooden step treads

Base materials

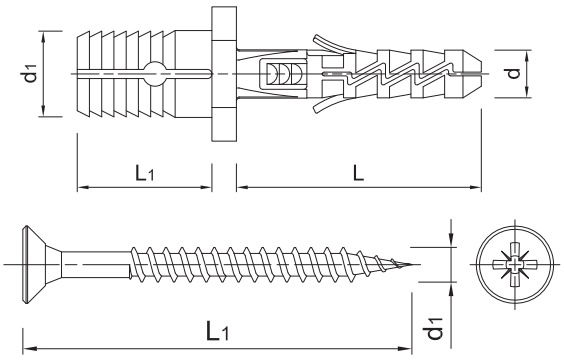
Suitable for use in:

- Metal Sheet & Profiles

Installation guide

1. Drill a hole of required diameter and depth in the concrete step/stringer.
2. Using the 'Centre Punch for Stair Treads' accessory, mark the corresponding point on the underside of the timber stair tread, by positioning the tread, then pressing down firmly onto the punch.
3. Using an HSS or wood bit, drill a hole of required diameter and depth at the marked position on the underside of the stair tread.
4. Insert the plug part of the 'Stair Tread Fixing' into the hole in the concrete, then insert the screw and tighten until secure.
5. Apply a small amount of glue/adhesive in to the hole in the stair tread. Allow time for adhesive to set.
6. Fit the stair tread, by pushing the pre-drilled hole (with adhesive) down onto the protruding part of the fixing.

Product information



Product Code	Plug			
	Diameter	Length	Diameter	Length
	L	L	d_1	L1
	[mm]			
LSB STAIR-TREAD FIXINGS FOR CONCRETE				
R-LSB	8	40	14	22

Product commercial data

Product Code	Plug			Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
R-LSB	8	40	22	25	800	19200	0.39	12.6	331.2	5906675135861

LSM STAIR-TREAD Fixings for steel

Easy-to-install stair-tread fixings for staircase stringers

Product information

Features and benefits

- Short expansion element to work in all materials including narrow steel profiles
- Elastic shaft geometry absorbs vibration and prevents creaking
- Plastic washers are included to compensate for surface irregularities
- Engineered grip feature for extra holding power
- Anti-rotation fins prevent spinning during tightening of the screw
- Two-way expansion mechanism provides a strong anchorage in solid base materials

Applications

- Wooden step treads

Base materials

Suitable for use in:

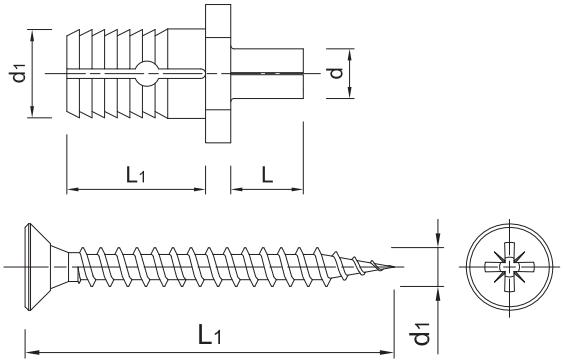
- Concrete
- Solid Concrete Block
- Solid Brick
- High-Density Natural Stone
- Aerated Concrete Block
- Metal Sheet & Profiles

Installation guide

1. Drill a hole of required diameter and depth in the metal profile.
2. Using the 'Centre Punch for Stair Treads' accessory, mark the corresponding point on the underside of the timber stair tread, by positioning the tread, then pressing down firmly onto the punch.
3. Using an HSS or wood bit, drill a hole of required diameter and depth at the marked position on the underside of the stair tread.
4. Insert the plug part of the 'Stair Tread Fixing' into the hole in the metal profile, then insert the screw and tighten until secure.
5. Apply a small amount of glue/adhesive in to the hole in the stair tread. Allow time for adhesive to set.
6. Fit the stair tread, by pushing the pre-drilled hole (with adhesive) down onto the protruding part of the fixing.

Product information

LSM



Product Code	Plug			
	Diameter	Length	Diameter	Length
	L	L	d_1	L1
	[mm]			
LSM STAIR-TREAD FIXINGS FOR STEEL				
R-LSM	9	10	14	20

Product commercial data

Product Code	Plug			Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]		Box	Outer	Pallet	Box	Outer	Pallet	
R-LSM	9	10	20	25	800	19200	0.34	10.9	291.1	5906675135878

LSB-P CENTRE PUNCH FOR STAIR TREADS

Easy-to-use centre punch for installation of staircase stringers

Product information

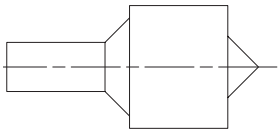
Features and benefits

- Centre punche for stair treads precise installation.

