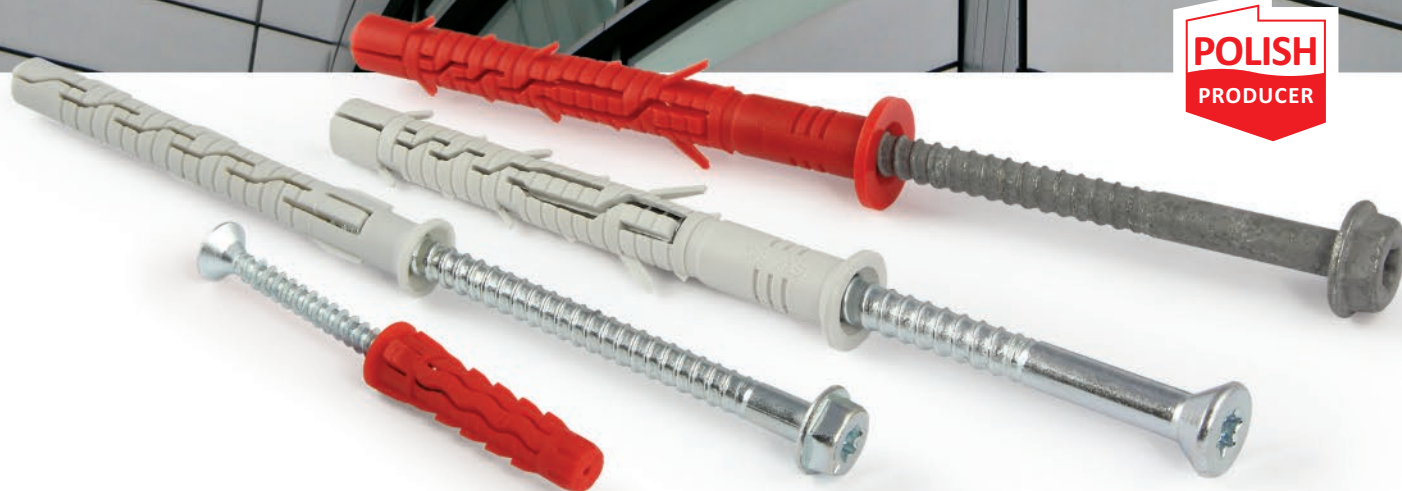
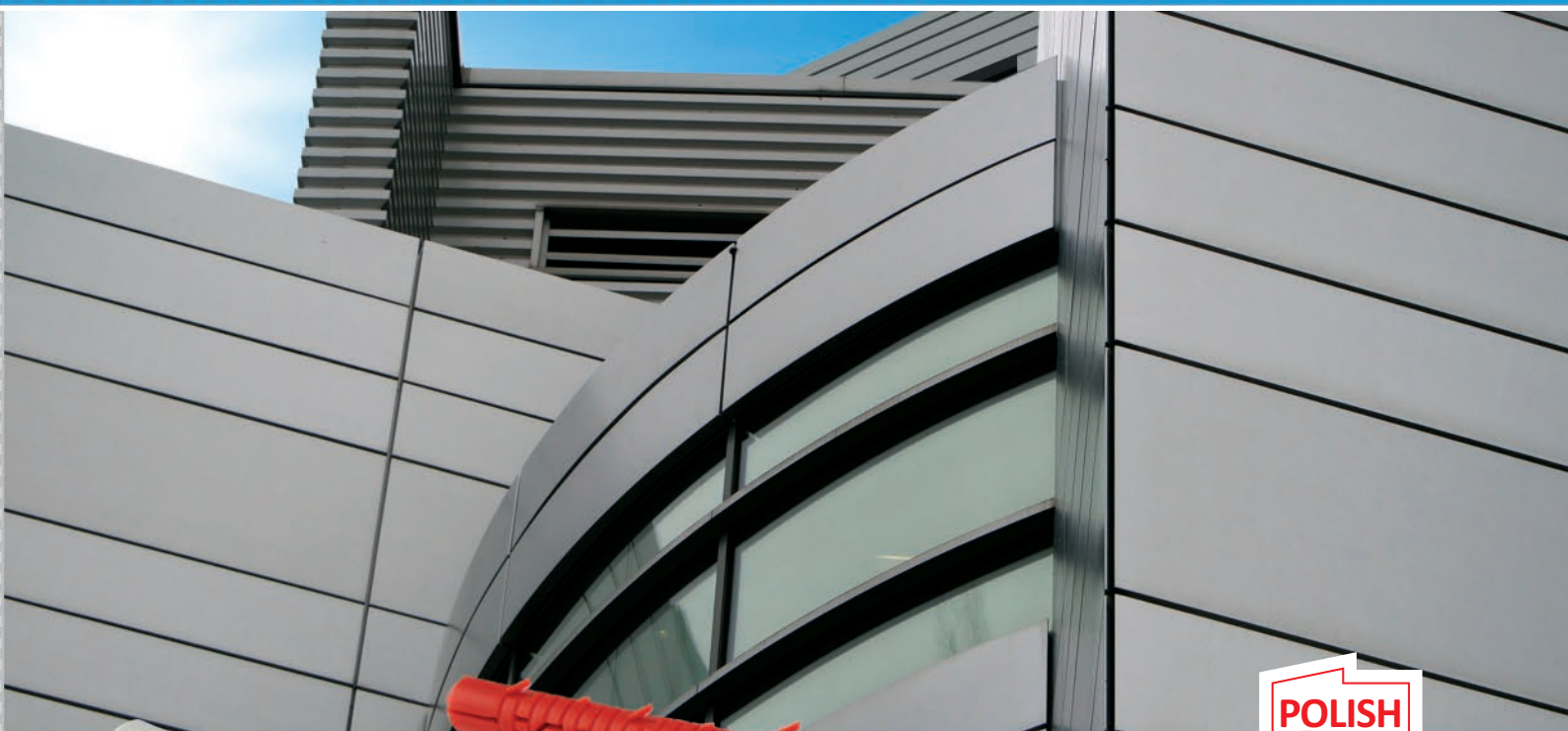


**Wkręt-met<sup>®</sup>**

**KLIMAS**

## FRAME AND GENERAL PURPOSE FIXINGS

2017







## The largest manufacturer of fastening systems in Poland

Klimas Wkręt-Met is the largest manufacturer of high quality fastening systems in Poland and Eastern and Central Europe. For years, the company has set standards in fastening technology. Our offer includes screws for installation in PVC; window and door fixings; frame and expansion anchors; fasteners for thermal insulation systems being an important element of passive houses; hardened screws and woodworking fasteners; self-drilling and self-tapping screws for steel sheets and roofing elements; mechanical and chemical anchors, metric bolts and screws, drywall anchors.

Klimas Wkręt-Met sends its products to over 60 countries. The company started its operations in 1990. It was developed as a continuation of a family-run business dealing in production of plastic elements.

Initially, it was a site of 300 square meters with several production machines and limited storage facilities. Much has changed since that time.

Today, the company's production area covers over 50,000 square meters including a few production buildings and central high-bay storage area with a pallet racking system able to store over 24,000 pallets.

The area intended for new investments covers as much as 100,000 square meters.

Wkręt-Met was the first company in Poland to have been granted a European Technical Approval for building products in 2005 and today the company holds 20 such approvals. Our other products have national technical approvals. Those certificates, proved by the tests conducted by both Polish and German certification bodies, confirm that the products we offer are of the highest quality.





## Own production facilities

### high production capacity

Independent production stands for continuous development and extension of the technological park. At present Wkręt-met production has a host of facilities at its disposal including:

- over 100 injection moulding machines,
- 200 presses and rolling mills (which can be used to manufacture metric screws Class 10.9 and 12.9 as well as A2 and A4 stainless steel screws),
- modern tool shop with advanced machining centres,
- a twenty-first century quality control department.

Our production facilities grant us independence at every stage of the production process. Our own facilities combined with high production capacity and quality control results in products which meet today's market demands. The in-house quality control ensures that consistent, repeatable products are manufactured which meet critical requirements.

## Custom-made products

Thanks to our wide experience and modern production facilities we offer custom-made products designed to meet individual customer needs. We provide product design, manufacture, control and packing as requested by the customer.



*Production area - over 200 presses and rolling mills*



*Production area - multifunction presses*



*Production area - injection moulding department*



**25** years  
We build  
the quality  
together!

*Production area - injection moulding department, over 100 modern machines*



# MANUFACTURE

## Metal products manufacturing process

- best quality material from European steelworks,
- a variety of steel grades (low carbon steel, A2 AISI 304 stainless steel, A4 AISI 316 acid resistant steel, heat-treatable steel),
- own research and product development department,
- large machine park,
- hardening (heat treatment),
- applying protective anti-corrosion coatings - zinc electroplating or ceramic coating,
- heads and washers available in the RAL colours,
- a wide range of solutions - suited for specific fixture and substrate,
- production offer of class 10.9 and 12.9 screws,
- quality control at each stage of manufacture,
- Polish and European technical approvals

**1 300 TONS  
OF METAL  
PRODUCTS**

**PROCESSED  
MONTHLY**

## DESIGN



**1**

## METAL PRODUCTS

## MANUFACTURING PROCESS



**4**

## GALVANIZING PLANT AND PAINT SHOP



**3**

## HARDENING PLANT



**2**

## PRESSES AND ROLLING MILLS





**PACKING**

**PRODUCTS EXPORTED  
TO MORE THAN 60  
COUNTRIES**



**DISPATCHING**



**STORING**

**RACKING SYSTEMS ABLE TO  
STORE 24 000 PALLETES**

**1**

100% of our screws are controlled

**2**

X-ray spectrometer

**3**

Measurement characteristics control

**4**

Vickers microhardness tester

**QUALITY  
CONTROL**

**AT EACH STAGE OF  
MANUFACTURE**



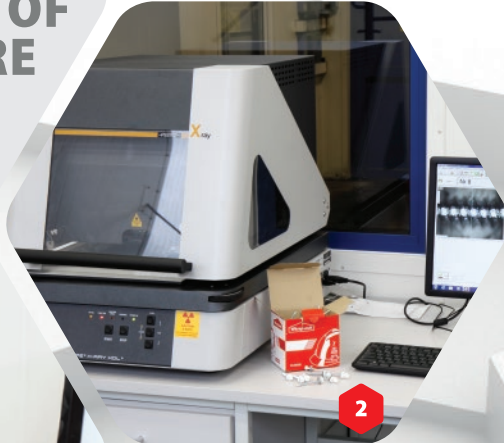
**1**



**4**



**3**



**2**



# MANUFACTURE

## Plastic products manufacturing process

- top quality production material, polyamide, polyethylene, polypropylene,
- conditioning of polyamide products which ensures their elasticity,
- a wide range of products for universal and special application,
- own production facilities including best quality hybrid injection moulding machines with robots,
- automatic packaging process: from box/blister pack to pallet wrap



**700 TONS  
OF PLASTIC  
PROCESSED  
MONTHLY**

## DESIGN



## PLASTIC PRODUCTS

## MANUFACTURING PROCESS



**INJECTION  
MOULDERS**



**INJECTION MOULDERS**



**CNC MACHINE  
TOOLS**





**PACKING**

**PRODUCTS EXPORTED  
TO MORE THAN 60  
COUNTRIES**



**DISPATCHING**



**STORING**

**RACKING SYSTEMS ABLE TO  
STORE 24 000 PALLETS**

**1**

Axial load testing

**2**

Fasteners' load capacity testing  
- testing machine

**3**

Fasteners' load capacity testing  
- fastenings tester

**4**

Measurement  
characteristics control

**QUALITY  
CONTROL**

**AT EACH STAGE OF  
MANUFACTURE**



**1**



**4**



**3**



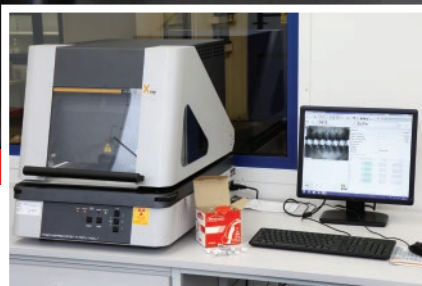
**2**



## 100% OF OUR SCREWS ARE CONTROLLED



**MEASURING  
MICROSCOPE**



**X-RAY  
SPECTROMETER**



**SALT SPRAY  
CHAMBER**

Klimas Wkręt-met machinery park now boasts equipment for the 100 percent control of our screws. The new optic equipment makes it possible to control the whole product batch after it has been manufactured and before it is packed. The parameters checked include length, body diameter, thread diameter, head size, quality of the drive, pitch and thread length, tip and others. Screws which successfully pass the control procedure are sent to be packed whereas those which do not comply with the standard are rejected.



Our company is set on continuous improvement of its production control processes at each stage of manufacture. We wish to provide our customers with services of the highest-possible standard. To achieve that we have implemented the Quality Management System and have held the ISO 9001:2008 standard for a number of years now. Satisfying the standard requirements is continuously verified by both internal and external audits, which prove our successful operation at each stage of activity.

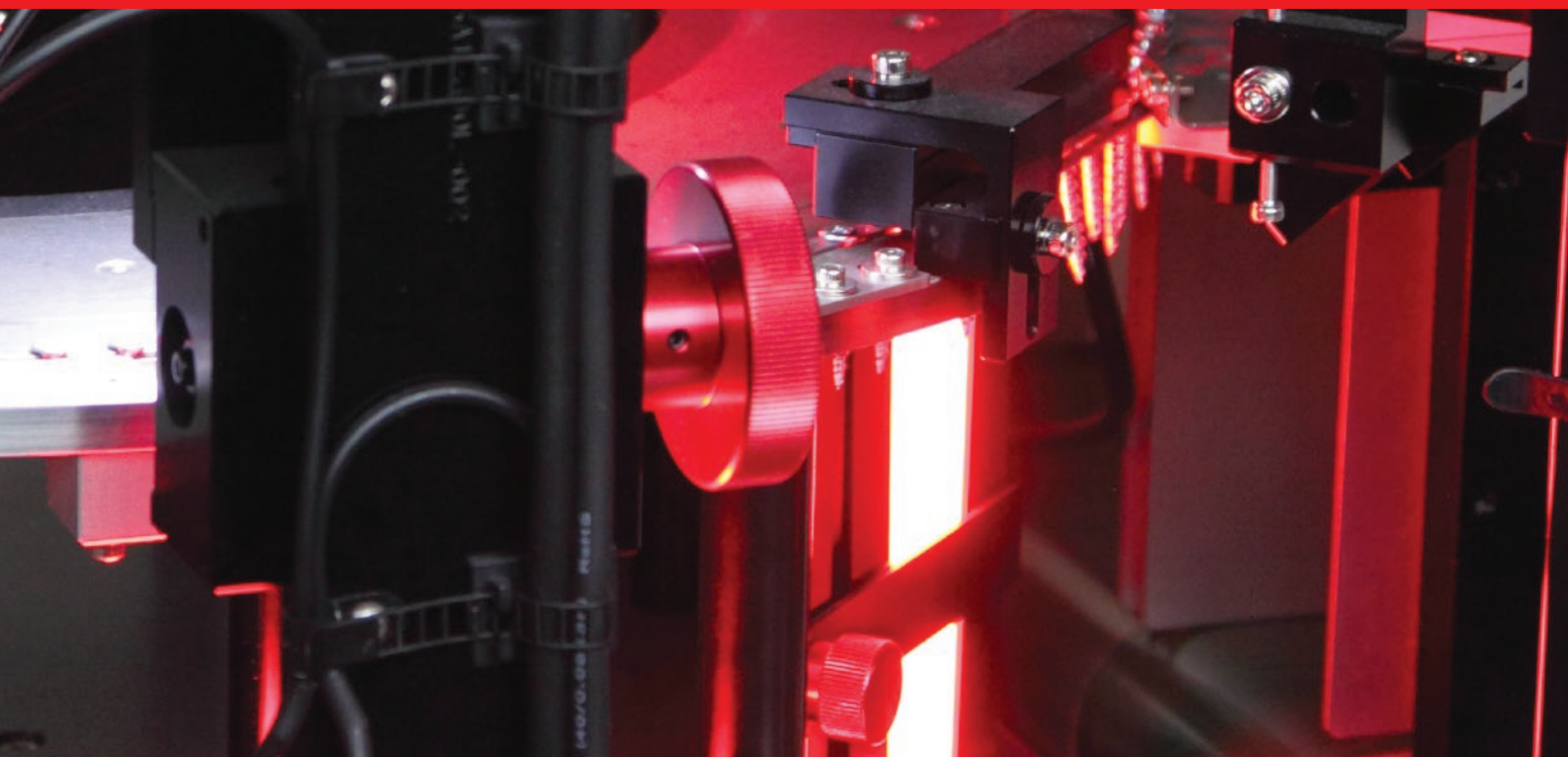


**CALIBRATION OF OUR CONTROL AND  
MEASUREMENT INSTRUMENTS**

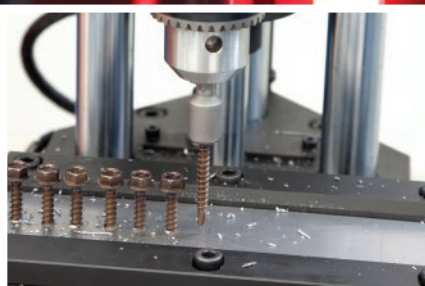


# FROM BEGINNING TO END

**Wkręt-met**  
**KLIMAS**



**PULL OUT  
TESTING**



**INSTALLATION  
TIME TESTING**



**STRENGTH  
TESTING**

We have started a high-tech quality-control laboratory to ensure the highest quality of the products on offer. Our laboratory is equipped with measuring microscope, X-ray spectrometer, salt spray chamber, load capacity testing machine, Vickers microhardness tester, Rockwell hardness tester, torque converters, permascope and a number of other equipment, which allow us to:

- check and control paint and zinc coat thickness;
- check resistance of protective coating to highly corrosive environments;
- check hardness of the screw surface and body, thickness of carburized layer;
- compute the torque required for a given screw to be driven in;
- test the pull-out strength;
- compute rigidity of the support washer;
- calculate the time needed to drive in a self-driving screw;
- and many others.



***Is quality important for you?  
It IS for us!***







## FRAME AND GENERAL PURPOSE FIXINGS

### Contents:

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General information	11
Product index	18 - 23
<b>PRODUCTION PROGRAMME:</b>	
Frame fixings	25
Hammer drive fixings	61
Metal anchors	71
Universal fixings	85
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### Design and materials

All expansion drive fasteners have a similar design: they consist of a plastic sleeve and a steel screw. The sleeve resembles a cylinder of 5 mm to 16 mm in diameter and it has various cuts. This ensures tight fixing of the plug in the hole in solid materials and form locking fixing in hollow materials.



Fig. Fastener parts: a) sleeve b) screw

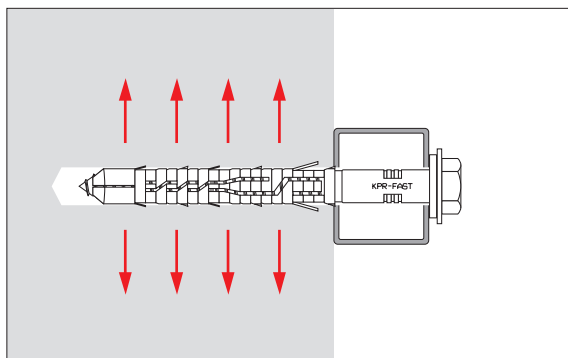


Fig. Forces

The plastic parts are mostly made of polypropylene - PP, polyethylene - PE, or material with better physical and chemical properties: polyamide - PA (nylon). The screws are made of carbon steel or steel intended for heat treatment and zinc-plated or hot-dip zinc galvanized. Screws for external applications or screws used in corrosive environments are made of A2 stainless steel or A4 acid resistant steel. Screw heads come with different drives - Philips, torx, hex head, depending on the type and size of fixing.





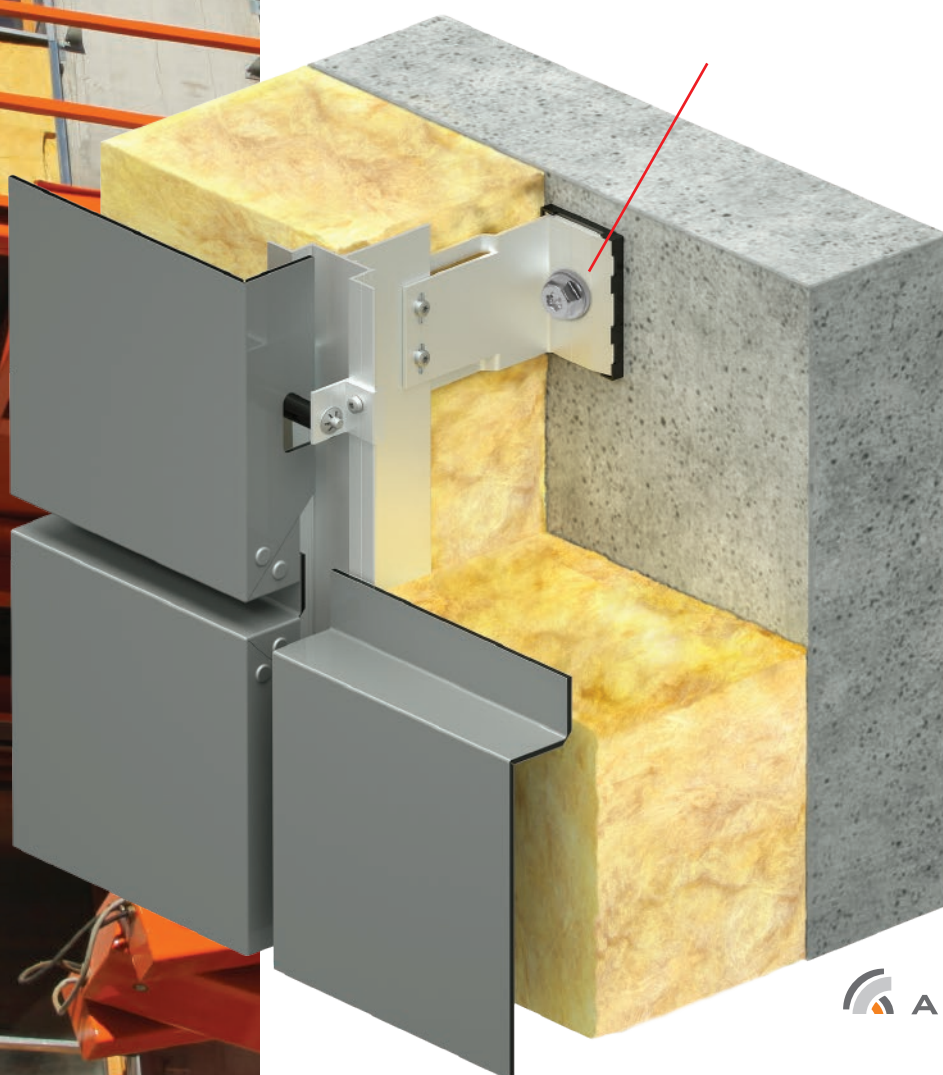
### Basic criteria for selecting expansion plugs

When selecting a fastener you should consider the substrate it is to be installed in and the type of anchorage. There are some basic criteria for fastener selection:

#### - type of anchorage (connecting structural or non-structural elements)

Check if structural elements are connected (beams, poles, wall plates, stair supports, mechanical assemblies for ventilated facades, dry wall systems, windows, heavy chandeliers, furniture, etc.) or lightweight elements of fittings are mounted (skirting boards, lamp brackets, picture frames, etc.). For structural elements fasteners with larger diameter, 10 mm, 12 mm and more, should be selected, and for lightweight elements fasteners from 6 to 8 mm in diameter can be used.





KPR FAST frame fastener used for connecting structural elements.  
Fastening of ventilated facade bracket





### - type of substrate (concrete, hollow clay brick, aerated concrete, plasterboard)

The type of substrate highly affects the anchorage strength. Concrete and solid materials show best load bearing capacity, while hollow materials (hollow clay and sand-lime bricks) limit the strength of anchorage due to their brittleness and irregular internal structure (different distribution of solid shells or webs and hollow materials). The capacity of aerated concrete depends on its density: class 600 blocks have twice the strength of class 350 blocks for the same fastener. Plasterboards are suitable only for installing lightweight fittings with form locking fasteners. Fitting furniture or other heavy elements to plasterboards should be considered when constructing the wall frame, which should have additional supports in places where fixings are to be made, e.g. metal or wooden studs and tracks. Incorrect use of fixings may result in poor load bearing capacity of the connection and lead to a failure or collapse.

Type of substrate according to ETAG020	Description	Category
	normal weight concrete	A
	solid masonry brick	B
	perforated (hollow) masonry	C
	autoclaved aerated concrete (AAC)	D

### - fastener loading

When selecting the right fixing, it is necessary to determine the load that the fastener is going to carry. This can include tensile load - which pulls the fastener out of the substrate and is applied along the axis, shear load - which is perpendicular to the axis, and bending load - which is a tensile force acting along a radius, e.g. when fixing thick members. The right type of fastener should be specified in the construction design.

When selecting the right fastener for commercial applications (furniture assembly or curtain rails/rods mounting), you should consider not only the weight of the fitted element but also the additional load it is going to carry (cabinet contents, books on the shelves, curtains, wind load acting on a satellite dish, etc.). For tensile loads fasteners







with the diameter of 8, 10, or 12 mm can be selected; for mixed tensile-shear-bending loads fasteners with larger diameter should be used - 10 mm or more. Product catalogues and data sheets in most

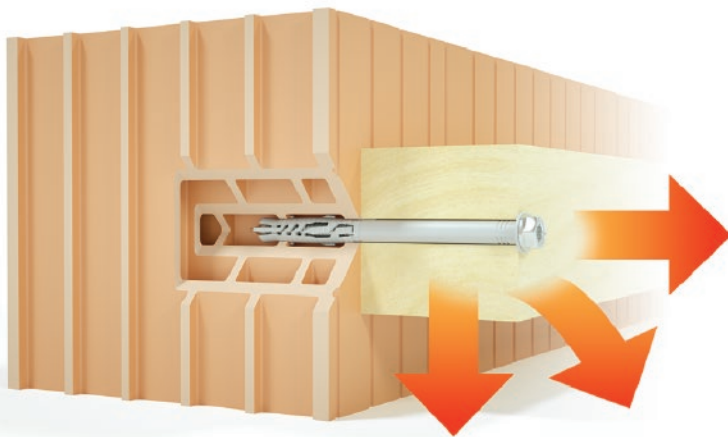


Fig. Tensile, shearing and bending forces

cases specify fastener resistance in kilonewtons [kN]; these can be roughly converted into a kilogram of load if we remember that one kN is a force with which the earth pulls an object of 100 kg, i.e.  $1 \text{ kN} = 100 \text{ kg}$ , and  $10 \text{ kg} = 0.1 \text{ kN}$ .

### - where the fasteners are used - fastener corrosion

Fasteners used in building structures are subject to two types of corrosion: atmospheric (gas) corrosion and electrochemical (galvanic) corrosion. Atmospheric corrosion is caused by the contact of the fastener with corrosive atmosphere. Electrochemical corrosion occurs when two metals with different electrochemical potential are in contact in the presence of electrolyte, e.g. contaminated water vapour. The screw is often zinc plated or hot-dip galvanized. Electroplating is applied to fasteners intended for internal applications. To make the protective coating more durable we also apply hot-dip zinc plating when requested by customers, which is marked "OO". The best corrosion protection is offered by fasteners made of A4 stainless steel.

### - other criteria

Quite often other fitting criteria that affect the selection of the right fastener are ignored. These include e.g. diameter of the opening in the fixture, fixture thickness or environmental conditions in which the fastener is to be used.

## Hole drilling

Drilling depends mostly on the type of substrate. There are two basic types of drilling:

- **hammer drill** - to be used when working with solid materials, like concrete, masonry, solid brick.

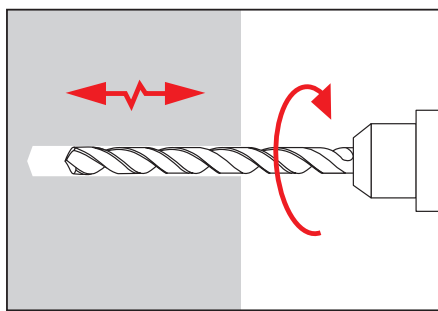


Fig. Hammer drill

- **rotary drill** - to be used when working with porous materials that can be easily damaged or broken, like hollow clay brick, aerated concrete.

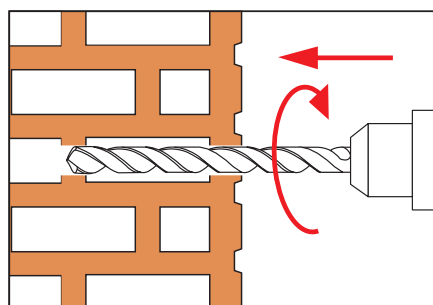
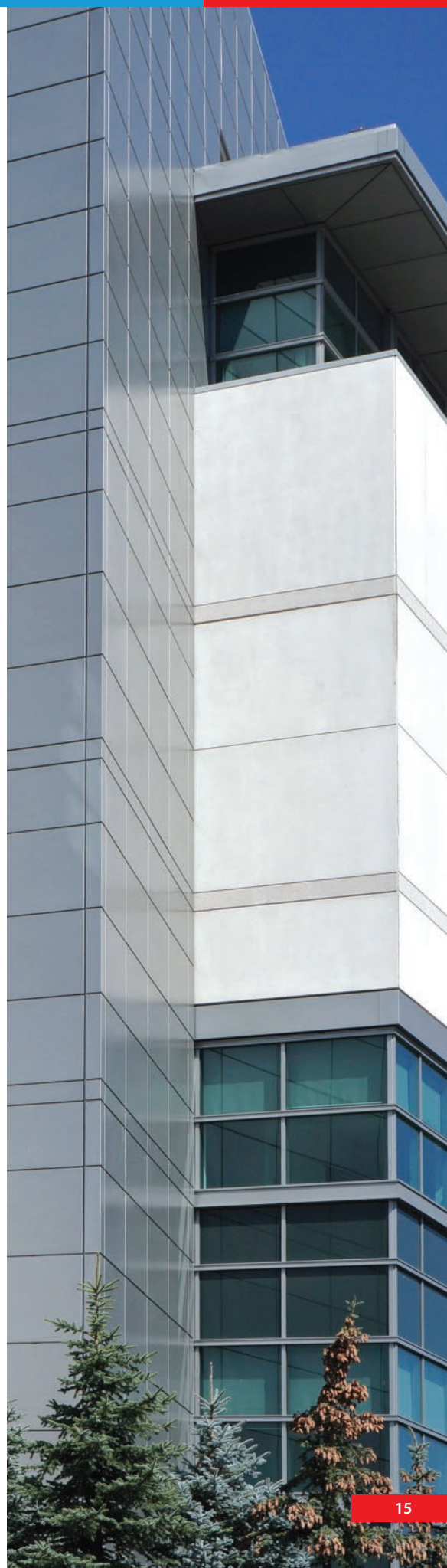


Fig. Rotary drill

**DRILL SELECTION** - cemented carbide (SDS) drills should be used for drilling concrete or ceramic wall materials; when drilling through plasterboards, care should be taken not to damage the delicate structure of the board. Holes in plasterboards should be drilled using a drill driver or standard drill, with drill bits suited for steel or wood.





### Installation

There are two most common types of installation for expansion plugs:

- **pre-fastening (installation)** - it involves drilling a hole in the substrate, inserting the expansion plug and then screwing in the screw through the fixture and securing the plug. The effective length of such fastener depends on the length of the fastener used. Notably, the plug is shorter than the screw. This type of installation is suitable for single anchorage points (e.g. when fitting a picture hook or scaffolding hook). When fitting long elements, e.g. skirting boards, there is risk of making a hole in the wrong place - thus push-through installation should be applied.

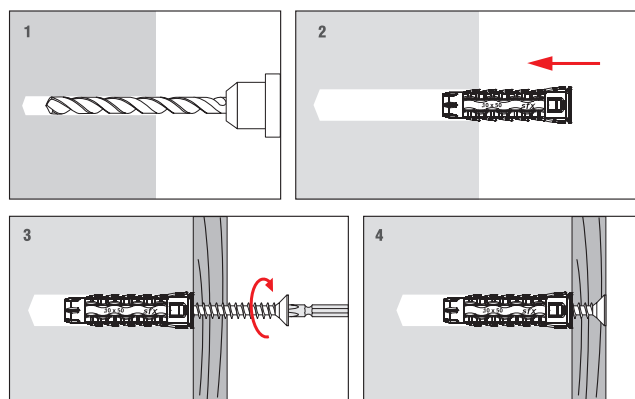


Fig. Pre-fastening installation

- **through-fastening (installation)** - it involves drilling a hole in the substrate, inserting the plug in the hole through the fixture, screwing in the screw and securing the plug. The effective length of such fastener depends on the length of the fastener. Characteristically, the length of the plug is the same as the length of the screw.

