

... more than anchors

made in Germany



Catalogue 2023

# Dear business partner,

we would like to take this opportunity of thanking for placing your long-term mutual confidence in our company and our products.

From the beginning quality and service have priority as well as the co-operative and trusting relationship to our customers worldwide. These principles will remain pointing our way in the future.

We are looking forward to accompany you on our journey to a joint success.



Konformitätserklärung

DIN EN ISO 9001-2015

#### Konformitätserklärung

Wir, die Firma

Hüfner - Dübel GmbH Gothaer Straße 50

D - 99880 Waltershausen / Thüringen

erklären nach der Revision unseres QM-Systems, der Fortschreibung auf die Normenausgabe ISO 9001:2015 und dem erfolgreichen Verlauf des nach anerkannten CERT-Regeln erfolgten internen Überwachungsaudits sowie gemäß den Auditorenempfehlungen unsere Konformität zur

#### **DIN EN ISO 9001-2015**

bis zum Überwachungsaudit im September 2023.

Das erstellte System unterliegt der laufenden Pflege und der kontinuierlichen Verbesserung (KVP). Die Nachweisführung erfolgt durch regelmäßige Qualitätsaudits.

Waltershausen, den 19.09.2022

Ralf Kunstman Geschäftsführe

\$601-2015 DAY EN TIES 0801-2015 DIN EN IS DIS 0901-2015 DIN EN IS DIN

#### Yours sincerely

Ralf Kunstmann

fixings for the world



made in germany

Dieter Kempkes



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#### ...success by partnership









In 1975 the first plastic parts were produced in Papiermühlenstr. 58 in the small community of Waltershausen. The former owner and founder of the plastics manufacturing department, Ekkehart Kunstmann, produced together with two employees the first plastic parts on plastic injection molding machines which he got from the scrap yard and repaired them himself. In the following years new products were produced as subcontructor for companies of various sectors. From 1990 the first plastic anchors were produced for a supplier of fastening technology. In 1994, Ralf Kunstmann followed his father after completed studies and became manufacturing manager. Resulting from greater demand even from other companies the company grew steadily. Additional employees were hired. New injection moulding machines were purchased. Ralf Kunstmann leads the busisness successfully as managing director, since 1999. After his fathers retirement in 2010, Ralf Kunstmann became sole owner.



Since 2006, the Hüfner products are marketed globally by 4man GmbH. Together it was possible to enhance the turnover continuously year by year. This positive developement retendered permanent expanding of production and storage facilities. In 2010 the head quaters have moved to Gothaer Str. 50 where an area of 17000 square meters is availlable. The new facilities provide a 4000 square meter hall for production, storage and packaging. All items are shipped from here to Hüfner business partners worldwide. Today, 21 modern injection molding machines are availlable for an annual production of more than 375 million pieces.



In 2011 a photovoltaic system was installed for efficient and future-orientated production with ecology. With its expansion in 2018, more than the half of the electricity requirement can be generated and CO2 emissions could be reduced by 200 tons per year.

From the very beginning Hüfner works with the knowledge:

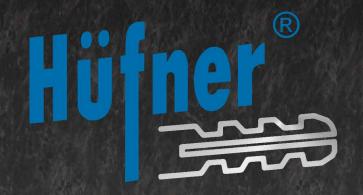
"This developement due not only to diligence and hard work of our employees but above all to the trust of our customers and friends who made us what we are today:

your partner for the future."



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# Plugs and building materials

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## Plugs and building materials

Today various building materials are used, from full-building material like concrete or brick to aerated concrete and hollow brick up to plasterboard. To ensure a safe attachment, Hüfner produces a wide range of different plugtypes for every kind of application.

Please take the information from the following table to choose the right kind of plug for your special demand.

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<u>22</u>	\=	Screwnail anchor "FIX" cs-head	♦ 🔏						
<u>23</u>	<del></del>	Screwnail anchor "FIX" cyl-head							
<u>24</u>	\ <b>\</b>	Screwnail anchor "FIX-A2" cs-head	<b>&amp;</b> 🔏						
<u>25</u>	)(	Screwnail anchor "FIX-A2" cyl-head							
<u>26</u>	<del> </del>	Screwnail anchor "FIX-S" cs-head	<b>&amp;</b> 🔏						
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<u>29</u>	<b>-</b>	Screwnail anchor "FIX-PILZ A2" mr-head	• 🖈						
6	suitable	limited suitability				unsuit	able		



suitable

# Plugs and building materials

Today various building materials are used, from full-building material like concrete or brick to aerated concrete and hollow brick up to plasterboard. To ensure a safe attachment, Hüfner produces a wide range of different plugtypes for every kind of application.

Please take the information from the following table to choose the right kind of plug for your special demand.

rtease	take the inform	lation from the following table to choose		18110 1	ina o			101	your		Jiat	ucini	arra.
Page	Article	Product name	R	emark	is t	כסווכו בוב	Natural stone	Brick	Hollow brick	Aerated concr	Lime stone	Plasterboard	Polystyrene
<u>29</u>		Screwnail anchor "FIX-PILZ KS" mr-head	0	R									
<u>30</u>		Screwnail anchor "FIX-COLOR" cs-head	0										
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<u>41</u>	? <del></del>	Window frame screw	0										
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limited suitability

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unsuitable



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# General fixings

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#### Wall plug "BEST", Nylon







Wall plug "BEST" made of pure Nylon is suitable for handling with wood and chipboard screws. Its application is in all solid building materials as concrete, solid lime sand brick, masonry brick or natural stone. Its screw-guidance and anti-twist protectors provide secure fastening proven in billions of applications since many years.

Concrete	Natural stone Brick	✓H	ollow brick Aerated	concr. Limestone	Plasterboa	rd Polystyrene
Article number	Dimension $\emptyset \times L$ mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 000	4 x 20	4	25	2,0 - 3,0	100	8.000
10 000	5 x 25	5	30	2,5 - 4,0	100	8.000
10 000	6 x 30	6	35	3,5 - 5,0	100	8.000
10 000	7 x 35	7	40	4,0 - 5,5	100	4.000
10 000	8 x 40	8	50	4,5 - 6,0	100	4.000
10 000	10 x 50	10	60	6,0 - 8,0	50	2.000
10 000	12 x 60	12	70	8,0 - 10,0	25	1.000
10 000	14 x 70	14	85	10,0 - 12,0	20	800
10 000	16 x 80	16	95	12,0 - 14,0	10	400

#### Wall plug "BEST", Plastic





Wall plug "BEST" made of plastic is suitable for handling with wood and chipboard screws. Its application is in all solid building materials as concrete, solid lime sand brick, masonry brick or natural stone. Its screw-guidance and anti-twist protectors provide secure fastening proven in billions of applications since many years.

Concrete	Natural stone Brick	H	ollow brick 🔼 Aerated o	concr. Limestone	Plasterboa	ard Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 100	4 x 20	4	25	2,0 - 3,0	100	8.000
10 100	5 x 25	5	30	2,5 - 4,0	100	8.000
10 100	6 x 30	6	35	3,5 - 5,0	100	8.000
10 100	8 x 40	8	50	4,5 - 6,0	100	4.000
10 100	10 x 50	10	60	6,0 - 8,0	50	2.000
10 100	12 x 60	12	70	8,0 - 10,0	25	1.000

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Wall plug "BEST", Nylon with collar



Wall plug "BEST" with collar made of pure Nylon is suitable for handling with wood and chipboard screws. Its application is in all solid building materials as concrete, solid lime sand brick, masonry brick or natural stone. Its screw-guidance and anti-twist protectors provide secure fastening. The additional collar prevents slipping of the plug into the drillhole.





Concrete	Natural stone Brick	<b>∠</b> Ho	ollow brick 🖊 Aerated	✓ Hollow brick ✓ Aerated concr. Limestone			
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit	
10 050	5 x 25	5	30	2,5 - 4,0	100	8.000	
10 050	6 x 30	6	35	3,5 - 5,0	100	4.000	
10 050	8 x 40	8	50	4,5 - 6,0	100	2.000	
10 050	10 x 50	10	60	6,0 - 8,0	50	1.000	
10 050	12 x 60	12	70	8,0 - 10,0	25	500	
10 050	14 x 70	14	85	10,0 - 12,0	20	400	

Wall plug "BEST", Plastic with collar



Wall plug "BEST" with collar made of plastic is suitable for handling with wood and chipboard screws. Its application is in all solid building materials as concrete, solid lime sand brick, masonry brick or natural stone. Its screw-guidance and anti-twist protectors provide secure fastening. The additional collar prevents slipping of the plug into the drillhole.



Concrete	Natural stone Brick	Ho	ollow brick Aerated	concr. Limestone	Plasterboa	rd Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 150	5 x 25	5	30	2,5 - 4,0	100	8.000
10 150	6 x 30	6	35	3,5 - 5,0	100	4.000
10 150	8 x 40	8	50	4,5 - 6,0	100	2.000
10 150	10 x 50	10	60	6,0 - 8,0	50	1.000
10 150	12 x 60	12	70	8,0 - 10,0	25	500

Wall plug "BEST-L", Nylon



Wall plug "BEST-L" made of pure Nylon is suitable for handling with wood and chipboard screws. Its application is in all solid building materials as concrete, solid lime sand brick, masonry brick or natural stone and also in non-solid building materials like lightweight materials and hollow bricks. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw. The plug is particularly suitable for through-fixing by its extended shaft.



Concrete	Natural stone Brick	Ho	llow brick Aerated	concr. Limestone	Plasterboar	d Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 025	8 x 85	8	90	4,5 - 5,0	100	1.000



# Multianchor "MAX", Nylon with flange





Multianchor "Max" with collar expands in solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone) in four directions and formes a knot around the screw when used in cavity material (such as plasterboard<sup>(1)</sup>, lightweight board<sup>(1)</sup> or perforated bricks). The additional collar prevents slipping of the plug into the drillhole. The plug is made of high-quality polyamide (PA 6) and suitable for handling with wood and chipboard screws.

 $^{\mbox{\tiny (1)}}$  (only suitable for anchor sizes 5 - 8 mm, for anchor size 8 mm usage with maximum screw diameter 5 mm.)

Concrete	Natural stone Brick	Ho	llow brick Aerated	concr. Limestone	Plasterboa	ard Polystyrene
Article numbe		Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 055	5 5 x 25	5	35	3,0 - 4,0	100	8.000
10 055	6 x 30	6	40	4,0 - 5,0	100	4.000
10 055	5 8 x 40	8	50	4,5 - 6,0	100	2.000
10 055	5 10 x 50	10	70	6,0 - 8,0	50	1.000
10 055	5 12 x 60	12	80	8,0 - 10,0	25	500

# Multianchor "MAX-L", Nylon with flange





Multianchor "MAX-L" with collar expands like the Multianchor "MAX" in 4 directions with solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone). Due to the longer expansion zone, it is also ideally suited for use in gypsum plasterboards, perforated bricks and aerated concrete blocks. It knots around the screw in cavity material (such as plasterboard<sup>(1)</sup>, lightweight board<sup>(1)</sup> or perforated bricks) or expands in 4 directions in lightweight building materials (aerated concrete). The additional collar prevents slipping of the plug into the drillhole. The plug is made of high-quality polyamide (PA 6) and suitable for handling with wood and chipboard screws.

unsuitable

ı	Concrete	Natural stone Brick	Ho	ollow brick 🔼 Aerated	concr. Limestone	Plasterboa	rd Polystyrene
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
	10 060	6 x 50	6	60	4,0 - 5,0	100	4.000
	10 060	8 x 60	8	70	4,5 - 6,0	50	2.000
	10 060	10 x 70	10	80	6,0 - 8,0	25	1.000



#### Universal plug "PLUS", Plastic



Universal plug "PLUS" expandes in solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone) in four directions and formes a knot around the screw when used in cavity material (such as plasterboard, lightweight board or perforated bricks). It is made of high-quality plastic and suitable for handling with wood and chipboard screws.



