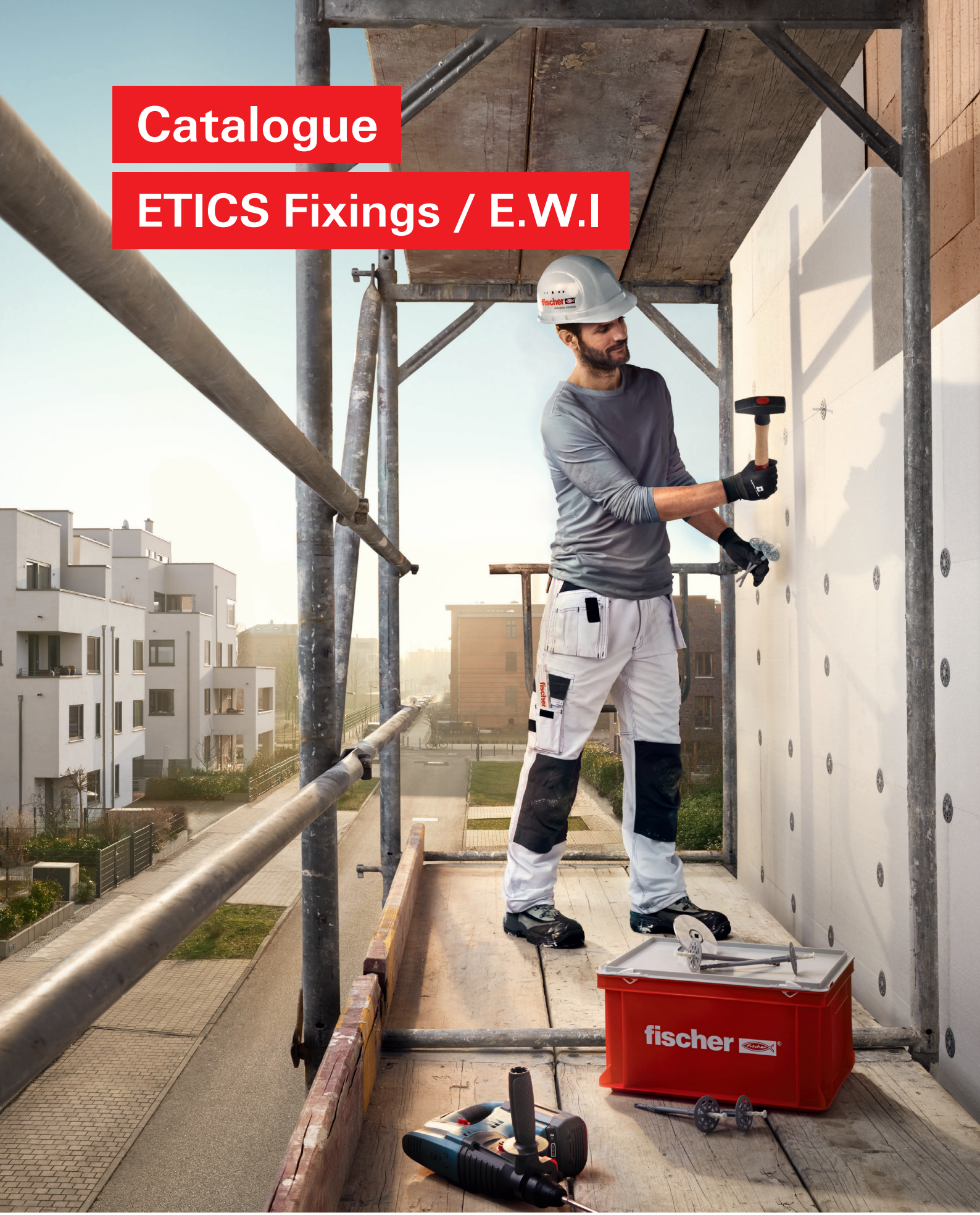
Catalogue

ETICS Fixings / E.W.I



fischer

innovative solutions



Dear partners,

there is a continued need for facades with thermal insulation composite systems (ETICS) in new construction and renovation. They minimise the energy consumption of buildings, thus protecting the environment, reducing operating costs and meeting legislator requirements.

Our company offers a wide range of fixing solutions for the installation of insulation boards. The product range covers different construction materials, thicknesses as well as fire protection and system requirements. System providers and processors of ETICS can find an optimal, easy to use and safe solution for any application within the framework of the European Technical Assessment (ETA).

On the following pages you will find an overview of our extensive product range and our accompanying services. These include impact and screw anchors as well as special anchorages and further solutions for fixing insulating materials. We will also be presenting our spacer mounting systems for the safe and almost thermal-bridge-free installation of attachments to thermal insulation composite systems.

We hope you enjoy discovering our current range of fixing systems. If you require any further support, our experts will be happy to assist you via the technical support hotline or in the field.

Marc-Sven Mengis
Chief Executive Officer for the group of companies fischer

fischer
innovative solutions

Product Type		usage category A Concrete	B Solid bricks	C Hollow bricks	D Lightweight aggregate concrete	E Aeratet concrete	(F) Concrete weather facing	H Wood
termoz	PN 8	●	●	●	●	●		
termoz	CN 8	●	●	●	●	●	●	
termoz	CNplus 8	●	●	●	●	●	●	
termoz	CS 8	●	●	●	●	●		
termoz	CS 8 DT 110 V	●	●	●	●	●		
termoz	8 U	●	●	●		●	●	
termoz	SV II	●	●	●	●	●	●	
termofix	6H-NT							●

Insulation thickness [mm]	Anchorage depth h_{ef} (Drill hole depth = h_{ef} + 10 mm, drill hole depth = h_{ef} + 25 mm for countersunk mounting) [mm]								New construction Adhesive layer b1	Fixing length l	Item	Reconstruction/Renovation Adhesive layer b1	Old plaster layer b2	Fixing length l	Item	Chi-value [W/K]	Page
60			35						10	108	termoz PN 8/110	10	10	128	termoz PN 8/130	0,000	6
				35					10	108	termoz CN 8/110	10	10	128	termoz CN 8/130	0,001	8
				35					10	108	termoz CNplus 8/110	10	10	128	termoz CNplus 8/130	0,001[3]	11
					35				10	108	termoz CS 8/110	10	10	128	termoz CS 8/130	0,001[2]	18
							70		10	145	termoz U 8/145	10	10	165	termoz U 8/165	0,001	15
80			35						10	128	termoz PN 8/130	10	10	148	termoz PN 8/150	0,000	6
				35					10	128	termoz CN 8/130	10	10	148	termoz CN 8/150	0,000	8
				35					10	128	termoz CNplus 8/130	10	10	148	termoz CNplus 8/150	0,001[3]	11
					35				10	128	termoz CS 8/130	10	10	148	termoz CS 8/150	0,001[2]	18
						35			10	143	termoz CS 8/130 DT 110V	10	10	163	termoz CS 8/150 DT 110V	0,001[2]	22
							70		10	165	termoz U 8/165	10	10	185	termoz U 8/185	0,002	15
100			35						10	148	termoz PN 8/150	10	10	168	termoz PN 8/170	0,000	6
				35					10	148	termoz CN 8/150	10	10	168	termoz CN 8/170	0,000	8
				35					10	148	termoz CNplus 8/150	10	10	168	termoz CNplus 8/170	0,001[3]	11
					35				10	148	termoz CS 8/150	10	10	168	termoz CS 8/170	0,001[2]	18
						35			10	163	termoz CS 8/150 DT 110V	10	10	183	termoz CS 8/170 DT 110V	0,001[2]	22
							70		10	185	termoz U 8/185	10	10	205	termoz U 8/205	0,002	15
120			35						10	168	termoz PN 8/170	10	10	188	termoz PN 8/190	0,000	6
				35					10	168	termoz CN 8/170	10	10	188	termoz CN 8/190	0,000	8
				35					10	168	termoz CNplus 8/170	10	10	188	termoz CNplus 8/190	0,001[3]	11
					35				10	168	termoz CS 8/170	10	10	188	termoz CS 8/190	0,001[2]	18
						35			10	183	termoz CS 8/170 DT 110V	10	10	203	termoz CS 8/190 DT 110V	0,001[2]	22
							70		10	205	termoz U 8/205	10	10	225	termoz U 8/225	0,002	15
140			35						10	188	termoz PN 8/190	10	10	208	termoz PN 8/210	0,000	6
				35					10	188	termoz CN 8/190	10	10	208	termoz CN 8/210	0,000	8
				35					10	188	termoz CNplus 8/190	10	10	208	termoz CNplus 8/210	0,001[3]	11
					35				10	188	termoz CS 8/190	10	10	208	termoz CS 8/210	0,002[2]	18
						35			10	203	termoz CS 8/190 DT 110V	10	19	223	termoz CS 8/210 DT 110V	0,002[2]	22
							70		10	225	termoz U 8/225	10	10	245	termoz U 8/245	0,001	15
160			35						10	208	termoz PN 8/210	10	10	228	termoz PN 8/230	0,000	6
				35					10	208	termoz CN 8/210	10	10	228	termoz CN 8/230	0,000	8
				35					10	208	termoz CNplus 8/210	10	10	228	termoz CNplus 8/230	0,001[3]	11
					35				10	208	termoz CS 8/210	10	10	228	termoz CS 8/230	0,002[2]	18
						35			10	223	termoz CS 8/210 DT 110V	10	10	243	termoz CS 8/230 DT 110V	0,002[2]	22
							70		10	245	termoz U 8/245	10	10	265	termoz U 8/265	0,002	15
180			35						10	228	termoz PN 8/230					0,000	6
				35					10	228	termoz CN 8/230	10	10	248	termoz CN 8/250	0,000	8
				35					10	228	termoz CNplus 8/230	10	10	248	termoz CNplus 8/250	0,001[3]	11
					35				10	228	termoz CS 8/230	10	10	248	termoz CS 8/250	0,002[2]	18
						35			10	243	termoz CS 8/230 DT 110V	10	10	263	termoz CS 8/250 DT 110V	0,002[2]	22
							70		10	265	termoz U 8/265	10	10	285	termoz U 8/285	0,002	15
200					35				10	248	termoz CN 8/250	10	10	268	termoz CN 8/270	0,000	8
					35				10	248	termoz CNplus 8/250	10	10	268	termoz CNplus 8/270	0,001[3]	11
						35			10	248	termoz CS 8/250	10	10	268	termoz CS 8/270	0,001[2]	18
							35		10	263	termoz CS 8/250 DT 110V	10	10	283	termoz CS 8/270 DT 110V	0,001[2]	22
								70	10	285	termoz U 8/285	10	10	305	termoz U 8/305	0,002	15
220					35				10	268	termoz CN 8/270	10	10	288	termoz CN 8/290	0,002	8
					35				10	268	termoz CNplus 8/270	10	10	288	termoz CNplus 8/290	0,001[3]	11
						35			10	268	termoz CS 8/270	10	10	288	termoz CS 8/290	0,001[2]	18
							35		10	283	termoz CS 8/270 DT 110V	10	10	303	termoz CS 8/290 DT 110V	0,001[2]	22
								70	10	305	termoz U 8/305	10	10	325	termoz U 8/325	0,002	15
240					35				10	288	termoz CN 8/290	10	10	308	termoz CN 8/310	0,001	8
					35				10	288	termoz CNplus 8/290	10	10	308	termoz CNplus 8/310	0,001[3]	11
						35			10	288	termoz CS 8/290	10	10	308	termoz CS 8/310	0,001[2]	18
							35		10	303	termoz CS 8/290 DT 110V	10	10	323	termoz CS 8/310 DT 110V	0,001[2]	22
								70	10	325	termoz U 8/325	10	10	345	termoz U 8/345	0,002	15
260					35				10	308	termoz CN 8/310	10	10	328	termoz CN 8/330	0,000	8
					35				10	308	termoz CNplus 8/310	10	10	328	termoz CNplus 8/330	0,001[3]	11
						35			10	308	termoz CS 8/310	10	10	328	termoz CS 8/330	0,001[2]	18
							35		10	323	termoz CS 8/310 DT 110V	10	10	343	termoz CS 8/330 DT 110V	0,001[2]	22
								70	10	345	termoz U 8/345	10	10	365	termoz U 8/365	0,002	15
280					35				10	328	termoz CN 8/330	10	10	348	termoz CN 8/350	0,000	8
					35				10	328	termoz CNplus 8/330	10	10	348	termoz CNplus 8/350	0,001[3]	11
						35			10	328	termoz CS 8/330	10	10	348	termoz CS 8/350	0,001[2]	18
							35		10	343	termoz CS 8/330 DT 110V	10	10	363	termoz CS 8/350 DT 110V	0,001[2]	22
								70	10	365	termoz U 8/365	10	10	385	termoz U 8/385	0,002	15
300					35				10	348	termoz CN 8/350	10	10	368	termoz CN 8/370	0,001[1]	8
					35				10	348	termoz CNplus 8/350	10	10	368	termoz CNplus 8/370	0,001[3]	11
						35			10	348	termoz CS 8/350	10	10	368	termoz CS 8/370	0,001[2]	18
							35		10	363	termoz CS 8/350 DT 110V	10	10	383	termoz CS 8/370 DT 110V	0,001[2]	22
									10	368	termoz CN 8/370	10	10	388	termoz CN 8/390	0,001	8
320					35				10	368	termoz CNplus 8/370	10	10	388	termoz CNplus 8/390	0,001[3]	11
						35			10	368	termoz CS 8/370	10	10	388	termoz CS 8/390	0,001[2]	18
							35		10	383	termoz CS 8/370 DT 110V	10	10	403	termoz CS 8/390 DT 110V	0,001[2]	22
								70	10	405	termoz U 8/405					0,002	15
340					35				10	388	termoz CN 8/390					0,001	8
					35				10	388	termoz CNplus 8/390					0,001[3]	11
						35			10	388	termoz CS 8/390					0,001[2]	18
							35		10	403	termoz CS 8/390 DT 110V					0,001[2]	22