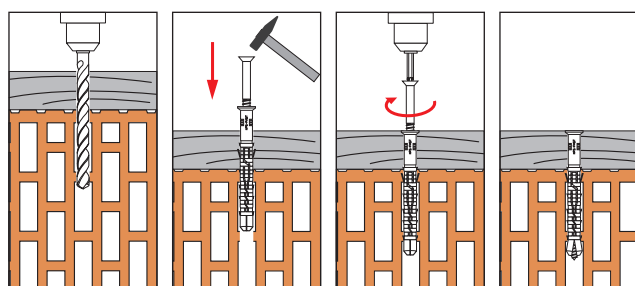


Fig. Push-through installation

Effective length or fixture thickness  $t_{fix}$  - it is the so-called working length which allows for fitting an element with a given thickness while maintaining the anchorage depth  $h_{nom}$ . When selecting a fastener it is necessary to consider the fixture thickness plus thickness of non-bearing layers, e.g. mortar thickness.

Anchorage depth  $h_{nom}$  - it is how deep the fastener should be embedded in the substrate and it depends on the fastener design and application.

### Resistance to fire

According to EOTA Technical Report TR 020 "Evaluation of anchorages in concrete concerning resistance to fire" it can be assumed that resistance to fire of facade system anchorages using KPR-FAST-10 and KPS-FAST-10 fixings is 90 minutes (R90) if the permissible shearing load does not exceed 0.8 kN for a single anchorage.

### Most common mistakes made when installing expansion plugs:

- plugs and screws made by different manufacturers are used - plugs and screws should always come in sets and expansion plugs should be used with dedicated screws,
- the drill hole is not deep enough - the depth of drilled hole should be at least 10 mm greater than the anchorage depth - this allows for the correct setting of the plug in the hole and eliminates the problem of screw failure,
- the drill hole is not cleaned - move the drill in the hole twice to remove the drill dust; for vertical holes facing up, deeper drilling or blowing out of the hole is required,
- a fastener is used which is suited for a different type of substrate,
- hammer drill is used when drilling in cellular brick, hollow brick, and aerated concrete - this damages the walls and does not guarantee a secure fixing,
- too high torque is applied, which causes screw failure,
- fasteners are installed too close to the edge - this can cause substrate edge failure,
- the plug is hammered in, not screwed in (not applicable to hammer drive fixings),
- using through-fasteners as pre-fasteners may cause incorrect expansion of the plug, which reduces the anchorage strength.

































PRODUCT NAME	DIAMETER [MM]	APPROVAL	PHOTO	SUBSTRATE						PAGE	
				ETAG 20				PLASTERBOARD			
											
A	B	C	D	1x	2x						
FRAME FIXINGS											
KPS-FAST 8 K	Ø8			NEW!	✓	✓	✓	✓	-	-	28
Frame plug with hex head screw, TX-30/SW10 NYLON/BUE ZINC PLATED											
KPS-FAST 8 K 00	Ø8			NEW!	✓	✓	✓	✓	-	-	28
Frame plug with hex head screw, TX-30/SW10 NYLON/HOT-DIP GALVANIZED											
KPS-FAST 8 K A4	Ø8			NEW!	✓	✓	✓	✓	-	-	28
Frame plug with hex head screw, TX-30/SW10 NYLON/A4 STAINLESS STEEL											
KPS-FAST 8 S	Ø8			NEW!	✓	✓	✓	✓	-	-	30
Frame plug with countersunk head screw, TX-30 NYLON/BUE ZINC PLATED											
KPS-FAST 8 S 00	Ø8			NEW!	✓	✓	✓	✓	-	-	30
Frame plug with countersunk head screw, TX-30 NYLON/HOT-DIP GALVANIZED											
KPS-FAST 8 S A4	Ø8			NEW!	✓	✓	✓	✓	-	-	30
Frame plug with countersunk head screw, TX-30 NYLON/A4 STAINLESS STEEL											
KPR-FAST 10 K	Ø10				✓	✓	✓	✓	-	-	34
Frame plug with hex head screw, TX-40/SW13 NYLON/BUE ZINC PLATED											
KPR-FAST 10 K 00	Ø10				✓	✓	✓	✓	-	-	34
Frame plug with hex head screw, TX-40/SW13 NYLON/HOT-DIP GALVANIZED											
KPR-FAST 10 K A4	Ø10				✓	✓	✓	✓	-	-	34
Frame plug with hex head screw, TX-40/SW13 NYLON/A4 STAINLESS STEEL											
KPS-FAST 10 S	Ø10				✓	✓	✓	✓	-	-	36
Frame plug with countersunk head screw, TX-40 NYLON/STAL BLUE ZINC PLATED											
KPS-FAST 10 S 00	Ø10				✓	✓	✓	✓	-	-	36
Frame plug with countersunk head screw, TX-40 NYLON/HOT-DIP GALVANIZED											

# FRAME AND GENERAL PURPOSE FIXINGS

## PRODUCT INDEX





























PRODUCT NAME	DIAMETER [MM]	APPROVAL	PHOTO	SUBSTRATE						PAGE	
				ETAG 20				PLASTERBOARD			
											
				A	B	C	D	1x	2x		
FRAME FIXINGS											
KPS-FAST 10 S A4	Ø10			✓	✓	✓	✓	-	-	36	
Frame plug with countersunk head screw, TX-40											
NYLON/A4 STAINLESS STEEL											
KPR-STRONG 10 K				Ø10		 <b>NEW!</b>	✓	✓	-	-	-
Frame plug with hex head screw, TX-40/SW13											
NYLON/BLUE ZINC PLATED											
KPR-STRONG 10 K 00	Ø10		 <b>NEW!</b>				✓	✓	-	-	-
Frame plug with hex head screw, TX-40/SW13											
NYLON/HOT-DIP GALVANIZED											
KPR-STRONG 10 K A4				Ø10		 <b>NEW!</b>	✓	✓	-	-	-
Frame plug with hex head screw, TX-40/SW13											
NYLON/A4 STAINLESS STEEL											
KPS-STRONG 10 S	Ø10		 <b>NEW!</b>				✓	✓	-	-	-
Frame plug with countersunk head screw, TX-40											
NYLON/BLUE ZINC PLATED											
KPS-STRONG 10 S 00				Ø10		 <b>NEW!</b>	✓	✓	-	-	-
Frame plug with countersunk head screw, TX-40											
NYLON/HOT-DIP GALVANIZED											
KPS-STRONG 10 S A4	Ø10		 <b>NEW!</b>				✓	✓	-	-	-
Frame plug with countersunk head screw, TX-40											
NYLON/A4 STAINLESS STEEL											
KPR-FAST 12 K				Ø12			✓	✓	✓	✓	-
Frame plug with hex head screw, TX-40/SW13											
NYLON/BLUE ZINC PLATED											
KPS-FAST 12 S	Ø12						✓	✓	✓	✓	-
Frame plug with countersunk head screw, TX-40											
NYLON/BLUE ZINC PLATED											

























PRODUCT NAME	DIAMETER [MM]	APPROVAL	PHOTO	SUBSTRATE						PAGE										
				ETAG 20				PLASTERBOARD												
																				
				A	B	C	D	1x	2x											
FRAME PLUGS																				
KPR-FAST 14 K	Ø14			✓	✓	✓	✓	-	-	50										
Frame plug with hex head screw, TX-50/SW17 NYLON/BLUE ZINC PLATED																				
KPS-FAST 14 S	Ø14			✓	✓	✓	✓	-	-	50										
Frame plug with countersunk head screw, TX-50 NYLON/BLUE ZINC PLATED																				
KPD 10/12	Ø10 Ø12			✓	✓	✓	✓	-	-	54										
Frame plug recommended for fixing of downpipe clamping harnesses, cable containment systems NYLON/BLUE ZINC PLATED																				
KPK-12	Ø12			✓	✓	✓	✓	-	-	56										
Frame plug with hex head screw SW-13 NYLON/BLUE ZINC PLATED																				
KPO 16	Ø16			✓	✓	✓	✓	-	-	58										
Frame plug with hex head screw SW-19 NYLON/BLUE ZINC PLATED																				
HAMMER DRIVE FIXINGS																				
SMN	Ø5 Ø6 Ø8 Ø10			✓	✓	-	✓	-	-	64										
Hammer drive fixing with countersunk head screw, PZ2, PZ3 NYLON/BLUE ZINC PLATED																				
SM											Ø5 Ø6 Ø8 Ø10			✓	✓	-	✓	-	-	64
Hammer drive fixing with countersunk head screw, PZ2, PZ3 POLYPROPYLENE/BLUE ZINC PLATED																				
SMNK	Ø6			✓	✓	-	✓	-	-	66										
Hammer drive fixing - collar type NYLON/BLUE ZINC PLATED																				
SMK											Ø6			✓	✓	-	✓	-	-	66
Hammer drive fixing - collar type POLYPROPYLENE/BLUE ZINC PLATED																				
SMNKC	Ø5 Ø6			✓	✓	-	✓	-	-	68										
Hammer drive fixing - cylinder type NYLON/BLUE ZINC PLATED																				
SMKC											Ø5 Ø6			✓	✓	-	✓	-	-	68
Hammer drive fixing - cylinder type POLYPROPYLENE/BLUE ZINC PLATED																				

# FRAME AND GENERAL PURPOSE FIXINGS

## PRODUCT INDEX



















PRODUCT NAME	DIAMETER [MM]	APPROVAL	PHOTO	SUBSTRATE						PAGE
				ETAG 20				PLASTERBOARD		
										
A	B	C	D	1x	2x					
METAL ANCHORS										
SMM										
Metal hammer-in anchor ZN/AL ALLOY	Ø6			✓	✓	-	-	-	-	72
KRW										
Metal hammer-in expanding anchor YELLOW ZINC PLATED	Ø6			✓	✓	-	-	-	-	74
KMG	Ø5 Ø6 Ø8 Ø10			-	-	-	✓	-	-	76
WHO										
Concrete frame screw with flat head BLUE ZINC PLATED	Ø7,5			✓	✓	-	-	-	-	78
WHOW										
Concrete frame screw with pan head BLUE ZINC PLATED	Ø7,5			✓	✓	-	-	-	-	80
LO + Z										
Frame anchor BLUE ZINC PLATED	Ø10			✓	✓	✓	✓	-	-	82
UNIVERSAL FIXINGS										
SFXP	Ø5 Ø6 Ø8 Ø10			✓	✓	✓	✓	✓	✓	88
SFXK	Ø10			✓	✓	✓	✓	✓	✓	90
SFXL	Ø6 Ø8			✓	✓	✓	✓	✓	-	92
SFXC	Ø6 Ø8			✓	✓	✓	✓	✓	-	92
SFXO	Ø6 Ø8			✓	✓	✓	✓	✓	-	92



PRODUCT NAME	DIAMETER (MM)	APPROVAL	PHOTO	SUBSTRATE						PAGE
				ETAG 20				PLASTERBOARD		
										
A	B	C	D	1x	2x					
UNIVERSAL FIXINGS										
RU	Ø6 Ø8 Ø10	-		✓	✓	✓	-	✓	-	94
Universal plug with countersunk head screw, PZ2, PZ3 NYLON/BUE ZINC PLATED										
RUL										
RUL	Ø6 Ø8	-		✓	✓	✓	-	✓	-	96
Universal plug with straight hook NYLON/BUE ZINC PLATED										
RUC										
RUC	Ø6 Ø8	-		✓	✓	✓	-	✓	-	98
Universal plug with round hook NYLON/BUE ZINC PLATED										
RUO										
RUO	Ø6 Ø8	-		✓	✓	✓	-	✓	-	100
Universal plug with eye-bolt NYLON/BUE ZINC PLATED										
KW										
KW	Ø6 Ø8 Ø10	-		✓	✓	✓	-	✓	-	102
Universal plug with countersunk head screw, PZ2, PZ3 NYLON/BUE ZINC PLATED										
GENERAL PURPOSE FIXINGS										
KRX	Ø6 Ø8 Ø10 Ø12			✓	✓	-	✓	-	-	106
Expansion plug with countersunk head screw, PZ2, PZ3 POLYPROPYLENE/BUE ZINC PLATED										
KKX										
KKX	Ø10 Ø12 Ø14 Ø16			✓	✓	-	✓	-	-	110
Expansion plug with hex head screw, SW-10, 13, 17, 19 POLYPROPYLENE/BUE ZINC PLATED										
PX										
PX	Ø6 Ø8 Ø10 Ø12			✓	✓	-	✓	-	-	114
Expansion plug straight hook POLYPROPYLENE/BUE ZINC PLATED										
WX										
WX	Ø6 Ø8 Ø10 Ø12			✓	✓	-	✓	-	-	116
Expansion plug with round hook POLYPROPYLENE/BUE ZINC PLATED										
HX										
HX	Ø12			✓	✓	-	✓	-	-	118
Expansion plug with pig tail hook POLYPROPYLENE/BUE ZINC PLATED										
PR										
PR	Ø8 Ø10			✓	✓	✓	✓	-	-	120
Frame plug with straight hook NYLON/BUE ZINC PLATED										

# FRAME AND GENERAL PURPOSE FIXINGS

## PRODUCT INDEX

PRODUCT NAME	DIAMETER (MM)	APPROVAL	PHOTO	SUBSTRATE						PAGE
				ETAG 20				PLASTERBOARD		
										
				A	B	C	D	1x	2x	
HOX+ZHO	Ø14 Ø16			✓	✓	-	✓	-	-	122
Expansion plug with eye-bolt NYLON/BLUE ZINC PLATED										
PLASTIC SLEEVES										
KPX	Ø6 Ø8 Ø10 Ø12 Ø14 Ø16	-		✓	✓	-	✓	-	-	126
Universal plug POLYPROPYLENE										
KNX	Ø6 Ø8 Ø10 Ø12 Ø14 Ø16	-		✓	✓	-	✓	-	-	127
Universal plug NYLON										
KPW	Ø6 Ø8 Ø10	-		✓	✓	✓	-	✓	-	128
Universal plug NYLON										
KPU	Ø6 Ø8 Ø10	-		✓	✓	✓	-	✓	-	129
Universal plug NYLON										
KPR	Ø8	-		✓	✓	✓	✓	-	-	130
Frame plug NYLON										
SFX	Ø5 Ø6 Ø8 Ø10	-	 	✓	✓	✓	✓	✓	✓	131
Universal plug NYLON										
KPR-12	Ø12	-		✓	✓	✓	✓	-	-	132
Frame plug NYLON										
KPR-16	Ø16	-		✓	✓	✓	✓	-	-	133
Frame plug NYLON										
BODB	Ø8	-		✓	✓	-	-	-	-	134
Expansion anchor with doorstop POLYPROPYLENE/BLUE ZINC PLATED										

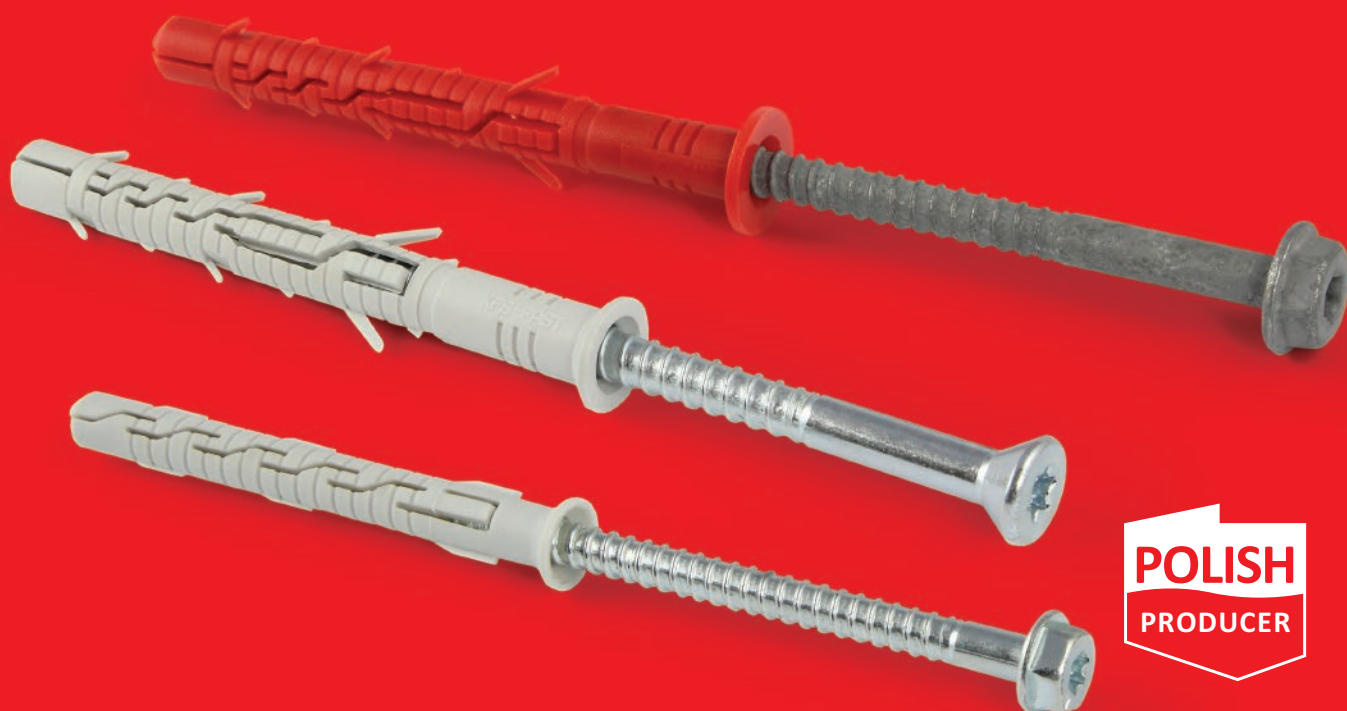






## FRAME AND GENERAL PURPOSE FIXINGS

## FRAME FIXINGS PRODUCTION PROGRAMME





# FRAME PLUGS Ø8

**NEW!**

**POLISH  
PRODUCER**

## KPS-FAST 8 K



**TX HEX HEAD SCREW**

## KPS-FAST 8 S



**TX COUNTERSUNK  
HEAD SCREW**

**100% nylon**  
pure material  
\*\*\*

**100% secure  
fixing**

### REDUCED THREAD

- precise installation of the screw
- increased expansion force in the second expansion zone

**length  
upto 140 mm**

**ETAG 020**

**A B C D**

**all  
Directions  
expansion  
zone**

**strong  
plus**



# SECURE FIXING!



**NEW!**

## KPS-FAST 8 K KPS-FAST 8 S



100% pure material nylon

100% secure fixing



Blue  
zinc



stainless steel



### KPS-FAST 8 K

Frame plug Ø8 with hex head screw  
**ZINC PLATED SCREW**

### KPS-FAST 8 K A4

Frame plug Ø8 with hex head screw  
**A4 STEEL SCREW**

### KPS-FAST 8 K 00

Frame plug Ø8 with hex head screw  
**HOT-DIP GALVANIZED SCREW**



ETA-12/0272



**NEW!**



#### Description

Frame plug with flanged hex head screw for fixing of metal members

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

stainless steel



#### Features and advantages of the product



**Hex head with TX-30/SW-10 drive**

TX drive ensures optimum transfer of torque while SW-10 hex head allows for tightening the screw with a given force (e.g. with torque wrench).

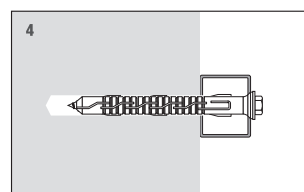
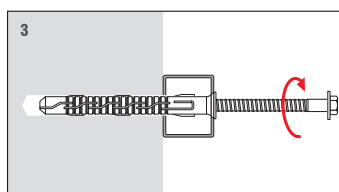
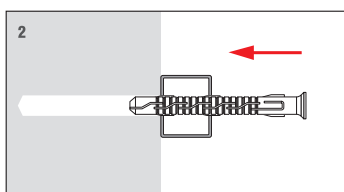
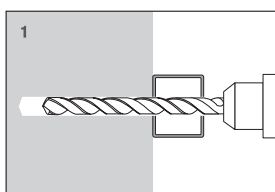


**Reduced thread**

Precise installation of the screw  
Increased expansion force in the second expansion zone.



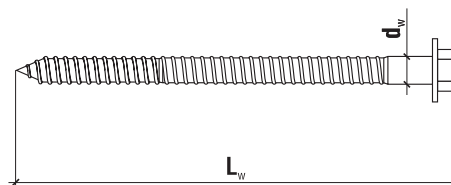
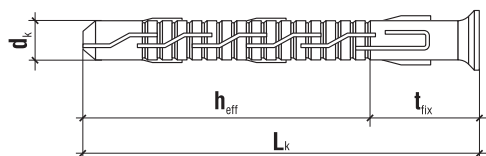
#### Installation



## TECHNICAL DATA

Product marking

KPS-FAST	08	080	K	00
Type	Diameter	Length	Head type	Type of steel and coating

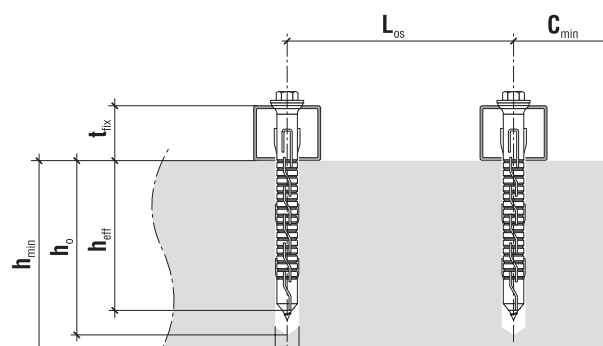


**SW-10**  
**TX-30**

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type		Pcs
<b>Ø8</b>	KPS-FAST-08080K	KPS-FAST-08080K-A4	KPS-FAST-08080K-00	8.0 x 80	6.0 x 85	10*/30**	TX-30	SW-10	50
	KPS-FAST-08100K	KPS-FAST-08100K-A4	KPS-FAST-08100K-00	8.0 x 100	6.0 x 105	30*/50**	TX-30	SW-10	50
	KPS-FAST-08120K	KPS-FAST-08120K-A4	KPS-FAST-08120K-00	8.0 x 120	6.0 x 125	50*/70**	TX-30	SW-10	50
	KPS-FAST-08140K	KPS-FAST-08140K-A4	KPS-FAST-08140K-00	8.0 x 140	6.0 x 145	70*/90**	TX-30	SW-10	50

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	8
Hole/drill diameter	$d_o$ [mm]	8
Effective anchorage depth	$h_{eff}$ [mm]	70*/50**
Depth of drill hole	$h_o$ [mm]	80*/60**
Drive type	x	TX-30/SW-10
Use categories	x	A B C D
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	ETA-12/0272



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete C20/25	100	60*/50**
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	100	100

\* for standard anchorage depth, use category A, B, C, D

\*\* for reduced anchorage depth, use category A, B



From now all our framework fasteners Fast and Strong are **PRE-ASSEMBLED**.

**Pre-assembled products means:**

- ✓ easier and faster mounting
- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### KPS-FAST 8 S

Frame plug Ø8 with countersunk head screw  
**ZINC PLATED SCREW**

### KPS-FAST 8 S A4

Frame plug Ø8 with countersunk head screw  
**A4 STEEL SCREW**

### KPS-FAST 8 S 00

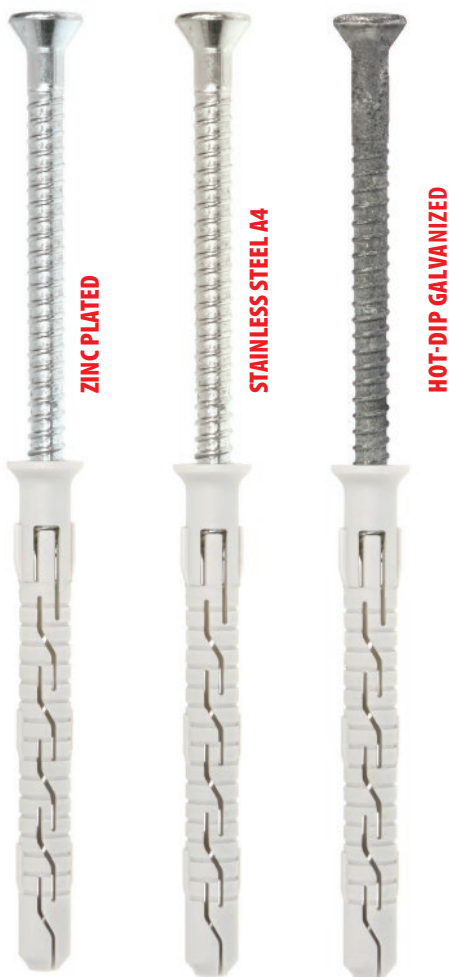
Frame plug Ø8 with countersunk head screw  
**HOT-DIP GALVANIZED SCREW**



ETA-12/0272



**NEW!**



#### Description

Frame plug with countersunk head screw for fixing of wood and wood-based members

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated solid brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



#### Countersunk head with TX-30

Countersunk head ensures the right embedment in the element being installed. TX drive ensures optimum transfer of torque.

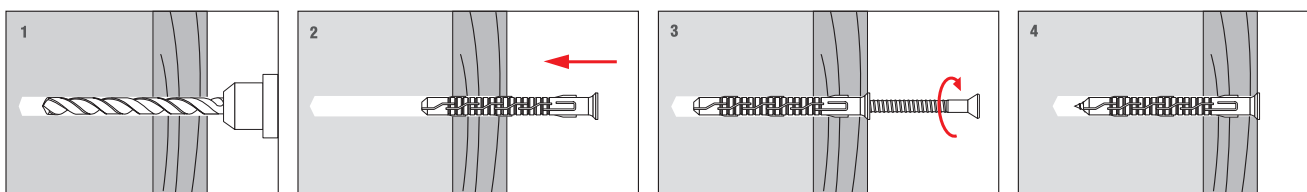


#### Reduced thread

Precise installation of the screw  
Increased expansion force in the second expansion zone.



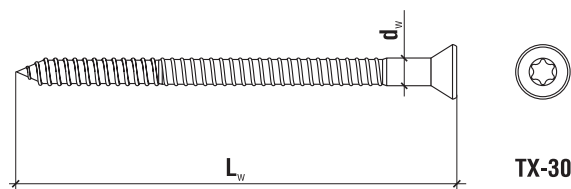
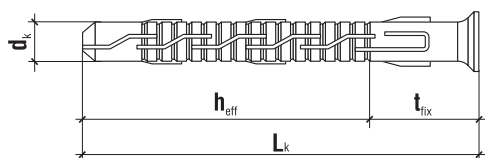
#### Installation



## TECHNICAL DATA

Product marking

KPS-FAST	08	080	S	00
Type	Diameter	Length	Head type	Type of steel and coating

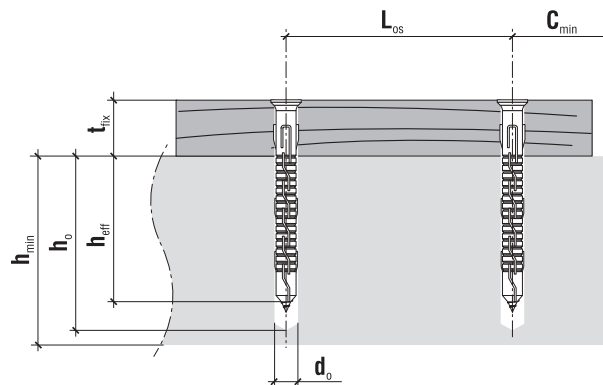


TX-30

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type	Pcs
<b>Ø8</b>	KPS-FAST-08080S	KPS-FAST-08080S-A4	KPS-FAST-08080S-00	8.0 x 80	6.0 x 85	10*/30**	TX-30	50
	KPS-FAST-08100S	KPS-FAST-08100S-A4	KPS-FAST-08100S-00	8.0 x 100	6.0 x 105	30*/50**	TX-30	50
	KPS-FAST-08120S	KPS-FAST-08120S-A4	KPS-FAST-08120S-00	8.0 x 120	6.0 x 125	50*/70**	TX-30	50
	KPS-FAST-08140S	KPS-FAST-08140S-A4	KPS-FAST-08140S-00	8.0 x 140	6.0 x 145	70*/90**	TX-30	50

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	8
Hole/drill diameter	$d_o$ [mm]	8
Effective anchorage depth	$h_{eff}$ [mm]	70*/50**
Depth of drill hole	$h_o$ [mm]	80*/60**
Drive type	x	TX-30
Use categories	x	A B C D
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	ETA-12/0272



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete C20/25	100	60*/50**
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	100	100

\* for standard anchorage depth, use category A, B, C, D

\*\* for reduced anchorage depth, use category A, B










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- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### RESISTANCE **KPS-FAST-8 K / KPS-FAST-8 S**

Type of substrate according to ETAG020		Description	Density [kg/dm <sup>3</sup> ]	Standard	Characteristic pull-out resistance [kN]	
					KPS-FAST 8 h <sub>eff</sub> =50	KPS-FAST 8 h <sub>eff</sub> =70
<b>A</b>		Concrete C 12/15	≥ 1.8	EN 206-1	2.5*	3.0*
		Concrete ≥ C 16/20	≥ 2.3	EN 206-1	3.5*	4.5*
<b>B</b>		Solid clay brick (e.g. MZ Rd 2.0/20)-DIN 106)	≥ 2.0	EN 771-1	3.0	3.0
<b>B</b>		Solid sand-lime brick (e.g. Kalksandstein KS NF 20-2.0 Vollstein - DIN 106)	≥ 2.0	EN 771-2	3.0	3.0
<b>C</b>		Hollow sand-lime blocks KSL (e.g. Kalksandstein KS L-R(P) 8 DF Lochstein - DIN 106)	≥ 1.6	EN 771-2	-	2.5
<b>C</b>		Porous blocks (e.g. MAX 250)	≥ 0.8	EN 771-1	-	1.2
<b>D</b>		Lightweight concrete hollow blocks (e.g. HBL 2/0.8)	≥ 0.8	EN 771-3	-	1.5
<b>D</b>		Autoclaved aerate concrete AAC2	≥ 0.35	EN 771-4	-	0.60
		Autoclaved aerate concrete AAC7	≥ 0.65	EN 771-4	-	2.0

\* cracked concrete



# FRAME PLUGS Ø10

## KPR-FAST 10 K



TX HEX HEAD SCREW

## KPS-FAST 10 S



TX COUNTERSUNK  
HEAD SCREW



100% <sup>pure material</sup> nylon

100% secure  
fixing

### REDUCED THREAD

- precise installation of the screw
- increased expansion force in the second expansion zone

length  
upto 300 mm

ETAG 020  
A B C D

all  
Directions  
expansion  
zone





### KPR-FAST 10 K

Frame plug Ø10 with hex head screw  
**ZINC PLATED SCREW**

### KPR-FAST 10 K A4

Frame plug Ø10 with hex head screw  
**A4 STEEL SCREW**

### KPR-FAST 10 K 00

Frame plug Ø10 with hex head screw  
**HOT-DIP GALVANIZED SCREW**



#### Description

Frame plug with flanged hex head screw for fixing of metal members

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100% nylon

Blue zinc

stainless steel



#### Features and advantages of the product

< 300 mm >

Screw length

We manufacture screws up to 300 mm long



Hex head with TX-40/SW-13 drive

TX drive ensures optimum transfer of torque and SW-13 hex head allows for tightening the screw with a given force (e.g. with torque wrench).



Reduced thread

Precise installation of the screw  
Increased expansion force in the second expansion zone.

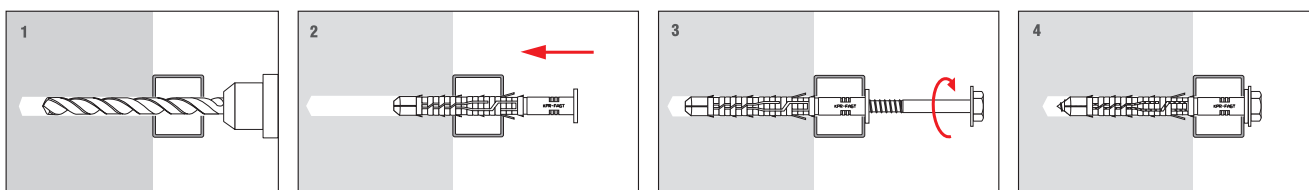


Resistance to fire

For assembling facade systems the fastener has a sufficient fire resistance of at least 90 minutes (R90) if the permissible design load for a single anchorage  $N_r \leq 0.8$  kN (without permanent longitudinal axial load).