Concrete	Natural stone Brick	Ho	ollow brick 🖊 Aerated o	concr. Limestone	Plasterboa	rd Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 200	6 x 38	6	40	3,5 - 5,0	100	4.000
10 200	8 x 46	8	60	4,5 - 6,0	100	2.000
10 200	10 x 52	10	70	6,0 - 8,0	50	1.000

# Universal plug "PLUS", Plastic with collar

unsuitable



Universal plug "PLUS" with collar expandes in solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone) in four directions and formes a knot around the screw when used in cavity material (such as plasterboard, lightweight board or perforated bricks). The additional collar prevents slipping of the plug into the drillhole and could be removed if necessary. The plug is made of high-quality plastic and suitable for handling with wood and chipboard screws.

suitable



Concrete	Natural stone Brick	Ho	llow brick Aerated	concr. Limestone	Plasterboa	ard Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 250	6 x 38	6	40	3,5 - 5,0	100	4.000
10 250	8 x 46	8	60	4,5 - 6,0	100	2.000
10 250	10 x 52	10	70	6,0 - 8,0	50	1.000



#### Universal plug "UNIVERS", Plastic



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Universal plug "UNIVERS" expandes in solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone) in three directions and formes a knot around the screw when used in cavity material (such as plasterboard, lightweight board or perforated bricks). It is made of high-quality plastic and suitable for handling with wood and chipboard screws.

Concrete	Natural stone Brick	Ho	ollow brick Aerated	concr. Limestone	Plasterboa	d Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit
10 300	5 x 29	5	35	2,5 - 4,0	100	8.000
10 300	6 x 33	6	40	3,5 - 5,0	100	8.000
10 300	8 x 46	8	60	4,5 - 6,0	100	2.000
10 300	10 x 56	10	70	6,0 - 8,0	50	1.000
10 300	12 x 67	12	80	8,0 - 10,0	25	1.000
10 300	14 x 71	14	85	10,0 - 12,0	20	800

# Universal plug "UNIVERS", Plastic with collar

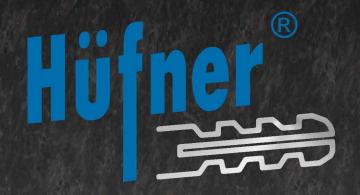


#### made in Germany

Universal plug "UNIVERS" with collar expandes in solid building materials (such as concrete, solid lime, sand brick, masonry brick or natural stone) in three directions and formes a knot around the screw when used in cavity material (such as plasterboard, lightweight board or perforated bricks). The additional collar prevents slipping of the plug into the drillhole and could be removed if necessary. The plug is made of high-quality plastic and suitable for handling with wood and chipboard screws.

Concrete		Natural stone Brick	Ho	Hollow brick Aerated concr. Limestone			Plasterboard Polystyrene	
Arti num	icle iber	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Screw Ø mm	Box unit	Overcarton unit	
10	350	5 x 30	5	35	2,5 - 4,0	100	8.000	
10	350	6 x 34	6	40	3,5 - 5,0	100	4.000	
10	350	8 x 47	8	60	4,5 - 6,0	100	2.000	
10	350	10 x 57	10	70	6,0 - 8,0	50	1.000	
10	350	12 x 68	12	80	8,0 - 10,0	25	1.000	
10	350	14 x 73	14	85	10,0 - 12,0	20	800	

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Cavity plugs

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#### Plasterboard plug "POWER"



Plasterboard plug "POWER" made of tough-flexible plastic is used for fasteners on plasterboard and lightweight board. The 4 legs of the plug will be tightened on the back side of the building material by turning the screw in. The collar prevents slipping of the plug into the drillhole. Thie plug is suitable for handling with chipboard screws.

Plasterboard plug "INTEGRAL" in made of a special glass-fibre reinforced plastic. It is characterised by a high stability by turning in.

A particular benefit is its integrated drill head. An additional setting tool is not necessary. A standard screw driver is quite enough. Because the maximum insert depth is 30 mm only, the plug can be mounted on plasterboard which is glued directly on the wall or mounted on thin lathing on the wall. The collar prevents slipping of the plug into the drillhole. The plug is suitable for handling with

An additional advantage: the plasterboard "INTEGRAL" can be used in gipsumfiberboard as e.g. Fermacell®. In this case pre-drilling with drill  $\varnothing$  6 mm is necessary. Then standard screw driver can be used

to screw in the plug. Afterwards the element can be fastened with

Concrete	☐ Natural stone ☐ Brick	Hollow brick     ■     Hollow brick     Hollow	Aerated concr. Limestone	Plast	terboard Polystyrene
Article	2	Drill	Screw	Вох	Overcarton
number		Ø mm	Ø mm	unit	unit
12 000	14 x 36	10	4,0	25	1.000

#### Plasterboard plug "INTEGRAL"



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Concrete Natural stone Brick			Hollow brick Aerated concr. Limestone			Plasterboard Polystyrene		
	Article number	Dimension Ø x L mm	Bit recess	Screw Ø mm	Box unit	Overcarton unit		
	12 100	13 x 30	Pozi 2	3,5 - 6,0	200	4.000		

chipboard screws.

#### Rigid foam board anchor "PSD"



Rigid foam board anchor "PSD" is suitable for lightweight applications in rigid foam boards (like Styropor®, Styrodur®, Polystyrene- or polyuretane-rigid foam boards or ETICS insulation panels) and soft building materials. An additional setting tool is not necessary for turning in the anchor. A standard screw driver is quite enough. A pre-drilling is not necessary. There is no cold bridge. The anchor is suitable for handling with chipboard screws.

unsuitable

Concrete Na	tural stone Brick	Hollow brick	Aerated concr. Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Bit recess	Screw Ø mm	Box unit	Overcarton unit
12 200	24 x 50	Pozi 3	3,5 - 4,5	50	500



Rigid foam board anchor "TURBO-FIX"

Rigid foam board anchor "TURBO-FIX" is suitable for light fixtures on unplastered and plastered facades and components where slabs made of polyurethane or polystyrene have been used.

The dowel with the specially shaped thread cuts flush and prevents a cold bridge in the insulation. A simple screw-in with a screwdriver or electric screwdriver and commercial bit T 40 saves time and money. In case of lower loads (e.g. motion detector, house number plates) the short version with 52 mm length and screw Ø 4.0 mm is used, at higher loads (e.g. letter boxes, outside lamps, billboards), the longer versions with 82 mm length and screws  $\emptyset$  4.5 mm processed.



Concrete	Natural stone Brick	Hollow brick	☐ Hollow brick ☐ Aerated concr. ☐ Limestone		Polystyrene
Article number	Dimension Ø x L mm	Bit recess	Screw Ø mm	Box unit	Overcarton unit
12 210	27 x 52	T 40	4,0	50	500
12 210	27 x 82	T 40	4,5	25	250

#### Plasterboard metal plug "EASY"



Plasterboard metal plug "EASY" is used for fasteners on plasterboard and lightweight board. It can be used as anchor in aerated and lightweight concrete. A particular benefit is its integrated drill head. An additional setting tool is not necessary for turning in the anchor. A standard cross tip screw driver is quite enough. A center point permits pin-point accuracy when spot drilling. The anchor has high holding forces by its specially designed thread. The anchor is suitable for handling with chipboard and wood screws.

Concrete Na	tural stone Brick	Hollow brick	Aerated concr. Limestone	Plast	terboard Polystyrene
Article number	Dimension Ø x L mm	Bit recess	Screw Ø mm	Box unit	Overcarton unit
24 000	14 x 40	Pozi 3	4,0 - 4,5	100	2.000

#### Plasterboard metal plug "ARROW"



Plasterboard plug "ARROW" is used for fasteners on plasterboard (max. thickness = 12,5 mm). Easily to fix by hammering in. A center point permits pin-point accuracy and the inner thread provides a secure fastening of the screw thread. Recommended is the processing with chipboard screws. While turning in the screw the plug spreads in 2 directions, embeds at the backside of the material and provides a secure fastening

	a secure rasterning.						
	Concrete Natural	stone Brick	☐ Hollow brick ☐ Aerated con	cr. Limestone	■ Plasterboard ☐ Polystyrene		
	Article number	Dimension W x L mm	Screw Ø mm	Box unit	Overcarton unit		
24 025		11 x 30	3,5 - 4,0	100	800		
	suitable		limited suitability		unsuitable	17	



#### Plasterboard metal plug "TOP"



Plasterboard metal plug "TOP" is used for fasteners on plasterboard and lightweight board. It can be used as anchor in aerated and lightweight concrete. The anchor has two drill heads. An additional setting tool is not necessary for turning in the anchor. A standard cross tip screw driver is quite enough. The two center points permit pin-point accuracy when spot drilling. The anchor has high holding forces by its specially designed thread. The anchor is suitable for handling with chipboard and wood screws. Another advantage is its through-hole which enables the use of an eventually too long chosen screw.

Concrete Na	atural stone Brick	Hollow brick	Hollow brick Aerated concr. Limestone		erboard Polystyrene
Article number	Dimension Ø x L mm	Bit	Screw Ø mm	Box	Overcarton
24 050		recess	1.0	unit 200	unit 2.000
24 000	14 x 33	Pozi 3	4,0 - 4,5	200	2.000

Metal cavity anchor "MHDS"



Art.-no.: 24 100



Art.-no.: 24 101

Metal cavity anchor "MHDS" with pre-assambled screw is used for light weight and middle weight fastening on chipboard, plasterboard and gipsum fiberboard. Drill a hole as recommended, place the anchor to a flush fitting and turn the screw until noticable resistance. The points under the collar prevent the turning of the anchor. Afterwards remove the screw and then attach the element with the fixing screw.

For professional installation for  $\emptyset$  4, 5 and 6 mm the pliers for cavity plugs is recommended (p. 19)

Concrete	Natural stone B	rick Hollow	/ brick Aerate	d concr. Limestone	Plasterboar	rd Polystyrene
Article	Dimension	clamping range/	Drill	Screw	Вох	Overcarton
number	mm	plug length mm	Ø mm	Ø mm	unit	unit
24 100	4 x 6	01 - 06 / 21	9	M 4	100	2.000
24 100	4 x 12	03 - 12 / 32	9	M 4	100	1.000
24 100	4 x 24	14 - 24 / 46	9	M 4	100	1.000
24 100	4 x 38	32 - 38 / 59	9	M 4	100	1.000
24 100	5 x 12	06 - 12 / 37	11	M 5	100	1.000
24 100	5 x 16	03 - 16 / 52	11	M 5	100	1.000
24 100	5 x 24	14 - 24 / 65	11	M 5	100	1.000
24 100	5 x 38	27 - 38 / 82	11	M 5	100	1.000
24 100	6 x 12	06 - 12 / 37	13	M 6	100	1.000
24 100	6 x 16	03 - 16 / 52	13	M 6	100	1.000
24 100	6 x 24	14 - 24 / 65	13	M 6	100	1.000
24 100	6 x 38	27 - 38 / 80	13	M 6	50	500
24 101	8 x 15	04 - 15 / 37	14	M 8	100	1.000
24 101	8 x 21	05 - 21 / 55	14	M 8	100	1.000
24 101	8 x 34	18 - 34 / 65	14	M 8	50	500
24 101	8 x 50	32 - 50 / 80	14	M 8	50	500



#### Universal metal anchor "UMD"



Universal metal anchor "UMD" is used for light weight and fast fastening in hollow bricks, pumice and aerated concrete. It is easy to hit in the anchor in aerated concrete, in aerated concrete class 6 and for other materials of higher solidity as e.g. hollow bricks a pre-drill is necessary as recommended in the table. The anchor has an inner thread which provides a secure fastening. The outer corrugation guarantees high pull-out results.