[1] Only for termoz CN 8/370
[2] For countersunk mounting
[3] Depends on the installation situation

Insulation thickness [mm]	Anchorage depth h_{ef} (Drill hole depth = h_{ef} + 10 mm) [mm]	New construction Adhesive layer b1	Fixing length l	Item	Reconstruction/Renovation Adhesive layer b1	Old plaster layer b2	Fixing length l	Item	Reconstruction/Renovation Adhesive layer b1	Old plaster layer b2	Fixing length l	Item	Chi-value [W/K]	Page
100 - 400	35	10	162	termoz SV II 0-10	10	0-20	202	termoz SV II 10-30	10	20-50	232	termoz SV II 30-60	0-0,001[3]	31

[3] Depends on the installation situation



Content

	Page	
Service	1	1
Hammerset fixings	6	2
Screw fixings	15	3
Discs	36	4
Miscellaneous	40	5
Basic Knowledge	56	6

A brand and its promise to perform





The fischer brand

- The greatest expertise, safety and quality for plastic, steel and chemical fixing systems
- The world's leading provider of fixing systems and the market leader in most European countries
- A traditional brand with the highest name recognition within the industry
- An outstanding brand image. 92% of structural engineers and architects recommend fischer
- The greatest satisfaction. 95% of customers would recommend fischer

Quality you can rely on

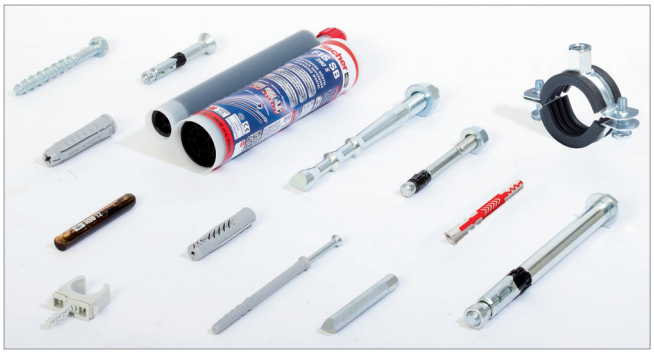
- The greatest load-bearing capacities
- Comprehensive, up-to-date international approvals, technical test marks and assessments
- Participation in the leading international, standard-setting committees in the field of fixing technology
- A certified quality management system in accordance with DIN EN ISO 9001
- fischer nylon quality guarantee
- Involvement in university and institutional research work

ETA CE

ICC ES ESR-1990 See ICC-ES Evaluation Report at www.icc-es.org

Expertise that you can build on

- Over 60 years' experience in fixing technology
- High-tech product solutions
- The highest quality standards
- Everything from one source thanks to the on-site research & development, special mechanical engineering, production and global logistics
- fischer ProcessSystem (fPS) for the continuous optimisation of our processes and flexible adjustment to meet customer requirements



Innovative strength

- 9.28 patent registrations per 1,000 employees per annum (industry average 0.75)
- In-house research & development for the plastics, steel and chemistry sectors
- Rapid implementation of own research results and market trends
- Wide range of products with over 14,000 problem solutions in the chemical, steel and plastic sectors
- Standard products, project-specific solutions and special solutions to suit customer requirements





WDV SYSTEME
FACHVERBAND WÄRMEDÄMM-VERBUNDSYSTEME E.V.
Besser bauen – Besser leben!

- In order to maintain close contact with the market and system manufacturers, the E.W.I. (External Wall Insulation) department at fischer Deutschland Vertriebs GmbH is a member of the ETICS professional association. This ensures that we are able to develop new innovative products and can benefit from a constant exchange of expertise.
- ETICS fixings are exclusively sold by ETICS licence holders.

Tailor-made services for you

- Active sales service in over 100 countries
- Cost-effective technical advice in line with directives provided by over 130 engineers worldwide
- Prototypes, extraction tests, individual calculations, comparisons and development of customised solutions, technical documentation and online services
- Free software tools, including the Fixperience design software suite, CAD-FIX 3D fixings database, etc.
- Practical training courses in the fischer Academy and across Germany in the Competence Centres

Sustainable business and sustainable products

- Numerous internal activities oriented to the environment
- Certified environmental management system in accordance with DIN EN ISO 14001
- Member of the German Sustainable Building Council (DGNB)
- Numerous products hold an EPD (Environmental Product Declaration) from the Institute for Construction and the Environment (Institut Bauen und Umwelt e.V., IBU) for ecological building rating
- fischer greenline – the world's first range of fixings that is based on over 50% renewable raw materials and certified by DIN CERTCO / TÜV Rheinland



Managementsystem
ISO 9001:2008 ISO 14001

Institut Bauen und Umwelt e.V.

BIOBASED 50 - 85
DIN Geprüft
8C029

DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council

The free thermal bridging:	The high-performance fixing:	The versatile with the option to be screw set:
termoz PN 8	termoz CN 8	termoz CNplus 8



Length	110 - 230 mm	110 - 390 mm	110 - 390 mm
Building material classes	A, B, C, D, E	A, B, C, D, E	A, B, C, D, E
Expansion element	Plastic nail	Compound nail	Compound nail
Chi value (W/K)	0.000	0.000[1)]	0.001[2)]

[1)] (110, 370 and 390 nm = 0.001)

[2)] depends on the insulation situation

An overview of your benefits

- Quick to use
- No special tools necessary
- All fixings are supplied pre-mounted
- Optimised loads
- Short anchorage depths
- Top price-performance ratio
- Complete range
- Private label possible
- Almost thermal-bridge-free
- Additional plates available if required

	The universal fixing:	The economic fixing:		The innovative fixing:
	termoz 8 U	termoz CS 8	termoz CS8 DT 110V	termoz SV II Ecotwist
				
Length	125 - 405 mm	110 - 390 mm	130 - 390 mm	One length for all insulation thicknesses[1]
Building material classes	A, B, C, E	A, B, C, D, E	A, B, C, D, E	A, B, C, D, E
Expansion element	Steel screw	Compound screw	Compound screw	Steel screw
Chi value (W/K)	0.002	0.001 - 0.002	0.001 - 0.002	0.000[2]

[1] (100 - 400 mm)

[2] (From 150 mm insulation thickness)

An overview of your benefits

- Secure anchorage
- High loads
- All fixings are supplied pre-mounted
- Recessed fixings included in the range
- Controlled setting
- Universal application
- Private label possible
- Innovative and complete range
- Additional plates available for termoz 8 U and CS 8

The free thermal bridging ETICS hammerset fixing with GRP nail





Polystyrene rigid foam boards



Setting the hammerset fixing on polystyrene rigid foam boards

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Lightweight aggregate concrete
- Aerated concrete

APPROVALS

ETA
CE
ETA-09/0171
ETAG 014
Use categories A, B, C, D, E

λ-Value Class 0.000 [W/K]
NO THERMAL BRIDGING

ADVANTAGES

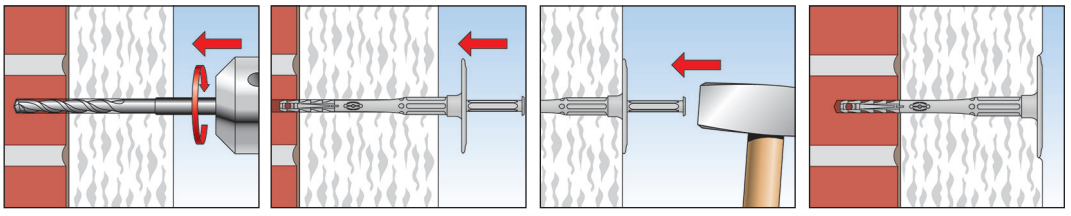
- To set with few hammer blows.
- The disc fits tight into the insulation thanks to its thickness of only 2.5 mm. Thus allows the application of low-cost, thin reinforcement layers.
- Optimised retention forces thanks to the glass fibre reinforced plastic nail (GRP).
- Small anchoring depth of 35 mm saves on drilling times.
- Thanks to the GRP nail, the fixing is free of thermal bridging with the Chi value 0.000 [W/K].
- The compression zone in the shank allows the disc to be drawn precisely into the insulation.
- Can be combined with the insulating discs DT 90, DT 110 and DT 140 for very soft insulating materials.
- For insulating material thicknesses up to 180 mm.

APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush-to-surface installation in ETICS insulating materials and mineral wool e.g. polystyrene

FUNCTIONING

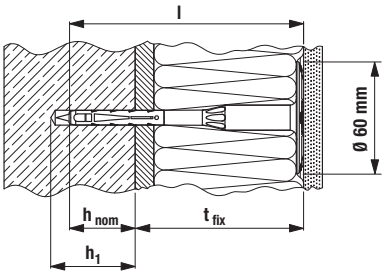
- The fixing is set in push-through installation.
- Simple, fast setting by driving the GRP nail in using a standard hammer.
- Non load bearing layers such as adhesive and old plaster are included in the maximum useful length.



TECHNICAL DATA



termoz **PN 8**



t_{fix} = thickness of insulation + glue + old render

Item	Art.-No.	Approval ETA	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Effect. anchorage depth h_{nom} [mm]	Anchor length l [mm]	Max. usable length t_{fix} [mm]	Disc Ø [mm]	Sales unit [pcs]
termoz PN 8/110	**506325**	■	8	45	35	108	70	60	100
termoz PN 8/130	**506326**	■	8	45	35	128	90	60	100
termoz PN 8/150	**506327**	■	8	45	35	148	110	60	100
termoz PN 8/170	**506328**	■	8	45	35	168	130	60	100
termoz PN 8/190	**506329**	■	8	45	35	188	150	60	100
termoz PN 8/210	**506330**	■	8	45	35	208	170	60	100
termoz PN 8/230	**506331**	■	8	45	35	228	190	60	100

for building material class D + E: h1 = 65 mm, hnom = 55 mm

LOADS

termoz PN 8 [3]

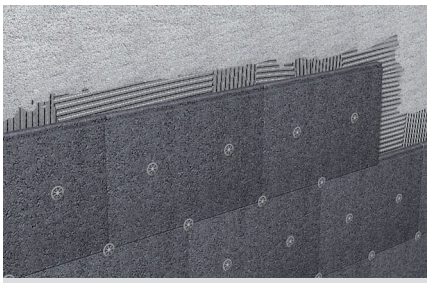
Highest permissible loads for a single anchor[1) 4)] for multiple use for non-structural applications.
For the design the complete assessment ETA-09/0171 has to be considered.