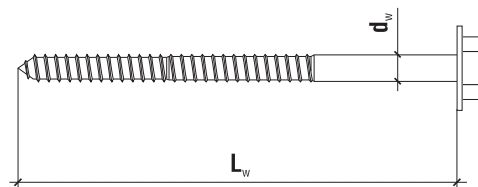
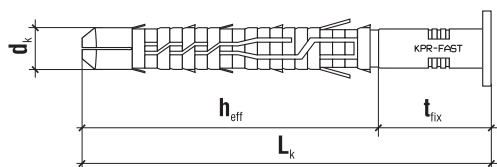
#### Installation



## TECHNICAL DATA

Product marking

KPR-FAST	10	080	K	00
Type	Diameter	Length	Head type	Type of steel and coating

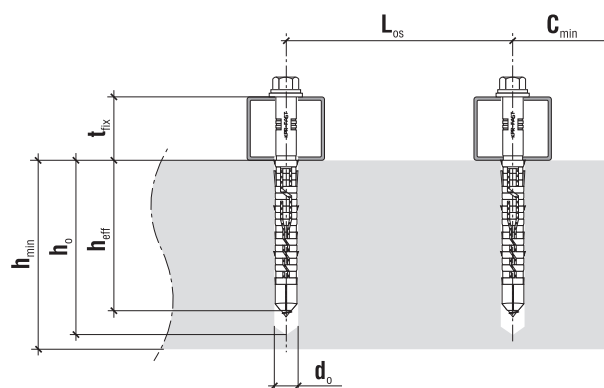


**SW-13**  
**TX-40**

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	d <sub>k</sub> x L <sub>k</sub> [mm]	d <sub>w</sub> x L <sub>w</sub> [mm]	Max. fixture thickness t <sub>fix</sub> [mm]	Drive type		Pcs
<b>ø10</b>	KPR-FAST-10080K	KPR-FAST-10080K-A4	KPR-FAST-10080K-00	10 x 80	7.0 x 85	10	TX-40	SW-13	50
	KPR-FAST-10100K	KPR-FAST-10100K-A4	KPR-FAST-10100K-00	10 x 100	7.0 x 105	30	TX-40	SW-13	50
	KPR-FAST-10120K	KPR-FAST-10120K-A4	KPR-FAST-10120K-00	10 x 120	7.0 x 125	50	TX-40	SW-13	50
	KPR-FAST-10140K	KPR-FAST-10140K-A4	KPR-FAST-10140K-00	10 x 140	7.0 x 145	70	TX-40	SW-13	50
	KPR-FAST-10160K	KPR-FAST-10160K-A4	KPR-FAST-10160K-00	10 x 160	7.0 x 165	90	TX-40	SW-13	50
	KPR-FAST-10180K	KPR-FAST-10180K-A4	KPR-FAST-10180K-00	10 x 180	7.0 x 185	110	TX-40	SW-13	25
	KPR-FAST-10200K	KPR-FAST-10200K-A4	KPR-FAST-10200K-00	10 x 200	7.0 x 205	130	TX-40	SW-13	25
	KPR-FAST-10230K	KPR-FAST-10230K-A4	KPR-FAST-10230K-00	10 x 230	7.0 x 235	160	TX-40	SW-13	25
	KPR-FAST-10260K	KPR-FAST-10260K-A4	KPR-FAST-10260K-00	10 x 260	7.0 x 265	190	TX-40	SW-13	25
	KPR-FAST-10300K	KPR-FAST-10300K-A4	KPR-FAST-10300K-00	10 x 300	7.0 x 305	230	TX-40	SW-13	25
			<b>MADE TO ORDER</b>	<b>MADE TO ORDER</b>					

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d <sub>k</sub> [mm]	10
Hole diameter	d <sub>o</sub> [mm]	10
Effective anchorage depth	h <sub>eff</sub> [mm]	70
Depth of drill hole	h <sub>o</sub> [mm]	80
Drive type	x	TX-40/SW-13
Use categories	x	<b>A B C D</b>
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	<b>ETA-12/0272</b>



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness h <sub>min</sub> [mm]	Min. edge distance c <sub>min</sub> [mm]
Concrete ≥C16/20	100	60
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	100	100



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**Pre-assembled products means:**

- ✓ easier and faster mounting
- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### KPS-FAST 10 S

Frame plug Ø10 with countersunk head screw  
**ZINC PLATED SCREW**

### KPS-FAST 10 S A4

Frame plug Ø10 with countersunk head screw  
**A4 STEEL SCREW**

### KPS-FAST 10 S 00

Frame plug Ø10 with countersunk head screw  
**HOT-DIP GALVANIZED SCREW**



#### Description

Frame plug with countersunk head screw for fixing of wood and wood-based members

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

stainless steel



#### Features and advantages of the product

< 300  
mm >

Screw  
length

We manufacture screws up to 300 mm long



**Countersunk  
head with  
TX-40 drive**

Countersunk head ensures the right embedment in the element being installed. TX drive ensures optimum transfer of torque.



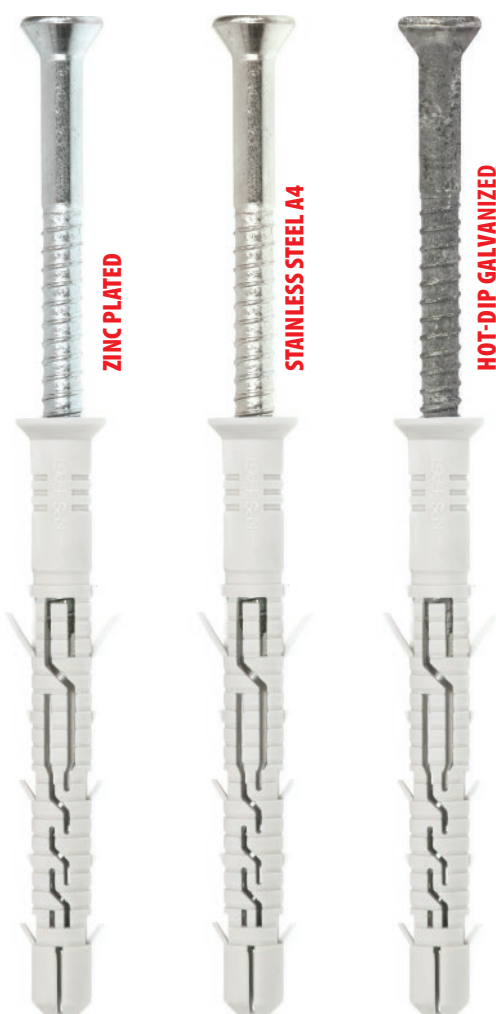
**Reduced  
thread**

Precise installation of the screw  
Increased expansion force in the second expansion zone.

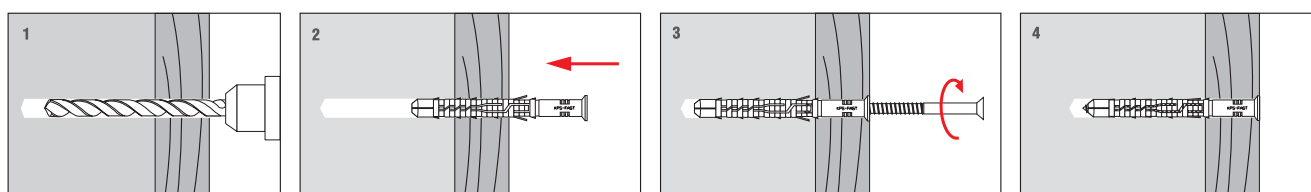


**Resistance  
to fire**

For assembling facade systems the fastener has a sufficient fire resistance of at least 90 minutes (R90) if the permissible design load for a single anchorage  $N_r \leq 0.8$  kN (without permanent longitudinal axial load).



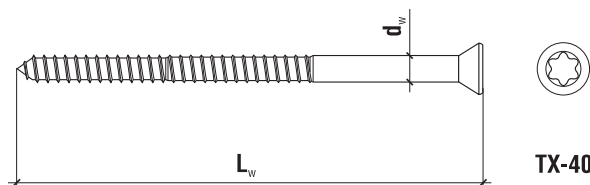
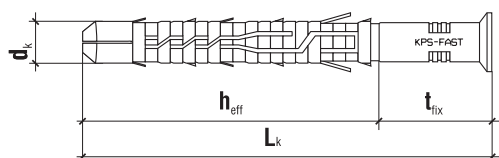
#### Installation



## TECHNICAL DATA

Product marking

KPS-FAST	10	080	S	00
Type	Diameter	Length	Head type	Type of steel and coating

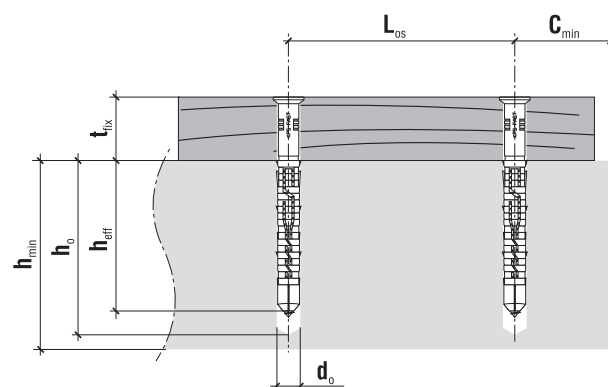


TX-40

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type	Pcs
<b>Ø10</b>	KPS-FAST-10080S	KPS-FAST-10080S-A4	KPS-FAST-10080S-00	10 x 80	7.0 x 85	10	TX-40	50
	KPS-FAST-10100S	KPS-FAST-10100S-A4	KPS-FAST-10100S-00	10 x 100	7.0 x 105	30	TX-40	50
	KPS-FAST-10120S	KPS-FAST-10120S-A4	KPS-FAST-10120S-00	10 x 120	7.0 x 125	50	TX-40	50
	KPS-FAST-10140S	KPS-FAST-10140S-A4	KPS-FAST-10140S-00	10 x 140	7.0 x 145	70	TX-40	50
	KPS-FAST-10160S	KPS-FAST-10160S-A4	KPS-FAST-10160S-00	10 x 160	7.0 x 165	90	TX-40	50
	KPS-FAST-10180S	KPS-FAST-10180S-A4	KPS-FAST-10180S-00	10 x 180	7.0 x 185	110	TX-40	50
	KPS-FAST-10200S	KPS-FAST-10200S-A4	KPS-FAST-10200S-00	10 x 200	7.0 x 205	130	TX-40	25
	KPS-FAST-10230S	KPS-FAST-10230S-A4	KPS-FAST-10230S-00	10 x 230	7.0 x 235	160	TX-40	25
	KPS-FAST-10260S	KPS-FAST-10260S-A4	KPS-FAST-10260S-00	10 x 260	7.0 x 265	190	TX-40	25
	KPS-FAST-10300S	KPS-FAST-10300S-A4	KPS-FAST-10300S-00	10 x 300	7.0 x 305	230	TX-40	25
	MADE TO ORDER		MADE TO ORDER					

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	10
Hole diameter	$d_o$ [mm]	10
Effective anchorage depth	$h_{eff}$ [mm]	70
Depth of drill hole	$h_o$ [mm]	80
Drive type	x	TX-40
Use categories	x	A B C D
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	ETA-12/0272



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete $\geq C16/20$	100	60
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	100	100



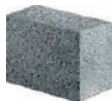








From now all our framework fasteners Fast and Strong are **PRE-ASSEMBLED**.

**Pre-assembled products means:**

- ✓ easier and faster mounting
- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### RESISTANCE **KPR-FAST-10 K / KPS-FAST-10 S**

Type of substrate according to ETAG020	Description	Density [kg/dm <sup>3</sup> ]	Standard	Characteristic pull-out resistance [kN]	
				KPR-FAST 10 K	KPS-FAST 10 S
<b>A</b>	 Concrete C 12/15	≥ 1.8	EN 206-1	<b>3.0*</b>	
	Concrete ≥ C 16/20	≥ 2.3	EN 206-1	<b>4.0*</b>	
<b>B</b>	 Solid clay brick	≥ 1.7	EN 771-1	<b>3.5</b>	
	Solid clay brick (e.g. MZ Rd 2.0/20)-DIN 106	≥ 2.0	EN 771-1	<b>3.5</b>	
<b>B</b>	 Solid sand-lime brick (e.g. Kalksandstein KS NF 20-2.0 Vollstein - DIN 106)	≥ 2.0	EN 771-2	<b>3.5</b>	
<b>C</b>	 Hollow sand-lime blocks KSL (e.g. Kalksandstein KS L-R(P) 8 DF Lochstein - DIN 106)	≥ 1.6	EN 771-2	<b>2.5</b>	
<b>C</b>	 Porous blocks (e.g. Porotherm 25 P+W)	≥ 0.8	EN 771-1	<b>0.9</b>	
<b>C</b>	 Hollow clay brick (e.g. MAX 250)	≥ 0.8	EN 771-1	<b>0.9</b>	
<b>C</b>	 Vertically perforated clay brick (e.g. Hlz Rd1 1.2/12)	≥ 1.2	EN 771-1	<b>2.0</b>	
<b>D</b>	 Lightweight concrete hollow blocks (e.g. HBL 2/0.8)	≥ 0.8	EN 771-3	<b>1.5</b>	
<b>D</b>	 Autoclaved aerated concrete AAC2	≥ 0.35	EN 771-4	<b>0.6</b>	
	Autoclaved aerated concrete AAC7	≥ 0.65	EN 771-4	<b>1.5</b>	

\* cracked concrete



# FOR **SPECIAL** APPLICATIONS

## FRAME PLUGS Ø10 **STRONG**

**NEW!**

**POLISH  
PRODUCER**

### KPR-**STRONG** 10 K



TX-40/SW-13 HEX HEAD SCREW

**100% secure  
fixing**

### KPS-**STRONG** 10 S



TX-40 COUNTERSUNK  
HEAD SCREW

**100% nylon**  
pure material  
\*\*\*

### **NEW STRONGER SCREW!**

Improved, hardened screw has better torsional and bending strength, which eliminates the problem of head failure when installing the screw in very hard materials. The TX drive head for use with wrench enables fast installation without the risk of damaging the drive.



ETAG 020

**A B**

all  
Directions  
expansion  
zone





### KPR-STRONG 10 K

### KPR-STRONG 10 K A4

### KPR-STRONG 10 K 00

Frame plug Ø10 with hex head screw  
**ZINC PLATED SCREW**

Frame plug Ø10 with hex head screw  
**A4 STEEL SCREW**

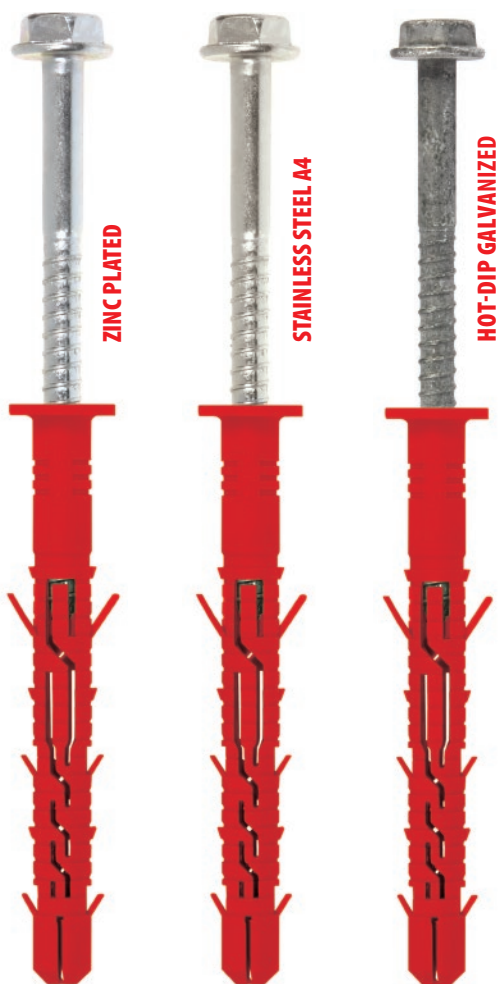
Frame plug Ø10 with hex head screw  
**HOT-DIP GALVANIZED SCREW**



ETA-12/0272



**NEW!**



#### Description

Frame plug with flanged hex head screw for fixing of metal members

#### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick

#### Sleeve material / Protective coating

100% nylon

Blue zinc

stainless steel



#### Features and advantages of the product

**< 300 mm >**

Screw length

We manufacture screws up to 300 mm long



Hex head with TX-40/SW-13 drive

TX drive ensures optimum transfer of torque while SW-13 hex head allows for tightening the screw with a given force (e.g. with torque wrench).



NEW STRONGER SCREW!

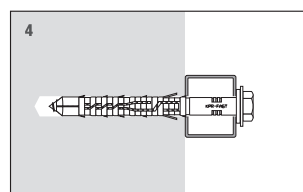
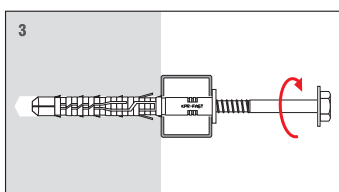
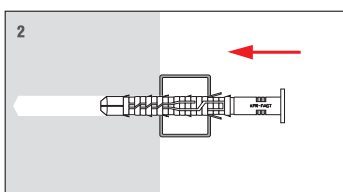
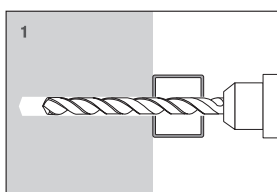
Improved, hardened screw has better torsional and bending strength, which eliminates the problem of head failure when installing the screw in very hard materials. The TX drive head for use with wrench enables fast installation without the risk of damaging the drive.



Resistance to fire

For assembling facade systems the fastener has a sufficient fire resistance of at least 90 minutes (R90) if the permissible design load for a single anchorage  $N_r \leq 0.8$  kN (without permanent longitudinal axial load).

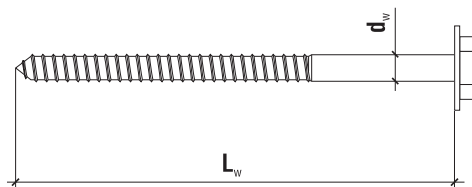
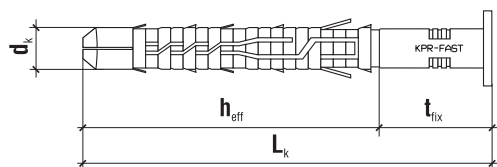
#### Installation



## TECHNICAL DATA

Product marking

<b>KPR-STRONG</b>	<b>10</b>	<b>080</b>	<b>K</b>	<b>00</b>
Type	Diameter	Length	Head type	Type of steel and coating

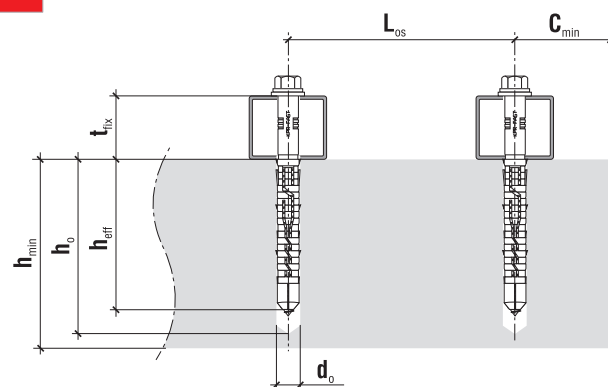


**SW-13**  
**TX-40**

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type		Pcs
<b>ø10</b>	KPR-STRONG-10080K	KPR-STRONG-10080K-A4	KPR-STRONG-10080K-00	10 x 80	7.0 x 85	10	TX-40	SW-13	50
	KPR-STRONG-10100K	KPR-STRONG-10100K-A4	KPR-STRONG-10100K-00	10 x 100	7.0 x 105	30	TX-40	SW-13	50
	KPR-STRONG-10120K	KPR-STRONG-10120K-A4	KPR-STRONG-10120K-00	10 x 120	7.0 x 125	50	TX-40	SW-13	50
	KPR-STRONG-10140K	KPR-STRONG-10140K-A4	KPR-STRONG-10140K-00	10 x 140	7.0 x 145	70	TX-40	SW-13	50
	KPR-STRONG-10160K	KPR-STRONG-10160K-A4	KPR-STRONG-10160K-00	10 x 160	7.0 x 165	90	TX-40	SW-13	50
	KPR-STRONG-10180K	KPR-STRONG-10180K-A4	KPR-STRONG-10180K-00	10 x 180	7.0 x 185	110	TX-40	SW-13	25
	KPR-STRONG-10200K	KPR-STRONG-10200K-A4	KPR-STRONG-10200K-00	10 x 200	7.0 x 205	130	TX-40	SW-13	25
	KPR-STRONG-10230K	KPR-STRONG-10230K-A4	KPR-STRONG-10230K-00	10 x 230	7.0 x 235	160	TX-40	SW-13	25
	KPR-STRONG-10260K	KPR-STRONG-10260K-A4	KPR-STRONG-10260K-00	10 x 260	7.0 x 265	190	TX-40	SW-13	25
	KPR-STRONG-10300K	KPR-STRONG-10300K-A4	KPR-STRONG-10300K-00	10 x 300	7.0 x 305	230	TX-40	SW-13	25
	<b>MADE TO ORDER</b>	<b>MADE TO ORDER</b>	<b>MADE TO ORDER</b>						

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	10
Hole/drill diameter	$d_o$ [mm]	10
Effective anchorage depth	$h_{eff}$ [mm]	70
Depth of drill hole	$h_o$ [mm]	80
Drive/key type	x	TX-40/SW-13
Use categories	x	<b>A B</b>
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	ETA-12/0272



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete $\geq C16/20$	100	60
Solid clay brick	120	100
Solid sand-lime brick	120	100



From now all our framework fasteners Fast and Strong are **PRE-ASSEMBLED**.

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- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### KPS-STRONG 10 S

### KPS-STRONG 10 S A4

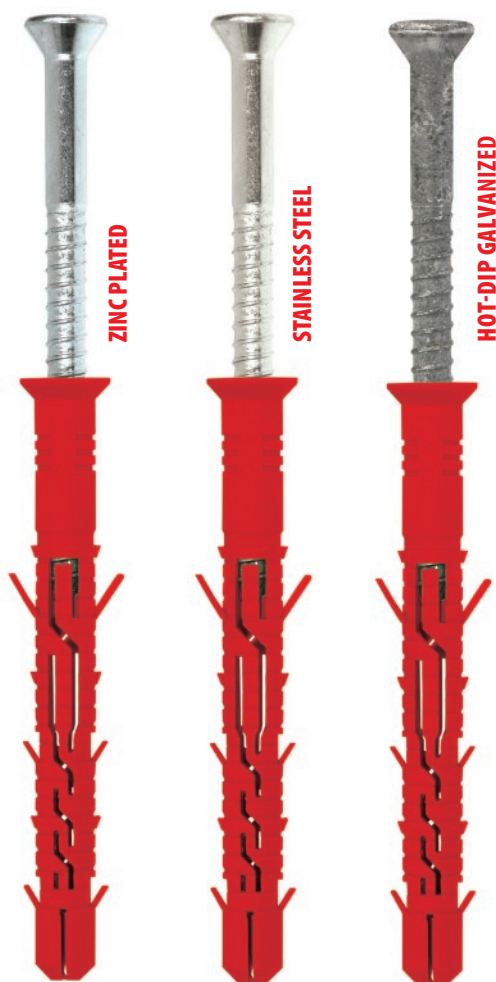
### KPS-STRONG 10 S 00



ETA-12/0272



**NEW!**



Frame plug Ø10 with countersunk head screw  
**ZINC PLATED SCREW**

Frame plug Ø10 with countersunk head screw  
**A4 STEEL SCREW**

Frame plug Ø10 with countersunk head screw  
**HOT-DIP GALVANIZED SCREW**

#### Description

Frame plug with countersunk head screw for fixing of wood and wood-based members

#### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick

#### Sleeve material / Protective coating



#### Features and advantages of the product



Screw length

We manufacture screws up to 300 mm long



Countersunk head with TX-40 drive

Countersunk head ensures the right embedment in the element being installed. TX drive guarantees optimum torque transfer.



NEW STRONGER SCREW!

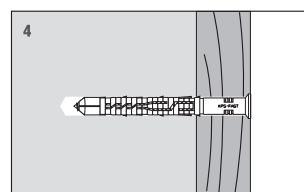
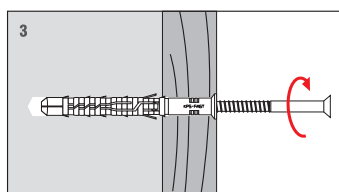
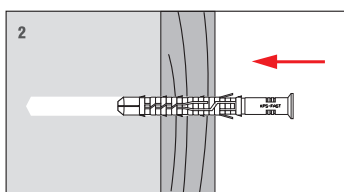
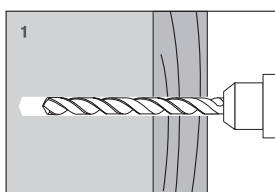
Improved, hardened screw has better torsional and bending strength, which eliminates the problem of head failure when installing the screw in very hard materials. The TX drive head for use with wrench enables fast installation without the risk of damaging the drive.



Resistance to fire

For assembling facade systems the fastener has a sufficient fire resistance of at least 90 minutes (R90) if the permissible design load for a single anchorage  $N_r \leq 0.8 \text{ kN}$  (without permanent longitudinal axial load).

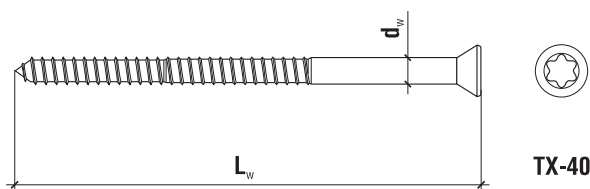
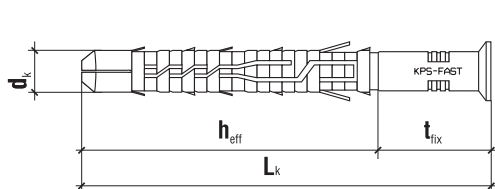
#### Installation



## TECHNICAL DATA

Product marking

<b>KPS-STRONG</b>	<b>10</b>	<b>080</b>	<b>S</b>	<b>A4</b>
Type	Diameter	Length	Head type	Type of steel and coating

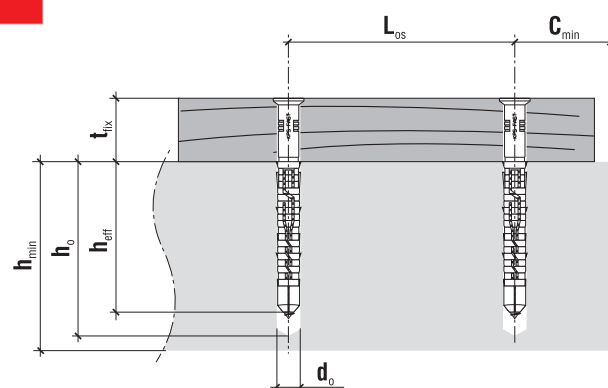


**TX-40**

	Code BLUE ZINC PLATED	Code A4 STAINLESS STEEL	Code HOT-DIP GALVANIZED	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type	Pcs
<b>ø10</b>	KPS-STRONG-10080S	KPS-STRONG-10080S-A4	KPS-STRONG-10080S-00	10 x 80	7.0 x 85	10	TX-40	50
	KPS-STRONG-10100S	KPS-STRONG-10100S-A4	KPS-STRONG-10100S-00	10 x 100	7.0 x 105	30	TX-40	50
	KPS-STRONG-10120S	KPS-STRONG-10120S-A4	KPS-STRONG-10120S-00	10 x 120	7.0 x 125	50	TX-40	50
	KPS-STRONG-10140S	KPS-STRONG-10140S-A4	KPS-STRONG-10140S-00	10 x 140	7.0 x 145	70	TX-40	50
	KPS-STRONG-10160S	KPS-STRONG-10160S-A4	KPS-STRONG-10160S-00	10 x 160	7.0 x 165	90	TX-40	50
	KPS-STRONG-10180S	KPS-STRONG-10180S-A4	KPS-STRONG-10180S-00	10 x 180	7.0 x 185	110	TX-40	25
	KPS-STRONG-10200S	KPS-STRONG-10200S-A4	KPS-STRONG-10200S-00	10 x 200	7.0 x 205	130	TX-40	25
	KPS-STRONG-10230S	KPS-STRONG-10230S-A4	KPS-STRONG-10230S-00	10 x 230	7.0 x 235	160	TX-40	25
	KPS-STRONG-10260S	KPS-STRONG-10260S-A4	KPS-STRONG-10260S-00	10 x 260	7.0 x 265	190	TX-40	25
	KPS-STRONG-10300S	KPS-STRONG-10300S-A4	KPS-STRONG-10300S-00	10 x 300	7.0 x 305	230	TX-40	25
	MADE TO ORDER	MADE TO ORDER	MADE TO ORDER					

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	10
Hole/drill diameter	$d_o$ [mm]	10
Effective anchorage depth	$h_{eff}$ [mm]	70
Depth of drill hole	$h_o$ [mm]	80
Drive type	x	TX-40
Use categories	x	A B
Sleeve material	x	PA
Screw material	x	A4, hot-dip galvanized, steel
Approval	x	ETA-12/0272



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $C_{min}$ [mm]
Concrete $\geq C16/20$	100	60
Solid clay brick	120	100
Solid sand-lime brick	120	100






From now all our framework fasteners Fast and Strong are **PRE-ASSEMBLED**.

**Pre-assembled products means:**

- ✓ easier and faster mounting
- ✓ no wasting time for assembling
- ✓ no mistake in choosing sleeve to the screw



### RESISTANCE **KPR-STRONG-10 K / KPS-STRONG-10 S**

Type of substrate according to ETAG020		Description	Density [kg/dm <sup>3</sup> ]	Standard	Characteristic pull-out resistance [kN]	
					KPR-STRONG 10 K	KPS-STRONG 10 S
<b>A</b>		Concrete ≥C16/20	≥ 1.8	EN 206-1	4.5*	
		Concrete C20/25	≥ 2.3	EN 206-1	6.0*	
<b>B</b>		Solid clay brick (e.g. MZ Rd 2.0/20)-DIN 106)	≥ 2.0	EN 771-1	3.5	
<b>B</b>		Solid sand-lime brick (e.g. Kalksandstein KS NF 20-2.0 Vollstein- DIN 106)	≥ 2.0	EN 771-2	3.5	

\* cracked concrete



# FRAME PLUGS Ø12

## KPR-FAST 12 K



TX HEX HEAD SCREW

## KPS-FAST 12 S



TX COUNTERSUNK  
HEAD SCREW

100% pure material nylon



100% **secure  
fixing**

### REDUCED THREAD

- precise installation of the screw
- increased expansion force in the second expansion zone

length **upto 360 mm**

ETAG 020

**A B C D**

all  
Directions  
expansion  
zone





### KPR-FAST 12 K

Frame plug Ø12 with hex head screw

### KPS-FAST 12 S

Frame plug Ø12 with countersunk head screw



ETA-12/0272



#### Description

Frame plug with flanged hex head screw for fixing of metal members, frame plug with countersunk head screw for fixing of wood

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product

< 360  
mm >

Screw  
length

We manufacture screws up to 360 mm long



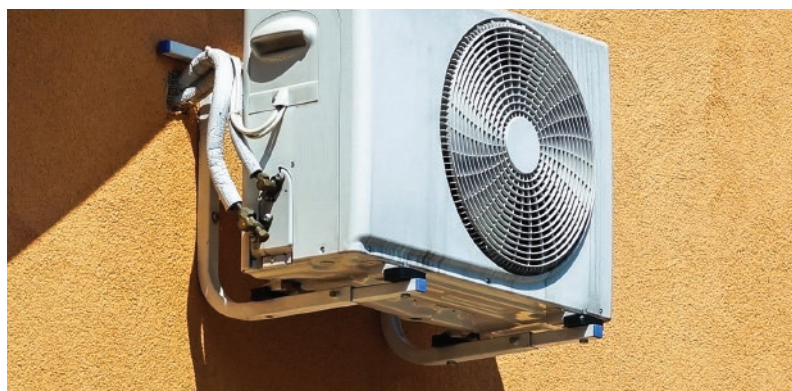
Hex head with  
TX-40/SW-13  
drive

TX drive ensures optimum transfer of torque while SW-13 hex head allows for tightening the screw with a given force (e.g. with torque wrench).

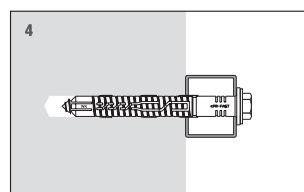
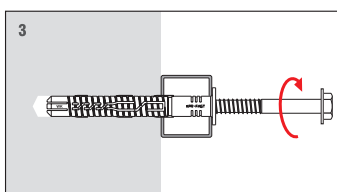
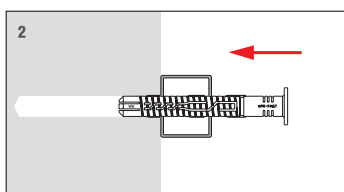
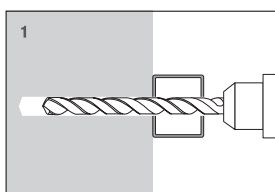


Reduced  
thread

Precise installation of the screw  
Increased expansion force in the second expansion zone.