The anchor fulfills the technical regulations for gas pipes according to TRGI 3.3.7.1 by using a hanger bolt 8 mm  $\emptyset$ .

Concrete	✓ Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Screw Ø mm	Box unit	Overcarton unit
24 600	5 x 30	5 - 6	35	30	4,0 - 5,0	200	2.000
24 600	6 x 32	7 - 8	40	32	5,0 - 6,0	200	2.000
24 600	8 x 38	9 - 11	50	38	6,0 - 8,0	100	1.000
24 600	8 x 60	9 - 11	70	60	6,0 - 8,0	100	1.000
24 600	10 x 60	12 - 14	70	60	8,0 - 10,0	100	1.000

Pliers for cavity anchors "HRZ"



Pliers "HRZ" simplifies the optimum fastening of metal cavity anchors "MHDS" with  $\emptyset$  4, 5 and 6 mm. Expand the metal cavity anchor by tightening the pliers until it is firmly fixed. After removing the screw attach the element with the fixing screw.

Article number	Usable with article no.:	Packing unit
31 500	24 100	1



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# Screwnail anchors, frame fixings and spacer

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#### Screwnail anchor "FIX" countersunk head







Screwnail anchor "FIX" with countersunk head made of pure nylon with pre-assembled zinc plated screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The anchor countersinks completely in wood substructure which is important for flush mounting.

Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 000	5 x 30	5	30	20	10	200	2.000
11 000	5 x 35	5	30	20	15	200	2.000
11 000	5 x 40	5	30	20	20	200	2.000
11 000	5 x 50	5	30	20	30	200	2.000
11 000	5 x 60	5	30	20	40	200	2.000
11 000	6 x 30	6	35	25	5	200	2.000
11 000	6 x 35	6	35	25	10	200	2.000
11 000	6 x 40	6	35	25	15	200	2.000
11 000	6 x 50	6	35	25	25	200	2.000
11 000	6 x 60	6	35	25	35	200	2.000
11 000	6 x 80	6	35	25	55	200	2.000
11 000	6 x 100	6	35	25	75	100	1.000
11 000	8 x 50	8	45	40	10	100	1.000
11 000	8 x 60	8	45	40	20	100	1.000
11 000	8 x 80	8	45	40	40	100	1.000
11 000	8 x 100	8	45	40	60	100	1.000
11 000	8 x 120	8	45	40	80	100	1.000
11 000	8 x 140	8	45	40	100	100	1.000
11 000	8 x 160	8	45	40	120	50	500

limited suitability



Screwnail anchor "FIX" cylindrical head



Screwnail anchor "FIX" with cylindrical head made of pure nylon with pre-assembled zinc plated screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The head of the anchor works like a washer which is important for fastening of thin-walled elements like signs, sheets, metal frameworks in interior construction or cable conduits.



Concrete	■ Natural stone	Brick	→ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 050	5 x 30	5	30	20	10	200	2.000
11 050	5 x 35	5	30	20	15	200	2.000
11 050	5 x 40	5	30	20	20	200	2.000
11 050	5 x 50	5	30	20	30	200	2.000
11 050	5 x 60	5	30	20	40	200	2.000
11 050	6 x 30	6	35	25	5	200	2.000
11 050	6 x 35	6	35	25	10	200	2.000
11 050	6 x 40	6	35	25	15	200	2.000
11 050	6 x 50	6	35	25	25	200	2.000
11 050	6 x 60	6	35	25	35	200	2.000
11 050	6 x 80	6	35	25	55	200	2.000
11 050	8 x 50	8	45	40	10	100	1.000
11 050	8 x 60	8	45	40	20	100	1.000
11 050	8 x 80	8	45	40	40	100	1.000
11 050	8 x 100	8	45	40	60	100	1.000
11 050	8 x 120	8	45	40	80	100	1.000



#### Screwnail anchor "FIX A2" countersunk head

with stainless steel screwnail A2









Screwnail anchor "FIX A2" with countersunk head made of pure nylon with pre-assembled **stainless steel A2** screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The anchor countersinks completely in wood substructure which is important for flush mounting. External use is suitable by rust-steady material.

Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 002	5 x 30	5	30	20	10	200	2.000
11 002	5 x 40	5	30	20	20	200	2.000
11 002	5 x 50	5	30	20	30	200	2.000
11 002	5 x 60	5	30	20	40	200	2.000
11 002	6 x 30	6	35	25	5	200	2.000
11 002	6 x 35	6	35	25	10	200	2.000
11 002	6 x 40	6	35	25	15	200	2.000
11 002	6 x 50	6	35	25	25	200	2.000
11 002	6 x 60	6	35	25	35	200	2.000
11 002	6 x 80	6	35	25	55	200	2.000
11 002	8 x 60	8	45	40	20	100	1.000
11 002	8 x 80	8	45	40	40	100	1.000
11 002	8 x 100	8	45	40	60	100	1.000
11 002	8 x 120	8	45	40	80	100	1.000

limited suitability



Screwnail anchor "FIX A2" cylindrical head with stainless steel screwnail A2



Screwnail anchor "FIX A2" with cylindrical head made of pure nylon with pre-assembled stainless steel A2 screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The head of the anchor works like a washer which is important for fastening of thin-walled elements like signs, sheets, metal frameworks in interior construction or cable conduits. External use is suitable by rust-steady material.







naterial.							- W A 8
Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 052	5 x 30	5	30	20	10	200	2.000
11 052	5 x 40	5	30	20	20	200	2.000
11 052	5 x 50	5	30	20	30	200	2.000
11 052	5 x 60	5	30	20	40	200	2.000
11 052	6 x 30	6	35	25	5	200	2.000
11 052	6 x 35	6	35	25	10	200	2.000
11 052	6 x 40	6	35	25	15	200	2.000
11 052	6 x 50	6	35	25	25	200	2.000
11 052	6 x 60	6	35	25	35	200	2.000
11 052	6 x 80	6	35	25	55	200	2.000
11 052	8 x 60	8	45	40	20	100	1.000
11 052	8 x 80	8	45	40	40	100	1.000
11 052	8 x 100	8	45	40	60	100	1.000
11 052	8 x 120	8	45	40	80	100	1.000
	Article number 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052 11 052	Article number       Dimension Ø x L mm         11 052       5 x 30         11 052       5 x 40         11 052       5 x 50         11 052       5 x 60         11 052       6 x 30         11 052       6 x 35         11 052       6 x 40         11 052       6 x 60         11 052       6 x 80         11 052       8 x 60         11 052       8 x 80         11 052       8 x 100	Article number         Dimension Ø x L mm         Drill Ø mm           11 052         5 x 30         5           11 052         5 x 40         5           11 052         5 x 50         5           11 052         5 x 60         5           11 052         6 x 30         6           11 052         6 x 35         6           11 052         6 x 40         6           11 052         6 x 50         6           11 052         6 x 60         6           11 052         6 x 80         6           11 052         8 x 80         8           11 052         8 x 80         8           11 052         8 x 100         8	Article number         Dimension Ø x L mm         Drill omin. mm         Drill depth min. mm           11 052         5 x 30         5         30           11 052         5 x 40         5         30           11 052         5 x 50         5         30           11 052         5 x 60         5         30           11 052         6 x 30         6         35           11 052         6 x 35         6         35           11 052         6 x 40         6         35           11 052         6 x 50         6         35           11 052         6 x 60         6         35           11 052         6 x 80         6         35           11 052         8 x 80         8         45           11 052         8 x 80         8         45           11 052         8 x 80         8         45           11 052         8 x 100         8         45	Concrete         Natural stone         Brick         ✓ Hollow brick         ✓ Aerated concr.           Article number         Dimension Ø x L mm         Ø mm         Drill depth min. mm         Insert depth min. mm           11 052         5 x 30         5         30         20           11 052         5 x 40         5         30         20           11 052         5 x 50         5         30         20           11 052         5 x 60         5         30         20           11 052         6 x 30         6         35         25           11 052         6 x 35         6         35         25           11 052         6 x 40         6         35         25           11 052         6 x 50         6         35         25           11 052         6 x 60         6         35         25           11 052         6 x 80         6         35         25           11 052         8 x 60         8         45         40           11 052         8 x 80         8         45         40           11 052         8 x 100         8         45         40	Concrete         Natural stone         Brick         Itemstone         Aerated concr.         Limestone           Article number         Dimension Ø x L mm         Ø mm         Drill depth min. mm         Insert depth min. mm         Use length max. mm           11 052         5 x 30         5         30         20         10           11 052         5 x 40         5         30         20         20           11 052         5 x 50         5         30         20         30           11 052         5 x 60         5         30         20         40           11 052         6 x 30         6         35         25         5           11 052         6 x 35         6         35         25         15           11 052         6 x 40         6         35         25         15           11 052         6 x 50         6         35         25         25           11 052         6 x 60         6         35         25         35           11 052         6 x 80         6         35         25         35           11 052         8 x 80         8         45         40         40           11 052	Concrete         Natural stone         Brick         ✓ Hollow brick         ✓ Aerated concr.         Limestone         ☐ Plasterboard           Article number         Dimension Ø x L mm         Ø mm         Drill depth min. mm         Insert depth min. mm         Use length max. mm         Box unit           11 052         5 x 30         5         30         20         10         200           11 052         5 x 40         5         30         20         20         20           11 052         5 x 50         5         30         20         30         200           11 052         5 x 60         5         30         20         40         200           11 052         6 x 30         6         35         25         5         200           11 052         6 x 35         6         35         25         15         200           11 052         6 x 40         6         35         25         15         200           11 052         6 x 50         6         35         25         25         20           11 052         6 x 80         6         35         25         35         20           11 052         8 x 80         8



Screwnail anchor "FIX-S" countersunk head with zinc plated screwnail and zinc plated washer







Screwnail anchor "FIX-S" with countersunk head made of pure nylon with pre-assembled zinc plated screwnail and zinc plated washer  $\emptyset$  20 mm is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. It is suitable for fastening of sheets, expanded metal grille or fabric mesh.

Concrete	Natural stor	ne Brick	✓ Hollow	brick 🔼 Aerat	ed concr.	estone Pla	asterboard	Polystyrene
Article number	Dimension Ø x L mm	Washer Ø mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 070	6 x 35	20	6	35	25	10	100	1.000
11 070	6 x 40	20	6	35	25	15	100	1.000
11 070	6 x 50	20	6	35	25	25	100	1.000
11 070	6 x 60	20	6	35	25	35	100	1.000
11 070	6 x 80	20	6	35	25	55	100	1.000
11 070	8 x 50	20	8	45	40	10	100	1.000

Further variants are available on request:

Screwnail anchor "FIX-S A2" countersunk head with stainless steel screwnail A2 and washer DIN 125 A2









Screwnail anchor "FIX-S A2" countersunk head with stainless steel screwnail A2 and

> washer DIN 9021 A2 made in Stainless Germany



# Screwnail anchor "FIX-DICHT A2" countersunk head with stainless steel screwnail A2 and sealing washer A2

Screwnail anchor "FIX-DICHT A2" with countersunk head made of pure nylon with pre-assembled **stainless steel A2** screwnail and **stainless steel A2** sealing washer (vulcanized Neoprene sealing) is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. External use is suitable by rust-steady material. The washer prevents the penetration of liquid into the fastened element and the building material. The use of screwnail anchor "FIX-DICHT A2" enables a faster and cheaper process than the use of sealing screws. External use is suitable by rust-steady material.