Type	Brick raw density ρ [kg/dm³]	min. compressive brick strength f_b [N/mm²]	min. embedment depth h_{nom} [mm]	min. member thickness h_{min} [mm]	Concrete and masonry: permissible tensile load[3] N_{perm} [kN]	Concrete and masonry: min. spacing[2] s_{min} [mm]	Concrete and masonry: min. edge distance[2] c_{min} [mm]
Concrete							
PN 8	C12/15		35[6]	100	0,17	100	100
	C16/20				0,17		
	C50/60				0,17		
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
PN 8	≥ 2,0	12	35[5) 6)]	100	0,20	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
PN 8	≥ 1,8	12	35[5) 6)]	100	0,20	100	100
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
PN 8	≥ 1,0	12	35[5) 7)]	100	0,13	100	100
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
PN 8	≥ 1,4	12	35[5) 6)]	100	0,13	100	100
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
PN 8	≥ 1,2	10	35[6]	100	0,17	100	100
Lightweight Aggregate Concrete acc. to DIN EN 1520, LAC							
PN 8	≥ 0,9	6	55[5) 6)]	100	0,13	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
PN 8	≥ 0,5	4	55[5) 7)]	100	0,10	100	100
	≥ 0,6	6	55[5) 7)]		0,13		

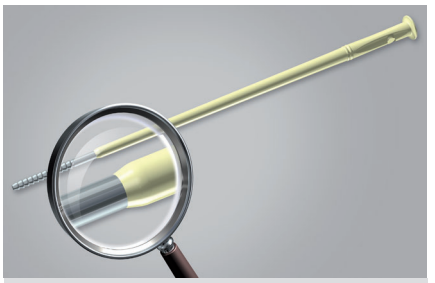
1) The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of γ_L = 1,5 are considered.
2) Minimum possible axial spacings resp. edge distances acc. assessment.
3) Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
4) The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
5) Restrictions concerning the manufacturer and the permissible hole patterns as well as the web thickness see assessment.
6) Hammer drilling
7) Rotary drilling

The high-performance ETICS hammerset fixing with compound nail





Additional reinforcement of ETICS



Detail: innovative steel-plastic combination

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Full blocks made from concrete
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Lightweight aggregate concrete
- Aerated concrete

APPROVALS

ETA-09/0394
ETAG 014
Use categories A, B, C, D, E

ADVANTAGES

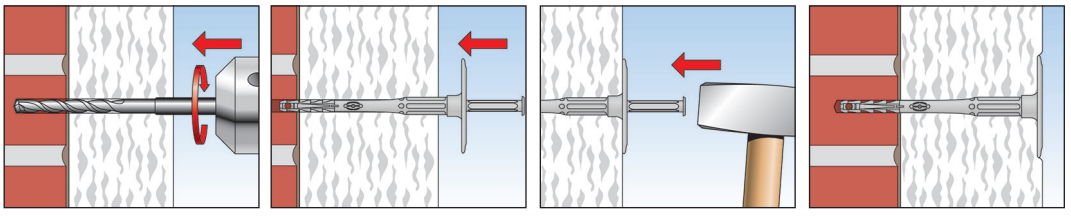
- To set with few hammer blows.
- The disc fits tight into the insulation thanks to its thickness of only 2.5 mm. Thus allows the application of low-cost, thin reinforcement layers.
- High retention forces thanks to the steel tip of the compound nail.
- Small anchoring depth of 35 mm saves on drilling times.
- The Termoz CN is virtually free of thermal bridging due to the compound nail.
- The compression zone in the shank allows the disc to be drawn in precisely.
- Can be combined with the insulating discs DT 90, DT 110 and DT 140 for very soft insulating materials.
- For insulating material thicknesses up to 340 mm.

APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush-to-surface installation in ETICS insulating materials and mineral wool e.g. polystyrene

FUNCTIONING

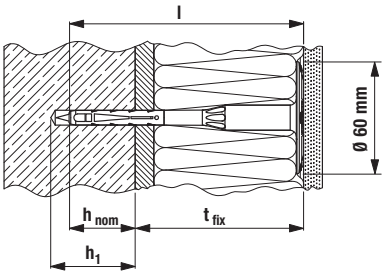
- The fixing is set in push-through installation.
- Simple, fast setting by driving the compound nail in using a standard hammer.
- Non load bearing layers such as adhesive and old plaster are included in the maximum useful length.



TECHNICAL DATA



termoz **CN 8**



t_{fix} = thickness of insulation + glue + old render

Item	Art.-No.	Approval ETA	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Effect. anchorage depth h_{nom} [mm]	Anchor length l [mm]	Max. usable length t_{fix} [mm]	Disc Ø [mm]	Sales unit [pcs]
termoz CN 8/110	**507418**	■	8	45	35	108	70	60	100
termoz CN 8/130	**507419**	■	8	45	35	128	90	60	100
termoz CN 8/150	**507420**	■	8	45	35	148	110	60	100
termoz CN 8/170	**507421**	■	8	45	35	168	130	60	100
termoz CN 8/190	**507422**	■	8	45	35	188	150	60	100
termoz CN 8/210	**507423**	■	8	45	35	208	170	60	100
termoz CN 8/230	**507424**	■	8	45	35	228	190	60	100
termoz CN 8/250	**507425**	■	8	45	35	248	210	60	100
termoz CN 8/270	**507426**	■	8	45	35	268	230	60	100
termoz CN 8/290	**507427**	■	8	45	35	288	250	60	100
termoz CN 8/310	**507428**	■	8	45	35	308	270	60	100
termoz CN 8/330	**507429**	■	8	45	35	328	290	60	100
termoz CN 8/350	**507430**	■	8	45	35	348	310	60	100
termoz CN 8/370	**507431**	■	8	45	35	368	330	60	100
termoz CN 8/390	**507432**	■	8	45	27	388	350	60	100

for building material class E: h_1 = 65 mm, h_{nom} = 55 mm

LOADS

termoz CN 8 [3]

Highest permissible loads for a single anchor [1] [4] for multiple use for non-structural applications.
For the design the complete assessment ETA-09/0394 has to be considered.

					Concrete and masonry		
Type	**Brick raw density** ρ [kg/dm³]	**min. compressive brick strength** f_b [N/mm²]	**min. embedment depth** h_{nom} [mm]	**Min. member thickness** h_{min} [mm]	**permissible tensile load** [3] N_{perm} [kN]	**min. spacing** [2] s_{min} [mm]	**min. edge distance** [2] c_{min} [mm]
Concrete acc. EN 206:2013							
CN 8	≥ C12/15		35 [6]	100	0,30	100	100
	≥ C16/20			100	0,30	100	100
	C50/60			100	0,30	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
CN 8	≥ 1,8	12	35 [5] [6]	100	0,30	100	100
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
CN 8	≥ 2,0	12	35 [5] [6]	100	0,30	100	100
Solid concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011, Vbn							
CN 8	≥ 2	20	35 [5] [6]	100	0,25	100	100
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
CN 8	≥ 1,4	12	35 [5] [6]	100	0,17	100	100
	≥ 1,4	20	35 [5] [6]	100	0,25	100	100
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
CN 8	≥ 1,0	12	35 [5] [7]	100	0,20	100	100
Solid lightweight concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Vbl							
CN 8	≥ 1,4	8	35 [6]	100	0,20	100	100
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
CN 8	≥ 1,2	10	35 [6]	100	0,20	100	100
Lightweight Aggregate Concrete acc. to DIN EN 1520, LAC							
CN 8	≥ 0,8	4	35 [5] [6]	100	0,13	100	100
	≥ 0,8	6	35 [5] [6]	100	0,20	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
CN 8	≥ 0,4	4	55 [7]	100	0,10	100	100
	≥ 0,6	6	55 [7]	100	0,10	100	100

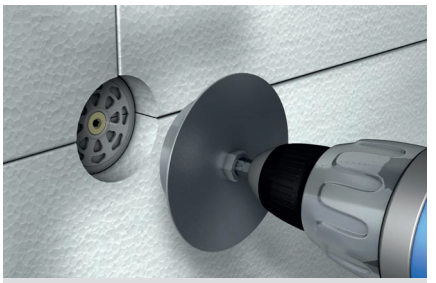
[1] The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of $\gamma_L = 1,5$ are considered.
[2] Minimum possible axial spacings resp. edge distances acc. assessment.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Restrictions concerning the manufacturer and the permissible hole patterns as well as the web thickness see assessment.
[6] Hammer drilling
[7] Rotary drilling

The versatile ETICS hammerset fixing with the option to be screw set





Flush hammerset installation



Countersunk screw installation

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Full blocks made from concrete
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Lightweight aggregate concrete
- Aerated concrete

APPROVALS

ETA-09/0394
ETAG 014

Use categories A, B, C, D, E

ADVANTAGES

- termoz CNplus is a hammerset anchor with the option to be screw set. The plug is suitable for all building material and insulation types. Through the flexible use the warehouses and ordering processes are reduced.
- With the fast and simple hammerset installation the plugs set too deep can be readjusted with the aid of the screwdriver. This saves working time and helps to avoid fixing marks.
- During the screw installation the termoz CNplus can be set countersunk or flush. For different set results only one plug is required.
- Moreover the screw installation enables an accurate setting due to an optimum application on the insulation surface. Also with soft insulation.
- The compound nail ensures a high energy efficiency with the countersunk screw installation, because there is nearly no heat transmission.

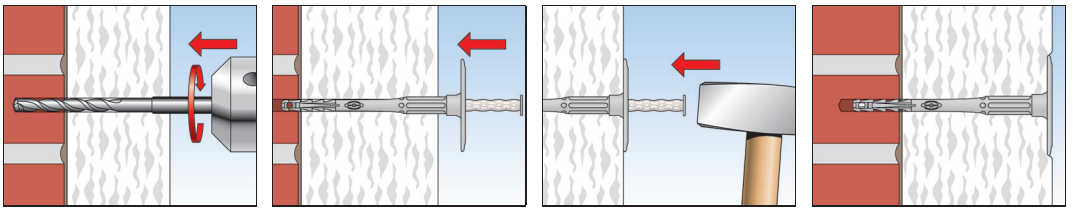
APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush installation in ETICS insulating boards, e.g. polystyrene and mineral wool
- Countersunk installation in ETICS insulating boards, e.g. polystyrene and mineral wool, incl. a closing cap for covering

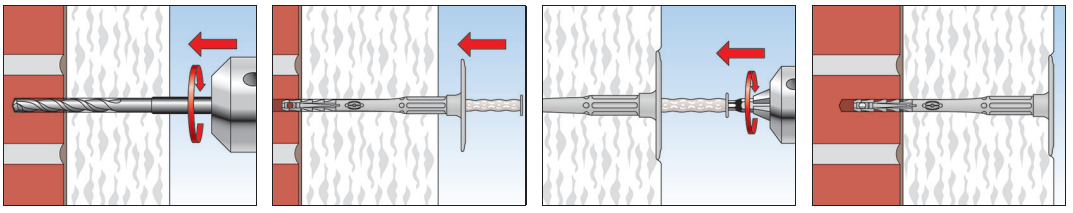
FUNCTIONING

- The plug is set in push-through installation.
- Simple, fast setting by driving the compound nail in using a standard hammer.
- The setting process with the screwdriver is performed flush with a standard Bit T 25.
- For countersunk installation the setting tool CNplus is required. The insulation disk is covered with a closing cap.
- Non-load bearing layers, such as adhesive and old plaster, are included in the maximum useful length.

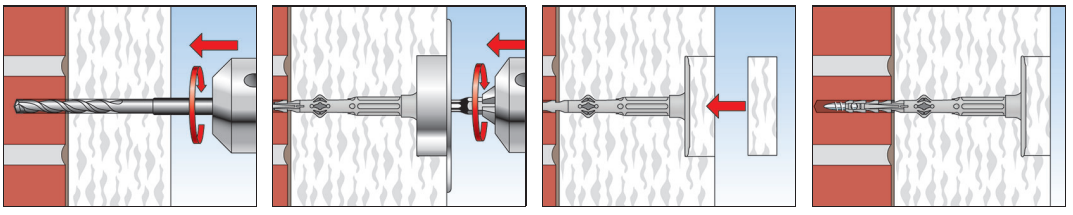
STANDARD: FLUSH HAMMERSET INSTALLATION



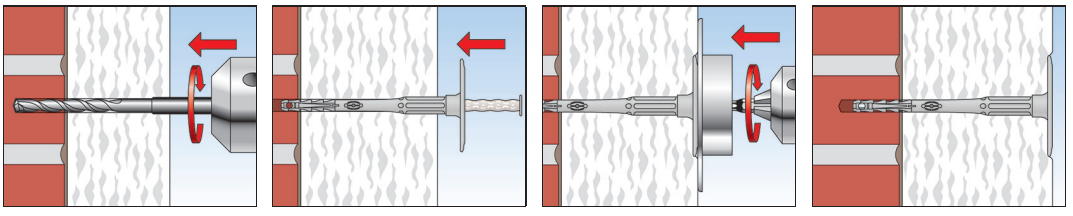
STANDARD: FLUSH SCREW INSTALLATION STANDARD BIT T25



STANDARD: COUNTERSUNK SCREW INSTALLATION WITH SETTING TOOL CS



ALTERNATIVE: FLUSH SCREW INSTALLATION WITH ROTATED SETTING TOOL CS



ACCESSORIES



Caps **MW D60**



Caps **PS D60** white



Setting tool **CS** (hexagonal-adapter)