Applications

- Stairs

Product information



Product commercial data

Product Code	Plug	Quantity [pcs]
	Diameter [mm]	Box
R-LSB-P	8.0	2
R-LSM-8	9.0	2

Installation guide

1. Drill a hole of required diameter and depth in the concrete step/stringer.
2. Using the 'Centre Punch for Stair Treads' accessory, mark the corresponding point on the underside of the timber stair tread, by positioning the tread, then pressing down firmly onto the punch.
3. Using an HSS or wood bit, drill a hole of required diameter and depth at the marked position on the underside of the stair tread.
4. Insert the plug part of the 'Stair Tread Fixing' into the hole in the concrete, then insert the screw and tighten until secure.
5. Apply a small amount of glue/adhesive in to the hole in the stair tread. Allow time for adhesive to set.
6. Fit the stair tread, by pushing the pre-drilled hole (with adhesive) down onto the protruding part of the fixing.

FIX-ODBK DOOR STOP FIXINGS

Doorstop to prevent damage to walls

Product information

Features and benefits

- Concealed fixing element for aesthetic appeal
- The doorstop is available in a range of colours to suit every floor covering and individual design wishes.
- Small edge distances achievable.
- Elastic shaft geometry absorbs impact
- Anti-rotation fins prevent spinning during tightening of the screw.
- Engineered grip feature for extra holding power.
- Two-way expansion mechanism provides a strong anchorage in solid base materials.

Applications

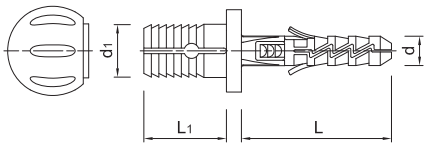
- Fixing (for installation of doors and windows)

Base materials

Suitable for use in:

- Concrete
- Solid Concrete Block
- Natural Stone
- Solid Brick
- Aerated Concrete Block

Product information



Product commercial data

Product Code	Description	Plug			Quantity [pcs]			Weight [kg]			Bar Code
		Diameter	Length	Length							
		d	L	L1	Box	Outer	Pallet	Box	Outer	Pallet	
		[mm]									
R-FIX-ODBK-01	WHITE	8	40	21	15	240	5760	0.33	5.3	156.7	5906675138985
R-FIX-ODBK-04	BLACK	8	40	21	15	240	5760	0.33	5.3	156.7	5906675138992

Installation guide

1. Drill a hole of required diameter.
2. Insert FIX-ODBK plug into hole and tap home.
3. Insert screw of required diameter into plug and tighten.
4. Put the doorstop on the external part of fixing.

KPM WC OR BIDET FIXING SET

Fixing kit for floor mounted WC

Product information

Features and benefits

- Complete fixing set allows quick and easy installation.
- Anti-rotation fins prevent spinning during tightening of the screw.
- Engineered grip feature for extra holding power.
- Two-way expansion mechanism provides a strong anchorage in solid base materials.

Applications

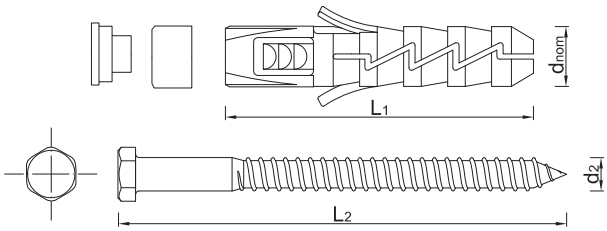
- WC installation

Base materials

Suitable for use in:

- Solid Sand-lime Brick
- Concrete
- Solid Brick
- High-Density Natural Stone
- Solid Concrete Block

Product information



Product commercial data

Product Code	Material	Plug		Screw		Quantity [pcs]		Weight [kg]		Bar Codes
		Diameter d_{nom}	Length L1	Diameter d2	Length L2	Box	Outer	Box	Outer	
		[mm]								
R-KPM100	Plastic	10	50	6	80	1	500	0.04	18.5	5906675134925
R-KPM100A	Aluminium	10	50	6	80	500	500	18.5	18.5	5906675080246

Installation guide

1. Drill a hole of required diameter.
2. Insert FIX plug into hole and tap home.
3. Insert screw (with sleeve) into plug through fixture and tighten. Press cover cap onto screw head

KPU WASHBASIN FIXING SET

Fixing kit for wall mounted washbasin

Product information

Features and benefits

- Flanged nuts and collar sleeves made of high--resistant for ageing and chemicals material guarantee a long-lasting fixing.
- Cover caps with a high-quality chrome finish ensure the fixture remains visually attractive for a long period of time.
- Complete fixing set allows quick and easy installation.
- Anti-rotation fins prevent spinning during tightening of the screw.
- Engineered grip feature for extra holding power.
- Two-way expansion mechanism provides a strong anchorage in solid base materials.