Concrete	Natural sto	ne Brick	Hollow	brick Aerat	ed concr. Lim	estone Pla	sterboard [	Polystyrene
Article number	Dimension Ø x L mm	Washer Ø mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 082	6 x 30	15	6	35	25	5	100	1.000
11 082	6 x 35	15	6	35	25	10	100	1.000
11 082	6 x 40	15	6	35	25	15	100	1.000
11 082	6 x 50	15	6	35	25	25	100	1.000
11 082	6 x 60	15	6	35	25	35	100	1.000
11 082	6 x 80	15	6	35	25	55	100	1.000
11 082	6 x 30	20	6	35	25	5	100	1.000
11 082	6 x 35	20	6	35	25	10	100	1.000
11 082	6 x 40	20	6	35	25	15	100	1.000
11 082	6 x 50	20	6	35	25	25	100	1.000
11 082	6 x 60	20	6	35	25	35	100	1.000
11 082	6 x 80	20	6	35	25	55	100	1.000

(  $\emptyset$  5 mm and  $\emptyset$  8 mm available on request )

Screwnail anchor "FIX-DICHT CU" countersunk head with stainless steel screwnail A2 copper plated and copper washer

Screwnail anchor "FIX-DICHT CU" with countersunk head made of pure nylon with pre-assembled **copper plated stainless steel A2** screwnail and **copper** sealing washer (vulcanized Neoprene sealing) is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. External use is suitable by rust-steady material. The washer prevents the penetration of liquid into the fastened element and the building material. The use of screwnail anchor "FIX-DICHT CU" enables a faster and cheaper process than the use of sealing screws. External use is suitable by rust-steady material.









Concrete	Natural sto	ne Brick	Hollow	brick Aerat	ed concr. Lim	estone Pl	asterboard	Polystyrene
Article number	Dimension Ø x L mm	Washer Ø mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 083	6 x 40	15	6	35	25	15	100	1.000
11 083	6 x 60	15	6	35	25	35	100	1.000



#### Screwnail anchor "FIX-KRAGEN" cylindrical head





Screwnail anchor "FIX-KRAGEN" with cylindrical head made of pure nylon with pre-assembled zinc plated screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The big collar of the anchor works like a washer and simplifies the fastening of elements with big perforations. It is suitable for timber connectors and perforated sheets.

Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 060	8 x 45	8	45	40	5	100	1.000

#### Screwnail anchor "FIX-M" countersunk head





Screwnail anchor "FIX-M" with countersunk head made of pure nylon with pre-assembled zinc plated screwnail with metric-threaded head is used for fast assembling with high pull-out values in solid building materials. The special design of the screwnail head allows hitting the screw into the plug without damaging the metric thread.

Concrete	Natural sto	ne Brick	✓ Hollow	brick 🖊 Aerat	ed concr. Lim	estone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Thread	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 075	6 x 40	M 6	6	35	25	15	200	2.000
11 075	8 x 60	M 8	8	45	40	20	100	1.000

#### Screwnail anchor "FIX-M" cylindrical head





Screwnail anchor "FIX-M" with cylindrical head made of pure nylon with pre-assembled zinc plated screwnail with metric-threaded head is used for fast assembling with high pull-out values in solid building materials. The special design of the screwnail head allows hitting the screw into the plug without damaging the metric thread.

Concrete	Natural stor	ne Brick	✓ Hollow	brick Aerat	ed concr. Lim	estone P	lasterboard	Polystyrene
Article number	Dimension Ø x L mm	Thread	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 076	6 x 40	М 6	6	35	25	15	200	2.000
11 076	8 x 60	M 8	8	45	40	20	100	1.000



#### Screwnail anchor "FIX-PILZ" mushroom head



Screwnail anchor "FIX-PILZ" made of pure nylon with pre-assembled zinc plated screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The head of the anchor works like a washer which is important for fastening of thin-walled elements like signs, sheets, metal frameworks in interior construction or cable conduits. It is recommended for visible assemblies.





(	Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
	11 300	6 x 35	6	30	25	10	200	2.000
	11 300	6 x 45	6	30	25	20	200	2.000
	11 300	6 x 55	6	30	25	30	200	2.000
	11 300	6 x 65	6	30	25	40	200	2.000

## Screwnail anchor "FIX-PILZ A2" mushroom head with stainless steel screwnail A2



Screwnail anchor "FIX-PILZ A2" made of pure nylon with pre-assembled **stainless steel A2** screwnail is used for fast assembling with high pull-out values in solid building materials. Subsequent adjustment is possible by the pozidrive head. The head of the anchor works like a washer which is important for fastening of thin-walled elements like signs, sheets, metal frameworks in interior construction or cable conduits. External use is suitable by rust-steady material. It is recommended for visible assemblies.







Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
6 x 35	6	30	25	10	200	2.000
6 x 45	6	30	25	20	200	2.000
6 x 55	6	30	25	30	200	2.000
6 x 65	6	30	25	40	200	2.000
	Dimension Ø x L mm 6 x 35 6 x 45 6 x 55	Ø x L mm     Ø mm       6 x 35     6       6 x 45     6       6 x 55     6	Dimension         Drill         Drill depth min. mm           6 x 35         6         30           6 x 45         6         30           6 x 55         6         30	Dimension         Drill Ø mm         Drill depth min. mm         Insert depth min. mm           6 x 35         6         30         25           6 x 45         6         30         25           6 x 55         6         30         25	Dimension         Drill         Drill depth min. mm         Insert depth min. mm         Use length max. mm           6 x 35         6         30         25         10           6 x 45         6         30         25         20           6 x 55         6         30         25         30	Dimension         Drill         Drill depth min. mm         Insert depth min. mm         Use length max. mm         Box unit           6 x 35         6         30         25         10         200           6 x 45         6         30         25         20         200           6 x 55         6         30         25         30         200

# Screwnail anchor "FIX-PILZ KS" mushroom head with plastic nail

Screwnail anchor "FIX-PILZ-KS" made of pure nylon with pre-assembled plastic nail is used for fast assembling in solid building materials. The head of the anchor works like a washer which is important for fastening of thin walled elements like signs, sheets, metal frameworks in interior construction or cable conduits. It is usable externally (by rust-steady material) and for electrical installations (by non-conducting material). It is especially recommended for visible assemblies by its outstanding appearence (nail and plug have the same color and are not pre-assembled).







Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 350	6 x 35	6	30	25	10	200	2.000



Screwnail anchor "FIX-COLOR" countersunk head Following colours are available:



Art.-no.: 11 100 brass plated

Screwnail anchor "FIX-COLOR" with countersunk head made of pure nylon with pre-assembled colored screwnail is used for fast assembling with high pull-out values in solid building materials of wood, signs, ledges and elements where a visible fastening is necessary. Subsequent adjustment is possible by the pozidrive head.



Art.-no.: 11 120 white



Art.-no.: 11 140 grey







Art.-no.: 11 160 brown

Concrete	Natural stone	Brick	→ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 100	5 x 30	5	30	20	10	200	2.000
11 100	5 x 40	5	30	20	20	200	2.000
11 100	5 x 50	5	30	20	30	200	2.000
11 100	5 x 60	5	30	20	40	200	2.000
11 120	5 x 30	5	30	20	10	200	2.000
11 120	5 x 40	5	30	20	20	200	2.000
11 120	5 x 50	5	30	20	30	200	2.000
11 120	5 x 60	5	30	20	40	200	2.000
11 140	5 x 30	5	30	20	10	200	2.000
11 140	5 x 40	5	30	20	20	200	2.000
11 140	5 x 50	5	30	20	30	200	2.000
11 140	5 x 60	5	30	20	40	200	2.000
11 160	5 x 30	5	30	20	10	200	2.000
11 160	5 x 40	5	30	20	20	200	2.000
11 160	5 x 50	5	30	20	30	200	2.000
11 160	5 x 60	5	30	20	40	200	2.000



Metal Nailplug "MND"

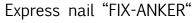


The Metal-Nailplug "MND" with muhroom-head consists of a zinc-alloy body and a zinc plated steel nail. (Plug and nail are pre-assembled.) The nail anchor isn't removeable with a simple hand tool (protection against vandalism) and thereby provides it a permanently secure fastening of substructures, signs, plates, metal stud frames on concrete, bricks and other solid materials.

Concrete	Natural stone	Brick	✓ Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 360	6 x 20	6	25	20	5	100	1.000
11 360	6 x 30	6	25	20	10	100	1.000
11 360	6 x 40	6	25	20	20	100	1.000
11 360	6 x 50	6	25	20	30	100	1.000
11 360	6 x 65	6	25	20	45	100	1.000

Express nail "FIX-ANKER" is plug and screw in one piece made of tempered spring steel, non-flammable and blue zinc-plated. It is easy to use: just drill a hole and hammer in the "FIX-ANKER" = ready! Express nail "FIX-ANKER" reaches pull out results up to 4 kN. Its application is in all solid building materials like concrete, solid brick, solid lime-sand brick or compression proof natural stone. It is well engineered: the express nail has a big head for increased bearing area. It is easy to set by ring lamellas and conical tip. The fixing can be loaded immediately. The express nail is equipped with protectors on head and tip which prevent the express nails getting caught up together.

suitable





unsuitable

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Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
29 000	6 x 30	6	35	25	5	200	2.000
29 000	6 x 40	6	35	30	10	200	2.000
29 000	6 x 50	6	35	30	20	200	2.000
29 000	6 x 60	6	35	30	30	200	2.000
29 000	6 x 80	6	35	30	50	200	2.000
29 000	6 x 100	6	35	30	70	200	2.000
29 000	8 x 70	8	45	40	30	100	1.000
29 000	8 x 90	8	45	40	50	100	1.000
29 000	8 x 110	8	45	40	70	100	1.000
29 000	8 x 130	8	45	40	90	100	1.000
29 000	8 x 150	8	45	40	110	100	1.000
29 000	8 x 180	8	45	40	140	100	1.000

limited suitability



# Frame anchor "RKP" with pozidrive - recess, zinc plated





Ø 10 mm





Frame anchor "RKP" made of pure nylon with zinc-plated pozidrive-screw is used for fast and safe assembly in all solid building materials like masonry brick, natural stone, concrete and solid lime sand brick. Its four anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length	Box unit	Overcarton unit
					max. mm		
11 200	8 x 60	8	45	40	20	100	1.000
11 200	8 x 80	8	45	40	40	100	1.000
11 200	8 x 100	8	45	40	60	100	1.000
11 200	8 x 120	8	45	40	80	100	1.000
11 200	8 x 140	8	45	40	100	50	500
11 200	8 x 160	8	45	40	120	50	500
11 200	10 x 80	10	60	50	30	50	500
11 200	10 x 100	10	60	50	50	50	500
11 200	10 x 120	10	60	50	70	50	500
11 200	10 x 140	10	60	50	90	50	500
11 200	10 x 160	10	60	50	110	50	500

Frame anchor long expansion "RLP" with pozidrive - recess, zinc plated







Frame anchor with long expanding zone "RLP" made of pure nylon with zinc-plated pozidrive-screw is used for fast and safe assembly in non-solid building materials like lightweight materials and hollow bricks. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete	Concrete Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 250	10 x 100	10	90	80	20	50	500
11 250	10 x 120	10	90	80	40	50	500
11 250	10 x 140	10	90	80	60	50	500
11 250	10 x 160	10	90	80	80	50	500





Frame anchor "RKPF" with pozidrive - recess, hot dip galvanized



Frame anchor "RKPF" made of pure nylon with hot dip galvanized pozidrive-screw is used for fast and safe assembly in all solid building materials like masonry brick, natural stone, concrete and solid lime sand brick. A high corrosion resistance is result of the hot dip galvanization. Its four anti-twist protectors prevent the rotation of the plug while turning in the screw.