Setting tool **CS** (SDS-adapter)



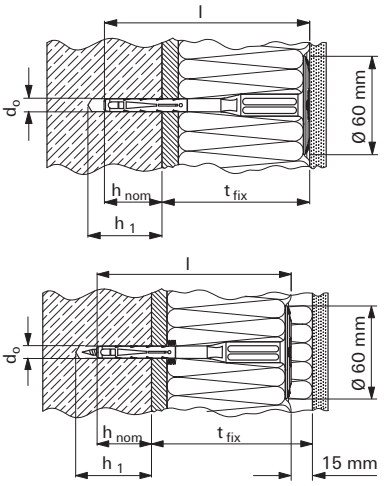
Bit T25 CNplus 26 mm

Item	Art.-No.	Contents	Match	Sales unit [pcs]
Caps MW D60	**046172**	–	–	100
Caps PS D60 white	**046173**	–	–	100
Caps PS D60 grey	**544383**	–	–	100
Setting tool CS (hexagonal-adapter)	**532618**	including Bit T 30	–	1
Setting tool CS (SDS-adapter)	**532619**	including Bit T 30	–	1
Bit T25 CNplus 26 mm	**540251**	–	Setting tool CNplus	1
DT 90	**008889**	–	–	100
DT 110	**090745**	–	–	100
DT 140	**008690**	–	–	100

TECHNICAL DATA



termoz **CNplus**



For building material classes A, B, C

Item	Art.-No.	Approval ETA	Drill diameter d_0 [mm]	Anchor length l [mm]	Effect. anchorage depth h_{nom} [mm]	Flush installation / only for building material classes A, B, C: Min. drill hole depth h_1 [mm]	Flush installation / only for building material classes A, B, C: Max. usable length t_{fix} [mm]	Countersunk installation / only for building material classes A, B, C: Min. drill hole depth h_1 [mm]	Countersunk installation / only for building material classes A, B, C: Max. usable length t_{fix} [mm]	Drive	Sales unit [pcs]
termoz CNplus 8/110	**540376**	■	8	108	35	45	70			T25	100
termoz CNplus 8/130	**540377**	■	8	128	35	45	90	60	90	T25	100
termoz CNplus 8/150	**540378**	■	8	148	35	45	110	60	110	T25	100
termoz CNplus 8/170	**540379**	■	8	168	35	45	130	60	130	T25	100
termoz CNplus 8/190	**540380**	■	8	188	35	45	150	60	150	T25	100
termoz CNplus 8/210	**540381**	■	8	208	35	45	170	60	170	T25	100
termoz CNplus 8/230	**540382**	■	8	228	35	45	190	60	190	T25	100
termoz CNplus 8/250	**540383**	■	8	248	35	45	210	60	210	T25	100
termoz CNplus 8/270	**540384**	■	8	268	35	45	230	60	230	T25	100
termoz CNplus 8/290	**540385**	■	8	288	35	45	250	60	250	T25	100
termoz CNplus 8/310	**540386**	■	8	308	35	45	270	60	270	T25	100
termoz CNplus 8/330	**540387**	■	8	328	35	45	290	60	290	T25	100
termoz CNplus 8/350	**540388**	■	8	348	35	45	310	60	310	T25	100
termoz CNplus 8/370	**540389**	■	8	368	35	45	330	60	330	T25	100
termoz CNplus 8/390	**540390**	■	8	388	35	45	350	60	350	T25	100

For countersunk installation Hexa or SDS setting tool CS Art.-No. 532618 or Art.-No. 532619 with Bit T25 Art.-No. 540251 must be used.

For building material classes D, E

Item	Art.-No.	Approval ETA	Drill diameter d_0 [mm]	Anchor length l [mm]	Effect. anchorage depth h_{nom} [mm]	Flush installation / only for building material classes D, E: Min. drill hole depth h_1 [mm]	Flush installation / only for building material classes D, E: Max. usable length t_{fix} [mm]	Countersunk installation / only for building material classes D, E: Min. drill hole depth h_1 [mm]	Countersunk installation / only for building material classes D, E: Max. usable length t_{fix} [mm]	Drive	Sales unit [pcs]
termoz CNplus 8/130	**540377**	■	8	128	55	65	70	80	70	T25	100
termoz CNplus 8/150	**540378**	■	8	148	55	65	90	80	90	T25	100
termoz CNplus 8/170	**540379**	■	8	168	55	65	110	80	110	T25	100
termoz CNplus 8/190	**540380**	■	8	188	55	65	130	80	130	T25	100
termoz CNplus 8/210	**540381**	■	8	208	55	65	150	80	150	T25	100
termoz CNplus 8/230	**540382**	■	8	228	55	65	170	80	170	T25	100
termoz CNplus 8/250	**540383**	■	8	248	55	65	190	80	190	T25	100
termoz CNplus 8/270	**540384**	■	8	268	55	65	210	80	210	T25	100
termoz CNplus 8/290	**540385**	■	8	288	55	65	230	80	230	T25	100
termoz CNplus 8/310	**540386**	■	8	308	55	65	250	80	250	T25	100
termoz CNplus 8/330	**540387**	■	8	328	55	65	270	80	270	T25	100
termoz CNplus 8/350	**540388**	■	8	348	55	65	290	80	290	T25	100
termoz CNplus 8/370	**540389**	■	8	368	55	65	310	80	310	T25	100
termoz CNplus 8/390	**540390**	■	8	388	55	65	330	80	330	T25	100

For countersunk installation Hexa or SDS setting tool CS Art.-No. 532618 or Art.-No. 532619 with Bit T25 Art.-No. 540251 must be used.

LASTEN

termoz CNplus 8 [3]

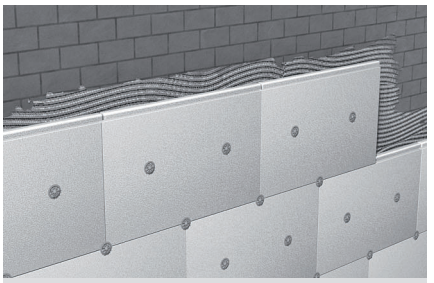
Highest permissible loads for a single anchor[1] [4] for fixing of external thermal insulation composite systems with rendering.
For the design the complete assessment ETA 09/0394 has to be considered.

					Concrete and masonry [5]		
Base material	**Brick raw density** ρ [kg/dm³]	**min. compressive brick strength** f_b [N/mm²]	**min. embedment depth** h_{nom} [mm]	**min. member thickness** h_{min} [mm]	**permissible tensile load** [3] N_{perm} [kN]	**min. spacing** [2] s_{min} [mm]	**min. edge distance** [2] c_{min} [mm]
Concrete acc. EN 206-1:2000							
CNplus 8	C12/15 - C50/60		35[6]	100	0,30	100	100
Weather resistant concrete shell							
CNplus 8	≥ C20/25		35[6]	42	0,30	100	100
Calcium silicate solid bricks KS acc. EN 771-2:2011							
CNplus 8	≥ 1,8	20	35[6]	100	0,30	100	100
Solid clay bricks Mz acc. EN 771-1:2011							
CNplus 8	≥ 1,8	20	35[6]	100	0,30	100	100
Solid concrete blocks Vbn acc. EN 771-3:2011							
CNplus 8	≥ 2	20	35[6]	100	0,30	100	100
Hollow calcium silicate bricks KSL acc. EN 771-2:2011							
CNplus 8	≥ 1,4	16	35[6]	100	0,17	100	100
Vertically perforated clay bricks HLz acc. EN 771-1:2011							
CNplus 8	≥ 1	12	35[7]	100	0,17	100	100
	≥ 1,6	48	35[7]	100	0,25	100	100
Lightweight concrete blocks Vbl acc. EN 771-3:2011							
CNplus 8	≥ 1,6	10	35[6]	100	0,25	100	100
Lightweight concrete hollow blocks Hbl acc. EN 771-3:2011							
CNplus 8	≥ 1,2	10	35[6]	100	0,20	100	100
Lightweight aggregate concrete LAC acc. EN 1520:2011, EN 771-3:2011							
CNplus 8	≥ 0,9	6	55[6]	100	0,13	100	100
Autoclaved aerated concrete blocks AAC acc. EN 771-4:2011							
CNplus 8	≥ 0,4	4	55[7]	100	0,10	100	100

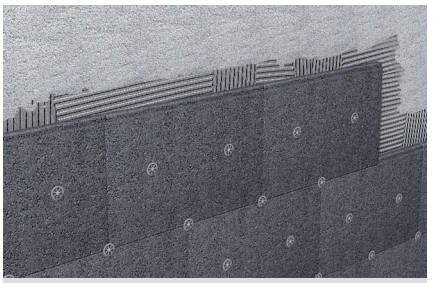
[1] The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of γ_F = 1,5 are considered.
[2] Minimum possible axial spacings resp. edge distances acc. assessment.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Restrictions concerning the manufacturer and the permissible hole patterns as well as the web thickness see assessment.
[6] Hammer drilling
[7] Rotary drilling

The universal ETICS screw fixing with Delta-Seal coated steel screw





Polystyrene rigid foam boards 035 on perforated sand-lime brick



Additional reinforcement of ETICS

BUILDING MATERIALS

- Building material classes A, B, C, E
- Concrete
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Solid blocks made from lightweight concrete
- Aerated concrete

APPROVALS

ETA-02/0019
ETAG 014
Use categories A, B, C, E (TERMOZ 8 U and WS 8 L) / A, B, C, D (TERMOZ 8 UZ)

ADVANTAGES

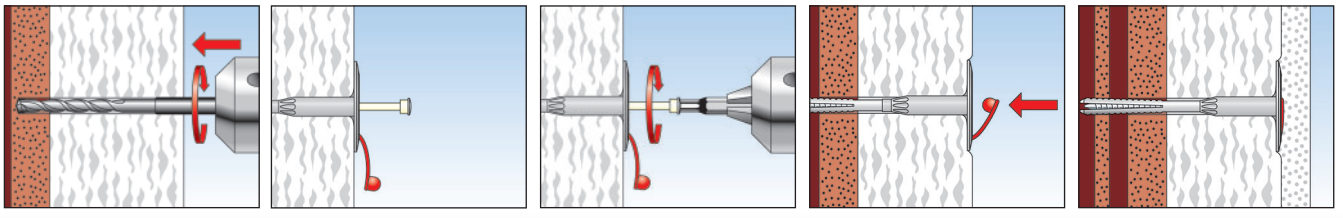
- High retention forces thanks to the screwing process and embedment depth of 70 mm.
- High level of corrosion protection of the screw thanks to Delta-Seal coating.
- An air gap is produced above the screw head due to the sealing ball. This reduces heat transmission losses.
- The flexible head compensates for any heat-related tension and prevents damage.
- Can be combined with the insulating discs DT 90, DT 110 and DT 140 for very soft insulating materials.
- For insulating material thicknesses up to 320 mm.

APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush-to-surface installation in ETICS insulating materials and mineral wool e.g. polystyrene

FUNCTIONING

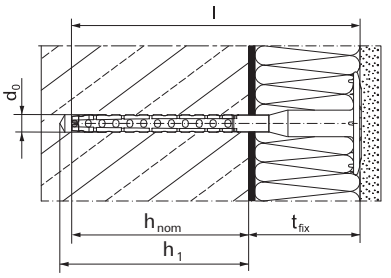
- The fixing is set in push-through installation.
- The setting tool Termoz SWZ TX 30 is required for installation.
- Simple, fast setting by screwing the Delta-Seal coated screw in using a standard screwdriver.
- Non-load-bearing layers such as adhesive and old plaster are included in the maximum useful length.