Applications

- Washbasin installation

Base materials

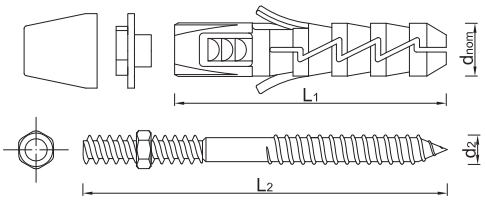
Suitable for use in:

- Concrete
- Solid Concrete Block
- High-Density Natural Stone
- Solid Brick
- Solid Sand-lime Brick

Installation guide

1. Drill a hole of required diameter.
2. Insert FIX plug into hole and tap home.
3. Insert screw (with plastic washer) into plug through fixture and tighten the nut. Press cover cap into position over head of fixing

Product information



Product Code	Plug		Screw		Colour
	Diameter	Length	Diameter	Length	
	d_{nom}	L1	d2	L2	
	[mm]				
R-KPU100	10	50	8	80	White
R-KPU120	12	60	8	100	White
R-KPU140	12	60	8	120	White
R-KPU141	14	70	10	140	White
R-KPU120	12	60	8	100	Silver

Product commercial data

Product Code	Plug		Screw		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
R-KPU100	10	50	8	80							
R-KPU120	12	60	8	100	1	100	1600	0.09	9.3	178.3	5906675270517
R-KPU140	12	60	8	120	1	75	1800	0.11	7.9	219.1	5906675270531
R-KPU141	14	70	10	140	1	65	1560	0.19	12.6	332.1	5906675270548
R-KPU120	12	60	8	100	1	100	1600	0.09	9.3	178.3	5906675270517

More from Rawlplug

Efficacy in the hardest conditions

We are proud to present innovative fixing from the ***Bonded Anchors and Mechanical Anchors*** group designed for the heavy loads demanded by industrial construction. Among our products you will find unique solutions to enable you to achieve maximal amounts with any kind of substrate. Knowledge backed-up with experience guarantees the effectiveness of our fixings and the success of your investment.

Durability and versatility

Our wide range of expansion plugs made of synthetic materials and metal, for low and medium loads, have been used for years for both industrial and residential construction. Incredibly durable FF1 from frame fixings group, universal in use 4ALL and UNO Plug, no. 1 on the UK market, are leading products of RAWLPLUG®'s offer in the field of ***Lightweight Fixings***, designed with every substrate in mind.

Innovations in Energy Saving construction

As a leading producer of façade insulation fixings we would like to present to you our wide array of products used in energy saving constructions. The Reliability and simplicity of our solutions combined with their ease of installation make them the most popular and desired by professionals. We invite you to familiarize yourselves with our offer for ***Façade Insulations Fixings***.

Excellent resistance for high loads

Thanks to our close cooperation with roof covering product producers, and our insight into the needs of investment contractors, our ***Roofing Insulations Fixings*** are one of the most popular among European roof fixing system producers. We invite cooperation from engineers, architects, and roof works contractors. And encourage you to try out our calculation software "ROOFIX" today.

Safety Certificate

Stepping towards the needs of customers, and increasing the general level of safety in closed spaces, we have created a protection system event of which in the combustion prevents fire and smoke from spreading. We invite you to acquaint with our offer for ***Passive Fire Protection Systems***, which hold the European Conformity Assessment.

Guarantee of lasting quality

Thanks to our constant monitoring of the production of assortments from our ***Sealants and Adhesives*** range we guarantee the constant and repeatable quality of our products. Their wide range of application possibilities and high efficiency has enabled us to rank among the top 5 of companies in the construction chemistry industry for years.

Maximal weather resistance

Rawlplug® ***Fasteners*** guarantee reliability of connections and maximal weather resistance. Our products, thanks to the use of appropriate materials and adoption of modern anticorrosion coating, pass even the hardest tests, matching the expectations of the most demanding clients. In our rich offer of screws characterized by extraordinary ease of installation, one may find perfect kind of connection for any kind of material and substrate.

Save time and minimize costs

In our offer of ***Direct Fastening Systems*** you may find, among others, highly effective pneumatically and gas powered nailers with accessories, compressors and an innovative and ergonomic rebar tier. We invite you to familiarize yourselves with the capabilities of Rawlplug® tools, which can significantly increase the comfort and effectiveness of work at any construction site.

Maximal effect of optimal offer

In order to ease the application and proper use and installation of our products, we supplement the our assortment of fixings with a precisely composed offer of ***Power Tool Accessories***. They include, among others, European-made drills of the highest quality, as confirmed with a Sichersafe certificate. We invite you to familiarize yourselves with our offer of accessories for professional installation techniques of the Rawlplug® brand.

Unique and exclusive exposition

Rawlplug ***POS Essential Offer*** it is a unique and complete solution designed for product exposition in building wholesale and retail stores. The POS system is based on easily configurable rack components enhanced with expansive information elements and additional decorations, as well as a combination of individual packages in form of innovative Rawlplug Bag and cutting-edge cardboard boxes.

RAWLPLUG®

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