Frame anchor with long expanding zone "RLPF" made of pure nylon with hot dip galvanized pozidrive-screw is used for fast and safe



Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 205	10 x 80	10	60	50	30	50	500
11 205	10 x 100	10	60	50	50	50	500
11 205	10 x 120	10	60	50	70	50	500
11 205	10 x 140	10	60	50	90	50	500
11 205	10 x 160	10	60	50	110	50	500

Frame anchor long expansion "RLPF" with pozidrive - recess, hot dip galvanized







hollow bricks. A	-solid building mate high corrosion res six anti-twist prote g in the screw.	sistance is res	sult of the <mark>hot di</mark>	p		3
Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit
44 255	10 100	4.0	0.0	00	20	F.0

Concrete Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene		
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
	11 255	10 x 100	10	90	80	20	50	500
	11 255	10 x 120	10	90	80	40	50	500
	11 255	10 x 140	10	90	80	60	50	500
	11 255	10 x 160	10	90	80	80	50	500

limited suitability unsuitable



#### Frame anchor "RKT"

with inner star - recess, zinc plated



Ø8 mm



Ø 10 mm





Frame anchor "RKT" made of pure nylon with zinc-plated inner star screw is used for fast and safe assembly in all solid building materials like masonry brick, natural stone, concrete and solid lime sand brick. Its four anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 210	8 x 60	8	45	40	20	100	1.000
11 210	8 x 80	8	45	40	40	100	1.000
11 210	8 x 100	8	45	40	60	100	1.000
11 210	8 x 120	8	45	40	80	100	1.000
11 210	8 x 140	8	45	40	100	50	500
11 210	8 x 160	8	45	40	120	50	500
11 210	10 x 80	10	60	50	30	50	500
11 210	10 x 100	10	60	50	50	50	500
11 210	10 x 120	10	60	50	70	50	500
11 210	10 x 140	10	60	50	90	50	500
11 210	10 x 160	10	60	50	110	50	500

Frame anchor long expansion "RLT" with inner star - recess, zinc plated







Frame anchor with long expanding zone "RLT" made of pure nylon with zinc-plated inner star screw is used for fast and safe assembly in non-solid building materials like lightweight materials and hollow bricks. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene	
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 260	10 x 100	10	90	80	20	50	500
11 260	10 x 120	10	90	80	40	50	500
11 260	10 x 140	10	90	80	60	50	500
11 260	10 x 160	10	90	80	80	50	500





Frame anchor "RKTF" with inner star - recess, hot dip galvanized







Frame anchor RKIF made of pure nylon with not dip galvanized
inner star screw is used for fast and safe assembly in all solid buil-
ding materials like masonry brick, natural stone, concrete and solid
lime sand brick. A high corrosion resistance is result of the hot dip
galvanization. Its four anti-twist protectors prevent the rotation of the
plug while turning in the screw.

Concrete	Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	terboard Polystyrene	
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit	
11 215	10 x 80	10	60	50	30	50	500	
11 215	10 x 100	10	60	50	50	50	500	
11 215	10 x 120	10	60	50	70	50	500	
11 215	10 x 140	10	60	50	90	50	500	
11 215	10 x 160	10	60	50	110	50	500	

Frame anchor long expansion "RLTF" with inner star - recess, hot dip galvanized







Frame anchor with long expanding zone "RLTF" made of pure nylon with hot dip galvanized inner star screw is used for fast and safe assembly in non-solid building materials like lightweight materials and hollow bricks. A high corrosion resistance is result of the hot dip galvanization. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw.

		•						
Concrete Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene		
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
	11 265	10 x 100	10	90	80	20	50	500
	11 265	10 x 120	10	90	80	40	50	500
	11 265	10 x 140	10	90	80	60	50	500
	11 265	10 x 160	10	90	80	80	50	500

limited suitability

3

unsuitable



# Frame anchor "RKS" with hexagon head, zinc plated







Frame anchor "RKS" made of pure nylon with zinc-plated hexagon screw is used for fast and safe assembly in all solid building materials like masonry brick, natural stone, concrete and solid lime sand brick. Its four anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 220	10 x 80	10	60	50	30	50	500
11 220	10 x 100	10	60	50	50	50	500
11 220	10 x 120	10	60	50	70	50	500
11 220	10 x 140	10	60	50	90	50	500
11 220	10 x 160	10	60	50	110	50	500

# Frame anchor long expansion "RLS" with hexagon head, zinc plated







Frame anchor with long expanding zone "RLS" made of pure nylon with zinc-plated hexagon screw is used for fast and safe assembly in non-solid building materials like lightweight materials and hollow bricks. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete Natural stone Brick		Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene		
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
	11 270	10 x 100	10	90	80	20	50	500
	11 270	10 x 120	10	90	80	40	50	500
	11 270	10 x 140	10	90	80	60	50	500
	11 270	10 x 160	10	90	80	80	50	500



Frame anchor "RKSF" with hexagon head, hot dip galvanized







Frame anchor "RKSF" made of pure nylon with hot dip galvanized hexagon screw is used for fast and safe assembly in all solid building materials like masonry brick, natural stone, concrete and solid lime sand brick. A high corrosion resistance is result of the hot dip galvanization. Its four anti-twist protectors prevent the rotation of the plug while turning in the screw.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
11 225	10 x 80	10	60	50	30	50	500
11 225	10 x 100	10	60	50	50	50	500
11 225	10 x 120	10	60	50	70	50	500
11 225	10 x 140	10	60	50	90	50	500
11 225	10 x 160	10	60	50	110	50	500

Frame anchor long expansion "RLSF" with hexagon head, hot dip galvanized







Frame anchor with long expanding zone "RLSF" made of pure nylon with hot dip galvanized hexagon screw is used for fast and safe assembly in non-solid building materials like lightweight materials and hollow bricks. A high corrosion resistance is result of the hot dip galvanization. Its six anti-twist protectors prevent the rotation of the plug while turning in the screw.

		0						
Concrete Natural stone Brick		Hollow brick	Aerated concr. [	Limestone	Plasterboard	Polystyrene		
	Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
	11 275	10 x 100	10	90	80	20	50	500
	11 275	10 x 120	10	90	80	40	50	500
	11 275	10 x 140	10	90	80	60	50	500
	11 275	10 x 160	10	90	80	80	50	500

limited suitability

unsuitable



#### Spacer "LINE"





Spacer "LINE" is used for accurate adaption on high-grade uneven surfaces. Many varieties can be created by use of one or more spacers. A strong hold is provided by clamping the screw or anchor in the spacer during assembly.

Article number	Thickness mm	Colour	Box unit	Overcarton unit
11 600	3	rot	100	5.000
11 600	5	gelb	100	3.000
11 600	8	blau	100	2.000
11 600	10	schwarz	100	1.500
11 600	15	weiß	100	1.000

#### Spacer "GAP"





The spacer plates "GAP" are ideal for millimeter-precise compensation from 1 mm to 5 mm in many applications. They are an ideal assembly aid for window and door assemblies as well as for substructures of all kinds, e.g. in drywall and interior construction. Since they are made of solid material, they are also suitable as glazing blocks. The Easy-Clip function: A firm hold is achieved during assembly by clamping in screws or dowels with a diameter of 3 mm up to 10 mm. The "GAP" spacers are also very useful for aligning and leveling furniture and terraces. For larger distances, several spacer plates can be used to compensate.

Article number	Thickness mm	Colour	Box unit	Overcarton unit
11 620	1	white	100	14.000
11 620	2	blue	100	9.000
11 620	3	red	100	6.000
11 620	4	yellow	100	4.500
11 620	5	green	100	4.000



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# Window frame anchors and window frame screws

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#### Window frame anchor "FRST" countersunk head



Window frame anchor "FRST" consists of a zinc-plated metal plug, a zinc-plated cone and a zinc-plated inner star screw with countersunk head for use with bit T 30. It ensures a tension-free assembly in solid building materials.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
23 600	10 x 72	10	60	52	20	50	500
23 600	10 x 92	10	60	52	40	50	500
23 600	10 x 112	10	60	52	60	50	500
23 600	10 x 132	10	60	52	80	50	500
23 600	10 x 152	10	60	52	100	50	500
23 600	10 x 182	10	60	52	130	50	500
23 600	10 x 202	10	60	52	150	50	500

#### Window frame anchor "FRSP" countersunk head



Window frame anchor "FRSP" consists of a zinc-plated metal plug, a zinc-plated cone and a zinc-plated pozidrive screw with countersunk head for use with bit pozidrive 3. It ensures a tension-free assembly in solid building materials.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
23 625	10 x 72	10	60	52	20	50	500
23 625	10 x 92	10	60	52	40	50	500
23 625	10 x 112	10	60	52	60	50	500
23 625	10 x 132	10	60	52	80	50	500
23 625	10 x 152	10	60	52	100	50	500
23 625	10 x 182	10	60	52	130	50	500
23 625	10 x 202	10	60	52	150	50	500

#### Window frame anchor "FRLP" round head



Window frame anchor "FRLP" consists of a zinc-plated metal plug, a zinc-plated cone and a zinc-plated pozidrive screw with round head for use with bit pozidrive 3. It ensures a tension-free assembly in solid building materials.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
23 650	10 x 72	10	60	52	20	50	500
23 650	10 x 92	10	60	52	40	50	500
23 650	10 x 112	10	60	52	60	50	500
23 650	10 x 132	10	60	52	80	50	500
23 650	10 x 152	10	60	52	100	50	500
23 650	10 x 182	10	60	52	130	50	500
23 650	10 x 202	10	60	52	150	50	500



Window frame screw "FRSS" countersunk head



Window frame screw "FRSS" with inner star T 30 countersunk head is used for fastening of plastic or aluminium window or door frames in solid building materials.

Concrete	Natural stone Brick	→ Hollow brick	Aerated concr. Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Head Ø mm	Drill Ø mm	Box unit	Overcarton unit
23 700	7,5 x 72	11,5	6	100	1.000
23 700	7,5 x 92	11,5	6	100	1.000
23 700	7,5 x 112	11,5	6	100	1.000
23 700	7,5 x 132	11,5	6	100	1.000
23 700	7,5 x 152	11,5	6	100	1.000
23 700	7,5 x 182	11,5	6	100	1.000
23 700	7,5 x 212	11,5	6	100	1.000

Window frame screw "FRSR" round head



Window frame screw "FRSR" with inner star T 30 round head is used for fastening of wooden window or door frames in solid building materials.