TECHNICAL DATA



termoz **8U** - Pre-assembled with screw T30



t_{fix} = thickness of insulation + glue + old render

Item	Art.-No.	Approval ETA	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Effect. anchorage depth h_{nom} [mm]	Anchor length l [mm]	Max. usable length t_{fix} [mm]	Disc Ø [mm]	Drive	Sales unit [pcs]
termoz 8U/125	**003826**	■	8	85	70	125	55	60	T30	100
termoz 8U/145	**003827**	■	8	85	70	145	75	60	T30	100
termoz 8U/165	**003828**	■	8	85	70	165	95	60	T30	100
termoz 8U/185	**003829**	■	8	85	70	185	115	60	T30	100
termoz 8U/205	**003830**	■	8	85	70	205	135	60	T30	100
termoz 8U/225	**003831**	■	8	85	70	225	155	60	T30	100
termoz 8U/245	**003832**	■	8	85	70	245	175	60	T30	100
termoz 8U/265	**003833**	■	8	85	70	265	195	60	T30	100
termoz 8U/285	**003834**	■	8	85	70	285	215	60	T30	100
termoz 8U/305	**003835**	■	8	85	70	305	235	60	T30	100
termoz 8U/325	**501447**	■	8	85	70	325	255	60	T30	100
termoz 8U/345	**501450**	■	8	85	70	345	275	60	T30	100
termoz 8U/365	**501451**	■	8	85	70	365	295	60	T30	100
termoz 8U/385	**501452**	■	8	85	70	385	315	60	T30	100
termoz 8U/405	**501453**	■	8	85	70	405	335	60	T30	100

ACCESSORIES



termoz - setting tool

Item	Art.-No.	Seat	Matching anchor type	Sales unit [pcs]
SWZ-TX30	**008698**	T30	termoz 8 U	1

LOADS

termoz 8 U [3]

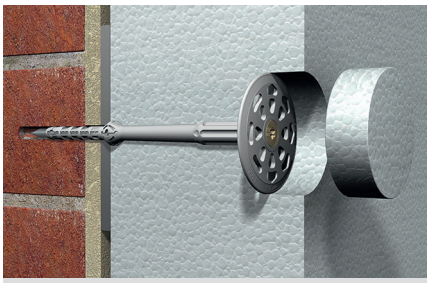
Highest permissible loads for a single anchor[1] [4] for multiple use for non-structural applications.
For the design the complete approval ETA-02/0019 has to be considered.

					Concrete and masonry		
	Brick raw density ρ [kg/dm³]	min. compressive brick strength f_b [N/mm²]	min. embedment depth h_{nom} [mm]	Min. member thickness h_{min} [mm]	permissible tensile load [3] N_{perm} [kN]	min. spacing [2] s_{min} [mm]	min. edge distance [2] c_{min} [mm]
Concrete acc. EN 206:2013							
8 U	≥ C12/15		70 [6]	100	0,50	100	100
	≥ C16/20			100	0,50	100	100
	C50/60			100	0,50	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
8U	≥ 1,6	12	70 [5] [6]	100	0,50	100	100
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
8U	≥ 1,6	12	70 [5] [6]	100	0,50	100	100
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
8U	≥ 1,4	12	70 [5] [6]	100	0,25	100	100
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
8U	≥ 1,2	12	70 [5] [7]	100	0,25	100	100
Solid lightweight concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Vbl							
8U	≥ 0,5	4	70 [5] [7]	100	0,20	100	100
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
8U	≥ 0,5	2	70 [5] [7]	100	0,13	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
8U	≥ 0,35	2	70 [7]	100	0,17	100	100
	≥ 0,5	4	70 [7]	100	0,40	100	100

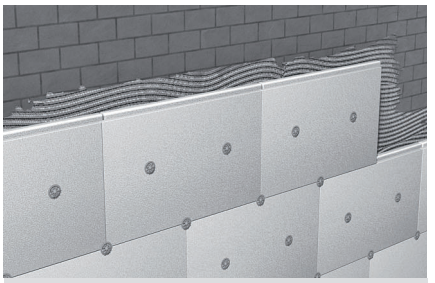
[1] The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_F = 1,5$ are considered.
[2] Minimum possible axial spacings resp. edge distances acc. approval.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Restrictions concerning the manufacturer and the permissible hole patterns as well as the web thickness see approval.
[6] Hammer drilling
[7] Rotary drilling

The economic screw fixing for all ETICS insulation materials





Countersunk installation



Polystyrene rigid foam boards 035 on perforated sand-lime brick

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Concrete (weather shell)
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Lightweight aggregate concrete
- Aerated concrete

APPROVALS

ETA-14/0372
ETAG 014

Use categories A, B, C, D, E

ADVANTAGES

- Compound screw minimises the thermal bridge, thus there are no fixing marks on the façade.
- Recessed installation with round cap provides a smooth surface for thinner render layer.
- Less drill wear and drill time due to minimum installation depth of 35 mm in the substrate.
- With flush installation, the disc tapers to a very thin edge, thus providing for optimal retaining of the insulation panel and for application of thin render.
- While flush installation the anchor washer can be combined with larger insulation disc DT 90, DT 110 and DT 140 for very soft insolation materials.
- For insulation material thicknesses up to 340 mm.
- Standard embedment depth for all building materials.

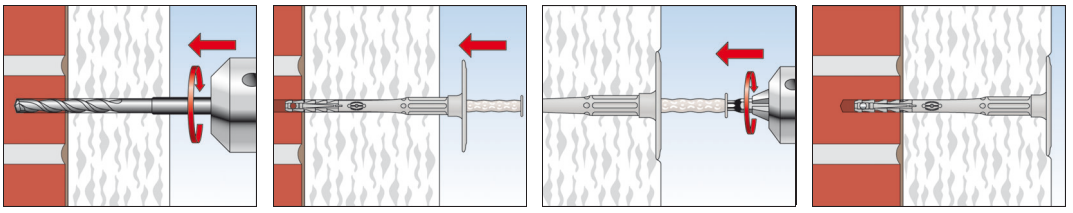
APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush installation in all conventional insulation materials
- Flush installation of insulation materials such as polystyrene rigid foam panels and dense mineral wool panels

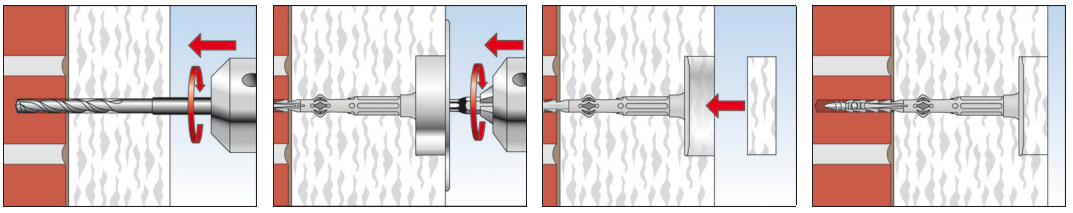
FUNCTIONING

- The fixing is pushed through the insulation into the drilled hole and is screwed tight.
- For recessed installation, you require the installation tool termoz CS.
- Optionally, the installation tool termoz CS can also be used for flush installation by turning the disc.
- For recessed installation, the insulation disc is to be covered with a round plug.
- When using the installation tool, the installation is completed when the stop disc is flush with the insulation panel.
- For lengths from 250 mm the optional supplied bits T 25 are required.

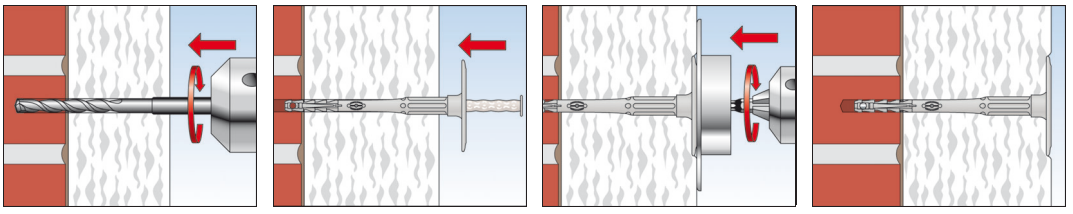
FLUSH-TO SURFACE INSTALLATION



COUNTERSUNK INSTALLATION



ALTERNATIV: FLUSH-TO SURFACE INSTALLATION



ACCESSORIES



Caps **MW D60**



Caps **PS D60** white



Setting tool **CS** (hexagonal-adapter)



Setting tool **CS** (SDS-adapter)



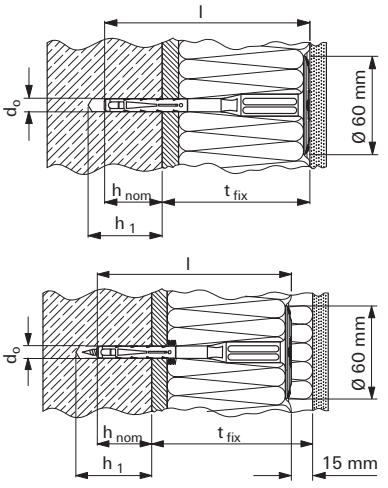
Bit T 25 CS 178,5 mm

Item	Art.-No.	Contents	Match	Sales unit [pcs]
Caps MW D60	**046172**	–	–	100
Caps PS D60 white	**046173**	–	–	100
Caps PS D60 grey	**544383**	–	–	100
Setting tool CS (hexagonal-adapter)	**532618**	including Bit T 30	–	1
Setting tool CS (SDS-adapter)	**532619**	including Bit T 30	–	1
Bit T30 CS 26 mm	**533761**	–	Setting tool CS	1
Bit T25 CS 98,5 mm	**533762**	–	Setting tool CS	1
Bit T25 CS 178,5 mm	**533763**	–	Setting tool CS	1

TECHNICAL DATA



termoz **CS 8**



Item	Art.-No.	Approval ETA	Drill diameter d_0 [mm]	Fixing length l [mm]	Effect. anchorage depth h_{nom} [mm]	Min. drill hole depth at surface-flush installation h_1 [mm]	Max. usable length at surface-flush installation t_{fix} [mm]	Min. drill hole depth at countersunk installation h_1 [mm]	Max. usable length at countersunk installation t_{fix} [mm]	Drive	Sales unit [pcs]
termoz CS 8/110	**531960** 1)	■	8	108	35	45	70	-	-	T30	100
termoz CS 8/130	**531970**	■	8	128	35	45	90	60	90	T30	100
termoz CS 8/150	**531974**	■	8	148	35	45	110	60	110	T30	100
termoz CS 8/170	**531976**	■	8	168	35	45	130	60	130	T30	100
termoz CS 8/190	**531978**	■	8	188	35	45	150	60	150	T30	100
termoz CS 8/210	**531982**	■	8	208	35	45	170	60	170	T30	100
termoz CS 8/230	**531984**	■	8	228	35	45	190	60	190	T30	100
termoz CS 8/250	**531987**	■	8	248	35	45	210	60	210	T25	100
termoz CS 8/250 R	**531989** 2)	■	8	248	35	45	210	60	210	T25	100
termoz CS 8/270	**531991**	■	8	268	35	45	230	60	230	T25	100
termoz CS 8/270 R	**531993** 2)	■	8	268	35	45	230	60	230	T25	100
termoz CS 8/290	**531995**	■	8	288	35	45	250	60	250	T25	100
termoz CS 8/290 R	**531997** 2)	■	8	288	35	45	250	60	250	T25	100
termoz CS 8/310	**532000**	■	8	308	35	45	270	60	270	T25	100
termoz CS 8/310 R	**532003** 2)	■	8	308	35	45	270	60	270	T25	100
termoz CS 8/330	**532006**	■	8	328	35	45	290	60	290	T25	100
termoz CS 8/350	**532008**	■	8	348	35	45	310	60	310	T25	100
termoz CS 8/370	**532011**	■	8	368	35	45	330	60	330	T25	100
termoz CS 8/390	**532014**	■	8	388	35	45	350	60	350	T25	100

1) Not for countersunk mounting

2) R = version with slim shaft, to set with Bit T 25, Art.-No. 533762
from length 250 mm Bit T 25, Art.-No. 533763, is required

LOADS

termoz CS 8 [3]

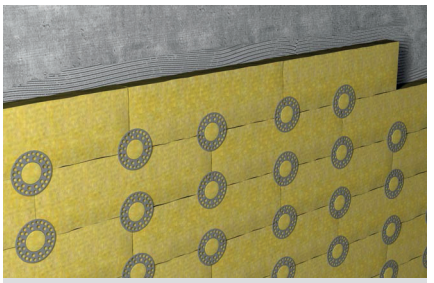
Highest permissible loads for a single anchor[1] [4] for multiple use for non-structural applications.
For the design the complete assessment ETA-14/0372 has to be considered.