#### Installation

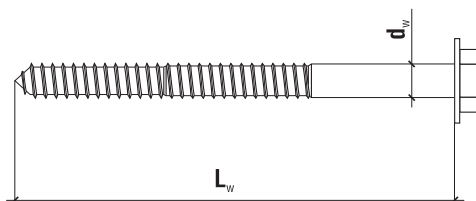
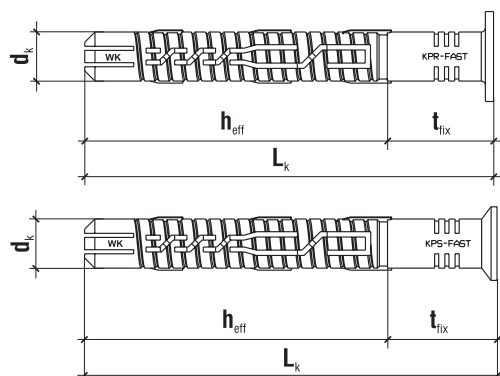


# FRAME AND GENERAL PURPOSE FIXINGS

## PRODUCTION PROGRAMME - FRAME FIXINGS

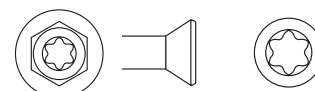
**Wkret-met®**  
**KLIMAS**

### TECHNICAL DATA



Product marking

KPS-FAST	12	080	S
Type	Diameter	Length	Head type



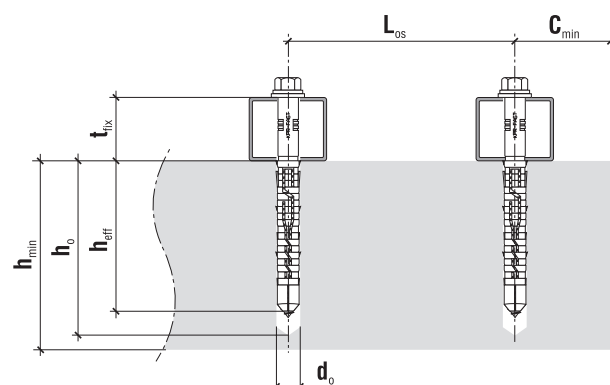
**SW-13**  
**TX-40**

**TX-40**

	Code KPR-FAST 12 K	Code KPS-FAST 12 S	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type KPR-FAST 12 K		Drive type KPS-FAST 12 S	Pcs
<b>ø12</b>	KPR-FAST-12080K	KPS-FAST-12080S	12 x 80	8.0 x 85	10	TX-40	SW-13	TX-40	25
	KPR-FAST-12100K	KPS-FAST-12100S	12 x 100	8.0 x 105	30	TX-40	SW-13	TX-40	25
	KPR-FAST-12120K	KPS-FAST-12120S	12 x 120	8.0 x 125	50	TX-40	SW-13	TX-40	25
	KPR-FAST-12140K	KPS-FAST-12140S	12 x 140	8.0 x 145	70	TX-40	SW-13	TX-40	25
	KPR-FAST-12160K	KPS-FAST-12160S	12 x 160	8.0 x 165	90	TX-40	SW-13	TX-40	25
	KPR-FAST-12180K	KPS-FAST-12180S	12 x 180	8.0 x 185	110	TX-40	SW-13	TX-40	25
	KPR-FAST-12200K	KPS-FAST-12200S	12 x 200	8.0 x 205	130	TX-40	SW-13	TX-40	25
	KPR-FAST-12230K	KPS-FAST-12230S	12 x 230	8.0 x 235	160	TX-40	SW-13	TX-40	25
	KPR-FAST-12260K	KPS-FAST-12260S	12 x 260	8.0 x 265	190	TX-40	SW-13	TX-40	25
	KPR-FAST-12300K	KPS-FAST-12300S	12 x 300	8.0 x 305	230	TX-40	SW-13	TX-40	20
	KPR-FAST-12330K	KPS-FAST-12330S	12 x 330	8.0 x 335	260	TX-40	SW-13	TX-40	20
	KPR-FAST-12360K	KPS-FAST-12360S	12 x 360	8.0 x 365	290	TX-40	SW-13	TX-40	20

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	12
Hole diameter	$d_o$ [mm]	12
Effective anchorage depth	$h_{eff}$ [mm]	70
Depth of drill hole	$h_o$ [mm]	80
Drive type	x	SW-13 / TX-40
Use categories	x	<b>A B C D</b>
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	<b>ETA-12/0272</b>



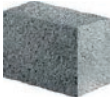






### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete $\geq C16/20$	100	100
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	180	100





### RESISTANCE **KPR-FAST 12 K / KPS-FAST 12 S**

Type of substrate according to ETAG020	Description	Density [kg/dm³]	Standard	Characteristic pull-out resistance [kN]	
				KPR-FAST 12 K	KPS-FAST 12 S
<b>A</b>	 Concrete C12/15	≥ 1.8	EN 206-1	<b>3.5*</b>	
	Concrete ≥ C16/20	≥ 2.3	EN 206-1	<b>5.0*</b>	
<b>B</b>	 Solid clay brick	≥ 1.7	EN 771-1	<b>3.5</b>	
	Solid clay brick (e.g. MZ Rd 2.0/20)	≥ 2.0	EN 771-1	<b>3.5</b>	
<b>B</b>	 Solid sand-lime brick (e.g. Kalksandstein KS NF 20-2.0 Vollstein - DIN 106)	≥ 2.0	EN 771-2	<b>3.5</b>	
<b>C</b>	 Solid sand-lime brick (e.g. Kalksandstein KS L-R(P) 8 DF Lochstein - DIN 106)	≥ 1.6	EN 771-2	<b>3.0</b>	
<b>C</b>	 Vertically perforated clay brick (e.g. Hlz Rd1 1.2/12)	≥ 1.2	EN 771-1	<b>2.0</b>	
<b>D</b>	 Lightweight concrete hollow blocks (e.g. HBL 2/0.8)	≥ 0.8	EN 771-3	<b>1.5</b>	
<b>D</b>	 Autoclaved aerated concrete AAC2	≥ 0.35	EN 771-4	<b>0.75</b>	
	Autoclaved aerated concrete AAC7	≥ 0.65	EN 771-4	<b>3.0</b>	

\* cracked concrete





# FRAME PLUGS Ø14

## KPR-FAST 14 K



TX HEX HEAD SCREW

## KPS-FAST 14 S



TX COUNTERSUNK  
HEAD SCREW

100% pure material nylon  
\*\*\*

length upto 360 mm

100% secure  
fixing

### REDUCED THREAD

- precise installation of the screw
- increased expansion force in the second expansion zone

ETAG 020

A B C D

all  
Directions  
expansion  
zone





### KPR-FAST 14 K

Frame plug Ø14 with hex head screw

### KPS-FAST 14 S

Frame plug Ø14 with countersunk head screw



ETA-12/0272

ETAG 020

**A B C D**

#### Description

Frame plug with flanged hex head screw for fixing of metal members, frame plug with countersunk head screw for fixing of wood

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

**100%  
nylon**

**Blue  
zinc**

#### Features and advantages of the product

**< 360  
mm**

**Screw  
length**

**We manufacture screws up to 360 mm long**



**Hex head with  
TX-50/SW-17  
drive**

TX drive ensures optimum transfer of torque while SW-17 hex head allows for tightening the screw with a given force (e.g. with torque wrench).

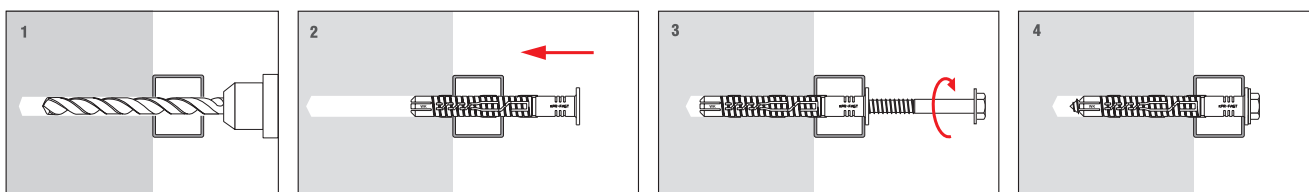


**Reduced  
thread**

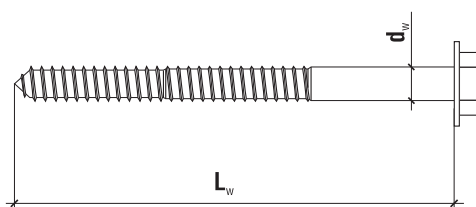
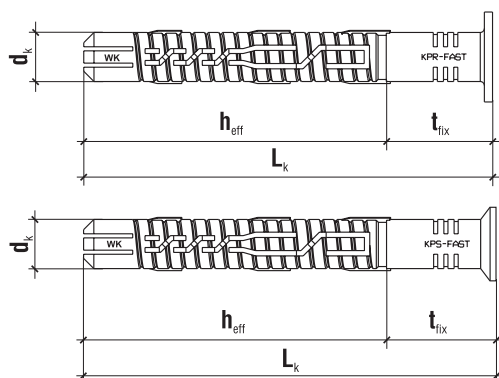
Precise installation of the screw  
Increased expansion force in the second expansion zone.



#### Installation



### TECHNICAL DATA



Product marking

KPR-FAST	14	080	K
Type	Diameter	Length	Head type



SW-17  
TX-50

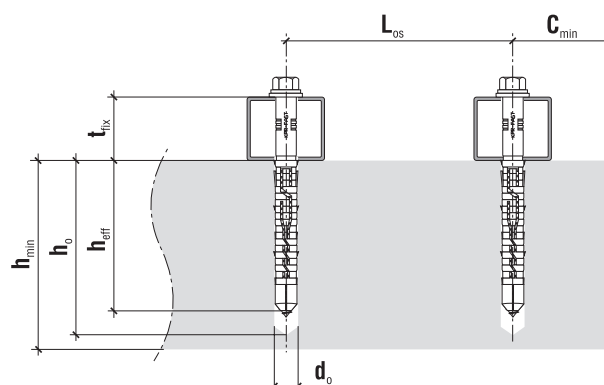


TX-50

	Code KPR-FAST 14 K	Code KPS-FAST 14 S	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Drive type KPR-FAST 14 K		Drive type KPS-FAST 14 S	Pcs	
									KPR-FAST 14K	KPS-FAST 14S
<b>ø14</b>	KPR-FAST-14080K	KPS-FAST-14080S	14 x 80	10 x 85	10	TX-50	SW-17	TX-50	20	20
	KPR-FAST-14100K	KPS-FAST-14100S	14 x 100	10 x 105	30	TX-50	SW-17	TX-50	20	20
	KPR-FAST-14120K	KPS-FAST-14120S	14 x 120	10 x 125	50	TX-50	SW-17	TX-50	20	25
	KPR-FAST-14140K	KPS-FAST-14140S	14 x 140	10 x 145	70	TX-50	SW-17	TX-50	25	25
	KPR-FAST-14160K	KPS-FAST-14160S	14 x 160	10 x 165	90	TX-50	SW-17	TX-50	25	25
	KPR-FAST-14180K	KPS-FAST-14180S	14 x 180	10 x 185	110	TX-50	SW-17	TX-50	25	25
	KPR-FAST-14200K	KPS-FAST-14200S	14 x 200	10 x 205	130	TX-50	SW-17	TX-50	15	15
	KPR-FAST-14230K	KPS-FAST-14230S	14 x 230	10 x 235	160	TX-50	SW-17	TX-50	15	15
	KPR-FAST-14260K	KPS-FAST-14260S	14 x 260	10 x 265	190	TX-50	SW-17	TX-50	15	15
	KPR-FAST-14300K	KPS-FAST-14300S	14 x 300	10 x 305	230	TX-50	SW-17	TX-50	10	10
	KPR-FAST-14330K	KPS-FAST-14330S	14 x 330	10 x 335	260	TX-50	SW-17	TX-50	10	10
	KPR-FAST-14360K	KPS-FAST-14360S	14 x 360	10 x 365	290	TX-50	SW-17	TX-50	10	10

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	14
Hole diameter	$d_o$ [mm]	14
Effective anchorage depth	$h_{eff}$ [mm]	70
Depth of drill hole	$h_o$ [mm]	80
Drive type	x	SW-17 / TX-50
Use categories	x	A B C D
Sleeve material	x	PA
Screw material	x	Zinc plated steel
European Technical Approval	x	ETA-12/0272










### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
Concrete $\geq C20/25$	100	100
Solid clay brick	120	100
Solid sand-lime brick	120	100
Perforated clay brick	180	100
Autoclaved aerated concrete	180	100





### RESISTANCE **KPR-FAST 14 K / KPS-FAST 14 S**

Type of substrate according to ETAG020		Description	Density [kg/dm³]	Standard	Characteristic pull-out resistance [kN]	
					KPR-FAST 14 K	KPS-FAST 14 S
<b>A</b>		Concrete C12/15	≥ 1.8	EN 206-1	5.5*	
		Concrete ≥ C16/20	≥ 2.3	EN 206-1	8.0*	
<b>B</b>		Solid clay brick	≥ 1.7	EN 771-1	4.0	
		Solid clay brick (e.g. MZ Rd 2.0/20)	≥ 2.0	EN 771-1	4.0	
<b>B</b>		Solid sand-lime brick (e.g. Kalksandstein KS NF 20-2.0 Vollstein - DIN 106)	≥ 2.0	EN 771-2	4.0	
<b>C</b>		Hollow sand-lime blocks KSL (e.g. Kalksandstein KS L-R(P) 8 DF Lochstein - DIN 106)	≥ 1.6	EN 771-2	3.5	
<b>C</b>		Vertically perforated clay brick (e.g. Hlz Rd1 1.2/12)	≥ 1.2	EN 771-1	2.0	
<b>D</b>		Lightweight concrete hollow blocks (e.g. HBL 2/0.8)	≥ 0.8	EN 771-3	2.0	
<b>D</b>		Autoclaved aerated concrete AAC2	≥ 0.35	EN 771-4	0.9	
		Autoclaved aerated concrete AAC7	≥ 0.65	EN 771-4	3.0	

\* cracked concrete





### KPD 10/12

Plug Ø10/Ø12 with double-threaded screw  
(fixing of downpipe clamps)



AT-15-9031/2012



#### Description

Recommended for fixing of downpipe clamping harnesses, cable containment systems

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, solid sand-lime brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



Screw  
length

**We manufacture screws up to 200 mm long**

**Long anchorage zone**

Helps with the correct installation in most substrates.

**Wrench size 10**

Helps with the correct installation of double-threaded screw.

**Diameter 10 and 12 mm**

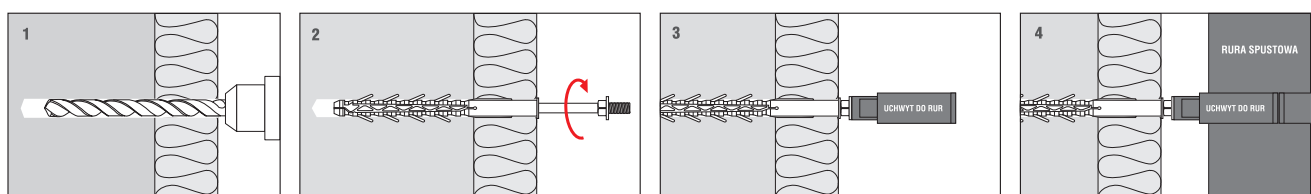
Increased anchor diameter ensures rigid and stable fixing.

**Metric thread M8**

Metric thread M8 enables installation of most clips and clamps.



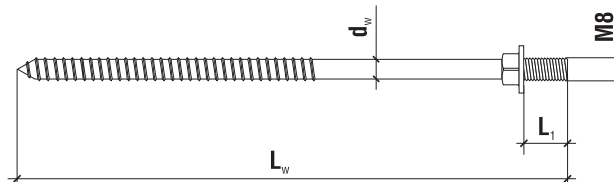
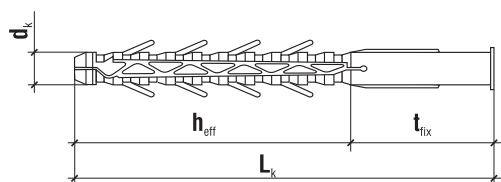
#### Installation



## TECHNICAL DATA

Product marking

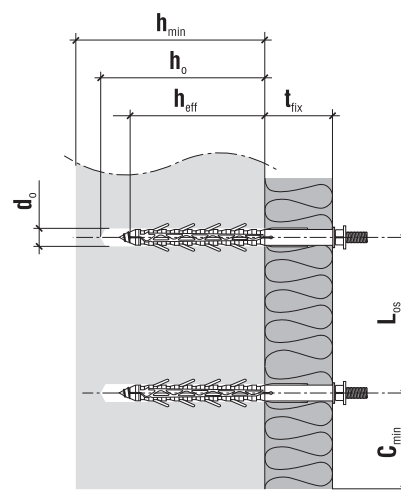
<b>KPD</b>	<b>10</b>	<b>100</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	SW-10	Pcs
<b>ø10</b>	KPD-10100	10 x 100	7.0 x 105	20	SW-10	50
	KPD-10160	10 x 160	7.0 x 165	80	SW-10	50
	KPD-10200	10 x 200	7.0 x 205	120	SW-10	25
<b>ø12</b>	KPD-12100	12 x 100	8.0 x 105	20	SW-10	25
	KPD-12160	12 x 160	8.0 x 165	80	SW-10	25
	KPD-12200	12 x 200	8.0 x 205	120	SW-10	25

### TECHNICAL DATA

Parameter	Unit	KPD 10	KPD 12
Plug diameter	$d_k$ [mm]	10	12
Hole diameter	$d_o$ [mm]	10	12
Effective anchorage depth	$h_{eff}$ [mm]	80	80
Depth of drill hole	$h_o$ [mm]	90	90
Metric thread diameter	D [mm]	M8	M8
Key size	x	SW 10	SW 10
Sleeve material	x	PA	PA
Screw material	x	Zinc plated steel	Zinc plated steel
Approval	x	AT-15-9031/2012	AT-15-9031/2012



### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	160	80	160
Solid clay brick	160	80	160
Solid sand-lime brick	160	80	160
Perforated clay brick	160	80	160
Autoclaved aerated concrete	160	80	160

### CHARACTERISTIC PULL-OUT RESISTANCE [kN]

Substrate	KPD 10/12
Concrete C20/25	5.19 / 1.80
Solid clay brick	3.79 / 1.18
Solid sand-lime brick	3.72 / 1.23
Perforated clay brick	0.7 / -
Autoclaved aerated concrete	0.86 / 0.49





### KPK 12 Frame plug Ø12 with SW-13 hex head screw



AT-15-9031/2012



#### Description

Frame plug with hex head screw for fixing of steel members

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, calcium silicate brick, perforated clay brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



#### SW-13 head

SW-13 hex head helps to tighten the screw with a given force (e.g. with torque wrench). Easy installation, the head doesn't get worn down.



#### Anchor length up to 200 mm

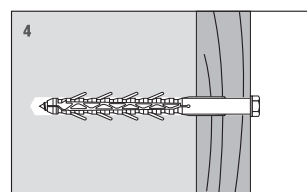
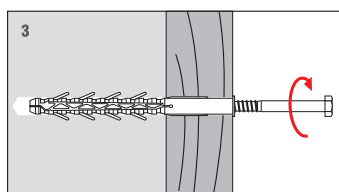
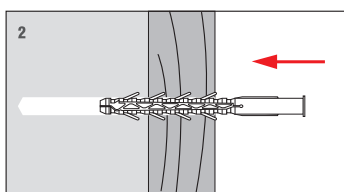
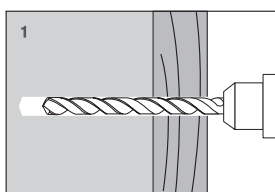
Enables you to fasten materials up to 120 mm thick.

#### KPR-12 sleeves available

You can re-use the screw with KPR-12 sleeve.



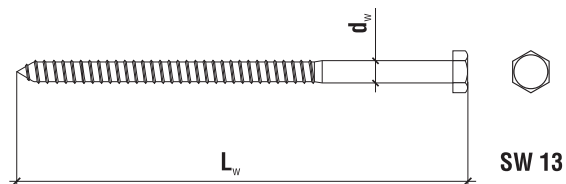
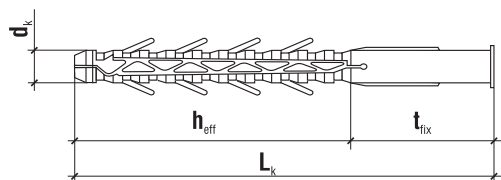
#### Installation



## TECHNICAL DATA

Product marking

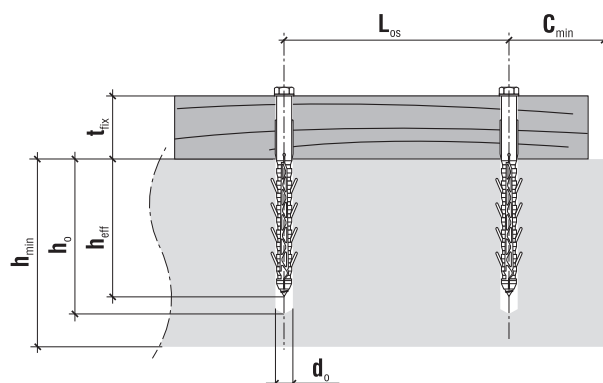
<b>KPK</b>	<b>12</b>	<b>100</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	SW-13	Pcs
<b>Ø12</b>	KPK-12100	12 x 100	8.0 x 100	20	SW-13	25
	KPK-12120	12 x 120	8.0 x 120	40	SW-13	25
	KPK-12140	12 x 140	8.0 x 140	60	SW-13	25
	KPK-12160	12 x 160	8.0 x 160	80	SW-13	25
	KPK-12180	12 x 180	8.0 x 180	100	SW-13	25
	KPK-12200	12 x 200	8.0 x 200	120	SW-13	25

### TECHNICAL DATA

Parameter	Unit	KPK 12
Plug diameter	$d_k$ [mm]	12
Hole diameter	$d_o$ [mm]	12
Effective anchorage depth	$h_{eff}$ [mm]	80
Depth of drill hole	$h_o$ [mm]	90
Key size	x	SW-13
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012



### CHARACTERISTIC PULL-OUT RESISTANCE [kN]

Substrate	KPK 12
Concrete C20/25	1.74
Solid clay brick	0.52
Solid sand-lime brick	0.93
Perforated clay brick	0.39
Autoclaved aerated concrete	0.19

### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	160	80	160
Solid clay brick	160	80	160
Solid sand-lime brick	160	80	160
Perforated clay brick	160	80	160
Autoclaved aerated concrete	160	80	160





### KPO 16

Frame plug Ø16, with SW-19 hex head screw



AT-15-9031/2012



#### Description

Frame plug with hex head screw for fixing of steel members

#### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, solid sand-lime, perforated solid brick, autoclaved aerated concrete

#### Sleeve material / Protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



##### SW-19 head

SW-19 hex head helps to tighten the screw with a given force (e.g. with torque wrench). Large flange ensures better holding power.

< 120  
mm >

##### Long anchorage zone

Can be used in all types of material while maintaining high strength parameters.

< Ø12  
mm >

##### Screw diameter up to 12 mm

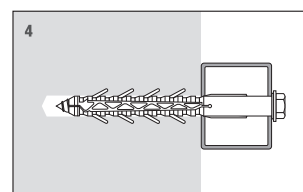
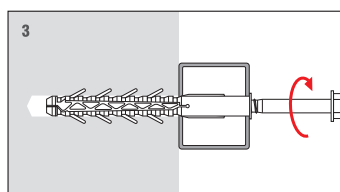
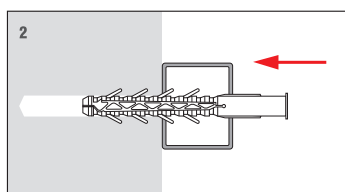
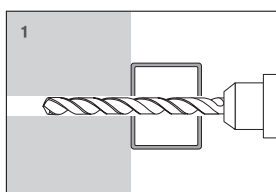
The largest expansion anchor on the market, for heavy duty applications.

< 240  
mm >

##### Anchor length

Enables you to fasten materials up to 120 mm thick.

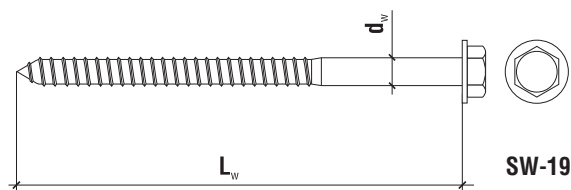
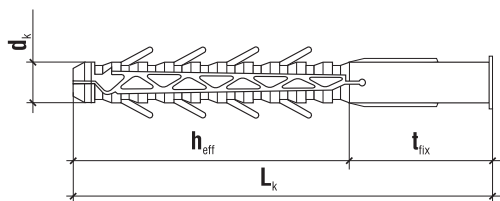
#### Installation



## TECHNICAL DATA

Product marking

<b>KPO</b>	<b>16</b>	<b>140</b>
Type	Diameter	Length

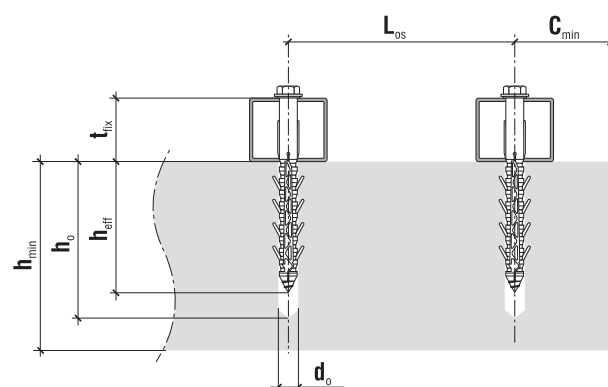


**SW-19**

	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	SW-19	Pcs
<b>ø16</b>	<b>KPO-16140</b>	16 x 140	12 x 150	20	SW-19	15
	<b>KPO-16160</b>	16 x 160	12 x 170	40	SW-19	15
	<b>KPO-16200</b>	16 x 200	12 x 210	80	SW-19	15
	<b>KPO-16240</b>	16 x 240	12 x 250	120	SW-19	10

### TECHNICAL DATA

Parameter	Unit	KPO 16
Plug diameter	$d_k$ [mm]	16
Hole diameter	$d_o$ [mm]	16
Effective anchorage depth	$h_{eff}$ [mm]	120
Depth of drill hole	$h_o$ [mm]	130
Key size	x	SW-19
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012



### CHARACTERISTIC PULL-OUT RESISTANCE [kN]

Substrate	KPO 16
Concrete C20/25	2.59
Solid clay brick	1.88
Solid sand-lime brick	1.72
Perforated clay brick	1.34
Autoclaved aerated concrete	0.87

### SUBSTRATE - MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	240	120	240
Solid clay brick	240	120	240
Solid sand-lime brick	240	120	240
Perforated clay brick	240	120	240
Autoclaved aerated concrete	240	120	240



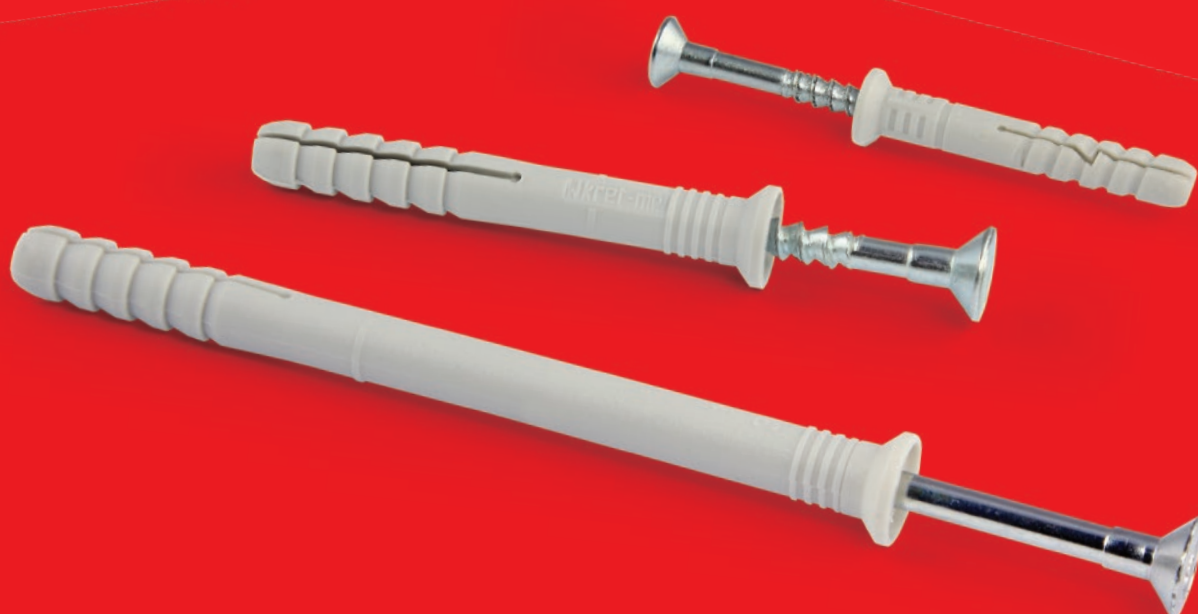






## FRAME AND GENERAL PURPOSE FIXINGS

## HAMMER DRIVE FIXINGS PRODUCTION PROGRAMME





# HAMMER DRIVE FIXINGS

Ø5, Ø6, Ø8, Ø10



## Better holding power

Increased head diameter ensures much better holding power of the elements being installed!

## Secure fixing

Countersunk head is more solid with special underhead strengthening!

100% <sup>pure material</sup> nylon

HAMMER DRIVE  
FIXINGS  
- PRE-ASSEMBLED PRODUCTS

NEW  
PACKAGING!



SMN-6



SMNK-6



SMNKC-6



Technical Approval  
AT-15-9031/2012



# WHEN **TIME** MATTERS





**SM**

Hammer drive plug Ø5, Ø6, Ø8, Ø10 **POLYPROPYLENE**

**SMN**

Hammer drive plug Ø5, Ø6, Ø8, Ø10 **NYLON**



AT-15-9031/2012



### Description

Plug for fixing of wood and wood-based members

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**100%**  
nylon

**Blue**  
zinc

### Features and advantages of the product



#### Better holding power

Increased head diameter ensures much better holding power of the elements being installed.



#### Secure fixing

Countersunk head is more solid with special underhead strengthening.