Concrete	Natural stone Brick	✓ Hollow brick	Aerated concr. Limestone	Plasterboard	d Polystyrene
Article number	Dimension Ø x L mm	Head Ø mm	Drill Ø mm	Box unit	Overcarton unit
23 750	7,5 x 72	12	6	100	1.000
23 750	7,5 x 92	12	6	100	1.000
23 750	7,5 x 112	12	6	100	1.000
23 750	7,5 x 132	12	6	100	1.000
23 750	7,5 x 152	12	6	100	1.000
23 750	7,5 x 182	12	6	100	1.000
23 750	7,5 x 212	12	6	100	1.000



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## Scaffolding fixings

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#### Scaffolding plug "POWERDRIVE"







Scaffolging plug "POWERDRIVE" made of pure nylon is used together with Hüfner eyebolt "EYE"  $\varnothing$  12 mm. A special thread guidance reduces the turn in power of the eye-bolt up to 35 %. A second thread guidance at the bottom of the plug avoids stretch forming of the plug and raises the overall pull out results. Up to 21,5 kN in brick MZ12/20 were achieved. Hüfner cover cap "RING" and "KREUZ" complete the system.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Screw Ø mm	Drill depth min. mm	Insert depth min. mm	Box unit	Overcarton unit
10 400	14 x 70	14	10 - 12	85	70	25	500

### Scaffolding plug "POWERDRIVE WALL" with collar



Size: 14 x 70

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Size: 14 x 100 - 185

Scaffolging plug "POWERDRIVE WALL" made of pure nylon is used together with Hüfner eyebolt "EYE" Ø 12 mm. A special thread guidance reduces the turn in power of the eye-bolt up to 35 %. A second thread guidance at the bottom of the plug avoids stretch forming of the plug and raises the overall pull out results. Up to 21,5 kN in brick MZ12/20 were achieved. Hüfner cover cap "RING" and "KREUZ" complete the system.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Screw Ø mm	Drill depth min. mm	Insert depth min. mm	Box unit	Overcarton unit
10 450	14 x 70	14	10 - 12	85	70	25	500
10 450	14 x 100	14	10 - 12	85	70	25	500
10 450	14 x 135	14	10 - 12	85	70	25	250
10 450	14 x 185	14	10 - 12	85	70	25	250

Cover cap "KREUZ" and "RING" transparent



Art.-no.: 10 500

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Art.-no.: 10 600

Cover cap "KREUZ" and cover cap "RING" cover the hole after the scaffold is removed. Cover cap "KREUZ" is made of high quality plastic and can be painted easily. It suites to scaffolding plug "POWERDRIVE" and "POWERDRIVE WALL".

Article number	Head Ø mm	Length mm	Usable for plugs Ø mm	Poly bag unit	Overcarton unit
10 500	28	40	12 - 14	100	5.000
10 500	28	80	12 - 14	100	2.500
10 600	28	40	12 - 14	100	5.000
10 600	28	80	12 - 14	100	2.500





Eyebolt "EYE"  $\emptyset$  8mm is made of zinc plated steel and has a welded eye. A simplified insertion of the eyebolt is guaranteed by srew-in markings.

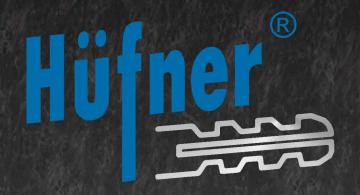
Article number	Eye internal Ø mm	Screw Ø mm	Shaft length mm	Overcarton unit
20 000	15	8	50	500
20 000	15	8	80	300
20 000	15	8	100	300
20 000	15	8	120	250

Eyebolt "EYE" ø 12 mm



Eyebolt "EYE"  $\varnothing$  12 mm is made of zinc plated steel and has a welded eye. A simplified insertion of the eyebolt is guaranteed by srew-in markings. Hüfner scaffolding plug "POWERDRIVE" and "POWERDRIVE WALL" and Hüfner cover cap "RING" and "KREUZ" complete the system.

Article number	Eye internal Ø mm	Screw Ø mm	Shaft length mm	Overcarton unit
20 000	23	12	90	160
20 000	23	12	120	130
20 000	23	12	160	130
20 000	23	12	190	100
20 000	23	12	230	100
20 000	23	12	300	80
20 000	23	12	350	80
20 000	23	12	400	60
20 000	23	12	450	60
20 000	23	12	500	40



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# Insulation fixings

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Metal insulation plug "ISO-ANKER" with Metal insulation washer "MDS"



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Metal insulation plug "ISO-ANKER" is a particularly suitable fixing of insulating materials especially for areas where due to safety reasons the use of plastic plugs is not allowed as e.g. in emergency evacuation routes in hospitals and airports and so on. . It is easy to use: just drill a hole and hammer in the "ISO-ANKER" = ready! "ISO-ANKER" reaches pull out results up to 2 kN. Its application is in all solid building materials like concrete, solid brick, solid lime-sand brick or compression proof natural stone. It is well engineered: the express nail has a big head for increased bearing area. It is easy to set by ring lamellas and conical tip and made of tempered spring steel, non-flammable and blue zinc-plated. Plug and washer are individually packed.

Concrete	■Natural stor	ne Brick	Hollow	brick Aerat	ed concr. Lim	estone Pla	sterboard	Polystyrene
Article number	Dimension Ø x L mm	Washer Ø mm	Drill Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Box unit	Overcarton unit
29 200	8 x 70	70	8	40	30	40	100	500
29 200	8 x 90	70	8	40	30	60	100	500
29 200	8 x 110	70	8	40	30	80	100	500
29 200	8 x 130	70	8	40	30	100	100	500
29 200	8 x 150	70	8	40	30	120	100	500
29 200	8 x 180	70	8	40	30	150	100	500

#### Metal insulation washer "MDS"



made in Germany Metal insulation washer "MDS" has an outer diameter of 70 mm and an inner diameter of 9 mm. It is suitable for insulation fixings with "FIX-ANKER" and screwnail anchor "FIX"  $\emptyset$  8 mm.

Article	Dimension	Box
number	inner / outer Ø mm	unit
29 100	9 / 70	100

#### Plastic insulation washer "ISO-TELLER"



Example of application with Screwnail anchor "FIX" countersunk head  $\emptyset$  8 mm



Plastic insulation washer "ISO-TELLER" is used with screws (maximum  $\emptyset$  6 mm) or Hüfner screwnail anchor "FIX" with countersunk head  $\emptyset$  8 mm for fastening insulation material.

	Article number	Dimension inner / outer Ø mm	Poly bag unit	
	17 550	8 / 60	100	
48	suitable	limited suitability	unsuitable	



Plastic insulation washer "LAS-FIX"



Plastic insulation washer "LAS-FIX" is used to fix insulating materials on air-layer anchors  $\emptyset$  3 mm &  $\emptyset$  4 mm and has an outer diameter of 60 mm.

nad	

Article	Dimension	Box
number	outer Ø mm	unit
17 100	60	500

Plastic insulation washer "NDS-FIX"



Plastic insulation washer "NDS-FIX" has an outer diameter of 90 mm and an inner diameter of 8 mm.

In combination with HÜFNER countersunk screwnail anchors  $\emptyset$  8 mm it is used for fixing insulating materials.

Even commercially available countersunk screws Ø 5 mm & Ø 6 mm can be used.

Article	Dimension	Box
number	inner / outer Ø mm	unit
17 105	8 / 90	

Plastic insulation washer "SNS-FIX"



Plastic insulation washer "SNS-FIX" is used in combination with steel nails or air-layer anchors  $\emptyset$  3 mm &  $\emptyset$  4 mm for fixing insulating materials and has an outer diameter of 90 mm.

Article	Dimension	Box
number	outer Ø mm	unit
17 110	90	250



#### Insulation fixing "DÄMM-FIX"



Insulation fixing "DÄMM-FIX" is an economic fixing for soft insulation materials on solid building materials as concrete, brick and lime sand brick. High-quality plastics guarantees safe and enduring fastening. The drive in nail made of a special plastic has a low thermal conductivity and prevents corrosion. An installation depth of 30 mm only ensures a strong hold. The simple handling offers an extremely time-saving handling: drill a hole + fix the plug - hammer in the nail = finished!

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Head Ø mm	Drill depth min. mm	Insert depth min. mm	Use length mm	Overcarton unit
17 350	10 x 70	10	90	40	30	20 - 40	250
17 350	10 x 90	10	90	40	30	40 - 60	250
17 350	10 x 110	10	90	40	30	60 - 80	250
17 350	10 x 130	10	90	40	30	80 - 100	250
17 350	10 x 150	10	90	40	30	100 - 120	150

#### Insulation fixing "STYRO-FIX"





Insulation fixing "STYRO-FIX" with **European Technical Approval (ETA) acc. ETAG 14** is a fixing for ETICS insulation plates. It enables a corrosion-free insulation because plug and nail are made of high-quality plastics. 11 sizes from 90 thru 210 mm give wide choice to find the most effective and right length of the plug.

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Head Ø mm	Drill depth min. mm	Insert depth min. mm	Use length max. mm	Overcarton unit
17 500	10 x 90	10	60	50	40	50	200
17 500	10 x 110	10	60	50	40	70	200
17 500	10 x 120	10	60	50	40	80	200
17 500	10 x 130	10	60	50	40	90	200
17 500	10 x 140	10	60	50	40	100	200
17 500	10 x 150	10	60	50	40	110	200
17 500	10 x 160	10	60	50	40	120	200
17 500	10 x 170	10	60	50	40	130	200
17 500	10 x 180	10	60	50	40	140	200
17 500	10 x 190	10	60	50	40	150	200
17 500	10 x 210	10	60	50	40	170	200



#### Insulation fixing "STAR"

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Insulation fixing "STAR" is an economic fixing for soft mineral fibre-materials on solid building materials as concrete, brick and lime sand brick. High-quality plastics guarantees safe and enduring fastening. The simple handling and an installation depth starting from 20 mm only offers an extremely time-saving handling: drill a hole + hammer in the "STAR" = finished!

Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Head Ø mm	Drill depth min. mm	Insert depth min. mm	Use length mm	Overcarton unit
17 000	8 x 60	8	90	30	20	20 - 40	250
17 000	8 x 80	8	90	30	20	40 - 60	250
17 000	8 x 100	8	90	30	20	60 - 80	250
17 000	8 x 120	8	90	30	20	80 - 100	250
17 000	8 x 140	8	90	30	20	100 - 120	200
17 000	8 x 160	8	90	30	20	120 - 140	150

Hard board insulation fixing "ISO-STAR"



Hard board insulation fixing "ISO-STAR" is an economic fixing for hard board insulation plates like polystyrene on solid building materials as concrete, brick and lime sand brick. High-quality plastics guarantees safe and enduring fastening. The simple handling and an installation depth starting from 20 mm only offers an extremely time-saving handling: drill a hole + hammer in the "ISO-STAR" = finished!

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Concrete	Natural stone	Brick	Hollow brick	Aerated concr.	Limestone	Plasterboard	Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Head Ø mm	Drill depth min. mm	Insert depth min. mm	Use length mm	Overcarton unit
17 200	8 x 80	8	45	30	20	40 - 60	250
17 200	8 x 100	8	45	30	20	60 - 80	250
17 200	8 x 120	8	45	30	20	80 - 100	250
17 200	8 x 140	8	45	30	20	100 - 120	250
17 200	8 x 160	8	45	30	20	120 - 140	250



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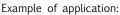
# Sanitary fixings and accessories

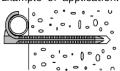
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#### Pipe clamp "KRALLE", one sided









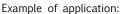


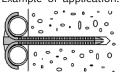
Pipe clamp "KRALLE" made of nylon one sided is a save and economic fixing of cables and flexible and rigid pipes in solid building materials. The easy use is goods for time-saving processing: drill a hole - hammer in the the pipe clamp = finished!

Concrete	Natural stone Brick	Hollow brick	Aerated concr. Lim	estone Plasterbo	ard Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Pipe Ø mm	Poly bag unit	Overcarton unit
15 000	6 x 70	6	5 - 25	100	8.000
15 000	8 x 75	8	25 - 35	100	3.500
15 000	8 x 95	8	25 - 35	100	3.000
15 000	8 x 110	8	35 - 45	100	2.000

#### Pipe clamp "KRALLE", double sided







Pipe clamp "KRALLE" made of nylon double sided is a save and economic fixing of cables and flexible and rigid pipes in solid building materials. The easy use is goods for time-saving processing: drill a hole - hammer in the the pipe clamp = finished!