					Concrete and masonry		
Type	**Brick raw density** ρ [kg/dm³]	**min. compressive brick strength** f_b [N/mm²]	**min. embedment depth** h_{nom} [mm]	**min. member thickness** h_{min} [mm]	**permissible tensile load** [3] N_{perm} [kN]	**min. spacing** [2] s_{min} [mm]	**min. edge distance** [2] c_{min} [mm]
Concrete							
CS 8	C12/15 - C45/55		35[6]	100	0,40	100	100
	C50/60				0,50		
Weather shell							
CS 8	C20/25 - C45/55		35[6] [5]	42	0,40	100	100
	C50/60				0,50		
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
CS 8	≥ 1,8	20	35[6]	100	0,50	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
CS 8	≥ 1,8	20	35[6]	100	0,50	100	100
		12			0,30		
Solid lightweight concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Vbl							
CS 8	≥ 1,4	8	35[6]	100	0,17	100	100
Solid concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011, Vbn							
CS 8	≥ 2,0	20	35[6]	100	0,40	100	100
		12			0,25		
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
CS 8	≥ 1,0	12	35[7] [8]	100	0,20	100	100
	≥ 1,6	48			0,50		
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
CS 8	≥ 1,4	20	35[7] [8]	100	0,30	100	100
		12			0,17		
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
CS 8	≥ 0,9	4	35[6] [8]	100	0,17	100	100
Hollow brick concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbn							
CS 8	≥ 1,2	10	35[6] [8]	100	0,40	100	100
		8			0,30		
		6			0,25		
		4			0,17		
Lightweight Aggregate Concrete acc. to DIN EN 1520, LAC							
CS 8	≥ 0,9	6	35[6]	100	0,25	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
CS 8	≥ 0,5	4	35[7]	100	0,10	100	100
		4	55[7]		0,20		

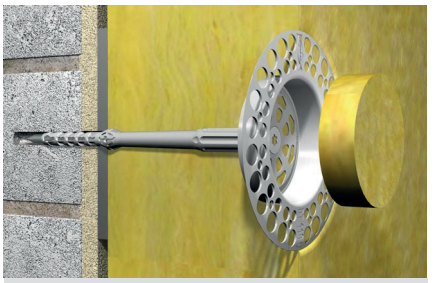
[1] The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of γ_F = 1,5 are considered.
[2] Minimum possible axial spacings resp. edge distances acc. Assessment.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Embedment depth permitted up to 45 mm.
[6] Hammer drilling
[7] Rotary drilling
[8] In masonry of the building material class C an embedment depth of h_{nom} = 25 mm is possible with the same loads than with 35 mm embedment depth.

The recessed ETICS screw fixing for soft insulating boards





Installation of mineral wool insulation boards on concrete



Countersunk installation in mineral wool insulation boards

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Concrete (weather shell)
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Lightweight aggregate concrete
- Aerated concrete

APPROVALS

ETA-14/0372
ETAG 014

Use categories A, B, C, D, E

ADVANTAGES

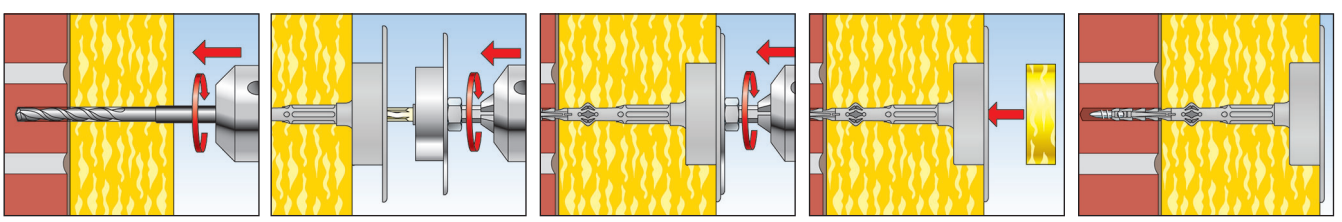
- Pre-assembled fixing with a 110 mm disc for countersunk mounting.
- The compound screw minimises the thermal bridge, thus there are no fixing marks on the façade.
- Recessed installation with round cap provides a smooth surface for thinner render layer.
- Less drill wear due to minimum installation depth of 35 mm in the substrate.
- With flush installation, the disc tapers to a very thin edge, thus providing for optimal retaining of the insulation panel and for application of thin render.

APPLICATIONS

- Attachment of ETICS insulating boards on concrete and masonry
- Flush installation of insulation materials such as mineral wool panels
- Standard embedment depth for all building materials

FUNCTIONING

- Fast setting with a standard hammer drill or cordless screwdriver.
- Easily recessed installation with the installation tool termoz CS.
- The fixing is pushed through the insulation into the drill hole and needs to be screwed tightly.
- For recessed installation, the insulation disc has to be covered with a round plug.
- The installation is completed when the disc is flush with the insulation panel.
- For the length of 250 mm the optional provided bits T25 are needed.



ACCESSORIES



Caps **MW D60**



Caps **PS D60** white



Setting tool **CS** (hexagonal-adapter)



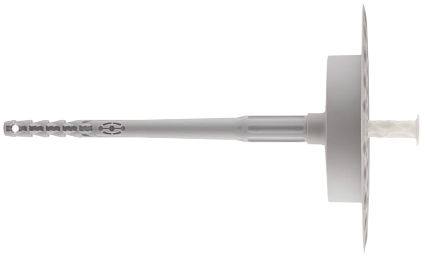
Setting tool **CS** (SDS-adapter)



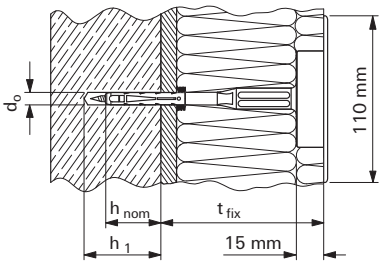
Bit T 25 CS 178,5 mm

Item	Art.-No.	Contents	Match	Sales unit [pcs]
Caps MW D65	**525654**	–	–	100
Caps PS D60 white	**046173**	–	–	100
Caps PS D60 grey	**544383**	–	–	100
Setting tool CS (hexagonal-adapter)	**532618**	including Bit T 30	–	1
Setting tool CS (SDS-adapter)	**532619**	including Bit T 30	–	1
Bit T30 CS 26 mm	**533761**	–	Setting tool CS	1
Bit T25 CS 98,5 mm	**533762**	–	Setting tool CS	1
Bit T25 CS 178,5 mm	**533763**	–	Setting tool CS	1

TECHNICAL DATA



termoz **CS 8 /... DT 110V**



Item	Art.-No.	Approval ETA	Drill diameter [mm]	Fixing length [mm]	Effect. anchorage depth h_{nom} [mm]	Min. drill hole depth h_1 [mm]	Max. usable length t_{fix} [mm]	Drive	Sales unit [pcs]
termoz CS 8/130 DT 110V	**534896**	■	8	143	35	60	90	T30	100
termoz CS 8/150 DT 110V	**534898**	■	8	163	35	60	110	T30	100
termoz CS 8/170 DT 110V	**534899**	■	8	183	35	60	130	T30	100
termoz CS 8/190 DT 110V	**534900**	■	8	203	35	60	150	T30	100
termoz CS 8/210 DT 110V	**534901**	■	8	223	35	60	170	T30	50
termoz CS 8/230 DT 110V	**534902**	■	8	243	35	60	190	T30	50
termoz CS 8/250 DT 110V	**534903**	■	8	263	35	60	210	T25	50
termoz CS 8/250 R DT 110V	**534904** 1)	■	8	263	35	60	210	T25	50
termoz CS 8/270 DT 110V	**534905**	■	8	283	35	60	230	T25	50
termoz CS 8/270 R DT 110V	**534906** 1)	■	8	283	35	60	230	T25	50
termoz CS 8/290 DT 110V	**534907**	■	8	303	35	60	250	T25	50
termoz CS 8/290 R DT 110V	**534908** 1)	■	8	303	35	60	250	T25	50
termoz CS 8/310 DT 110V	**534909**	■	8	323	35	60	270	T25	50
termoz CS 8/310 R DT 110V	**534910** 1)	■	8	323	35	60	270	T25	50
termoz CS 8/330 DT 110V	**534911**	■	8	343	35	60	290	T25	50
termoz CS 8/330 R DT 110V	**534912** 1)	■	8	363	35	60	310	T25	50
termoz CS 8/370 DT 110V	**534913**	■	8	383	35	60	330	T25	50
termoz CS 8/390 DT 110V	**534914**	■	8	403	35	60	350	T25	50

1) R = Version with a long slim shaft for renovation to be installed with bit T25, Art.-No. 533762

from length 250 mm Bit T 25, Art.-No. 533763, is required

LOADS

termoz CS 8 DT 110V [3]

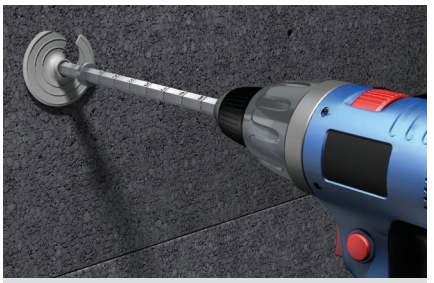
Highest permissible loads for a single anchor [1] [4] for multiple use for non-structural applications.
For the design the complete assessment ETA-14/0372 has to be considered.

					Concrete and masonry		
Type	**Brick raw density** ρ [kg/dm³]	**min. compressive brick strength** f_b [N/mm²]	**min. embedment depth** h_{nom} [mm]	**min. member thickness** h_{min} [mm]	**permissible tensile load** [3] N_{perm} [kN]	**min. spacing** [2] s_{min} [mm]	**min. edge distance** [2] c_{min} [mm]
Concrete							
CS 8 DT 110V	C12/15 - C45/55		35 [6]	100	0,40	100	100
	C50/60				0,50		
Weather shell							
CS 8 DT 110V	C20/25 - C45/55		35 [6] [5]	42	0,40	100	100
	C50/60				0,50		
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
CS 8 DT 110V	≥ 1,8	20	35 [6]	100	0,50	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
CS 8 DT 110V	≥ 1,8	20	35 [6]	100	0,50	100	100
		12			0,30		
Solid lightweight concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Vbl							
CS 8 DT 110V	≥ 1,4	8	35 [6]	100	0,17	100	100
Solid concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011, Vbn							
CS 8 DT 110V	≥ 2,0	20	35 [6]	100	0,40	100	100
		12			0,25		
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
CS 8 DT 110V	≥ 1,0	12	35 [7] [8]	100	0,20	100	100
	≥ 1,6	48			0,50		
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
CS 8 DT 110V	≥ 1,4	20	35 [7] [8]	100	0,30	100	100
		12			0,17		
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
CS 8 DT 110V	≥ 0,9	4	35 [6] [8]	100	0,17	100	100
Hollow brick concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbn							
CS 8 DT 110V	≥ 1,2	10	35 [6] [8]	100	0,40	100	100
		8			0,30		
		6			0,25		
		4			0,17		
Lightweight Aggregate Concrete acc. to DIN EN 1520, LAC							
CS 8 DT 110V	≥ 0,9	6	35 [6]	100	0,25	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
CS 8 DT 110V	≥ 0,5	4	35 [7]	100	0,10	100	100
		4	55 [7]		0,20		

[1] The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of γ_F = 1,5 are considered.
[2] Minimum possible axial spacings resp. edge distances acc. Assessment.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Embedment depth permitted up to 45 mm.
[6] Hammer drilling
[7] Rotary drilling
[8] In masonry of the building material class C an embedment depth of h_{nom} = 25 mm is possible with the same loads than with 35 mm embedment depth.

The innovative countersinkable ETICS fixing for all building material classes





Setting procedure termoz SV II ecotwist in polystyrene rigid foam boards 032



Setting procedure termoz SV II ecotwist in polystyrene rigid foam boards 032

BUILDING MATERIALS

- Building material classes A, B, C, D, E
- Concrete
- Concrete (weather shell)
- Building brick
- Solid sand-lime brick
- Hollow blocks made from lightweight concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Aerated concrete
- Lightweight aggregate concrete
- Sepa Parpaing (French brick)

APPROVALS

ETA-12/0208
ETAG 014

Use categories A, B, C, D, E

ADVANTAGES

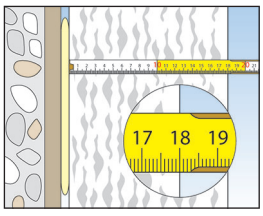
- Standard anchoring depth for all building materials.
- One fixing for all insulating material thicknesses from 100 mm to 400 mm. This increases productivity, saves time and storage space.
- Sturdy setting tool with stop disc for a simple and precise setting procedure.
- The screw disc cuts in cleanly, without damaging the insulating material.
- Simple setting using the specially designed setting tool.