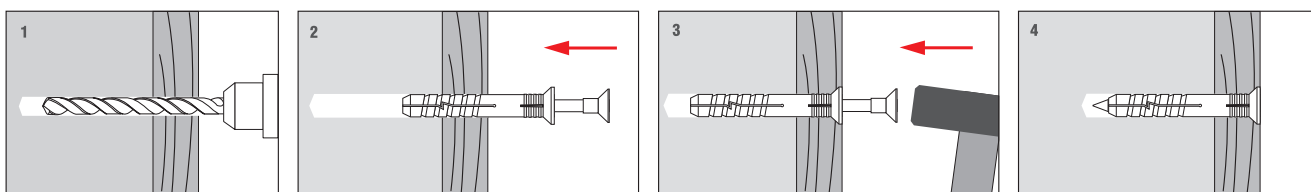
### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
SM-5/SMN-5	60	30	60
SM-6/SMN-6	60	30	60
SM-8/SMN-8	80	40	80
SM-10/SMN-10	100	50	100

### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SM-5	SMN-5	SM-6	SMN-6	SM-8	SMN-8	SM-10	SMN-10
Concrete C20/25	0.31	0.64	0.23	0.67	0.42	1.08	1.13	2.02
Solid clay brick	0.06	0.40	0.18	0.30	0.21	0.48	0.36	1.34
Calcium silicate brick	0.26	0.42	0.32	0.42	0.43	-	1.00	-
Autoclaved aerated concrete	0.10	0.08	0.13	0.11	0.23	0.20	0.30	0.44

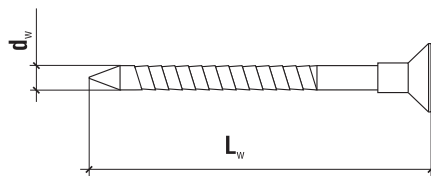
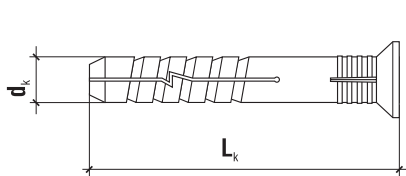
### Installation



## TECHNICAL DATA

Product marking

<b>SMN</b>	<b>05</b>	<b>045</b>
Type	Diameter	Length

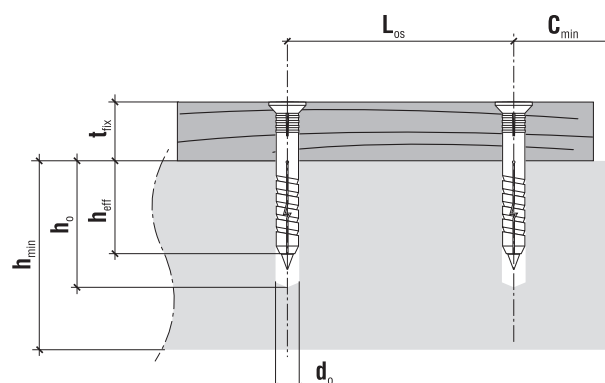


**PZ-2**  
**PZ-3**

	Code POLYPROPYLENE	Code NYLON	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø5</b>	SM-05045	SMN-05045	5 x 45	3.5 x 50	15	PZ 2	200
<b>ø6</b>	SM-06040	SMN-06040	6 x 40	3.9 x 45	10	PZ 2	200
	SM-06050	SMN-06050	6 x 50	3.9 x 55	20	PZ 2	200
	SM-06060	SMN-06060	6 x 60	3.9 x 65	30	PZ 2	200
	SM-06070	SMN-06070	6 x 70	3.9 x 75	40	PZ 2	100
	SM-06080	SMN-06080	6 x 80	3.9 x 85	50	PZ 2	100
<b>ø8</b>	SM-08045	SMN-08045	8 x 45	4.9 x 50	5	PZ 2	100
	SM-08060	SMN-08060	8 x 60	4.9 x 65	20	PZ 2	100
	SM-08080	SMN-08080	8 x 80	4.9 x 85	40	PZ 2	100
	SM-08100	SMN-08100	8 x 100	4.9 x 105	60	PZ 2	100
	SM-08120	SMN-08120	8 x 120	4.9 x 125	80	PZ 2	100
	SM-08140	SMN-08140	8 x 140	4.9 x 145	100	PZ 2	100
	SM-08160	SMN-08160	8 x 160	4.9 x 165	120	PZ 2	100
<b>ø10</b>	SM-10080	SMN-10080	10 x 80	6.9 x 90	30	PZ 3	50
	SM-10100	SMN-10100	10 x 100	6.9 x 110	50	PZ 3	50
	SM-10120	SMN-10120	10 x 120	6.9 x 130	70	PZ 3	50
	SM-10140	SMN-10140	10 x 140	6.9 x 150	90	PZ 3	50
	SM-10160	SMN-10160	10 x 160	6.9 x 170	110	PZ 3	50
	SM-10180	SMN-10180	10 x 180	6.9 x 190	130	PZ 3	50
	SM-10200	SMN-10200	10 x 200	6.9 x 210	150	PZ 3	50
	SM-10220	SMN-10220	10 x 220	6.9 x 230	170	PZ 3	50

## TECHNICAL DATA

Parameter	Unit	SM	SMN
Plug diameter	$d_k$ [mm]	5, 6, 8, 10	5, 6, 8, 10
Hole diameter	$d_o$ [mm]	5, 6, 8, 10	5, 6, 8, 10
Effective anchorage depth	$h_{eff}$ [mm]	30/30/40/50	30/30/40/50
Depth of drill hole	$h_o$ [mm]	40/40/50/60	40/40/50/60
Sleeve material	x	PP	PA
Screw material	x	Zinc plated steel	Zinc plated steel
Approval	x	AT-15-9031/2012	AT-15-9031/2012





**SMK** Hammer drive plug with collar Ø6 **POLYPROPYLENE**

**SMNK** Hammer drive plug with collar Ø6 **NYLON**



AT-15-9031/2012



SMK - POLYPROPYLENE

SMNK

100% **nylon** material



### Description

Plug with collar for fixing of metal members

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**100%**  
nylon

**Blue**  
zinc

### Features and advantages of the product



#### Better holding power

Increased head diameter ensures much better holding power of the elements being installed.

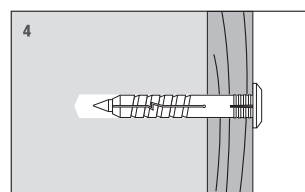
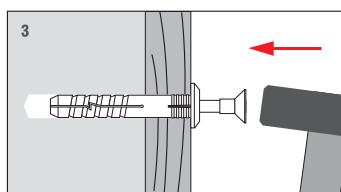
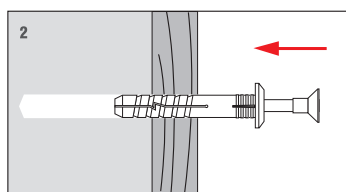
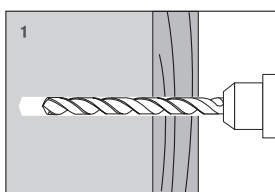


#### Secure fixing

Countersunk head is more solid with special underhead strengthening.



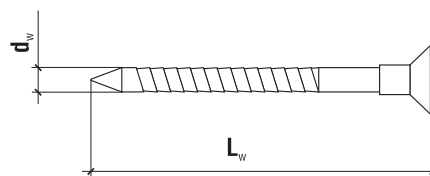
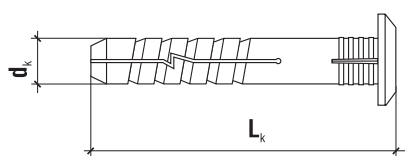
### Installation



## TECHNICAL DATA

Product marking

<b>SMNK</b>	<b>06</b>	<b>040</b>
Type	Diameter	Length

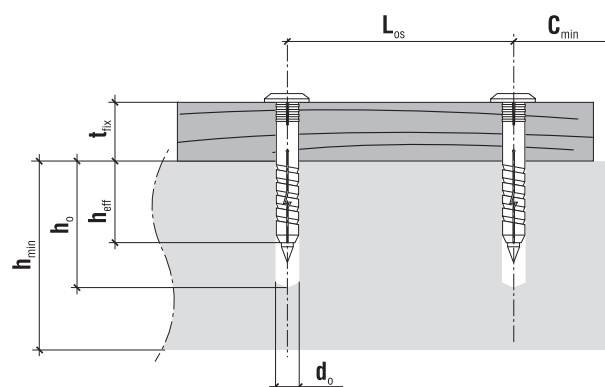


PZ-2

	Code POLYPROPYLENE	Code NYLON	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø6</b>	<b>SMK-06040</b>	<b>SMNK-06040</b>	6 x 40	3.9 x 45	10	PZ 2	200
	<b>SMK-06060</b>	<b>SMNK-06060</b>	6 x 60	3.9 x 65	30	PZ 2	200
	<b>SMK-06080</b>	<b>SMNK-06080</b>	6 x 80	3.9 x 85	50	PZ 2	100

### TECHNICAL DATA

Parameter	Unit	SMK	SMNK
Plug diameter	$d_k$ [mm]	6	6
Hole diameter	$d_o$ [mm]	6	6
Effective anchorage depth	$h_{eff}$ [mm]	30	30
Depth of drill hole	$h_o$ [mm]	40	40
Sleeve material	x	PP	PA
Screw material	x	Zinc plated steel	Zinc plated steel
Approval	x	AT-15-9031/2012	AT-15-9031/2012

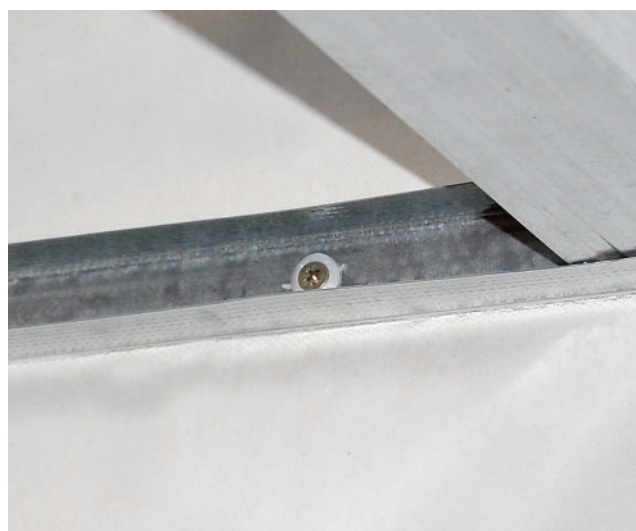


### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SMK-6	SMNK-6
Concrete C20/25	0.23	0.67
Solid clay brick	0.18	0.30
Calcium silicate brick	0.32	0.42
Autoclaved aerated concrete	0.13	0.11

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
SMK-6/SMNK-6	60	30	60





**SMKC**

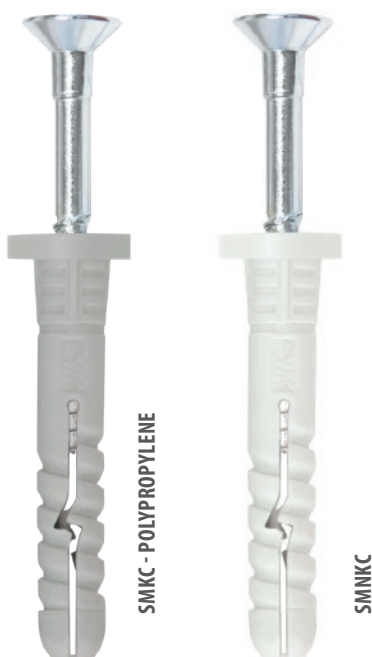
Hammer drive plug with cylindrical collar Ø5, Ø6 **POLYPROPYLENE**

**SMNKC**

Hammer drive plug with cylindrical collar Ø5, Ø6 **NYLON**



AT-15-9031/2012



SMKC - POLYPROPYLENE

SMNKC

100% nylon



### Description

Plug with collar for fixing of metal members

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**100%**  
nylon

**Blue**  
zinc

### Features and advantages of the product



#### Better holding power

Increased head diameter ensures much better holding power of the elements being installed.

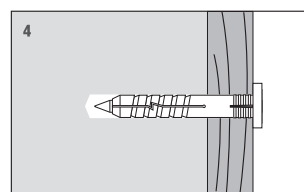
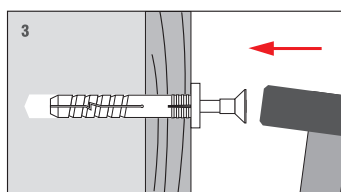
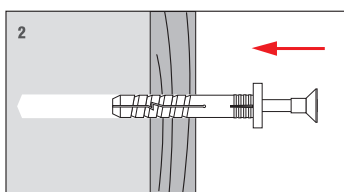
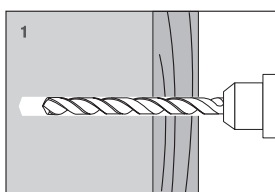


#### Secure fixing

Countersunk head is more solid with special underhead strengthening.



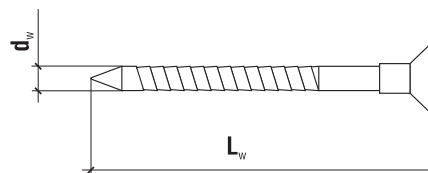
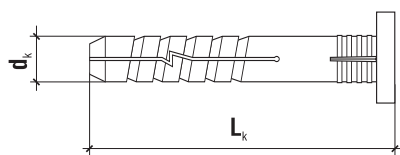
### Installation



## TECHNICAL DATA

Product marking

<b>SMNKC</b>	<b>05</b>	<b>035</b>
Type	Diameter	Length

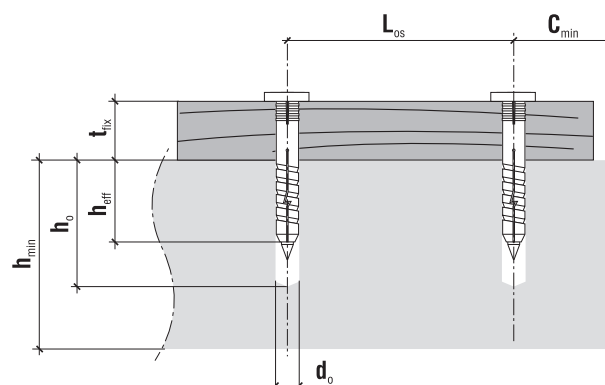


**PZ-2**

	Code Polypropylene	Code NYLON	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø5</b>	<b>SMKC-05035</b>	<b>SMNKC-05035</b>	5 x 35	3.5 x 40	5	PZ 2	200
<b>ø6</b>	<b>SMKC-06040</b>	<b>SMNKC-06040</b>	6 x 40	3.9 x 45	10	PZ 2	200
	<b>SMKC-06060</b>	<b>SMNKC-06060</b>	6 x 60	3.9 x 65	30	PZ 2	100

### TECHNICAL DATA

Parameter	Unit	SMKC	SMNKC
Plug diameter	$d_k$ [mm]	5/6	5/6
Hole diameter	$d_o$ [mm]	5/6	5/6
Effective anchorage depth	$h_{eff}$ [mm]	30	30
Depth of drill hole	$h_o$ [mm]	40	40
Sleeve material	x	PP	PA
Screw material	x	Zinc plated steel	Zinc plated steel
Approval	x	AT-15-9031/2012	AT-15-9031/2012



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SMKC-5	SMNKC-5	SMKC-6	SMNKC-6
Concrete C20/25	0.31	0.64	0.23	0.67
Solid clay brick	0.06	0.40	0.18	0.30
Calcium silicate brick	0.26	0.42	0.32	0.42
Autoclaved aerated concrete	0.10	0.08	0.13	0.11

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
SMKC-5/SMNKC-5	60	30	60
SMKC-6/SMNKC-6	60	30	60







## FRAME AND GENERAL PURPOSE FIXINGS

## METAL ANCHORS PRODUCTION PROGRAMME





# SMM

**Metal hammer drive anchor Ø6**



AT-15-9018/2012



### Description

Universal metal hammer-in anchor designed for fixing of thin metal members, drywall encasement elements, flashings, suspended ceiling systems

### Technical data

Type of installation push-through installation

Substrate concrete in compression zone, solid clay brick

Sleeve material/protective coating

**Alloy**  
**Zn/Al**

### Features and advantages of the product



**ZnAl anchor +  
steel nail**

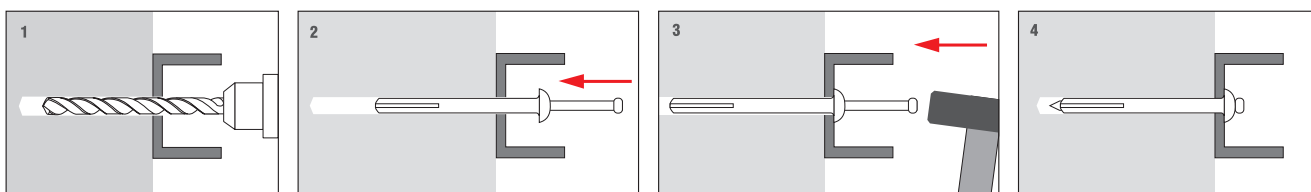
High resistance to fire, class A1 fire rating (fireproof).

**Hammer-in installation  
diameter of 6 mm**

Used as a substitute for standard 'rapid installation' plugs, where steel anchors are required.



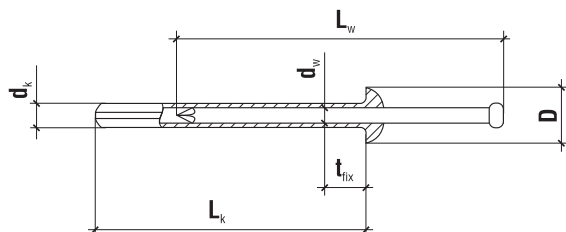
### Installation



## TECHNICAL DATA

Product marking

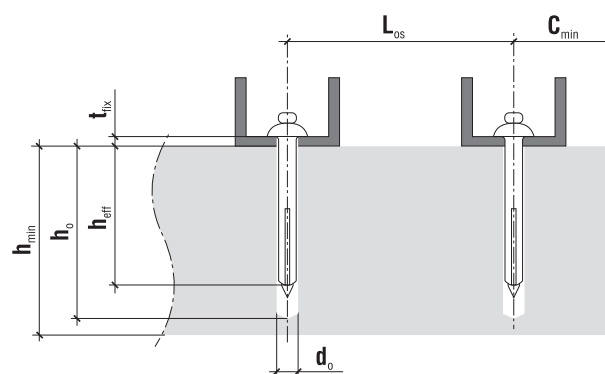
SMM	06	040
Type	Diameter	Length



	Code	Collar diameter D [mm]	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Pcs
<b>ø6</b>	<b>SMM-06040</b>	13	6.0 x 40	3.8 x 50	10	100
	<b>SMM-06050</b>	13	6.0 x 50	3.8 x 60	20	100
	<b>SMM-06065</b>	13	6.0 x 65	3.8 x 75	35	100

### TECHNICAL DATA

Parameter	Unit	SMM
Anchor diameter	$d_k$ [mm]	6.0
Hole diameter	$d_o$ [mm]	6
Effective anchorage depth	$h_{eff}$ [mm]	30
Depth of drill hole	$h_o$ [mm]	40
Sleeve material	x	Alloy Zn/Al
Approval	x	AT-15-9018/2012



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SMM
Concrete C20/25	1.47
Solid clay brick	1.06

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	60	30	60
Solid clay brick	60	30	60

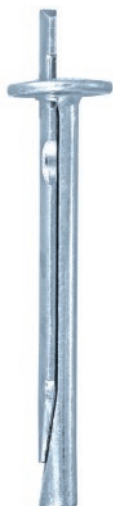


# KRW

### Hammer-in expanding metal anchor Ø6



AT-15-9018/2012



#### Description

Anchor designed for fixing of suspended ceiling systems in concrete

#### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick

#### Sleeve material/protective coating

Blue  
zinc

#### Features and advantages of the product



**Steel anchor**

High resistance to fire, class A1 fire rating (fireproof)

**For cracked concrete**

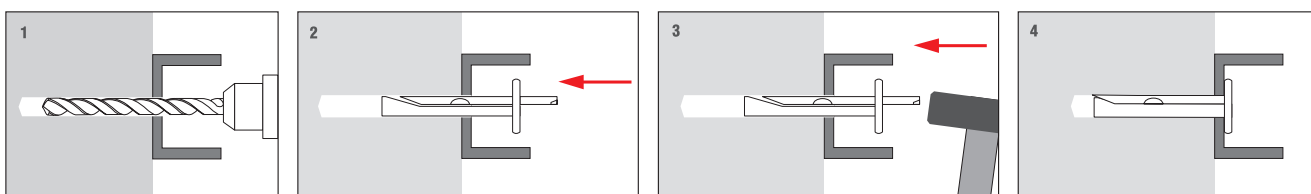
Highly recommended for suspended ceiling fixings in reinforced concrete.

**Hammer-in installation  
diameter of 6 mm**

Used as a substitute for standard 'rapid installation' plugs, where steel anchors are required.



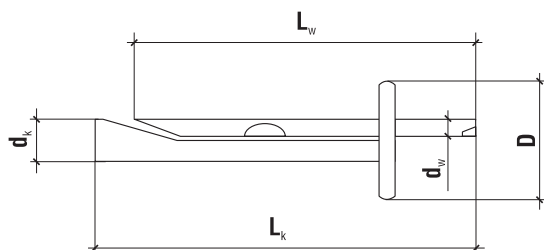
#### Installation



## TECHNICAL DATA

Product marking

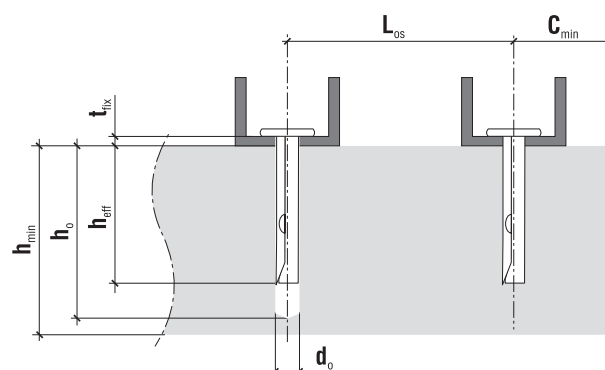
<b>KRW</b>	<b>06</b>	<b>035</b>
Type	Diameter	Length



	Code	Collar diameter D [mm]	$d_w \times L_w$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Pcs
<b>ø6</b>	<b>KRW-06035</b>	15	6.0 x 32.5	5,7 x 43	5	100
	<b>KRW-06065</b>	15	6.0 x 62.5	5,7 x 68	30	100

### TECHNICAL DATA

Parameter	Unit	KRW
Anchor diameter	$d_k$ [mm]	6
Hole diameter	$d_o$ [mm]	6
Effective anchorage depth	$h_{eff}$ [mm]	28
Depth of drill hole	$h_o$ [mm]	35
Sleeve material	x	Zinc plated steel
Approval	x	AT-15-9018/2012



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	KRW
Concrete C20/25	2.56
Cracked concrete	1.19
Solid clay brick	1.00

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	60	30	60
Solid clay brick	60	30	60



# KMG

Hammer-in anchor Ø5, Ø6, Ø8, Ø10 for AAC



AT-15-9018/2012



### Description

Universal metal hammer-in anchor used to work with screw-in fixings, including screws, screw-in hooks, etc.

### Technical data

Type of installation pre-fastening installation

Substrate autoclaved aerated concrete

Sleeve material/protective coating

**Blue  
zinc**

### Features and advantages of the product



#### Ribbed design

Easy screw tightening, outer teeth allow for transfer of heavy loads.



#### Steel anchor

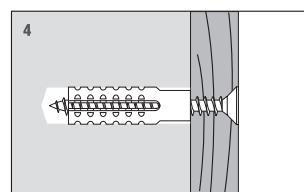
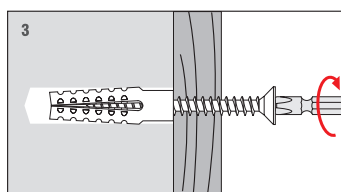
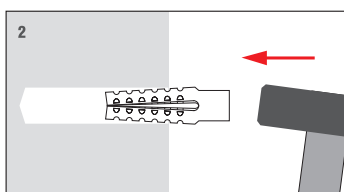
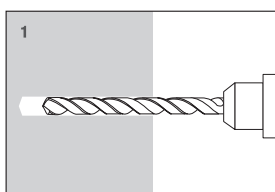
High resistance to fire, class A1 fire rating (fireproof).

### Fixing of drywall grid systems

Used for load-bearing drywall grid systems.



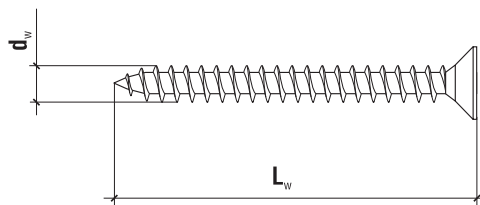
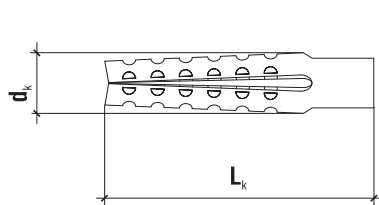
### Installation



### TECHNICAL DATA

Product marking

<b>KMG</b>	<b>05</b>
Type	Diameter



PZ

	Code	$d_k \times L_k$ [mm]	$d_w$ [mm]	Pcs
<b>ø5</b>	KMG-05	5.0 x 30	4.5	200
<b>ø6</b>	KMG-06	6.0 x 32	4.5 - 5.0	200
<b>ø8</b>	KMG-08	8.0 x 36	5.0 - 6.0	100
	KMG-08-D	8.0 x 60	5.0 - 6.0	50
<b>ø10</b>	KMG-10	10 x 60	6.0 - 8.0	50

### TECHNICAL DATA

Parameter	Unit	KMG
Plug diameter	$d_k$ [mm]	5/6/8/10
Hole diameter	$d_o$ [mm]	5/6/8/10
Effective anchorage depth	$h_{eff}$ [mm]	30/32/36/60/60*
Depth of drill hole	$h_o$ [mm]	40/40/45/70/70*
Sleeve material	x	Zinc plated steel
Approval	x	AT-15-9018/2012

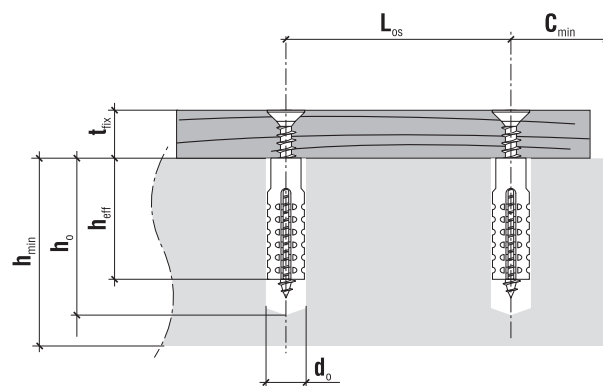
\* for KMG-8D - long

### DESIGN PULL-OUT RESISTANCE [kN]

KMG	Substrate: autoclaved aerated concrete
KMG-5	0.21
KMG-6	0.34
KMG-8	0.59
KMG-8D (long)	1.72
KMG-10	2.39

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
KMG-5	60	60	120
KMG-6	60	60	120
KMG-8	70	70	140
KMG-8D	120	120	240
KMG-10	120	120	240





# WHO

Concrete frame screw Ø7.5 with flat head, TX-30



AT-15-8977/2012

### Description

Screw for fixing of e.g. window and door frames in timber and masonry.

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick,  
calcium silicate brick

Sleeve material/protective coating

Blue  
zinc

### Features and advantages of the product

< 212  
mm >

Screw  
length

We manufacture screws up to 212 mm long



TX-30 drive

TX drive guarantees optimum torque transfer.



Countersunk  
head with ribs

Special protrusions on the head ensure its self-sinking in the installed element whilst eliminating the need for pre-drilling.

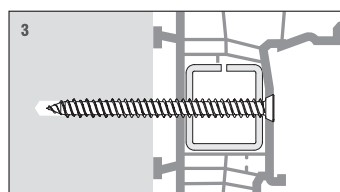
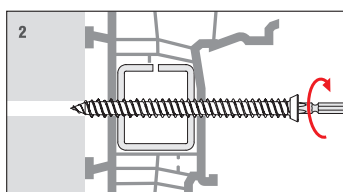
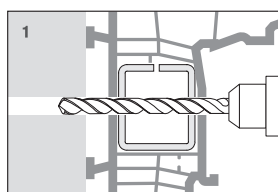


Thread  
serration

Thread design guarantees reliable and long-lasting connection – both in timber and masonry.



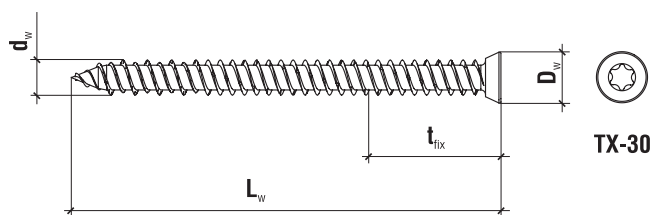
### Installation



Product marking

<b>WHO</b>	<b>75</b>	<b>042</b>
Type	Diameter	Length

## TECHNICAL DATA

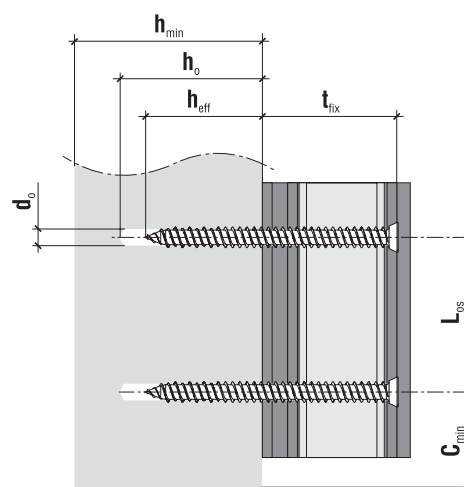


	Code	$d_w \times L_w$ [mm]	$D_w$ [mm]	Drill hole diameter $d_o$ [mm]	TX	Pcs
<b>ø7.5</b>	WHO-75042	7.5 x 42	11	6	TX-30	200
	WHO-75062	7.5 x 62	11	6	TX-30	200
	WHO-75082	7.5 x 82	11	6	TX-30	100
	WHO-75102	7.5 x 102	11	6	TX-30	100
	WHO-75112	7.5 x 112	11	6	TX-30	100
	WHO-75132	7.5 x 132	11	6	TX-30	100
	WHO-75152	7.5 x 152	11	6	TX-30	100
	WHO-75182	7.5 x 182	11	6	TX-30	100
	WHO-75212	7.5 x 212	11	6	TX-30	100

### TECHNICAL DATA

Parameter	Unit	WHO
Screw diameter	$d_w$ [mm]	7.5
Hole diameter	$d_o$ [mm]	6
Effective anchorage depth	$h_{eff}$ [mm]	30/40 *
Depth of drill hole	$h_o$ [mm]	40/50 *
Drive type	x	TX-30
Screw material	x	Zinc plated steel
Approval	x	AT-15-8977/2012

\* - Solid clay brick



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	Anchorage depth $h_{eff}$ [mm]	Value [kN]
Concrete C20/25*	30	1.68
Solid clay brick**	40	0.95
Calcium silicate brick***	40	0.97

\*Normal weight concrete C20/25

\*\*Solid clay brick, class not lower than 10

\*\*\*Solid sand-lime brick, class not lower than 20

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	60	60	120
Solid clay brick	80	80	160





# WHOW

Concrete frame screw Ø7.5 with pan head, TX-30



AT-15-8977/2012



### Description

Screw for fixing woodwork to timber and masonry substrates.

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, calcium silicate brick

### Sleeve material/protective coating

Blue  
zinc

### Features and advantages of the product

**< 212 mm >**

**Screw length**

**We manufacture screws up to 212 mm long**



**TX-30 drive**

TX drive guarantees optimum torque transfer.



**Pan head**

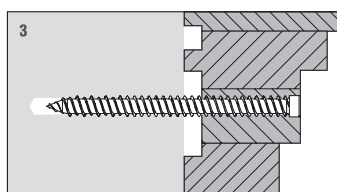
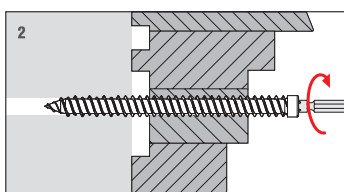
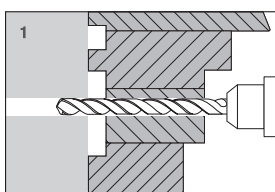
The shape of the head ensures its required sinking in the installed timber elements.



**Thread serration**

Thread design guarantees reliable and long-lasting connection – both in timber and masonry.

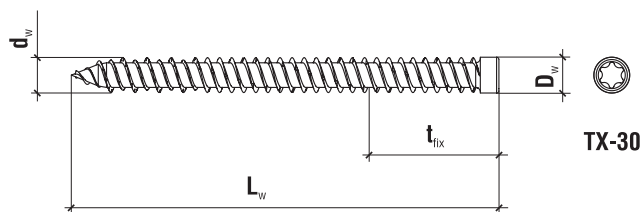
### Installation



## TECHNICAL DATA

Product marking

<b>WHOW</b>	<b>75</b>	<b>042</b>
Type	Diameter	Length

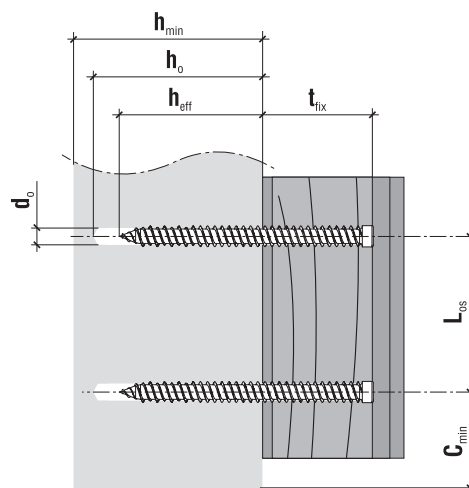


	Code	$d_w \times L_w$ [mm]	$D_w$ [mm]	Drill hole diameter $d_o$ [mm]	TX	Pcs
<b>ø7.5</b>	WHOW-75042	7.5 x 42	8.5	6	TX-30	200
	WHOW-75062	7.5 x 62	8.5	6	TX-30	200
	WHOW-75082	7.5 x 82	8.5	6	TX-30	100
	WHOW-75102	7.5 x 102	8.5	6	TX-30	100
	WHOW-75112	7.5 x 112	8.5	6	TX-30	100
	WHOW-75132	7.5 x 132	8.5	6	TX-30	100
	WHOW-75152	7.5 x 152	8.5	6	TX-30	100
	WHOW-75182	7.5 x 182	8.5	6	TX-30	100
	WHOW-75212	7.5 x 212	8.5	6	TX-30	100

### TECHNICAL DATA

Parameter	Unit	WHOW
Screw diameter	$d_w$ [mm]	7.5
Hole diameter	$d_o$ [mm]	6
Effective anchorage depth	$h_{eff}$ [mm]	30/40*
Depth of drill hole	$h_o$ [mm]	40/50*
Drive type	x	TX-30
Screw material	x	Zinc plated steel
Approval	x	AT-15-8977/2012

\* - solid clay brick



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	Anchorage depth $h_{eff}$ [mm]	Value [kN]
Concrete C20/25*	30	1.68
Solid clay brick**	40	0.95
Calcium silicate brick***	40	0.97

\*Normal weight concrete C20/25

\*\*Solid clay brick, class not lower than 10

\*\*\*Solid sand-lime brick, class not lower than 20

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{wz}$ [mm]
Concrete C20/25	60	60	120
Solid clay brick	80	80	160





### L0 Frame anchor fastener Ø10



AT-15-8976/2012



#### Description

Universal metal fixing for frames, steel woodwork fittings - boards, to be used with plastic cover cap (concealed connection) in a variety of colours

#### Technical data

Type of installation	push-through installation
Substrate	concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

#### Sleeve material/protective coating

Blue  
zinc

#### Features and advantages of the product



##### Countersunk head with PZ drive

Countersunk head ensures its correct sinking in the installed element. Commonly used PZ drive also makes installation easier.