Concrete	Natural stone Brick	Hollow brick	Aerated concr.	Limestone Plasterboa	ard Polystyrene
Article number	Dimension Ø x L mm	Drill Ø mm	Pipe Ø mm	Poly bag unit	Overcarton unit
15 100	6 x 70	6	5 - 25	100	5.000
15 100	8 x 75	8	25 - 35	100	2.000
15 100	8 x 95	8	25 - 35	100	1.800

#### Isolating tube clamp "HOOK"







Isolating tube clamp "HOOK" made of high-quality plastic is used for locking foam based insulation material for the installation of plumbing and heating pipework.

	Article number	Poly bag unit	Box unit	Overcarton unit
	15 200	100	2.500	40.000
54	suitable	limited	d suitability	unsuitable



Pipeclip "ZACK", magazined



Magazined pipeclip "ZACK" made of heat-proof, glass-fiber reinforced nylon is a safe and time-saving attaching of underfloor heating pipes  $\frac{1}{2}$ to the insulation for radiant heating and cooling systems. The magazines are adjusted for the optimum use of magazine-setting tools.

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Concrete	Natural st	tone Brick	Hollow brick Ae	rated concr. Limestone	Plasterboard Polystyrene
Article number	i	Dimension nner / outer Ø m	Pipe nm Ø mm	Pcs each magazine	
15 350		18 / 23	up to 18 n	nm 30	50

"KEY" Radiator dearation tool







Radiator dearation tool "KEY" is made of glass-fiber reinforced nylon is a money-saving tool for maintaining of heating sytems.

Article	Box	Overcarton
number	unit	unit
31 000	100	6.000

Nail strip "ROLL" is a high-strength fabric tape made of polypropylene for time-safing attaching of pipes, lines and electrical wires. It is easy to use with steel nails, hand nailers and powder actuated tools. Despite of its extreme high tear resistance the mail strip is much more flexible than metal perforated tapes and reduces vibrations to a minimum. Without any risk of corrosion and a temperature resistance up to 100° C it is quite useful for application heating pipes. An additional benefit is the conveniant remove from the applicable dispenser.





Article number	Width mm	Length mm	Overcarton unit	l
16 000	15	15	50	
suitable	limited	suitability	unsuitable	55



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**Tools** 

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Bits Phillips "PH"



Art.-no: 32 000



Art.-no: 32 005

Bit "PH" is a premium-quality product for the professional use. It has a milled recess and S2-tempered steel with a base hardness up to HRC 62. Optimized operation and long service life are achieved by high fitting accuracy in Phillips-screws.

Article number	Blade	Drive	Bit Length mm	Box unit
32 000	PH 1	1/4"	25	100
32 000	PH 2	1/4"	25	100
32 000	PH 3	1/4"	25	100
32 005	PH 2	1/4"	50	100

#### Bits Phillips "PH-SLIM"



Bit "PH-SLIM" is a premium-quality product for the professional use. It has a milled recess and S2-tempered steel with a base hardness up to HRC 62. Optimized operation and long service life are achieved by its slim design and high fitting accuracy in Phillips drywall screws.

Article number	Blade	Drive	Bit Length mm	Box unit
32 010	PH 2	1/4"	25	100

#### Bits Phillips "PH-LIMIT"



Bit "PH-LIMIT" is a premium-quality product for the professional use. It has a milled recess and S2-tempered steel with a base hardness up to HRC 62. Optimized operation and long service life are achieved by high fitting accuracy in Phillips-screws. The depth limiter prevents a too deep insertion of the screw and is ideally suitable for fastening of plasterboards with drywall screws.

Article number	Blade	Drive	Bit Length mm	Box unit
32 020	PH 2	1/4"	25	25



Bits Pozidrive "PZ"



Art.-no: 32 030

Bit "PZ" is a premium-quality product for the professional use. It has a milled recess and S2-tempered steel with a base hardness up to HRC 62. Optimized operation and long service life are achieved by its slim design and high fitting accuracy in pozidrive screws.



Article number	Blade	Drive	Bit Length mm	Box unit
32 030	PZ 1	1/4"	25	100
32 030	PZ 2	1/4"	25	100
32 030	PZ 3	1/4"	25	100
32 030	PZ 4	1/4"	25	100
32 035	PZ 1	1/4"	50	100
32 035	PZ 2	1/4"	50	100
32 035	PZ 3	1/4"	50	100

Bits Innenstern "TIS"



Art.-no: 32 040

Bit "TIS" is a premium-quality product for the professional use. It has a milled recess and S2-tempered steel with a base hardness up to HRC 62. Optimized operation and long service life are achieved by its slim design and high fitting accuracy in inner star screws.



Art.-no: 32 045

Article number	Blade	Drive	Bit Length mm	Box unit
32 040	T 10	1/4"	25	100
32 040	T 15	1/4"	25	100
32 040	T 20	1/4"	25	100
32 040	T 25	1/4"	25	100
32 040	T 30	1/4"	25	100
32 040	T 40	1/4"	25	100
32 045	T 10	1/4"	50	100
32 045	T 15	1/4"	50	100
32 045	T 20	1/4"	50	100
32 045	T 25	1/4"	50	100
32 045	T 30	1/4"	50	100
32 045	T 40	1/4"	50	100



Eyebit "Y"



The Eyebit "Y" is used for screwing of open or closed Eyelets. A real relief for professional use. Suitable for eyelets with wood or metric thread of 4 and 5 mm.

Article	Drive	Length	Box
number		mm	unit
32 050	1/4"	25	10

#### Countersinkbit "FRÄSER"



Countersinkbit "FRÄSER" is suitable for counterbores with a diameter of 12 mm. Particularly suitable for the perfect countersinking of screws in wood. (for example, the laying of WPC or wood deckings and other visible fixings.)

Article number	Drive	Length mm	Box unit
32 060	1/4"	35	10

#### Setting tool "SWZ"



The setting tool "SWZ" for hammer drill machines with SDP-Plus drill chuck is professionally used for setting of article no.: 29 000 "FIX-ANKER" and article no.: 29 200 "ISO-ANKER".

	ticle	Usable	Box
	mber	with article no.:	unit
30	000 29 000	) (p. 31), 29 200 (p. 48)	10



Magnetic holder "SR"



Magnetic holder "SR" is a professional tool for daily use. It has a steel sleeve and a circlip for a secure hold of the bit. Its strong permenent magnet holds the screw during installation.

Article number	Drive	Length mm	Box unit
32 100	1/4"	75	10

Magnetic holder "SW"



Magnetic holder "SW" is a professional tool for daily use. It has a steel sleeve and a quick locking mechanism for a secure hold of the bit and fast bit exchange. Its strong permenent magnet holds the screw during installation.

Article number	Drive	Length mm	Box unit
32 110	1/4"	60	10
32 110	1/4"	75	10

Pliers for cavity anchors "HRZ"



Pliers "HRZ" simplifies the optimum fastening of metal cavity anchors "MHDS" with  $\emptyset$  4, 5 and 6 mm. Expand the metal cavity anchor by tightening the pliers until it is firmly fixed. After removing the screw attach the element with the fixing screw.

Article number	Usable with article no.:	Packing unit
31 500	24 100 (p. 18)	1



#### Sprintfix "V"





Sprintfix "V" hammer drill bit with "V" four-cutting tips usable for hammer drills with SDS-Plus chucking system. Tool for professional use with special advantages: "V" four-cutting tips for permanent use in hard materials. Double-thread-shank HILO for fast dust charge. DRT\* Technologie = Drilling speed + Rotation + Transport tested on: performance optimization of drilling speed, rotation concentricity and speed of dust charge.

Concrete Natural stone Brick	Hollow brick	Aerated concr. Limestone	Plasterboard Polystyrene
Article	Dimension	Usable length	Packing unit
number	Ø x L mm	mm	
32 250	5 x 110	50	1
32 250	5 x 160	100	1
32 250	6 x 110	50	1
32 250	6 x 160	100	1
32 250	6 x 210	150	1
32 250	6 x 260	200	1
32 250	6,5 x 160	100	1
32 250	6,5 x 210	150	1
32 250	6,5 x 260	200	1
32 250	6,5 x 310	250	1
32 250	8 x 160	100	1
32 250	8 x 210	150	1
32 250	8 x 260	200	1
32 250	8 x 350	290	1
32 250	10 x 210	150	1
32 250	10 x 260	200	1
32 250	10 x 310	250	1
32 250	10 x 350	290	1
32 250	10 x 400	340	1
32 250	12 x 210	150	1
32 250	12 x 260	200	1
32 250	12 x 350	290	1
32 250	14 x 210	150	1
32 250	14 x 260	200	1
32 250	14 x 350	290	1
32 250	14 x 400	340	1
32 250	14 x 600	540	1



Sprintfix "V"



Sprintfix "V" hammer drill bit with "V" four-cutting tips usable for hammer drills with SDS-Plus chucking system. Tool for professional use with special advantages: "V" four-cutting tips for permanent use in hard materials. Double-thread-shank HILO for fast dust charge. DRT\* Technologie = Drilling speed + Rotation + Transport tested on: performance optimization of drilling speed, rotation concentricity and speed of dust charge.



Concrete	Natural stone Brick	Hollow brick	Aerated concr. Limestone	Plasterboard Polystyrene
	rticle	Dimension	Usable length	Packing unit
	umber	Ø x L mm	mm	
	2 250	16 x 210	150	1
	2 250	16 x 260	200	1
32	2 250	16 x 350	290	1
32	2 250	16 x 460	400	1
32	2 250	16 x 600	540	1
32	2 250	18 x 260	200	1
32	2 250	18 x 400	340	1
32	2 250	18 x 600	540	1
32	2 250	20 x 210	150	1
32	2 250	20 x 260	200	1
32	2 250	20 x 350	290	1
32	2 250	20 x 460	400	1
32	2 250	20 x 600	540	1
32	2 250	22 x 260	200	1
32	2 250	22 x 350	290	1
32	2 250	22 x 460	400	1
	2 250	22 x 600	540	1
32	2 250	25 x 260	200	1
	2 250	25 x 460	400	1
	2 250	25 x 600	540	1



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## Assortment boxes

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#### "ASSORTMENT-BOX" 165 x 100 x 30



made in Germany Assortment box "SORTIMENTS-KÄSTEN" tidy up. Its various compartments create perfect organization in office, house hold and at work. Whether screws, nuts, sewing kit or toys from surprise-eggs, from now on, no more mess with small parts!

Article number	Type number	Dimension L x W x H mm	Number of compartments	Overcarton unit
35 001-06	1	165 x 100 x 30	6	126
35 002-05	2	165 x 100 x 30	5	126
35 003-10	3	165 x 100 x 30	10	126
35 004-00	4	165 x 100 x 30	1	126
35 005-02	5	165 x 100 x 30	2	126
35 006-04	6	165 x 100 x 30	4	126

#### "ASSORTMENT-BOX" 194 x 101 x 30



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Article number	Type number	Dimension L x W x H mm	Number of compartments	Overcarton unit
35 007-12	7	194 x 101 x 30	12	114
35 008-06	8	194 x 101 x 30	6	114
35 012-18	12	194 x 101 x 30	18	114

#### "ASSORTMENT-BOX" 355 x 210 x 40



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Article number	Type number	Dimension $L \times W \times H$ mm	Number of compartments	Overcarton unit
35 009-00	9	355 x 210 x 40	1	12
35 010-20	10	355 x 210 x 40	20	12
35 011-40	11	355 x 210 x 40	40	12





### NOTES:

#### General trading conditions

#### I. General, quotations, orders and conclusion of contract:

Our deliveries and services shall be exclusively on the basis of these terms and conditions of business. Terms and conditions of buying or business of our contracting partner shall only be binding for us if we expressly acknowledge them in writing. An additional contradiction of the bindingess of the contracting partner's terms by us shall not be necessary. Our terms and conditions shall be deemed accepted no later than acceptance of our order confirmation free of contradiction. terms and conditions shall apply for future transactions even if they are not expressly agreed in each individual case.