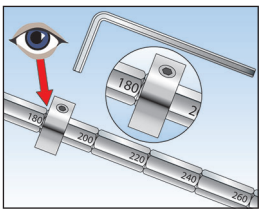
APPLICATIONS

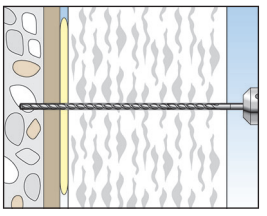
- Attachment of ETICS polystyrene rigid foam boards and similar mineral wool boards to concrete and masonry materials
- Counterbored installation

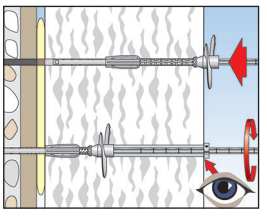
FUNCTIONING

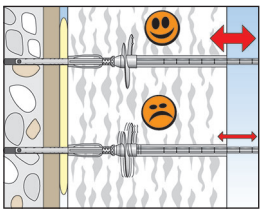
- The fixing is inserted through the insulating material into the drill hole and screwed in using the setting tool.
- The screwing disc and screw have the same pitch, which means they turn at the same time through the insulation until the anti-rotation lock meets the base.
- Then the steel screw turns into the expansion zone. The compression zone is compressed until it is only a few millimetres thick and the fixing is anchored in the base.
- The setting process is completed when the marking ring is flush with the insulation.

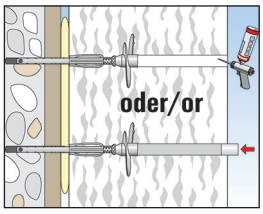










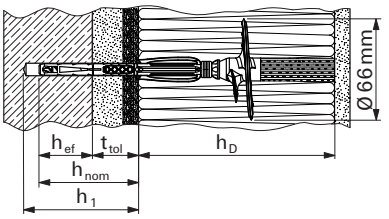


termoz SV II ecotwist

TECHNICAL DATA



termoz **SV II ecotwist**



Item	Art.-No.	Approval ETA	Insulation thickness h_D [mm]	Shaft diameter [mm]	Thickness tolerance compensation t_{tol} [mm]	Effect. anchorage depth h_{ef} [mm]	Shaft length in drill hole h_{nom} [mm]	Drillhole depth in base material h_1 [mm]	Total drill hole depth [mm]	Sales unit [pcs]
termoz SV II ecotwist 0-10	**530353**	■	100 - 400	8	0 - 10	35	45	55	h_D + 55	100
termoz SV II ecotwist 10-30	**530354**	■	100 - 400	8	0 - 30	35	65	75	h_D + 75	100
termoz SV II ecotwist 30-60	**530355**	■	100 - 400	8	30 - 60	35	95	105	h_D + 105	100

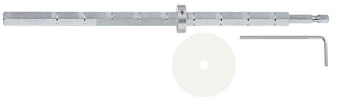
ACCESSORIES



termoz **SV II closing plug PS**



termoz **SV II closing plug MW**



termoz **SV II Installation tool**

Item	Art.-No.		Sales unit [pcs]
termoz SV II closing plug PS	**530654**		200
termoz SV II closing plug MW	**536160**		200
termoz SV II installation tool 260 mm	**530356**		1
termoz SV II installation tool 400 mm	**530357**		1

LOADS

termoz SV II ecotwist [3]

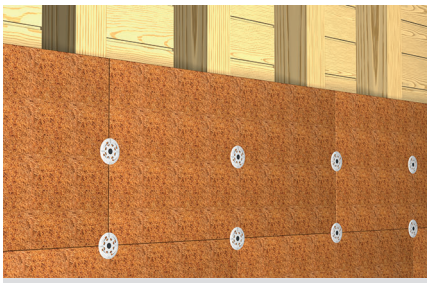
Highest permissible loads for a single anchor [1] [4] for multiple use for non-structural applications.
For the design the complete approval ETA-12/0208 has to be considered.

					Concrete and masonry		
	Brick raw density ρ [kg/dm³]	min. compressive brick strength f_b [N/mm²]	min. embedment depth h_{ef} [mm]	Min. member thickness h_{min} [mm]	permissible tensile load [3] N_{perm} [kN]	min. spacing [2] s_{min} [mm]	min. edge distance [2] c_{min} [mm]
Concrete acc. EN 206:2013							
SV II ecotwist	≥ C12/15		35 [6]	100	0,50	100	100
	≥ C16/20			100	0,50	100	100
	C50/60			100	0,50	100	100
Weather shell, concrete							
SV II ecotwist	≥ C20/25		35 [6]	40	0,30	100	100
Calcium silicate solid bricks, e.g. acc. to DIN V 106:2005-10, EN 771-2:2011, KS							
SV II ecotwist	≥ 2	12	35 [5] [6]	100	0,40	100	100
	≥ 2	20	35 [5] [6]	100	0,50	100	100
Solid Clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz							
SV II ecotwist	≥ 1,8	12	35 [5] [6]	100	0,40	100	100
Solid concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011, Vbn							
SV II ecotwist	≥ 2	12	35 [5] [6]	100	0,40	100	100
	≥ 2	20	35 [5] [6]	100	0,50	100	100
Hollow calcium silicate brick, acc. to DIN V 106:2005-10, EN 771-2:2011, KSL							
SV II ecotwist	≥ 1,4	12	35 [5] [6]	100	0,25	100	100
	≥ 1,4	20	35 [5] [6]	100	0,40	100	100
Vertically perforated clay bricks e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, HLz							
SV II ecotwist	≥ 1,0	12	35 [5] [7]	100	0,25	100	100
Solid lightweight concrete block, e.g. acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Vbl							
SV II ecotwist	≥ 1,4	8	35 [5] [6]	100	0,20	100	100
Hollow brick light-weight concrete, e.g. acc. to DIN V 18153-100: 2005-10, EN 771-3:2011 Hbl							
SV II ecotwist	≥ 1,2	8	35 [5] [6]	100	0,30	100	100
	≥ 1,2	10	35 [5] [6]	100	0,40	100	100
Lightweight Aggregate Concrete acc. to DIN EN 1520, LAC							
SV II ecotwist	≥ 0,9	6	35 [6]	100	0,25	100	100
Autoclaved aerated concrete blocks, e.g. AAC acc. to DIN V 4165-100:2005-10, EN 771-4							
SV II ecotwist	≥ 0,5	4	35 [7]	100	0,13	100	100

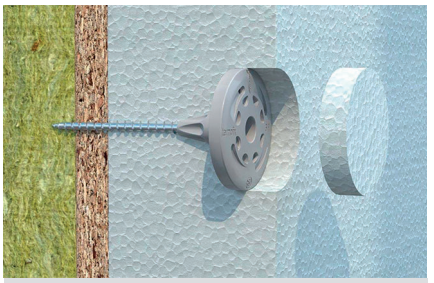
[1] The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_F = 1,5 are considered.
[2] Minimum possible axial spacings resp. edge distances acc. approval.
[3] Plastic anchor for fixing of external thermal insulation composite systems with rendering acc. ETAG 014. Only tensile wind loads are permitted.
[4] The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +24 °C (resp. short term up to 40 °C).
[5] Restrictions concerning the manufacturer and the permissible hole patterns as well as the web thickness see approval.
[6] Hammer drilling
[7] Rotary drilling

The efficient countersunk ETICS fixing for board materials





Fixing of wooden soft fibre boards on solid wood



Attachment of polystyrene boards on OSB-panel

VERSIONS

- A2 stainless steel screw

CERTIFICATES

Mit allgemeiner bauaufsichtlicher Zulassung

BUILDING MATERIALS

- MDF boards
- OSB boards
- Chipboard
- Gypsum fibreboard
- Solid wood

ADVANTAGES

- The pre-assembled ETICS fixing guarantees safe fixing into the substrate.
- The special geometry under the head of the anchor roughens the surface during the setting process and provides a torque-reduced penetration into the insulation.
- The use of the setting tool 6H enables a clean fixing. Optionally, the setting tool CS can be used in combination with a special bit.
- The minimum screw-in depth of 24 mm provides quick installation. Pre-drilling is not necessary.
- For insulating material thicknesses up to 300 mm.
- The countersunk mounting guarantees plaster surfaces without any markings.

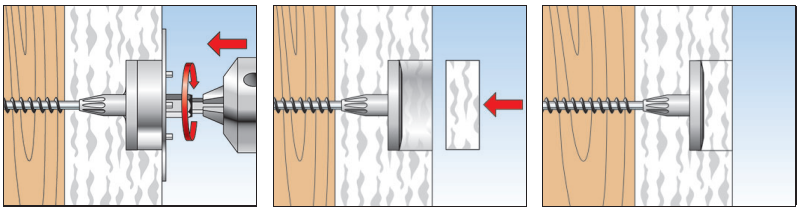
APPLICATIONS

- Attachment of ETICS insulating boards on wooden substructures
- Flush installation in ETICS insulating materials e.g. polystyrene and mineral wool
- Flush-to-surface installation in pressure-resistant insulation boards

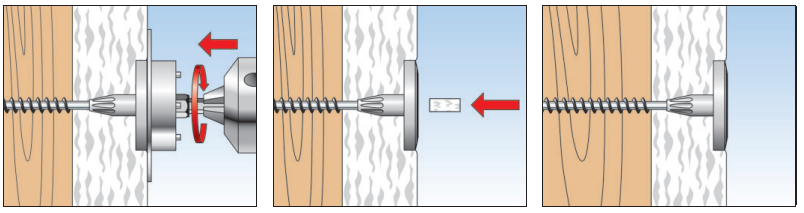
FUNCTIONING

- The special setting tool 6H is used for countersunk installation. This setting tool 6H enables a precise positioning and fast installation of the fixing. The countersunk hole is covered with a suitable insulation closing plug which ensures a homogeneous surface.
- By rotating the disc of the setting tool 6H by 180°, it can be used for the flush-to-surface installation. This allows the exact positioning of the anchor plate on the insulation surface. The screw opening is covered by the included plug.

COUNTERSUNK INSTALLATION



FLUSH-TO SURFACE INSTALLATION



ACCESSORIES



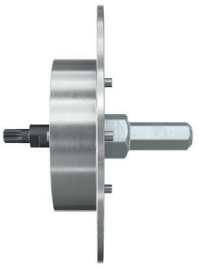
Caps MW D60



Caps PS D60 white



Caps PS D60 grey



Setting tool 6H (hexagonal-adapter)

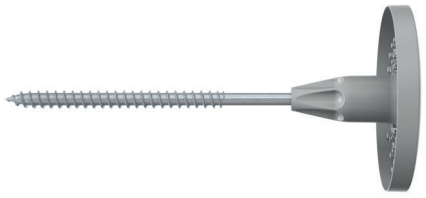


Bit T30 6H 43,5 mm

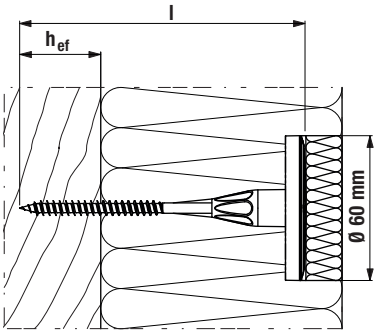
Item	Art.-No.			Sales unit [pcs]
Caps MW D60	**046172**			100
Caps PS D60 white	**046173**			100
Caps PS D60 grey	**544383**			100
Setting tool 6H (hexagonal-adapter)	**551734**			1
Bit T30 H 43,5 mm	**551735**			1
Bit T25 H 43,5 mm (for stainless steel screws)	**557132**			1

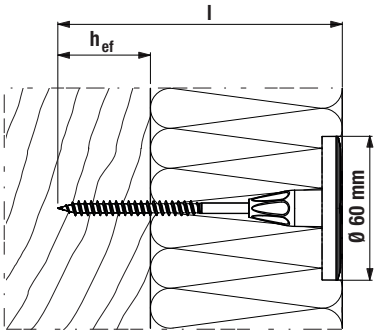
termoz 6H

TECHNICAL DATA



termoz **6H**





Item	Item No.	Fixing length l [mm]	Disc Ø [mm]	Screw diameter d_S [mm]	Anchorage depth h_{ef} [mm]	Max. usable length at surface-flush installation t_{fix} [mm]	Max. usable length at counter-sunk installation t_{fix} [mm]	Sales unit [pcs]
termoz 6H 60	**548477** 1)	60	60	6,0	24	–	30	100
termoz 6H 80	**548478** 1)	80	60	6,0	24	50	65	100
termoz 6H 100	**548479** 1)	100	60	6,0	24	70	85	100
termoz 6H 120	**548480** 1)	120	60	6,0	24	90	105	100
termoz 6H 140	**548481** 1)	140	60	6,0	24	110	125	100
termoz 6H 160	**548482** 1)	160	60	6,0	24	130	145	100
termoz 6H 180	**548483** 1)	180	60	6,0	24	150	165	100
termoz 6H 200	**548484** 1)	200	60	6,0	24	170	185	100
termoz 6H 220	**548485** 1)	220	60	6,0	24	190	205	100
termoz 6H 240	**548486** 1)	240	60	6,0	24	210	225	100
termoz 6H 260	**548487** 1)	260	60	6,0	24	230	245	100
termoz 6H 280	**548488** 1)	280	60	6,0	24	250	265	100
termoz 6H 320	**548490** 1)	320	60	6,0	24	270	285	100
termoz 6H 120 A2	**557162** 2)	120	60	6,0	24	90	105	100
termoz 6H 140 A2	**557163** 2)	140	60	6,0	24	110	125	100
termoz 6H 160 A2	**557164** 2)	160	60	6,0	24	130	145	100
termoz 6H 180 A2	**557165** 2)	180	60	6,0	24	150	165	100
termoz 6H 200 A2	**557166** 2)	200	60	6,0	24	170	185	100
termoz 6H 220 A2	**557167** 2)	220	60	6,0	24	190	205	100

1) Bit size = T30

2) Bit size = T25

Surface or countersunk ETICS fixing for board materials with approved Power-Fast screw





Fixing of wooden soft fibre boards on solid wood



Attachment of polystyrene boards on OSB-panel

BUILDING MATERIALS

- MDF boards
- OSB boards
- Chipboard
- Gypsum fibreboard
- Solid wood

ADVANTAGES

- Pre-fitted fixing with the approved fischer Power-Fast screw. This guarantees safe retention in the substrate.
- The minimum screw-in depth of 30 mm guarantees fast assembly. There is no need to pre-drill the hole.
- Plugs are enclosed in every packaging unit.
- The fixing discs can be combined with the large insulating discs DT 90, DT 110 and DT 140 when very soft insulating materials are used.
- Countersinkable assembly using the TTS assembly tool is possible in soft materials such as polystyrene rigid foam boards PS 15 or PS 20.
- For insulating material thicknesses up to 280 mm.