##### Expansion in the installed element

Plug expansion in the element being installed ensures a tight fixing in the substrate.

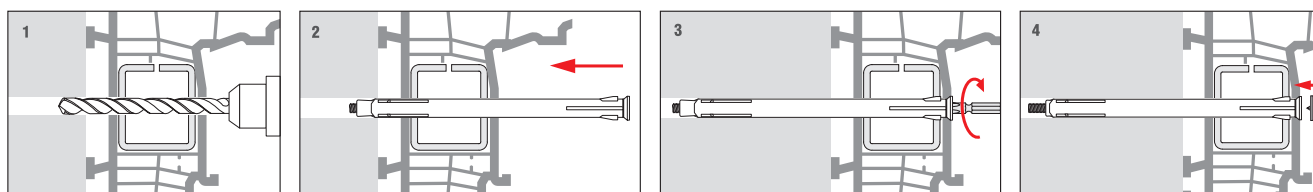


##### Expansion in the substrate

Special design of the expansion zone ensures correct fixing both in solid substrate (concrete, ceramic/clay brick, aerated concrete, sand-lime brick) and in ceramic/clay hollow brick.



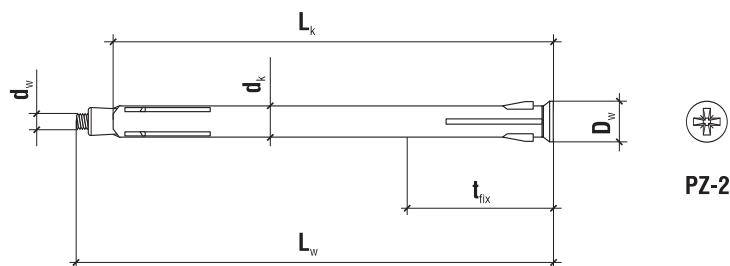
#### Installation



### TECHNICAL DATA

Product marking

<b>L0</b>	<b>10</b>	<b>072</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	$D_w$ [mm]	Drill hole diameter $d_o$ [mm]	PZ	Pcs
<b>ø10</b>	<b>L0-10072</b>	10 x 72	6 x 87	13	10	PZ 2	100
	<b>L0-10092</b>	10 x 92	6 x 107	13	10	PZ 2	100
	<b>L0-10112</b>	10 x 112	6 x 127	13	10	PZ 2	100
	<b>L0-10132</b>	10 x 132	6 x 147	13	10	PZ 2	100
	<b>L0-10152</b>	10 x 152	6 x 167	13	10	PZ 2	100
	<b>L0-10182</b>	10 x 182	6 x 197	13	10	PZ 2	50
	<b>L0-10202</b>	10 x 202	6 x 217	13	10	PZ 2	50

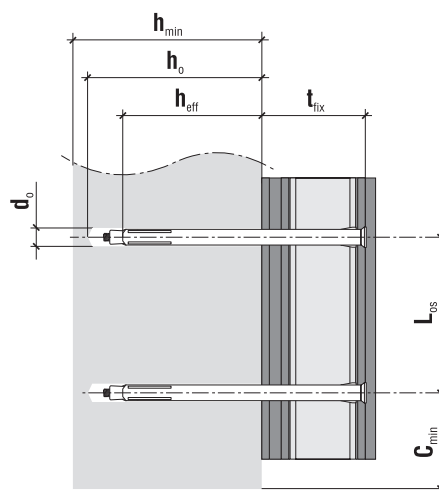
### TECHNICAL DATA

Parameter	Unit	L0
Anchor diameter	$d_k$ [mm]	10
Hole diameter	$d_o$ [mm]	10
Effective anchorage depth	$h_{eff}$ [mm]	30/40/60*
Depth of drill hole	$h_o$ [mm]	40/50/70*
Drive type	x	PZ-2
Screw material	x	Zinc plated steel
Approval	x	AT-15-8976/2012

\* - Concrete/Solid clay brick/Vertically perforated/

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Substrate	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
Concrete C20/25	60	60	120
Solid clay brick	80	80	160
Vertically perforated	120	120	240



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	L0	Effective anchorage depth [mm]
Concrete C20/25	1.70	30
Solid clay brick	1.11	40
Calcium silicate brick	1.14	40
Hollow clay brick	0.29	60
Autoclaved aerated concrete	0.29	60

### Z Cover cap for L0 frame fastener

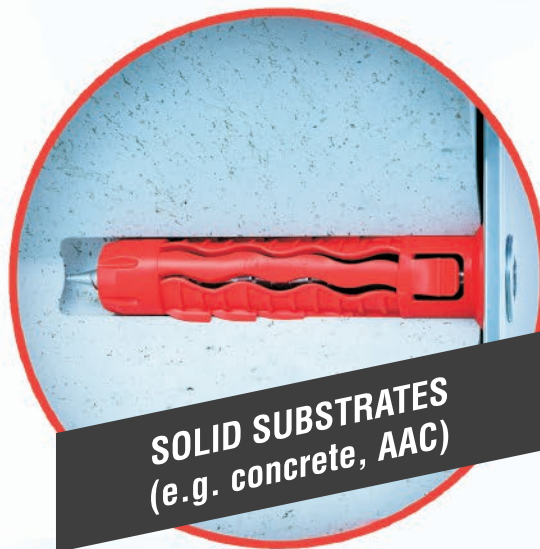


Code	Colour	Diameter [mm]	Pcs
<b>ZB</b>	<b>White</b>	16	100
<b>ZBR</b>	<b>Brown</b>	16	100
<b>ZCZ</b>	<b>Black</b>	16	100
<b>ZSZ</b>	<b>Gray</b>	16	100





**HOLLOW SUBSTRATES**  
(e.g. perforated ceramic brick)



**SOLID SUBSTRATES**  
(e.g. concrete, AAC)



**sfx**  
**#for all substrates!**



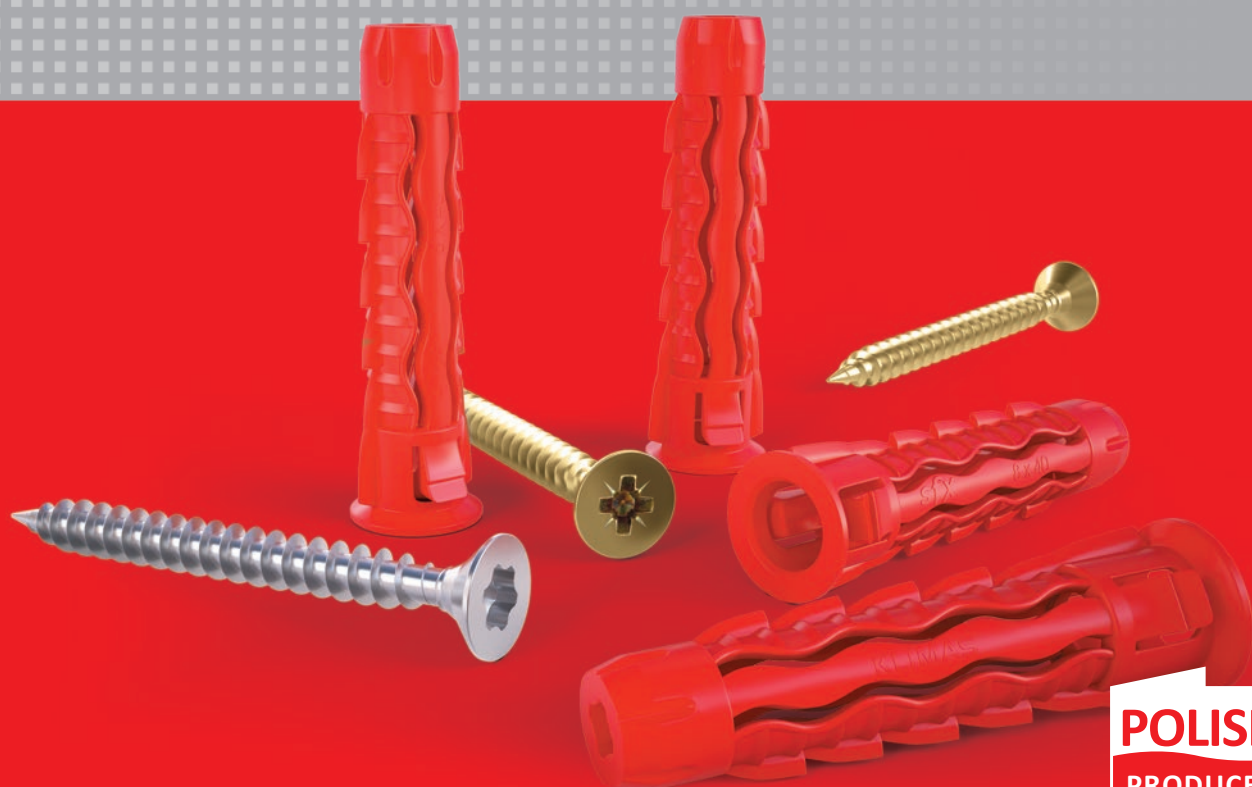
**PLASTERBOARD,  
OSB PANEL etc.**





## FRAME AND GENERAL PURPOSE FIXINGS

## UNIVERSAL FIXINGS PRODUCTION PROGRAMME



**POLISH  
PRODUCER**



# WHEN YOU NEED UNIVERSAL SOLUTIONS

100% pure material nylon

100% secure fixing

NEW!

POLISH  
PRODUCER

**sfx**

- 1 Increased collar diameter  
- prevents the plug from slipping into the substrate.
- 2 Special anti-rotation fins  
- prevent rotation in the substrate during installation.
- 3 Unique shape  
- ensures a 'knot' is formed, which makes the plug sit firmly in the void.
- 4 Reduced diameter of the tapered section of the plug facilitates installation.
- 5 Special ribs  
- a new solution which holds the sleeve firmly in place



[www.wkret-met.com/sfx](http://www.wkret-met.com/sfx)



**Child's play!**  
**For all substrates!**

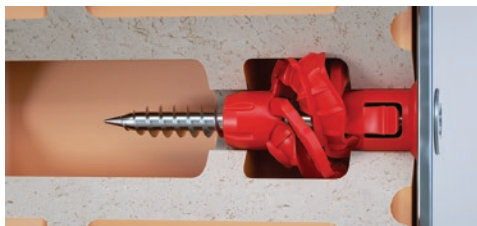


Unique geometry of the expansion/torsion zone ensures secure fixing in all types of substrate: **solid materials, materials with voids, plasterboards, concrete panels, plywood.**

Special expansion ribs ensure the plug is held firmly in place in **members of at least 10 mm thick** and prevent its rotation. The same is achieved in solid materials thanks to expansion elements along the plug.

Internal geometry of the plug eliminates faulty screw installation by guiding the screw precisely down the plug. Increased collar diameter prevents the plug from sinking too deep into the substrate and the reduced diameter of the tapered plug facilitates installation in the pilot hole.

### MATERIALS WITH VOIDS (e.g. hollow clay brick)



### SOLID MATERIALS (e.g. concrete, aerated concrete)



### PLASTERBOARD



### Incorrect installation in plasterboard

#### Sleeve failure - competitor's product



#### Sleeve failure - competitor's product





# SFXP

Universal plug Ø5, Ø6, Ø8, Ø10 with countersunk head screw



AT-15-9702/2016

### Description

Countersunk head screw for fixing of light duty interior finish systems and lightweight installations - plug sleeve made of nylon

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, calcium silicate brick, autoclaved aerated concrete, plasterboards, concrete panels

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



**Reduced diameter of the bottom part**  
- facilitates installation in the drill hole.



**Special ribs**  
- a new solution which holds the sleeve firmly in place.



**Unique shape**  
- ensures a 'knot' is formed, which makes the plug sit firmly in the void.



**Increased collar diameter**  
- prevents the plug from sinking into the substrate.



**Special anti-rotation fins**  
- prevent rotation in the substrate during installation.

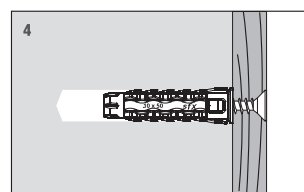
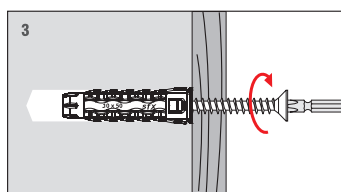
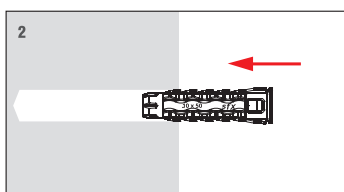
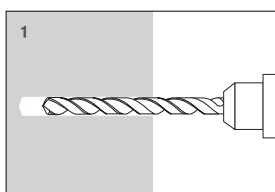
**NEW!**



100%  
nylon



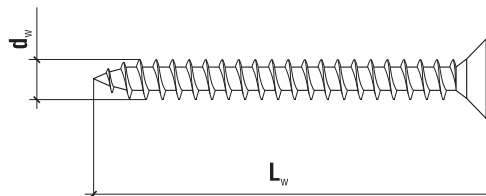
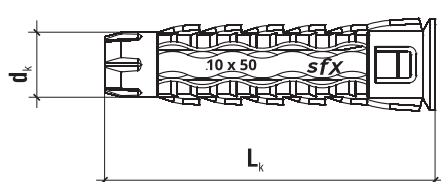
### Installation



## TECHNICAL DATA

Product marking

SFXP	05	025	035
Type	Diameter	Length	Screw length



**PZ-2**  
**PZ-3**

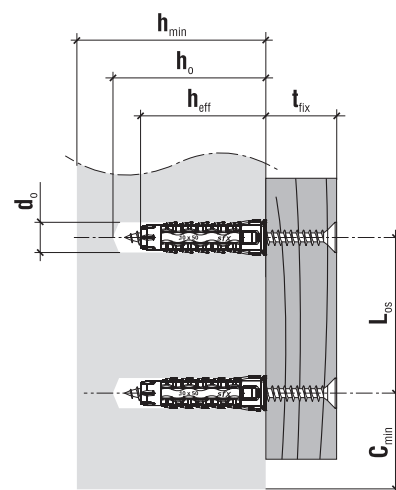
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø5</b>	SFXP-05025035	5.0 x 25	3.5 x 35	10	PZ-2	200
	SFXP-05025045	5.0 x 25	3.5 x 45	15	PZ-2	200
<b>ø6</b>	SFXP-06030040	6.0 x 30	4.0 x 40	10	PZ-2	100
	SFXP-06030050	6.0 x 30	4.0 x 50	20	PZ-2	100
<b>ø8</b>	SFXP-08040050	8.0 x 40	5.0 x 50	10	PZ-2	100
	SFXP-08040060	8.0 x 40	5.0 x 60	20	PZ-2	100
<b>ø10</b>	SFXP-10050060	10 x 50	6.0 x 60	10	PZ-3	50
	SFXP-10050070	10 x 50	6.0 x 70	20	PZ-3	50
	SFXP-10060070	10 x 60	6.0 x 70	10	PZ-3	50
	SFXP-10060080	10 x 60	6.0 x 80	20	PZ-3	50

## TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	5, 6, 8, 10
Hole/drill diameter	$d_o$ [mm]	5, 6, 8, 10
Effective anchorage depth	$h_{eff}$ [mm]	25, 30, 40, 50, 60
Depth of drill hole	$h_o$ [mm]	35, 40, 50, 60, 70
Drive type	x	PZ
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9702/2016

## DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SFXP				
	ø5	ø6	ø8	ø10x50	ø10x60
Normal weight concrete class C20/25 ÷ C50/60	0.05	0.11	0.17	0.42	0.42
Solid clay brick MZ class 20	0.04	0.12	0.30	0.48	0.48
Calcium silicate brick KS class 20	0.04	0.12	0.36	0.60	0.60
Calcium silicate hollow blocks (perforated) class 15	0.04	0.12	0.24	0.48	0.48
Hollow clay brick class 15	0.04	0.20	0.24	0.48	0.48
Autoclaved aerated concrete PP6 600/4	0.05	0.15	0.30	0.30	0.30
Plasterboards 12.5 mm	-	0.10	0.10	0.20	0.20
Fibreboard 12.5 mm	-	0.10	0.10	0.15	0.15
Plasterboards 2 x 12.5 mm	-	-	-	-	0.45





# SFXK

Universal plug Ø10 with hex head screw



AT-15-9702/2016

**NEW!**



100% pure material **nylon** \*\*\*



### Description

Hex head screw for fixing of light duty interior finish systems and lightweight installations - plug sleeve made of nylon

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, calcium silicate brick, autoclaved aerated concrete, plasterboards, concrete panels

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



**Reduced diameter of the bottom part**  
- facilitates installation in the drill hole.



**Special ribs**  
- a new solution which holds the sleeve firmly in place.



**Unique shape**  
- ensures a 'knot' is formed, which makes the plug sit firmly in the void.

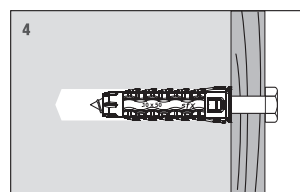
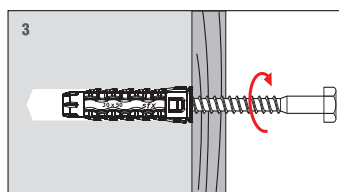
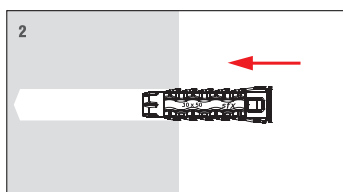
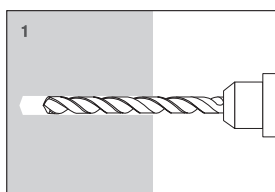


**Increased collar diameter**  
- prevents the plug from sinking into the substrate.



**Special anti-rotation fins**  
- prevent rotation in the substrate during installation.

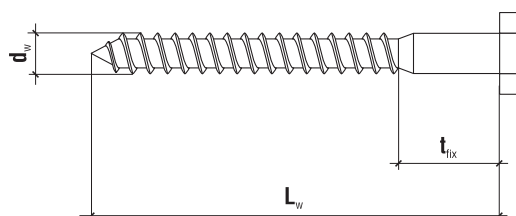
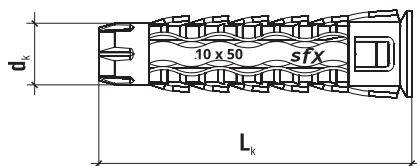
### Installation



## TECHNICAL DATA

Product marking

SFXK	10	050	060
Type	Diameter	Length	Screw length



SW 10

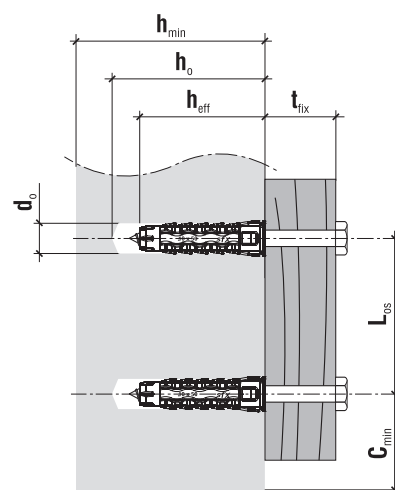
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	SW	Pcs
<b>Ø10</b>	SFXK-10050060	10 x 50	6.0 x 60	10	SW-10	25
	SFXK-10050070	10 x 50	6.0 x 70	20	SW-10	25
	SFXK-10060070	10 x 60	6.0 x 70	10	SW-10	25
	SFXK-10060080	10 x 60	6.0 x 80	20	SW-10	25

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	10
Hole/drill diameter	$d_o$ [mm]	10
Effective anchorage depth	$h_{eff}$ [mm]	50, 60
Depth of drill hole	$h_o$ [mm]	60, 70
Drive type	x	SW-10
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9702/2016

### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	SFXK	
	Ø10x50	Ø10x60
Normal weight concrete class C20/25 ÷ C50/60	0.67	0.67
Solid clay brick MZ class 20	0.60	0.60
Calcium silicate brick KS class 20	0.60	0.60
Calcium silicate hollow blocks (perforated) class 15	0.36	0.36
Hollow clay brick class 15	0.36	0.36
Autoclaved aerated concrete PP6 600/4	0.75	0.75
Plasterboards 12.5 mm	0.20	0.20
Fibreboard 12.5 mm	0.20	0.20
Plasterboards 2 x 12.5 mm	-	0.45





**SFXL**

Universal plug Ø6, Ø8 with straight hook

**SFXC**

Universal plug Ø6, Ø8 with round hook

**SFX0**

Universal plug Ø6, Ø8 with eye-bolt



AT-15-9702/2016

**NEW!**



SFXL - STRAIGHT HOOK

SFXC - ROUND HOOK

SFX0 - EYE-BOLT

100% nylon



### Description

Steel zinc coated hooks for lightweight interior finish elements and lightweight installations - sleeve made of nylon

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, calcium silicate brick, autoclaved aerated concrete, plasterboards, concrete panels

### Sleeve material/protective coating

100% nylon

Blue zinc

### Features and advantages of the product



**Reduced diameter of the bottom part**  
- facilitates installation in the drill hole.



**Special ribs**  
- a new solution which holds the sleeve firmly in place.

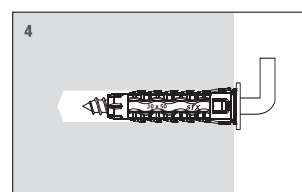
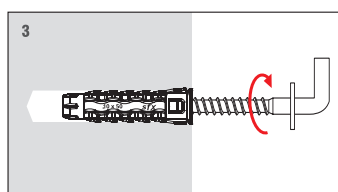
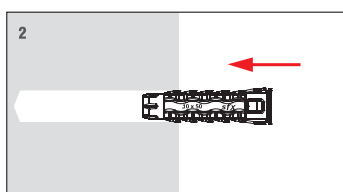
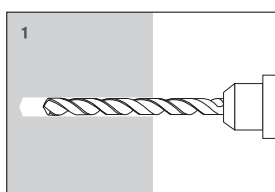


**Unique shape**  
- ensures a 'knot' is formed, which makes the plug sit firmly in the void.



**Increased collar diameter**  
- prevents the plug from sinking into the substrate.

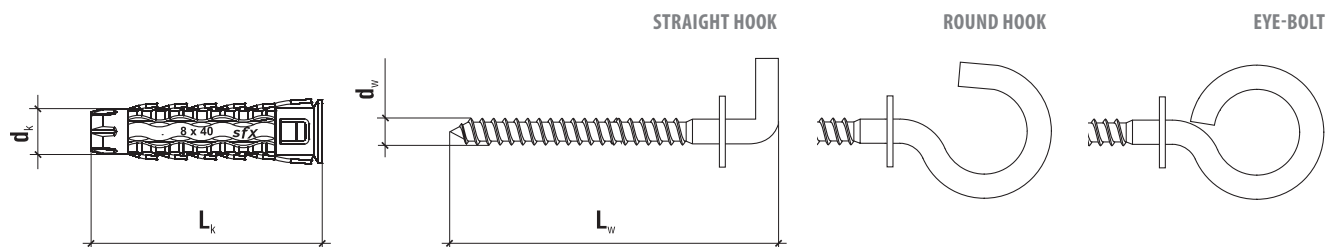
### Installation

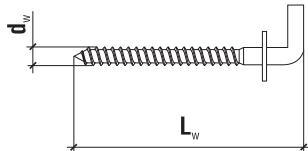

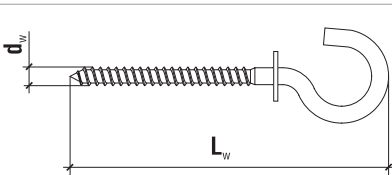

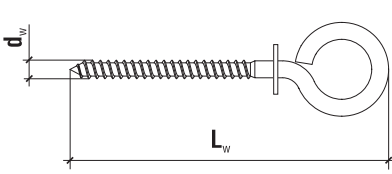



## TECHNICAL DATA

Product marking

SFXL	SFXC	SFXO	06	030	064
Type	Type	Type	Diameter	Length	Hook length



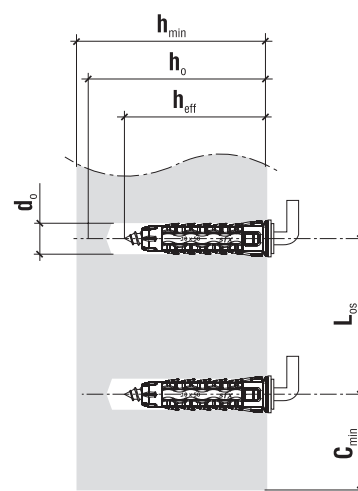
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs 
	<b>STRAIGHT HOOK</b>			
	<b>Ø6</b> SFXL-06030048	6.0 x 30	3.5 x 48	50
<b>Ø8</b> SFXL-08040065	8.0 x 40	4.5 x 65	25	
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs 
	<b>ROUND HOOK</b>			
	<b>Ø6</b> SFXC-06030065	6.0 x 30	3.5 x 65	50
<b>Ø8</b> SFXC-08040083	8.0 x 40	4.5 x 83	25	
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs 
	<b>EYE-BOLT</b>			
	<b>Ø6</b> SFXO-06030064	6.0 x 30	3.5 x 64	50
<b>Ø8</b> SFXO-08040085	8.0 x 40	4.5 x 85	25	

### TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	$d_k$ [mm]	6/8
Hole/drill diameter	$d_o$ [mm]	6/8
Effective anchorage depth	$h_{eff}$ [mm]	30/40
Depth of drill hole	$h_o$ [mm]	40/50
Drive type	x	-
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9702/2016

### DESIGN PULL-OUT RESISTANCE [KN]

Substrate	Ø6	Ø8
Normal weight concrete class C20/25 - C50/60	0.11	0.17
Solid clay brick MZ class 20	0.16	0.24
Calcium silicate brick KS class 20	0.16	0.24
Calcium silicate hollow blocks (perforated) class 15	0.16	0.24
Hollow clay brick class 15	0.16	0.24
Autoclaved aerated concrete PP6 600/4	0.20	0.30
Plasterboards 12.5 mm	0.10	0.10
Fibreboard 12.5 mm	0.10	0.10





### RU Universal plug Ø6, Ø8, Ø10 with countersunk head screw



#### Description

Universal plug with countersunk head screw

#### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, plasterboard

Sleeve material/protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



#### Anti-rotation lugs

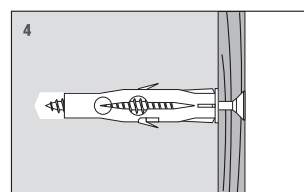
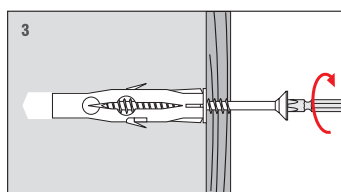
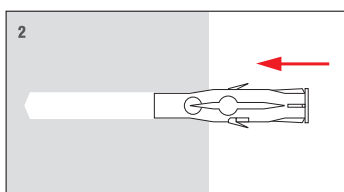
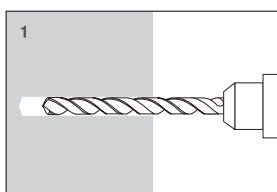
Protrusions on the sleeve keep it in place when screwing in the screw.

#### Nylon sleeve

Nylon with increased elasticity ensures correct expansion in the void.



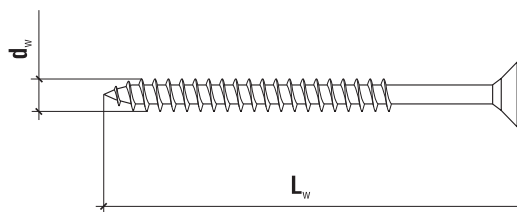
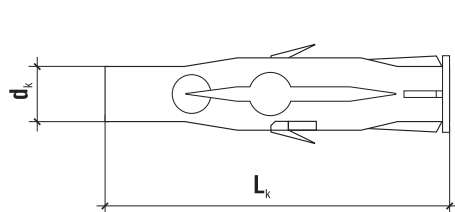
#### Installation



## TECHNICAL DATA

Product marking

<b>RU</b>	<b>06</b>	<b>045</b>
Type	Diameter	Length



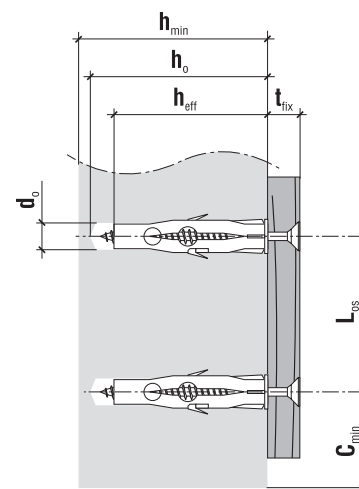
**PZ-2**  
**PZ-3**

	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø6</b>	<b>RU-06045</b>	6.0 x 35	3.5 x 45	5	PZ-2	100
	<b>RU-06060</b>	6.0 x 35	3.5 x 60	20	PZ-2	100
<b>ø8</b>	<b>RU-08060</b>	8.0 x 50	4.5 x 60	5	PZ-2	100
	<b>RU-08080</b>	8.0 x 50	4.5 x 80	25	PZ-2	100
<b>ø10</b>	<b>RU-10080</b>	10 x 60	6.0 x 80	15	PZ-3	100
	<b>RU-10100</b>	10 x 60	6.0 x 100	35	PZ-3	100

### TECHNICAL DATA

Parameter	Unit	RU
Plug diameter	$d_k$ [mm]	6/8/10
Hole diameter	$d_o$ [mm]	6/8/10
Effective anchorage depth	$h_{eff}$ [mm]	35/50/60*
Depth of drill hole	$h_o$ [mm]	45/60/70*
Drive type	x	PZ-2/PZ-3**
Sleeve material	x	PA
Screw material	x	Zinc plated steel

\* - for RU 6/8/10 \*\* - for RU 10



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	RU-6	RU-8	RU-10
Concrete C20/25	0.38	0.52	0.92
Solid clay brick	0.25	0.36	0.64
Perforated solid brick	0.20	0.25	0.25
Plasterboard	0.24	0.26	0.28

\* - min. plasterboard thickness 6 mm for each type of fastener

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
RU-6	70	70	140
RU-8	100	100	200
RU-10	120	120	240

\* - min. plasterboard thickness 6 mm for each type of fastener



### RUL Universal plug Ø6, Ø8 with straight hook



#### Description

Universal plug with straight hook

#### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, plasterboard

#### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

#### Features and advantages of the product



#### Anti-rotation lugs

Protrusions on the sleeve keep it in place when screwing in the screw.



#### Stop collar

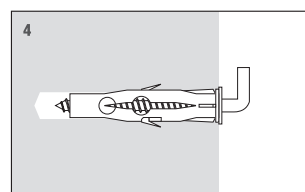
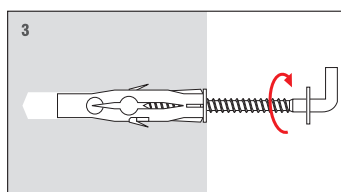
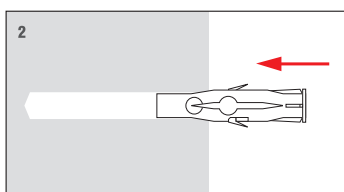
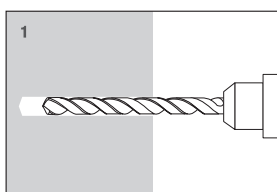
Screw hooks come with special stop collar which makes the screw rest on the plug and enables correct installation.

#### Nylon sleeve

Nylon with increased elasticity ensures correct expansion in the hollow material.