Sundry agreements deviating from these terms and conditions shall only be valid if they have been expressly confirmed by us in writing. Such special written agreements shall have priority over these terms and conditions to the extent that they contradict them. Apart from this, these terms and conditions shall remain unaffected.

Our quotations shall be without obligation unless an agreement to the contrary has been expressly made.

An order shall only be deemed accepted by us if it has been confirmed in writing. In particular, telephone agreements and arrangements shall require written confirmation. Confirmation can also be given in the form of an invoice being issued.

#### II. Prices

The contracts between Customer and ourselves shall be concluded for fixed prices as a matter of principle. However, we shall be bound to the fixed prices for no longer than the expiry of a period of 8 weeks from order confirmation. After expiry of this period, we shall be allowed to adapt the prices, taking the development of the market price since the date of the order confirmation and the principles of § 315 German Civil Code into account. The same shall apply if the market prices for the commodities sold change by more than 2 % from the conclusion of the contract (date of the order confirmation) until delivery.

Our prices shall be understood in EURO and, to the extent obligation to VAT exists, plus the statutory Value Added Tax to the amount applicable at the time of delivery.

If freights, dues or fees are increased or introduced after conclusion of the contract, we shall be entitled to amend the price accordingly. This shall particularly apply in alterations of import, customs and foreign currency provisions.

#### III. Delivery and dispatch

Delivery dates and delivery periods shall only be approximate unless we have expressly assured them in writing as being binding.

Delivery periods with receipt of our order confirmation. When unusual types are manufactured, deviations from the quantity ordered of up to 10 % are permissible.

In arrears in delivery, Customer must set a suitable subsequent period in writing. After fruitless expiry of this period, it shall have the right to withdraw from the contract. Further extra-contractual or contractual claims, in particular claims to damage on account of culpa in contrahendo, arrears or failure to perform shall be ruled out unless we are liable for malice aforethought or gross negligence.

Orders placed on call without a precisely fixed deadline must be called no later than 6 months after placement of the order. Maturity of our claims shall occur at this time at the latest, albeit not before invoicing. In addition, we shall have the right to withdraw from the contract or from the part of the contract not yet fulfilled after setting a suitable subsequent period. In lieu of withdrawal, we shall also be entitled to charge Customer additional costs caused by a delayed call or subsequent alteration of the call with regard to time or quantity; our calculation shall be decisive in this.

Incidents of force majeure shall entitle us to postpone the delivery or the service for the duration of the prevention plus a suitable run-up time, even if the incidents occur with our suppliers or their sub-suppliers, or to withdraw partly or totally from the contract on account of the part not yet fulfilled. Force majeure shall be equivalent to strikes, lock-outs, mobilisation, war, blockades, import and export bans, traffic disturbances, operational interruptions, fire and other accidents or circumstances which cannot be influenced by us and which make delivery unreasonably more difficult or impossible for us.

Customer can demand a declaration from us whether we withdraw from the contract or deliver within a suitable period. Claims to damages shall also be excluded in the above mentioned cases to the extent that we are not liable for malice aforethought or gross negligence.

Customer engages to notify us of the specification and the other information needed to implement the order by the agreed date. If Customer gets into arrears with this, we shall be entitled, at our option, to specify ourselves and then to supply, to withdraw from the contract or to demand damages on account of non-performance.

Place of performance for the delivery for both sides shall be Waltershausen.

The goods shall travel uninsured and, in any case, at Customer's risk. Customer and we have agreed that the goods shall be sent to Customer ex (delivery) works or ex warehouse.

If no specific agreement has been made, we shall select the means and the route of transport with no liability for the cheapest and quickest transport.

Punctual and correct delivery to us and proper arrival shall be reserved. We shall be entitled to deliver prematurely. Part deliveries may not be rejected.

#### IV. Returns

If Customer returns properly delivered goods with our approval, a processing fee of 10%, however at least an amount of €25.00, shall be deducted from the credit. In addition, Customer shall bear the risk and the cost of the return as well as the freight.

#### V. Technical defects

Time of the passage of risk shall be decisive for the contractual condition of the goods.

We shall not be liable for technical defects caused by unsuitable or improper use, faulty assembly or commissioning by Customer or third parties, customary wear and tear, faulty or negligent treatment, likewise not for the consequences of improper alterations or repair work by Customer or third parties or such carried out without our approval. The same shall apply for defects only inconsiderably reducing the value or the usefulness of the goods.

Claims to technical defects shall be barred after 12 months. This shall not apply to the extent that law prescribes mandatory longer periods.

The validity of the provision of § 377 German Commercial Code concerning the obligation to examination and notification of defects shall be unaffected. However, notification of defects and complaints on account of delivery of non-contractual goods can be made within 14 days of the arrival of the goods at the destination. Defects and complaints on account of delivery of non-contractual goods, which cannot be discovered within this period even with careful examination, shall be notified or claimed, as the case may be, immediately after discovery and with an immediate stop to any processing.

We shall be given an opportunity of establishing the defects notified. Goods causing complaint shall be sent back to us without delay upon request; we shall bear transport costs if the notification of defects is justified. If Customer fails to comply with these obligations or makes alterations to the goods already notified as defective without our approval, it shall lose all and any claims to technical defects.

In the event of a justified, punctual notification of defects, we shall, at our option, rework the defective goods or provide flawless replacement.

If we fail to comply with these obligations at all or contractually within the set period, Customer can set us a last period in writing, within which we must comply with our obligations. After a fruitless expiry of this period, Customer can demand reduction of the price, withdraw from the contract or carry out the necessary reworking itself or have it done by a third party at our expense and risk. If reworking has been done successfully by Customer or a third party, all claims of the parties shall be deemed settled with the reimbursement of the necessary costs incurred by it. Reimbursement of costs shall be ruled out to the extent that the expenditure increases because the goods have been taken to another place after our delivery, unless this corresponds to the intended use of the goods.

Customer's statutory claims to recourse against us shall only exist insofar as Customer has not made any agreements exceeding the statutory claims to defects with its customer. Section 7, last sentence, shall apply accordingly for the scope of the claims to recourse.

#### VI. Other claims, liabilities

If nothing to the contrary is stated below, other and further claims of Customer against us shall be ruled out. This shall particularly apply for claims to damages on account of breaches of obligations from the contractual relationship and from tort. We shall therefore not be liable for damages not occurring to the goods delivered themselves. Above all, we shall not be liable for loss of profits or other consequential loss by Customer.

The above mentioned limitations of liability shall not apply for malice aforethought and gross negligence of our legal representatives or senior employees or for culpable breaches of essential contractual obligations. In the event of culpable breaches of essential contractual obligations, we shall only be liable - except for cases of malice aforethought or gross negligence of our legal representatives or senior employees - for damages typical for the contract and reasonably foreseeable.

The limitation of liability shall further not apply in the cases in which there is liability for damage to persons or objects for privately used objects according to the Product Liability Act in defects of the goods delivered. It shall also not apply in cases to injury to life, limb or health or if assured properties are missing, if and insofar as the assurance had the precise purpose of securing Customer against damage not occurring to the goods delivered themselves.

To the extent that our liability is ruled out or limited, this shall also apply for the personal liability of our employees, workers, fellow-workers, legal representatives and vicarious agents.

The statutory provisions on onus of proof shall remain unaffected hereby.

#### VII. Payment terms

Payment shall be made "net cash" within 30 days as a matter of principle, however no later than the day of the latest payment period stated on the invoice.

If we have indisputably delivered partly defective goods, our Customer shall nevertheless be obliged to make the payment for the defect-free part, unless the part delivery is of no interest to it. Apart from this, Customer can only offset with legally effective or undisputed counter-claims.

If the payment period is exceeded, we shall, notwithstanding further claims to damages, be entitled to charge default interest without further reminder to the amount of the rate which the bank charges us for current account loans, albeit at least 8 percentage points above the basic interest rate of the European Central Bank at the time.

In arrears in payment or a considerable deterioration of Customer's economic situation after conclusion of the contract, we shall be entitled to demand pre-payment and securities on account of claims which are mature and not yet mature from all existing contracts and to reject fulfilment until pre-payment or securities are rendered.

If Customer fails to comply with the request for pre-payments within a suitable subsequent period set by us, we shall be entitled, at our option, to withdraw from the contract or to demand damages on account of non-performance. The same shall apply if circumstances making creditworthiness of Customer appear dubious and in existence upon or before conclusion of the contract only become known to us after conclusion.

Unpunctual payment shall entitle us, in part delivery, to reject further delivery of the quantity still to be delivered from the contract without an obligation to damages.

Rights of offsetting shall only accrue to Customer if its counter-claims are legally effective, undisputed or have been acknowledged by us. Rights of retention can only be exercised for claims which are undisputed, ready for decision or legally effective and only if they are based on the same contractual relationship. Reference to exclusion of rights of retention shall additionally be forfeited if we have made ourselves guilty of gross breaches of the contract.

For sales in foreign currency, Customer shall bear the exchange rate risk upon conclusion of the contract.

#### VIII. Retention of title

We reserve ownership of the goods delivered until fulfilment of all claims from the business relationship with Customer.

Customer shall be entitled to sell these goods in the ordinary course of business as long as it punctually complies with its obligations from the business relationship with us. However, it may neither pledge nor transfer the conditional commodities by way of security. It shall be obliged to secure our rights in credited reselling of the conditional commodities.

In arrears in payments by Customer, we shall, following setting of a suitable subsequent period and also without withdrawal, be entitled to demand return of the conditional commodities at Customer's expense. Customer entitles us here and now to have access to its premises and to collect the goods delivered.

Return of the goods or claiming of rights of retention and seizure of the goods shall only entail a withdrawal from the contract if we expressly declare this.

We shall be entitled to withdraw from the contract if an application for opening of insolvency proceedings against Customer's assets has been made.

All claims and rights from the sale or, possibly, rental of goods permitted to Customer, to which rights of ownership accrue to us, shall be ceded to us here and now by Customer by way of security. We hereby accept this cession.

Any processing and machining of the conditional commodities shall always be done by Customer on our behalf. If the conditional commodities are processed or inseparably mixed with other objects not belonging to us, we shall acquire co-ownership of the new object in the ratio of the value of the invoice for the conditional commodities to the other processed or mixed objects at the time of the processing or mixing.

If our commodities are combined or inseparably mixed with other movable objects to form a single object and if the other object is to be regarded as the principal object, Customer shall transfer co-ownership to us pro rata insofar as the principal object belongs to it. Customer shall keep the property or co-property on our behalf. The same shall apply for the object resulting from the processing, combining or mixing, as the case may be, as for the conditional commodities.

Customer shall notify us without delay of compulsory enforcement measures of third parties against the conditional commodities, the claims ceded to us or other securities, handing over the documents necessary for an intervention. This shall also apply for impairments of any kind.

We shall release the securities accruing to us in accordance with the above provisions upon request by Customer insofar as the value of the commodities delivered under our retention of title exceeds the claims to be secured by more than 20%.

#### IX. Place of performance, venue and applicable law

The place of performance for both parties shall be Waltershausen.

Venue in any case - also for plaints on bills of exchange and cheques - shall be Erfurt.

The contractual relationship shall be exclusively governed by the law of the Federal Republic of Germany. Application of the United Nations Convention of April 11, 1980 of the International Sale of Goods (CISG - "Vienna purchasing law") shall be ruled out.

#### X. General

Subsidiary agreements shall be in writing and shall only be effective if they have been expressly confirmed by us in writing. This shall also apply for doing away with the necessity of written form.

Should any of the above terms and conditions be or become ineffective for any reason, the effectivity of the remaining terms and conditions shall remain unaffected.

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