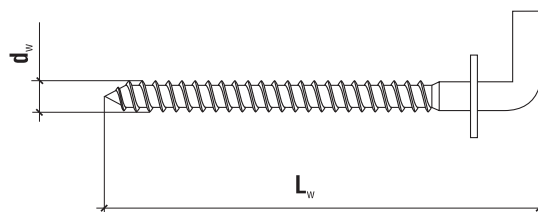
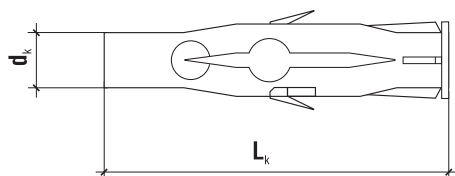
#### Installation



## TECHNICAL DATA

Product marking

<b>RUL</b>	<b>06</b>	<b>048</b>
Type	Diameter	Length

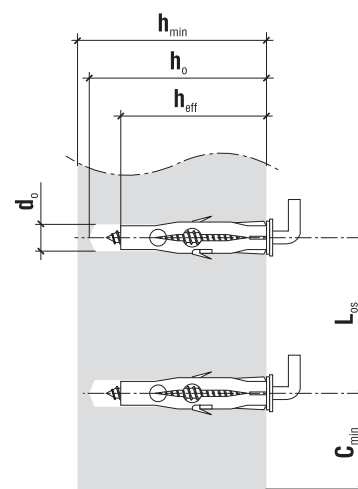


	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs
<b>ø6</b>	<b>RUL-06048</b>	6.0 x 35	3.5 x 48	50
<b>ø8</b>	<b>RUL-08065</b>	8.0 x 50	4.5 x 65	25

### TECHNICAL DATA

Parameter	Unit	RUL
Plug diameter	$d_k$ [mm]	6/8
Hole diameter	$d_o$ [mm]	6/8
Effective anchorage depth	$h_{eff}$ [mm]	35/50*
Depth of drill hole	$h_o$ [mm]	45/60*
Sleeve material	x	PA
Screw material	x	Zinc plated steel

\* - for RUL-8



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	RUL-6	RUL-8
Concrete C20/25	0.20	0.28
Solid clay brick	0.14	0.20
Perforated solid brick	0.14	0.20
Plasterboard	0.18	0.26

\* - min. plasterboard thickness 6 mm for each type of fastener

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
RUL-6	70	70	140
RUL-8	100	100	200



# RUC

Universal plug Ø6, Ø8 with round hook



### Description

Universal plug with round hook

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, plasterboard

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



#### Anti-rotation lugs

Protrusions on the sleeve keep it in place when screwing in the screw.



#### Stop collar

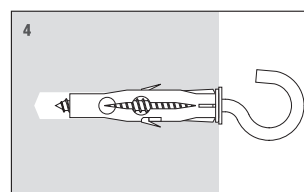
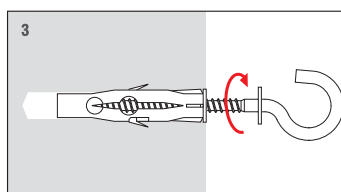
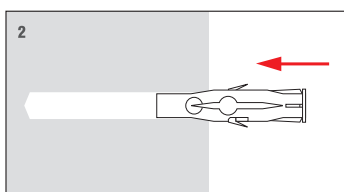
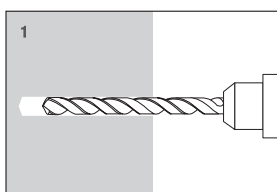
Screw hooks come with special stop collar which makes the screw rest on the plug and enables correct installation.

#### Nylon sleeve

Nylon with increased elasticity ensures correct expansion in the hollow material.



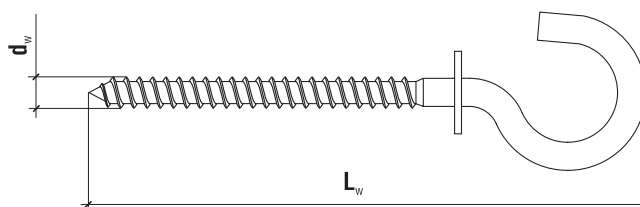
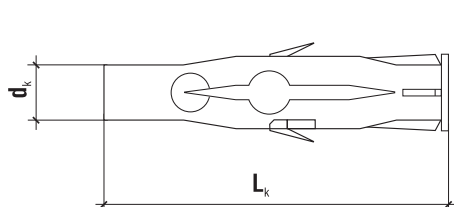
### Installation



## TECHNICAL DATA

Product marking

<b>RUC</b>	<b>06</b>	<b>065</b>
Type	Diameter	Length

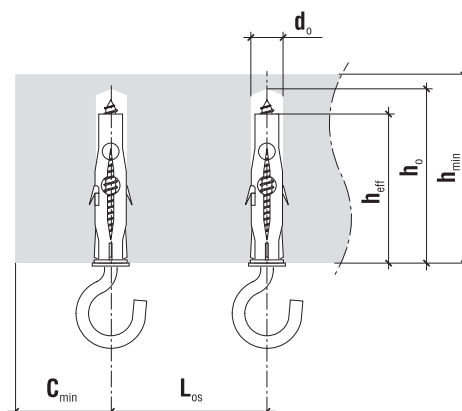


	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs
<b>ø6</b>	<b>RUC-06065</b>	6.0 x 35	3.5 x 65	50
<b>ø8</b>	<b>RUC-08083</b>	8.0 x 50	4.5 x 83	25

### TECHNICAL DATA

Parameter	Unit	RUC
Plug diameter	$d_k$ [mm]	6/8
Hole diameter	$d_o$ [mm]	6/8
Effective anchorage depth	$h_{eff}$ [mm]	35/50*
Depth of drill hole	$h_o$ [mm]	45/60*
Sleeve material	x	PA
Screw material	x	Zinc plated steel

\* - for RUC-8



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	RUC-6	RUC-8
Concrete C20/25	0.20	0.28
Solid clay brick	0.14	0.20
Perforated solid brick	0.14	0.20
Plasterboard	0.18	0.26

\* - min. plasterboard thickness 6 mm for each type of fastener

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
RUC-6	70	70	140
RUC-8	100	100	200





# RUO

Universal plug Ø6, Ø8 with eye-bolt



100% nylon material  
**nylon**

### Description

Universal plug with eye-bolt

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, plasterboard

Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



#### Anti-rotation lugs

Protrusions on the sleeve keep it in place when screwing in the screw.



#### Stop collar

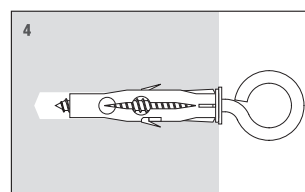
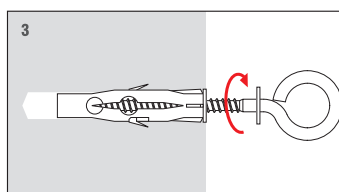
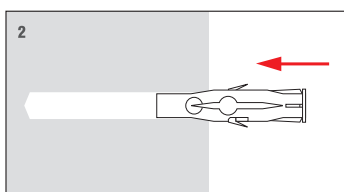
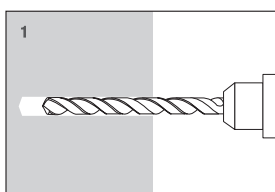
Screw hooks come with special stop collar which makes the screw rest on the plug and enables correct installation.

#### Nylon sleeve

Nylon with increased elasticity ensures correct expansion in the hollow material.



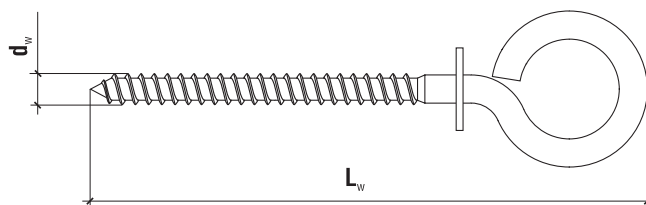
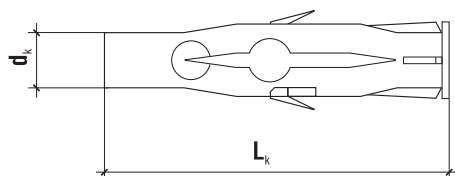
### Installation




## TECHNICAL DATA

Product marking

<b>RU0</b>	<b>06</b>	<b>064</b>
Type	Diameter	Length

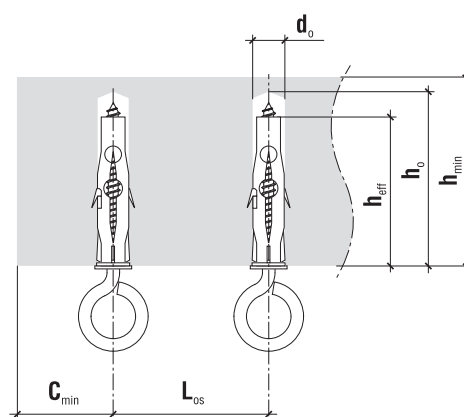


	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs 
<b>ø6</b>	<b>RU0-06064</b>	6.0 x 35	3.5 x 64	50
<b>ø8</b>	<b>RU0-08084</b>	8.0 x 50	4.5 x 84	25

### TECHNICAL DATA

Parameter	Unit	RU0
Plug diameter	$d_k$ [mm]	6/8
Hole diameter	$d_o$ [mm]	6/8
Effective anchorage depth	$h_{eff}$ [mm]	35/50*
Depth of drill hole	$h_o$ [mm]	45/60*
Sleeve material	x	PA
Screw material	x	Zinc plated steel

\* - for RU0-8



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	RU0-6	RU0-8
Concrete C20/25	0.20	0.28
Solid clay brick	0.14	0.20
Perforated solid brick	0.14	0.20
Plasterboard	0.18	0.26

\* - min. plasterboard thickness 6 mm for each type of fastener

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $C_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
RU0-6	70	70	140
RU0-8	100	100	200



**KW**

Universal plug Ø6, Ø8, Ø10 with countersunk head screw



### Description

Versatile, universal expansion plug with countersunk screw for fixing of lightweight interior finish elements and lightweight installations - sleeve made of nylon

### Technical data

Type of installation push-through installation

Substrate concrete, solid clay brick, perforated solid brick, plasterboard

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



#### Anti-rotation lugs

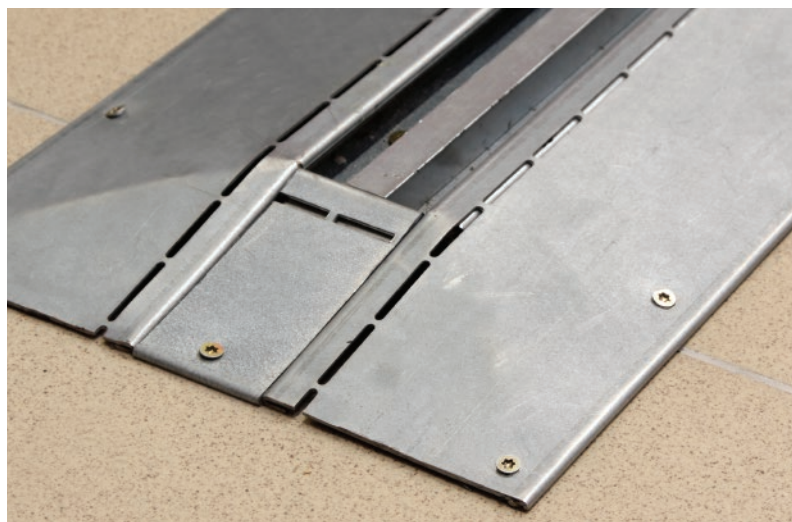
Protrusions on the sleeve keep it in place when screwing in the screw.

#### Nylon sleeve

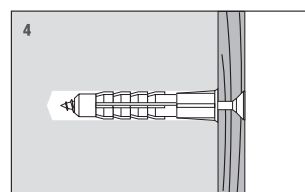
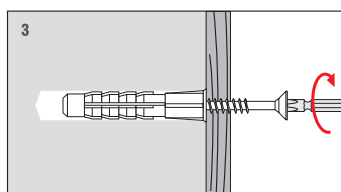
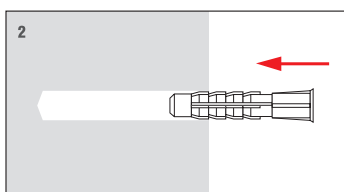
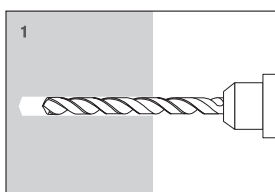
Nylon with increased elasticity ensures correct expansion in the void.

#### KPW sleeves available

You can re-use the screw with KPW sleeve.



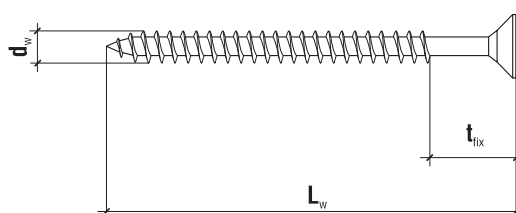
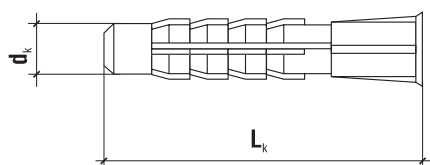
### Installation



## TECHNICAL DATA

Product marking

<b>KW</b>	<b>06</b>	<b>045</b>
Type	Diameter	Length



**PZ-2**  
**PZ-3**

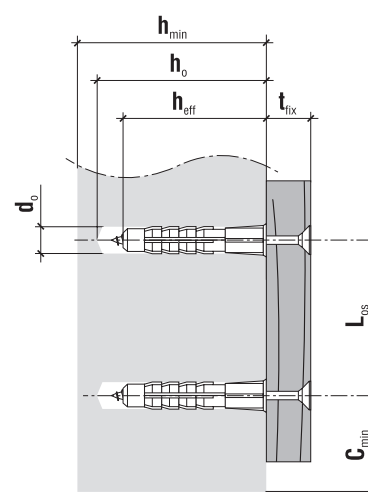
	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø6</b>	<b>KW-06045</b>	6.0 x 35	3.5 x 45	5	PZ 2	100
	<b>KW-06060</b>	6.0 x 50	3.5 x 60	20	PZ 2	100
<b>ø8</b>	<b>KW-08060</b>	8.0 x 50	4.5 x 60	5	PZ 2	100
	<b>KW-08080</b>	8.0 x 50	4.5 x 80	25	PZ 2	100
<b>ø10</b>	<b>KW-10080</b>	10 x 60	6.0 x 80	15	PZ 3	100
	<b>KW-10100</b>	10 x 60	6.0 x 100	35	PZ 3	100

### TECHNICAL DATA

Parameter	Unit	KW
Plug diameter	$d_k$ [mm]	6/8/10
Hole diameter	$d_o$ [mm]	6/8/10
Effective anchorage depth	$h_{eff}$ [mm]	35/50/60*
Depth of drill hole	$h_o$ [mm]	45/60/70*
Drive type	x	PZ-2/PZ-3**
Sleeve material	x	PA
Screw material	x	Zinc plated steel

\* - for the right diameter

\*\* - for KW-10



### DESIGN PULL-OUT RESISTANCE [kN]

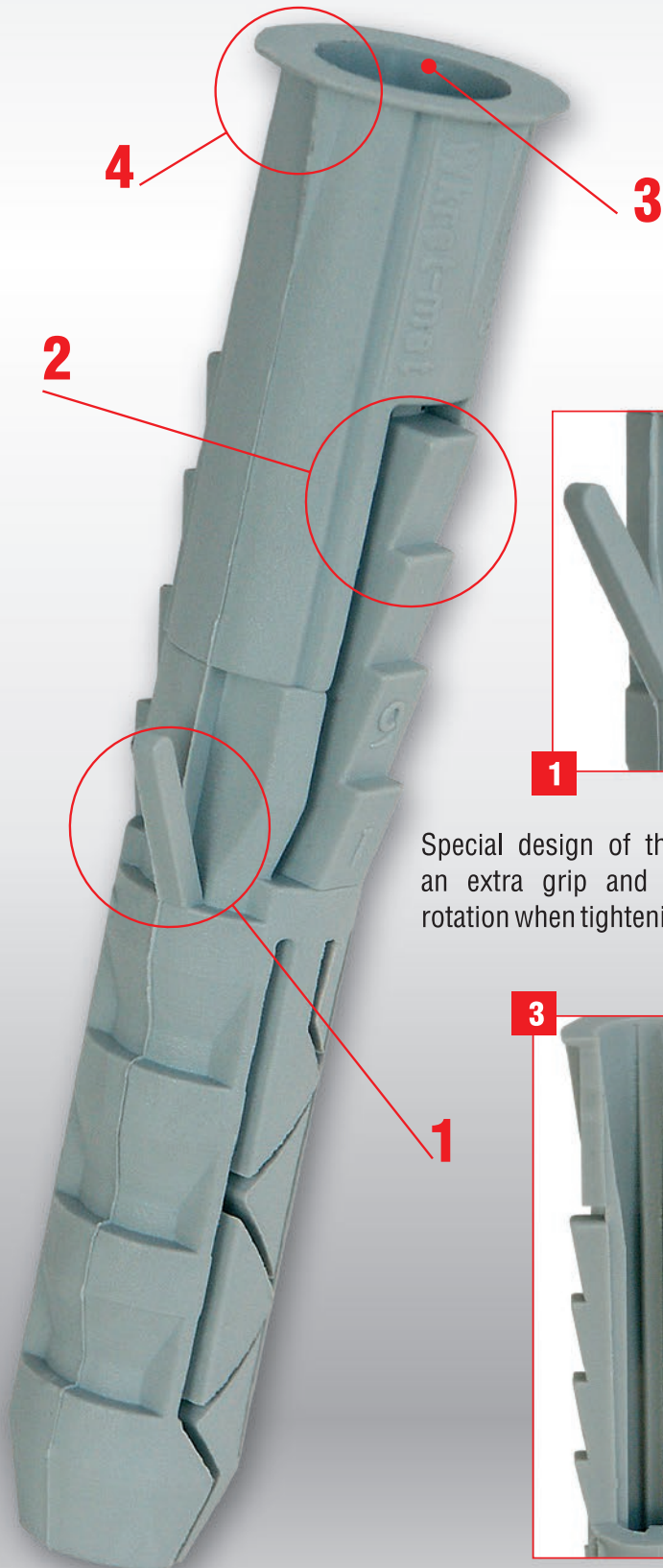
Substrate	KW-6	KW-8	KW-10
Concrete C20/25	0.48	0.79	1.01
Solid clay brick	0.33	0.52	0.70
Perforated solid brick	0.20	0.22	0.24
Plasterboard	0.23	0.28	0.29

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
KW-6	70	70	140
KW-8	100	100	200
KW-10	120	120	240



# KNX/KPX three-way expansion plug



This multi-purpose expansion plug was developed by our company for high load-bearing capacity fixings in basic building materials. The plug has a unique design with several expansion and anti-rotation elements acting in two planes. This ensures even distribution of pressure over the material and perfect fitting of the plug rim in the installation hole.



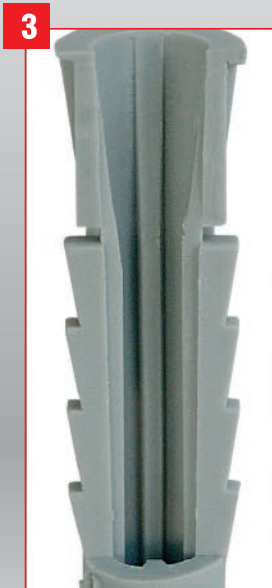
1

Special design of the sleeve (2) gives an extra grip and prevents the plug rotation when tightening the screw.

At the first stage of installation, the lugs (1) and 3-way expansion lock hold the plug firmly in place.



2



3

The inside of KPX plug has four guides (3) along its length which keep the screw straight when tightened. The perfect design of the sleeve offers maximum performance for fixings in concrete, solid brick, natural stone and perforated materials.

Additionally, the wide rim (4) prevents the plug from sinking into the drill hole ensuring visual aesthetics.



4



## FRAME AND GENERAL PURPOSE FIXINGS

## GENERAL PURPOSE FIXINGS PRODUCTION PROGRAMME



# KRX

Expansion plug Ø6, Ø8, Ø10, Ø12 with countersunk head screw for fixing of wood members.



AT-15-9031/2012



### Description

Expansion plug with countersunk head screw for fixing of wood members

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**Blue**  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw.

#### Short expansion zone

Enables installation in solid building materials.

#### Screw-in installation

Screw-in installation helps tighten the screw to the required depth.

#### Extensive size range

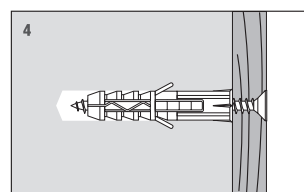
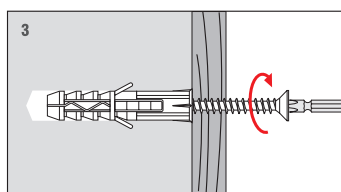
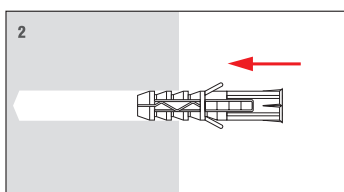
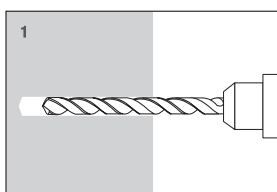
For a variety of applications ranging from skirting boards to lightweight building equipment.

#### KPX, KNX sleeves available

You can re-use the screw with KPX or KNX sleeve.



### Installation

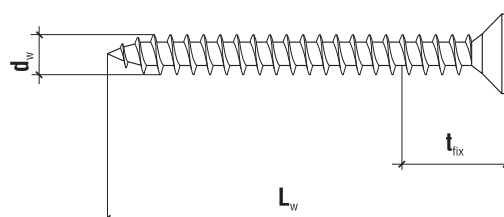
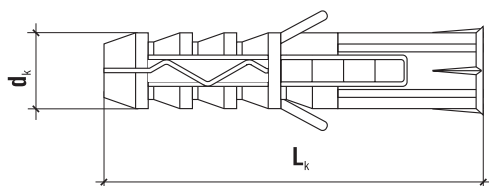




### TECHNICAL DATA

Product marking

<b>KRX</b>	<b>06</b>	<b>3530</b>
Type	Diameter	Diameter/ length



PZ-2  
PZ-3

	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	PZ	Pcs
<b>ø6</b>	KRX-063530	6 x 30	3.5 x 30	1	PZ-2	200
	KRX-063535	6 x 30	3.5 x 35	5	PZ-2	200
	KRX-063540	6 x 30	3.5 x 40	10	PZ-2	200
	KRX-063550	6 x 30	3.5 x 50	20	PZ-2	200
<b>ø8</b>	KRX-084040	8 x 40	4.0 x 40	1	PZ-2	100
	KRX-084045	8 x 40	4.0 x 45	5	PZ-2	100
	KRX-084050	8 x 40	4.0 x 50	10	PZ-2	100
	KRX-084060	8 x 40	4.0 x 60	20	PZ-2	100
	KRX-085050	8 x 50	5.0 x 50	1	PZ-2	100
	KRX-085060	8 x 50	5.0 x 60	10	PZ-2	100
	KRX-085070	8 x 50	5.0 x 70	20	PZ-2	100
	KRX-085080	8 x 50	5.0 x 80	30	PZ-2	100
	KRX-0850100	8 x 50	5.0 x 100	50	PZ-2	100
<b>ø10</b>	KRX-105050	10 x 50	5.0 x 50	1	PZ-2	100
	KRX-105060	10 x 50	5.0 x 60	10	PZ-2	100
	KRX-105070	10 x 50	5.0 x 70	20	PZ-2	100
	KRX-105080	10 x 50	5.0 x 80	30	PZ-2	100
	KRX-1050100	10 x 50	5.0 x 100	50	PZ-2	100
	KRX-106060	10 x 60	6.0 x 60	1	PZ-3	100
	KRX-106070	10 x 60	6.0 x 70	10	PZ-3	100
	KRX-106080	10 x 60	6.0 x 80	20	PZ-3	100
	KRX-1060100	10 x 60	6.0 x 100	40	PZ-3	100
	KRX-1060120	10 x 60	6.0 x 120	60	PZ-3	100
<b>ø12</b>	KRX-126060	12 x 60	6.0 x 60	1	PZ-3	100
	KRX-126070	12 x 60	6.0 x 70	10	PZ-3	100
	KRX-126080	12 x 60	6.0 x 80	20	PZ-3	100
	KRX-1260100	12 x 60	6.0 x 100	40	PZ-3	100
	KRX-1260120	12 x 60	6.0 x 120	60	PZ-3	100

# KRX

Expansion plug Ø6, Ø8, Ø10, Ø12 with countersunk head screw for fixing of wood members.

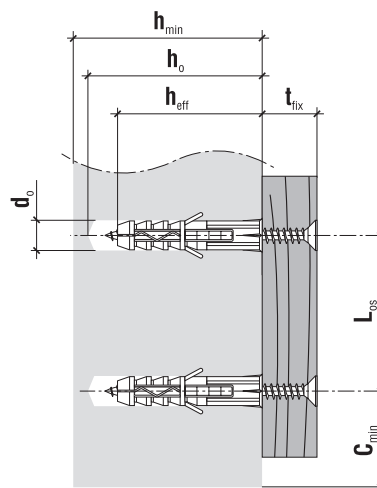
DESIGN PULL-OUT RESISTANCE [kN]

Substrate	KRX-6/30	KRX-8/40	KRX-8/50	KRX-10/50	KRX-10/60	KRX-12/60
Concrete C20/25	0.13	0.09	0.24	0.24	0.49	0.47
Solid clay brick	0.03	x	0.16	0.13	0.14	0.30
Calcium silicate brick	0.05	0.07	0.42	0.19	0.48	0.36
Autoclaved aerated concrete	x	0.02	0.12	x	0.20	x

TECHNICAL DATA

Parameter	Unit	KRX
Plug diameter	$d_k$ [mm]	6/8/10/12
Hole diameter	$d_o$ [mm]	6/8/10/12
Effective anchorage depth	$h_{eff}$ [mm]	30/40/50/60
Depth of drill hole	$h_o$ [mm]	40/50/60/70
Drive type	x	PZ-2, PZ-3*
Sleeve material	x	PP
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012

\* - for KRX-10/6 i KRX-12



SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
KRX-6	60	30	60
KRX-8/40	80	40	80
KRX-8, KRX-10	100	50	100
KRX-10/60, KRX-12	120	60	120







# KKX

Expansion plug Ø10, Ø12, Ø14, Ø16 with hex head screw for fixing of metal members



AT-15-9031/2012

### Description

Expansion plug with hex head screw for fixing of metal members

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**Blue**  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw.

#### Short expansion zone

Enables installation in solid building materials.

#### Screw-in installation

Screw-in installation helps tighten the screw to the required depth.

#### Extensive size range

For a variety of applications ranging from skirting boards to lightweight building equipment.

#### KPX, KNX sleeves available

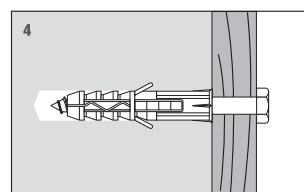
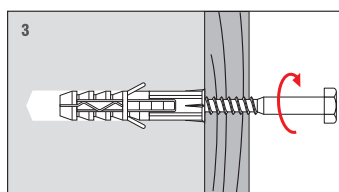
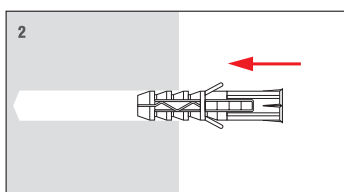
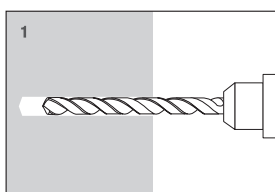
You can re-use the screw with KPX or KNX sleeve.

#### Screw for use with wrench

Makes installation easy, no tip damage.



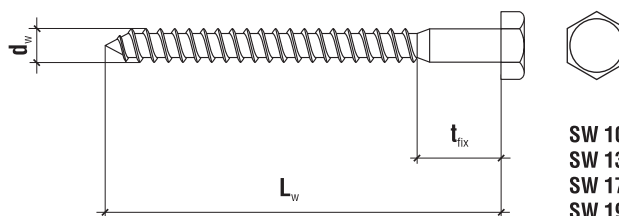
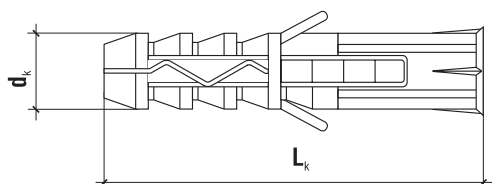
### Installation



### TECHNICAL DATA

Product marking

<b>KKX</b>	<b>10</b>	<b>060</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	SW	Pcs
<b>ø10</b>	KKX-10060	10 x 60	6.0 x 60	1	SW-10	100
	KKX-10070	10 x 60	6.0 x 70	10	SW-10	100
	KKX-10080	10 x 60	6.0 x 80	20	SW-10	100
	KKX-10090	10 x 60	6.0 x 90	30	SW-10	100
	KKX-10100	10 x 60	6.0 x 100	40	SW-10	100
	KKX-10120	10 x 60	6.0 x 120	60	SW-10	100
	KKX-10140	10 x 60	6.0 x 140	80	SW-10	100
<b>ø12</b>	KKX-12060	12 x 60	8.0 x 60	1	SW-13	100
	KKX-12070	12 x 60	8.0 x 70	10	SW-13	100
	KKX-12080	12 x 60	8.0 x 80	20	SW-13	100
	KKX-12090	12 x 60	8.0 x 90	30	SW-13	100
	KKX-12100	12 x 80	8.0 x 100	20	SW-13	50
	KKX-12120	12 x 80	8.0 x 120	40	SW-13	50
	KKX-12140	12 x 80	8.0 x 140	60	SW-13	50
	KKX-12160	12 x 80	8.0 x 160	80	SW-13	50
	KKX-12180	12 x 80	8.0 x 180	100	SW-13	50
	KKX-12200	12 x 80	8.0 x 200	120	SW-13	50
<b>ø14</b>	KKX-14080	14 x 80	10 x 80	1	SW-17	50
	KKX-14100	14 x 80	10 x 100	20	SW-17	50
	KKX-14120	14 x 80	10 x 120	40	SW-17	50
	KKX-14140	14 x 80	10 x 140	60	SW-17	50
	KKX-14160	14 x 80	10 x 160	80	SW-17	25
	KKX-14180	14 x 80	10 x 180	100	SW-17	25
	KKX-14200	14 x 80	10 x 200	120	SW-17	25
<b>ø16</b>	KKX-16120	16 x 100	12 x 120	20	SW-19	25
	KKX-16140	16 x 100	12 x 140	40	SW-19	25
	KKX-16160	16 x 100	12 x 160	60	SW-19	25
	KKX-16180	16 x 100	12 x 180	80	SW-19	20
	KKX-16200	16 x 100	12 x 200	100	SW-19	20
	KKX-16220	16 x 100	12 x 220	120	SW-19	20
	KKX-16240	16 x 100	12 x 240	140	SW-19	20
	KKX-16260	16 x 100	12 x 260	160	SW-19	20

# KKX

Expansion plug Ø10, Ø12, Ø14, Ø16 with hex head screw for fixing of metal members

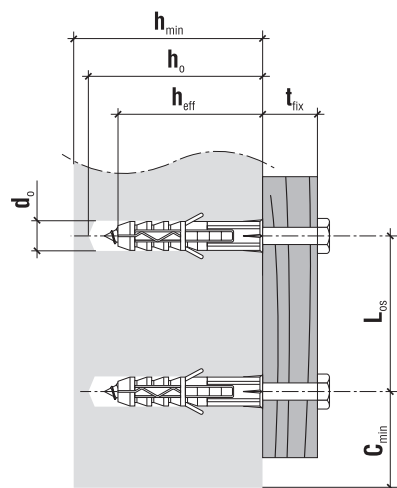
DESIGN PULL-OUT RESISTANCE [kN]

Substrate	KKX-10x60	KKX-12x60	KKX-12x80	KKX-14x80	KKX-16x100
Concrete C20/25	0.79	1.20	1.57	2.17	2.38
Solid clay brick	0.18	1.03	1.14	1.22	3.03
Calcium silicate brick	0.35	1.00	0.79	1.29	0.74
Autoclaved aerated concrete	0.28	0.45	0.64	0.50	1.28

TECHNICAL DATA

Parameter	Unit	KKX
Plug diameter	$d_k$ [mm]	10/12/14/16
Hole diameter	$d_o$ [mm]	10/12/14/16
Effective anchorage depth	$h_{eff}$ [mm]	60/80/100*
Depth of drill hole	$h_o$ [mm]	70/90/110*
Drive type	x	SW 10/13/17/19*
Sleeve material	x	PP
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012

\* - for the right screw size



SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
KKX-10, KKK-12/60	120	60	120
KKX-12/80, KKK-14	160	80	160
KKX-16	200	100	200





# PX

Expansion plug Ø6, Ø8, Ø10, Ø12 with straight hook



AT-15-9031/2012



### Description

Expansion plug with straight hook

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**Blue**  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw

#### Short expansion zone

Enables installation in solid building materials.

#### Screw-in installation

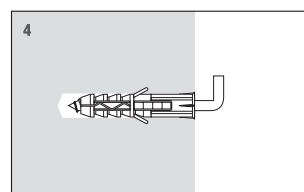
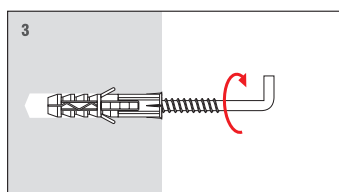
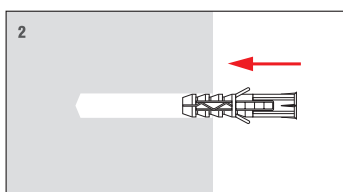
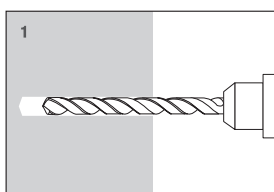
Screw-in installation helps tighten the hook to the required depth.

#### Screw-straight hook

Suitable for standard wall decorations.



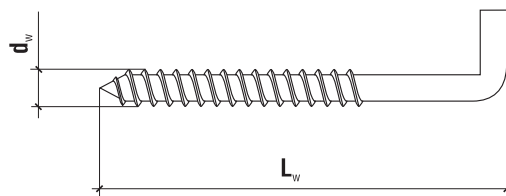
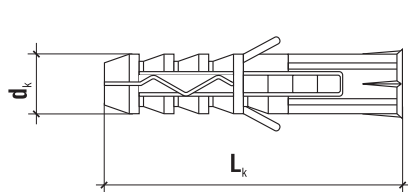
### Installation



## TECHNICAL DATA

Product marking

<b>PX</b>	<b>06</b>
Type	Diameter



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs
<b>ø6</b>	PX-06	6.0 x 30	4.0 x 40	200
<b>ø8</b>	PX-08	8.0 x 40	4.5 x 50	100
<b>ø10</b>	PX-10	10 x 50	5.5 x 60	100
	PX-10D	10 x 60	6.0 x 75	100
<b>ø12</b>	PX-12	12 x 60	7.5 x 75	100
	PX-12D	12 x 80	8.0 x 100	50

### TECHNICAL DATA

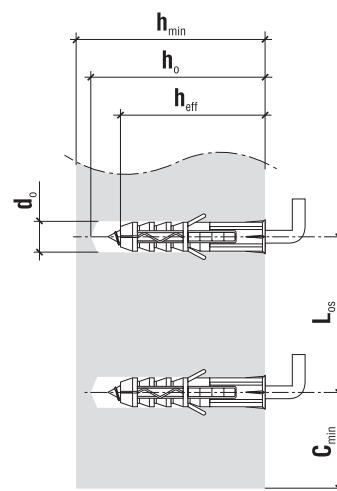
Parameter	Unit	PX	PX-10D/PX-12D
Plug diameter	$d_k$ [mm]	6/8/10/12	10/12
Hole diameter	$d_o$ [mm]	6/8/10/12	10/12
Effective anchorage depth	$h_{eff}$ [mm]	30/40/50/60	60/80
Depth of drill hole	$h_d$ [mm]	40/50/60/70	70/90
Sleeve material	x	PP	PP
Screw material	x	Zinc plated steel	Zinc plated steel
Approval	x	AT-15-9031/2012	AT-15-9031/2012

### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	PX-6	PX-8	PX-10 PX-10 D	PX-12 PX-12 D
Concrete C20/25	0.13	0.23	0.28	0.74
Solid clay brick	0.03	0.12	0.16	0.13
Calcium silicate brick	0.05	0.21	0.47	0.61
Autoclaved aerated concrete	x	0.08	0.06	0.18

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
PX-6	60	30	60
PX-8	80	40	80
PX-10	100	50	100
PX-10 D, PX-12	120	60	120
PX-12 D	160	80	160





# WX

Expansion plug Ø6, Ø8, Ø10, Ø12 with round hook



AT-15-9031/2012



### Description

Expansion plug with round hook

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**Blue**  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw

#### Short expansion zone

Enables installation in solid building materials.

#### Screw-in installation

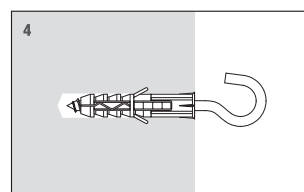
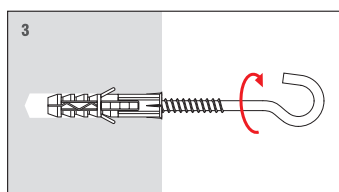
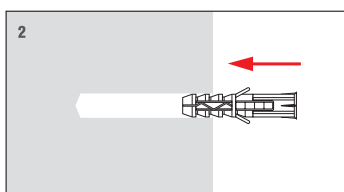
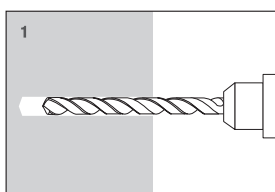
Screw-in installation helps tighten the hook to the required depth.

#### Screw - round hook

Suitable for standard ceiling decorations.



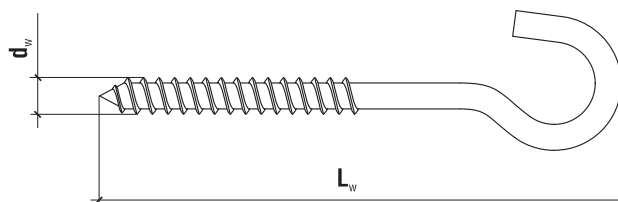
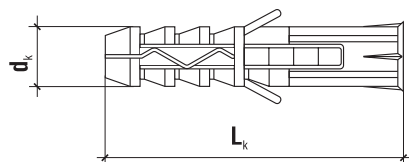
### Installation



## TECHNICAL DATA

Product marking

<b>WX</b>	<b>06</b>
Type	Diameter



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs
<b>ø6</b>	WX-06	6.0 x 30	4.0 x 55	100
<b>ø8</b>	WX-08	8.0 x 40	4.5 x 65	100
<b>ø10</b>	WX-10	10 x 50	5.5 x 90	100
<b>ø12</b>	WX-12	12 x 60	7.5 x 97	100

### TECHNICAL DATA

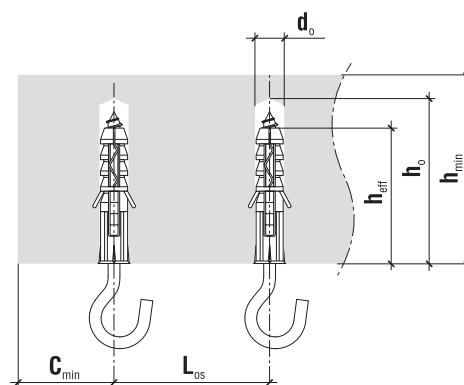
Parameter	Unit	WX
Plug diameter	$d_k$ [mm]	6/8/10/12
Hole diameter	$d_o$ [mm]	6/8/10/12
Effective anchorage depth	$h_{eff}$ [mm]	30/40/50/60
Depth of drill hole	$h_o$ [mm]	40/50/60/70
Sleeve material	x	PP
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012

### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	WX-6	WX-8	WX-10	WX-12
Concrete C20/25	0.13	0.23	0.28	0.74
Solid clay brick	0.03	0.12	0.16	0.13
Calcium silicate brick	0.05	0.21	0.47	0.61
Autoclaved aerated concrete	x	0.08	0.06	0.18

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
WX-6	60	30	60
WX-8	80	40	80
WX-10	100	50	100
WX-12	120	60	120

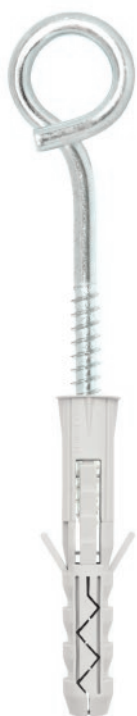


# HX

Plug Ø12 with pig tail hook



AT-15-9031/2012



### Description

Plug with pig tail hook

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

**PP**  
polypropylene

**Blue**  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw.

#### Short expansion zone

Enables installation in solid building materials.

#### Screw-in installation

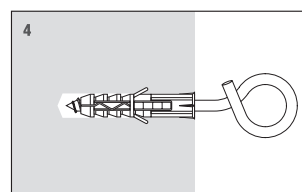
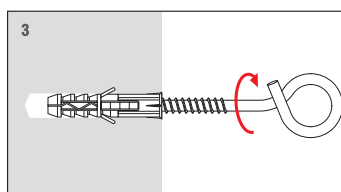
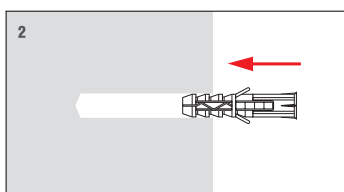
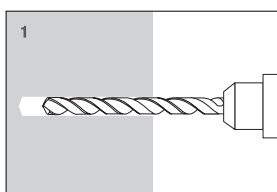
Screw-in installation helps tighten the hook to the required depth.

#### Screw - pig tail hook

Suitable for standard ceiling decorations.



### Installation

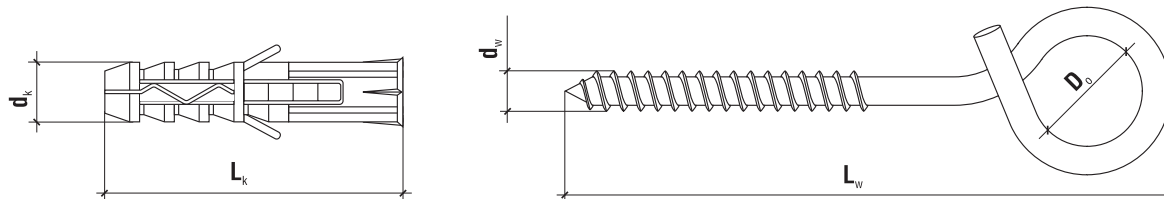





## TECHNICAL DATA

Product marking

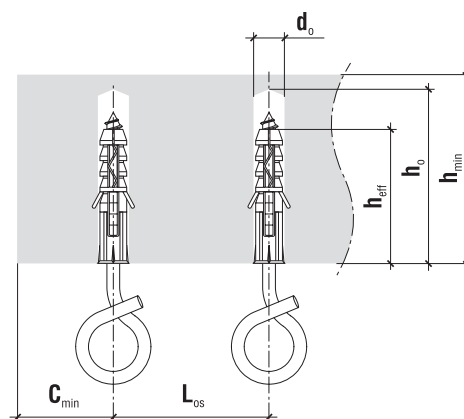
<b>HX</b>	<b>12</b>
Type	Diameter



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Pcs 
<b>ø12</b>	<b>HX-12</b>	12 x 60	8.0 x 120	50

### TECHNICAL DATA

Parameter	Unit	HX
Plug diameter	$d_k$ [mm]	12
Hole diameter	$d_o$ [mm]	12
Effective anchorage depth	$h_{eff}$ [mm]	60
Depth of drill hole	$h_o$ [mm]	70
Sleeve material	x	PP
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	HX-12
Concrete C20/25	0.74
Solid clay brick	0.13
Calcium silicate brick	0.61
Autoclaved aerated concrete	0.18

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
HX-12	120	60	120

# PR

Frame plug with straight hook Ø8, Ø10



AT-15-9031/2012



### Description

Expansion plug for fixing of interior finish systems

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, perforated solid brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product

#### Long anchorage zone

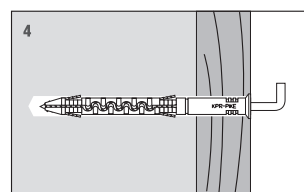
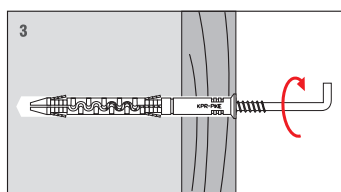
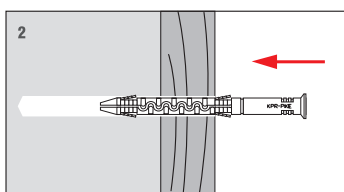
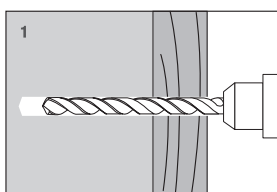
Makes it suitable for use in all material types, recommended for porous and hollow materials.

#### Screw - straight hook

Suitable for standard wall decorations.



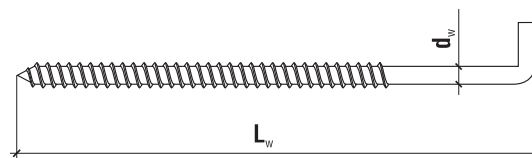
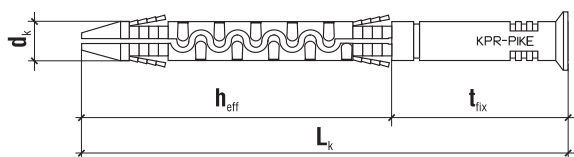
### Installation



## TECHNICAL DATA

Product marking

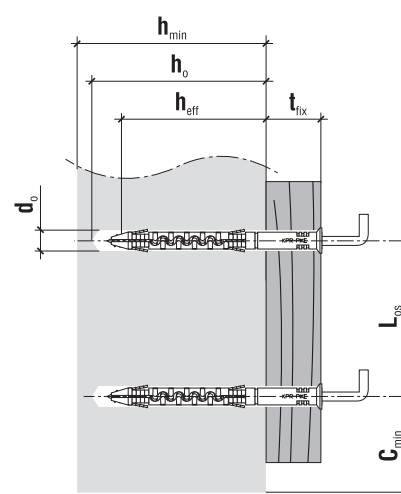
<b>PR</b>	<b>08</b>	<b>080</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	Max. fixture thickness $t_{fix}$ [mm]	Pcs
<b>ø8</b>	<b>PR-08080</b>	8.0 x 80	6.0 x 100	30	50
	<b>PR-08100</b>	8.0 x 100	6.0 x 120	50	50
<b>ø10</b>	<b>PR-10100</b>	10 x 100	7.0 x 120	40	50
	<b>PR-10135</b>	10 x 135	7.0 x 155	75	50
	<b>PR-10160</b>	10 x 160	7.0 x 180	100	50

### TECHNICAL DATA

Parameter	Unit	PR-8/PR-10
Plug diameter	$d_k$ [mm]	8/10
Hole diameter	$d_o$ [mm]	8/10
Effective anchorage depth	$h_{eff}$ [mm]	50/60
Depth of drill hole	$h_o$ [mm]	60/70
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012



### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	PR-8	PR-10
Concrete C20/25	0.41	0.84
Solid clay brick	0.29	0.61
Perforated solid brick	0.29	0.61
Calcium silicate brick	0.29	0.61
Autoclaved aerated concrete	0.37	0.76

### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
PR-8	100	100	200
PR-10	120	120	240



# HOX

Expansion plug Ø14, Ø16 with eye hook (for scaffolding)



AT-15-9031/2012



100% nylon

### Description

Expansion plug for scaffolding systems with plastic cap

### Technical data

Type of installation pre-fastening installation

Substrate concrete, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material/protective coating

100%  
nylon

Blue  
zinc

### Features and advantages of the product



#### Anti-rotation elements

Special lugs and protrusions hold the sleeve in place and prevent its rotation during tightening of the screw.

#### Nylon sleeve

Nylon sleeve provides for increased resistance and strength

#### Eye-bolt

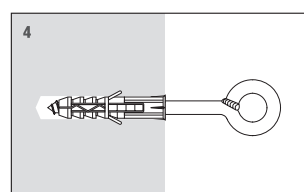
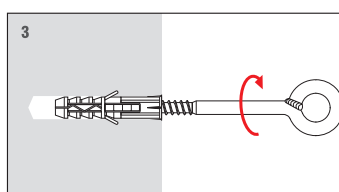
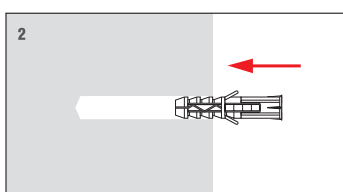
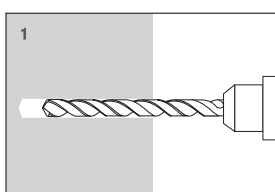
The eye made from single piece of wire which improves safety in use.

#### Greater strength

Due to its high strength it can be used for scaffolding installation.



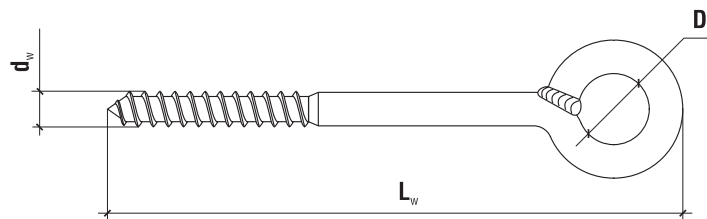
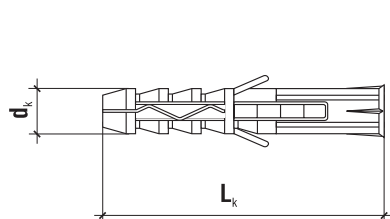
### Installation



### TECHNICAL DATA

Product marking

<b>HOX</b>	<b>14</b>	<b>120</b>
Type	Diameter	Length



	Code	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	$D_0$ [mm]	Pcs
<b>ø14</b>	<b>HOX-14120</b>	14 x 80	10 x 165	25	20
	<b>HOX-14160</b>	14 x 80	10 x 205	25	20
	<b>HOX-14190</b>	14 x 80	10 x 235	25	20
	<b>HOX-14230</b>	14 x 80	10 x 275	25	20
<b>ø16</b>	<b>HOX-16160</b>	16 x 100	12 x 210	25	15
	<b>HOX-16190</b>	16 x 100	12 x 240	25	15
	<b>HOX-16230</b>	16 x 100	12 x 280	25	15
	<b>HOX-16300</b>	16 x 100	12 x 350	25	15
	<b>HOX-16350</b>	16 x 100	12 x 400	25	15

### TECHNICAL DATA

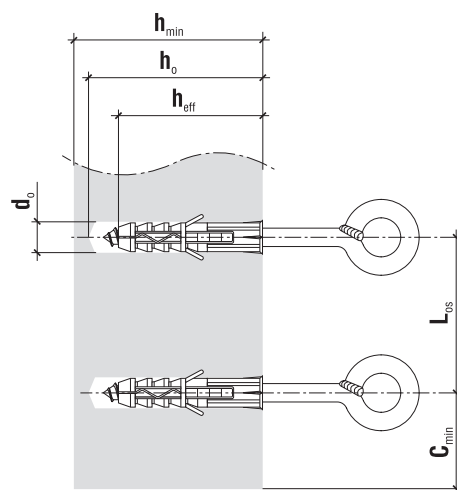
Parameter	Unit	HOX-14/HOX-16
Plug diameter	$d_k$ [mm]	14/16
Hole diameter	$d_o$ [mm]	14/16
Effective anchorage depth	$h_{eff}$ [mm]	80/100
Depth of drill hole	$h_o$ [mm]	90/110
Sleeve material	x	PA
Screw material	x	Zinc plated steel
Approval	x	AT-15-9031/2012

### DESIGN PULL-OUT RESISTANCE [kN]

Substrate	HOX-14	HOX-16
Concrete C20/25	9.30	16.86
Solid clay brick	4.08	2.39
Calcium silicate brick	2.35	2.65
Autoclaved aerated concrete	1.28	x

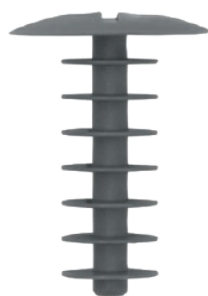
### SUBSTRATE, MINIMUM THICKNESS, DISTANCE

Plug type	Min. member thickness $h_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]	Min. spacing $L_{os}$ [mm]
HOX-14	160	120	240
HOX-16	200	150	300



# ZHO

Plastic disc for covering HOX eye-hook holes




### Description

For concealing holes after removing HOX hooks

### Technical data

Material plastics

Code	Colour	Outer diameter [mm]	Collar diameter [mm]	Pcs 
<b>ZHO-BI</b>	white	14	28	100
<b>ZHO-SZ</b>	grey	14	28	100
<b>ZHO-PI</b>	sand beige	14	28	100







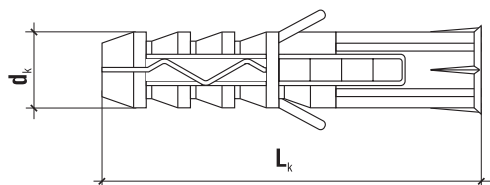
## FRAME AND GENERAL PURPOSE FIXINGS

## PLASTIC SLEEVES PRODUCTION PROGRAMME



# KPX

Expansion plug Ø6, Ø8, Ø10, Ø12, Ø14, Ø16 - polypropylene



### Description

Plug recommended for fixing of wood and wood-based members

### Technical data

Type of installation pre-fastening installation

### Sleeve material

**PP**  
polypropylene

### Features and advantages of the product



#### Gripped firmly in place

During the first stage of installation the plug is held firmly in place as the expansion lugs on its outside prevent it from turning once it has been placed in the hole.



#### Widened rim

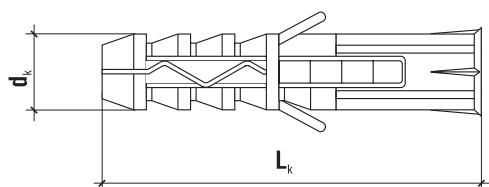
Its widened rim prevents the plug from sinking too deep into the drill hole

### Product marking

<b>KPX</b>	<b>06</b>	<b>030</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø06</b>	KPX-06030	6.0 x 30	3.5 - 4	30	40	1000
<b>Ø08</b>	KPX-08040	8.0 x 40	4.0 - 6	40	50	500
	KPX-08050	8.0 x 50	4.0 - 6	50	60	400
<b>Ø10</b>	KPX-10050	10 x 50	5.0 - 7	50	60	300
	KPX-10060	10 x 60	5.0 - 7	60	70	200
<b>Ø12</b>	KPX-12060	12 x 60	6.0 - 8	60	70	150
	KPX-12080	12 x 80	6.0 - 8	80	90	100
<b>Ø14</b>	KPX-14080	14 x 80	10	80	90	100
<b>Ø16</b>	KPX-16100	16 x 100	12	100	110	50

### KNX Expansion plug Ø6, Ø8, Ø10, Ø12, Ø14, Ø16 - nylon



#### Description

Plug recommended for fixing of wood and wood-based members

#### Technical data

Type of installation pre-fastening installation

#### Sleeve material

**100%  
nylon**

#### Features and advantages of the product



#### Gripped firmly in place

During the first stage of installation the plug is held firmly in place as the expansion lugs on its outside prevent it from turning once it has been placed in the hole.



#### Widened rim

Its widened rim prevents the plug from sinking too deep into the drill hole

#### Product marking

<b>KNX</b>	<b>06</b>	<b>030</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø06</b>	KNX-06030	6.0 x 30	3.5 - 4	30	40	1000
<b>Ø08</b>	KNX-08040	8.0 x 40	4 - 6	40	50	500
	KNX-08050	8.0 x 50	4 - 6	50	60	400
<b>Ø10</b>	KNX-10050	10 x 50	5 - 7	50	60	300
	KNX-10060	10 x 60	5 - 7	60	70	200
<b>Ø12</b>	KNX-12060	12 x 60	6 - 8	60	70	150
	KNX-12080	12 x 80	6 - 8	80	90	100
<b>Ø14</b>	KNX-14080	14 x 80	10	80	90	100
<b>Ø16</b>	KNX-16100	16 x 100	12	100	110	50



# KPW

Universal plug Ø6, Ø8, Ø10



### Description

Plug recommended for fixing of wood and wood-based members

### Technical data

Type of installation pre-fastening installation

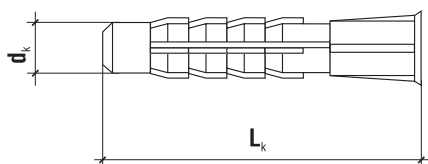
### Sleeve material

**100%  
nylon**

### Features and advantages of the product

#### Sleeves without screws

For use with recommended screw diameters



### Product marking

<b>KPW</b>	<b>06</b>	<b>035</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø06</b>	KPW-06035N	6.0 x 35	3 - 4	35	45	500
	KPW-06050N	6.0 x 50	3 - 4	50	60	500
<b>Ø08</b>	KPW-08050N	8.0 x 50	4 - 5	50	60	300
<b>Ø10</b>	KPW-10060N	10 x 60	5 - 6	60	70	200

# KPU

Universal plug  $\emptyset 6, \emptyset 8, \emptyset 10$



### Description

Plug recommended for fixing of wood and wood-based members

### Technical data

Type of installation pre-fastening installation

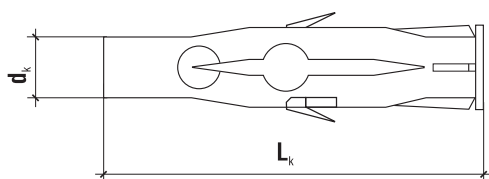
### Sleeve material

**100%  
nylon**

### Features and advantages of the product

#### Sleeves without screws

For use with recommended screw diameters



### Product marking

<b>KPU</b>	<b>06</b>	<b>035</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b><math>\emptyset 06</math></b>	KPU-06035	6.0 x 35	3 - 3.5	35	45	500
<b><math>\emptyset 08</math></b>	KPU-08050	8.0 x 50	4 - 5	50	60	300
<b><math>\emptyset 10</math></b>	KPU-10060	10 x 60	5 - 6	60	70	200

# KPR

Frame plug - nylon Ø8



**100% nylon**

### Description

Plastic expansion plug for use with screw

### Technical data

Type of installation push-through installation

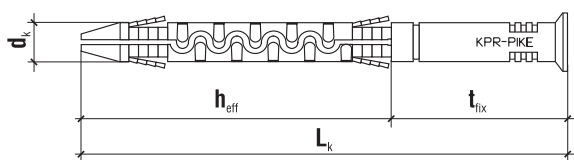
### Sleeve material

**100% nylon**

### Features and advantages of the product

#### Sleeves without screws

For use with screws with a diameter of 6.0 mm



### Product marking

<b>KPR</b>	<b>08</b>	<b>065</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø08</b>	KPR-08065	8.0 x 65	6	60	70	100
	KPR-08080	8.0 x 80	6	60	70	100
	KPR-08100	8.0 x 100	6	60	70	100
	KPR-08120	8.0 x 120	6	60	70	100
	KPR-08140	8.0 x 140	6	60	70	100

no technical approval, to be used with screws of 6 mm in diameter



# SFX

Universal plug Ø5, Ø6, Ø8, Ø10 - nylon



100% nylon

### Description

Plastic expansion plug for use with screw

### Technical data

Type of installation pre-fastening installation

Substrate concrete C 20/25, solid clay brick, calcium silicate brick, autoclaved aerated concrete

### Sleeve material

100% nylon

### Features and advantages of the product

#### Features and advantages of the product



**Increased collar diameter**  
- prevents the plug from sinking into the substrate.



**Special anti-rotation fins**  
- prevent rotation in the substrate during installation.



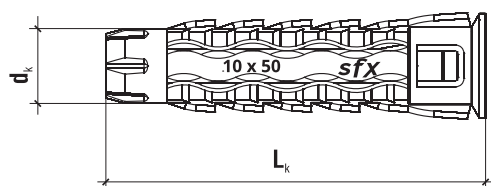
**Reduced diameter of the bottom part**  
- facilitates installation in the drill hole.



**Special ribs**  
- a new solution which holds the sleeve firmly in place.



**Unique shape**  
- ensures a 'knot' is formed, which makes the plug sit firmly in the void.



#### Product marking

<b>SFX</b>	<b>05</b>	<b>025</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$ [mm]	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_0$ [mm]	Pcs
<b>Ø05</b>	SFX-05025	5.0 x 25	3.5	25	35	400
<b>Ø06</b>	SFX-06030	6.0 x 30	4.0	30	40	200
<b>Ø08</b>	SFX-08040	8.0 x 40	5.0	40	50	200
<b>Ø10</b>	SFX-10050	10 x 50	6.0	50	60	100
	SFX-10060	10 x 60	6.0	60	70	100

### KPR-12

Frame plug Ø12 for medium-duty applications - nylon



#### Description

Plastic expansion plug for use with screw

#### Technical data

Type of installation push-through installation

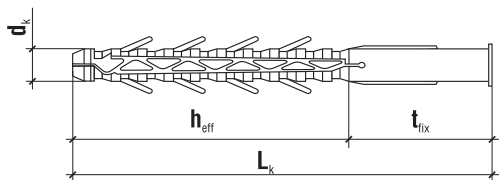
#### Sleeve material

**100%  
nylon**

#### Features and advantages of the product

##### Sleeves without screws

For use with screws with a diameter of 8.0 mm



#### Product marking

<b>KPR</b>	<b>12</b>	<b>100</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø12</b>	KPR-12100	12 x 100	8	80	90	50
	KPR-12120	12 x 120	8	80	90	50
	KPR-12140	12 x 140	8	80	90	50
	KPR-12160	12 x 160	8	80	90	50
	KPR-12180	12 x 180	8	80	90	50
	KPR-12200	12 x 200	8	80	90	50

no technical approval, to be used with screws of 8 mm in diameter

# KPR-16

Frame plug Ø16 for heavy duty applications - nylon



### Description

Plastic expansion plug for use with screw

### Technical data

Type of installation push-through installation

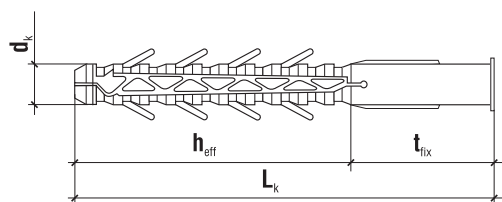
Sleeve material

**100%  
nylon**

### Features and advantages of the product

#### Sleeves without screws

For use with screws with a diameter of 12.0 mm



### Product marking

<b>KPR</b>	<b>16</b>	<b>140</b>
Type	Diameter	Length

	Code	$d_k \times L_k$ [mm]	Recommended screw diameter $d_w$	Effective anchorage depth $h_{eff}$ [mm]	Min. depth of drilled hole $h_o$ [mm]	Pcs
<b>Ø16</b>	<b>KPR-16140</b>	16 x 140	12	120	130	25
	<b>KPR-16160</b>	16 x 160	12	120	130	25
	<b>KPR-16200</b>	16 x 200	12	120	130	25
	<b>KPR-16240</b>	16 x 240	12	120	130	25

no technical approval, to be used with screws of 12 mm in diameter



### BODB Expansion anchor with doorstop



#### Description

Suitable for blocking relatively lightweight interior panel door

#### Technical data

Sleeve material	polypropylene
Fastener material	steel
Door stop material	PVC molded in colour
Corrosion protection	zinc coating

#### Features and advantages of the product

##### Different colours


You can choose a matching colour

##### Invisible screw connection

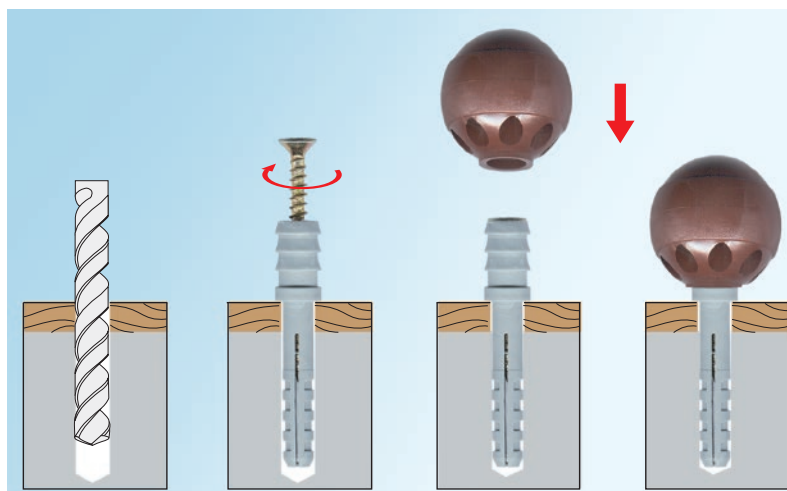
The screw head is concealed with cover cap which offers aesthetic finish.

#### Product marking

<b>BODB</b>	<b>08</b>	<b>060</b>	<b>BI</b>
Type	Diameter	Length	Colour

Code	Expansion anchor colour	Pcs 
BODB-08060BI	<b>White</b>	30
BODB-08060BR	<b>Brown</b>	30
BODB-08060CZ	<b>Black</b>	30
BODB-08060SZ	<b>Gray</b>	30

#### Installation







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