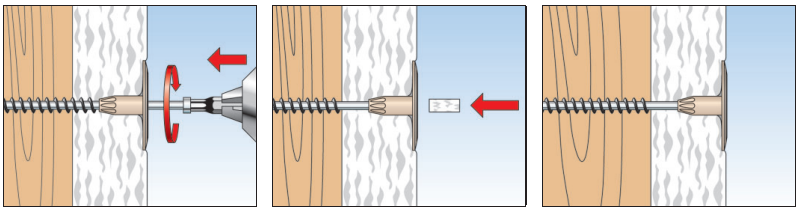
APPLICATIONS

- Attachment of ETICS insulating boards on wooden substructures
- Flush installation in ETICS insulating materials e.g. polystyrene
- Flush-to-surface installation in wooden soft fibre boards

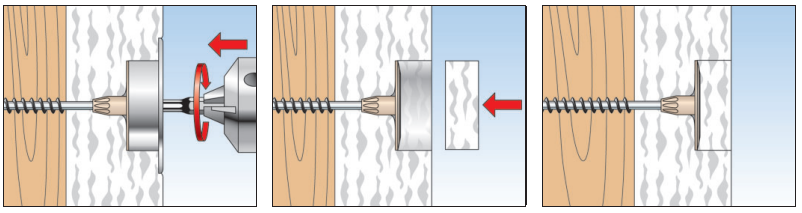
FUNCTIONING

- The fixing is inserted using a standard T30 bit for flush installation.
- The TSS assembly tool is required for countersunk installation. This is used for precise positioning and screwing of the fixing. Thecounterbore is sealed using an insulating disc available, resulting in a level insulating material surface.
- The disc of the TSS assembly tool can also be turned and used for flush-to-surface installation. This prevents the disc from being set too deep.

FLUSH-TO SURFACE INSTALLATION



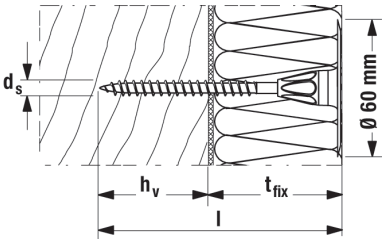
COUNTERSUNK INSTALLATION



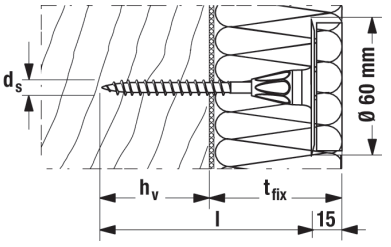
TECHNICAL DATA



termofix **6H-NT**



surface-flush installation



recessed installation

Item	Art.-No.	Fixing length l [mm]	Disc Ø [mm]	Screw diameter d_s [mm]	Anchorage depth h_v [mm]	Usable length at surface-flush installation t_{fix} [mm]	Usable length at anchorage depth 70mm t_{fix} [mm]	Sales unit [pcs]
termofix 6H-NT 60	**523198** 1)	60	60	6,0	30	30	–	100
termofix 6H-NT 80	**523199**	80	60	6,0	30	50	65	100
termofix 6H-NT 100	**523200**	100	60	6,0	30	70	85	100
termofix 6H-NT 120	**523201**	120	60	6,0	30	90	105	100
termofix 6H-NT 140	**523202**	140	60	6,0	30	110	125	100
termofix 6H-NT 160	**523203**	160	60	6,0	30	130	145	100
termofix 6H-NT 180	**523204**	180	60	6,0	30	150	165	100
termofix 6H-NT 200	**523205**	200	60	6,0	30	170	185	100
termofix 6H-NT 220	**523206**	220	60	6,0	30	190	205	100
termofix 6H-NT 240	**523207**	240	60	6,0	30	210	225	100
termofix 6H-NT 260	**523208**	260	60	6,0	30	230	245	100
termofix 6H-NT 280	**523209**	280	60	6,0	30	250	265	100
termofix 6H-NT 300	**523210**	300	60	6,0	30	270	285	100
termofix 6H-NT 320	**523211**	320	60	6,0	30	290	305	100

1) suitable for flush-mounting installation only



Caps **MW D60**



Caps **PS D60** white



Setting tool **TSS**

Item	Art.-No.		Sales unit [pcs]
Caps MW D60	**046172**		100
Caps PS D60 white	**046173**		100
Caps PS D60 grey	**544383**		100
Setting tool TSS	**524128**		1

LOADS

termofix 6H-NT

Extraction values in various building materials.

Anchoring substrate	Thickness d [mm]	Recommended maximum service load values from internal laboratory tests safety coefficient 3, dephtment 30 mm [kN]
OSB panel	16	0,40
Timber planking FP (laminated particle board)	16	0,30
3 Layer panel	19	0,50
Beams	60	0,60 (in case of h_V 40 = 1,0 kN)
Gypsum fibre board	12,5	0,15
MDF board	19	0,50

The constructive screw fixing with Delta-Seal coated drilling screw for metal substructures





Polystyrene rigid foam boards on metal sheet

BUILDING MATERIALS

- Metal sheet / trapezoidal metal sheet up to 1.5 mm

ADVANTAGES

- The pre-assembled screw reduces working time.
- High level of corrosion protection of the screw thanks to Delta-Seal coating.
- An air gap is produced above the screw head beneath the sealing ball. This reduces thermal-transmission.
- The flexible head compensates for any thermal-expansion and prevents damage.
- Can be combined with the insulating discs DT 90, DT 110 and DT 140 for very soft insulating materials.
- For insulating material thicknesses up to 160 mm.

APPLICATIONS

- Attachment of ETICS insulating boards to metal substructures
- Flush-to-surface installation in ETICS insulating materials e.g. polystyrene

FUNCTIONING

- The fixing is set in push-through installation.
- A standard PH2 bit is required for installation.
- Simple, fast setting by screwing the Delta-Seal coated screw in using a standard screwdriver.
- Non load bearing layers such as adhesive are included in the maximum useful length.

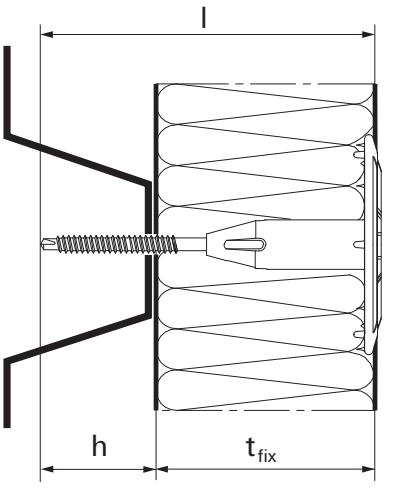
TECHNICAL DATA



termofix **B washer**

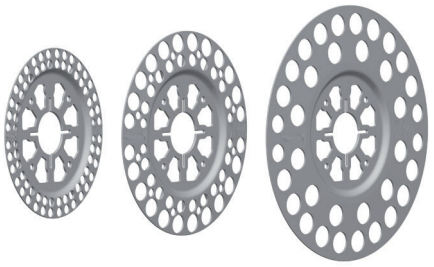


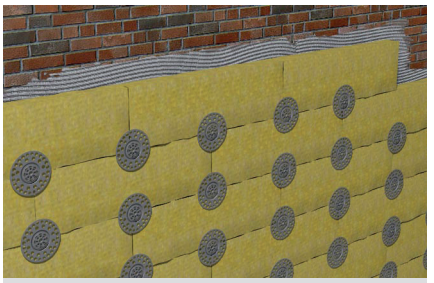
termofix **B**



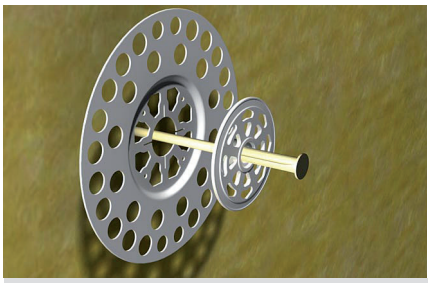
Item	Art.-No.	Effect. anchorage depth h [mm]	Fixing length l [mm]	Max. usable length t_{fix} [mm]	Screw length l_S [mm]	Disc Ø [mm]	Drive	Sales unit [pcs]
termofix B washer	**534982**	–	–	–	–	60	–	–
termofix B 70	**008691**	20	70	50	60	60	PH 2	100
termofix B 90	**008692**	20	90	70	80	60	PH 2	100
termofix B 110	**008693**	20	110	90	100	60	PH 2	100
termofix B 130	**008694**	20	130	110	120	60	PH 2	100
termofix B 160	**008695**	20	160	140	150	60	PH 2	100
termofix B 180	**008696**	20	180	160	170	60	PH 2	100

The insulation disc for combination with termoz and termofix screw fixings





Additional washers for soft insulation boards



Soft insulation board

ADVANTAGES

- The various disc diameters allow for individual adaptation to various insulation materials and requirements and offer the greatest flexibility with wide-ranging applications.
- The flexible pins in the DT 90 ensure sustained pressure on the insulation, thus providing a secure hold.

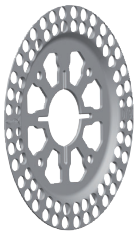
APPLICATIONS

- Used in combination with Termoz and Termofix screw fixings to fix ETICS insulating boards with low compressive strength
- Flush surface installation in ETICS insulating materials e.g. mineral wool

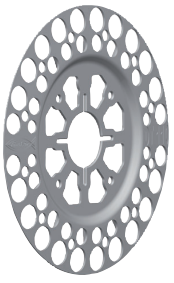
FUNCTIONING

- The discs are set in push-through installation.
- Push the selected DT insulating disc onto the termoz or termofix screw fixing and fit.

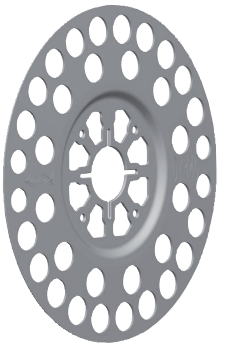
TECHNICAL DATA



DT 90



DT 110



DT 140

Item	Art.-No.	Disc Ø [mm]						Sales unit [pcs]
DT 90	**008889**	90						100
DT 110	**090745**	110						100
DT 140	**008690**	140						100

The disc element for use with standard screws





Attachment of polystyrene boards on OSB-panel

BUILDING MATERIALS

- Panel building materials
- Solid wood

ADVANTAGES

- The polystyrene plugs are included with the disc element Termofix H 10.
- In case of disc elements termofix H 50, 90 and 150 the disc is sealed using the sealing cap moulded on.
- An air column is produced between the screw head and this seal. This reduces thermal-transmission losses.
- Extremely economical thanks to different shank lengths. This allows the screw length to be reduced if necessary.
- Can be combined with the insulating discs DT 90, DT 110 and DT 140.

APPLICATIONS

- Attachment of ETICS insulating boards

FUNCTIONING

- The fixing (disc and screw) is set in push-through installation.
- Non-load-bearing layers such as adhesive and old plaster should not serve as an anchoring base.

TECHNICAL DATA



termofix **H 10**



termofix **H 50**



termofix **H 90**



termofix **H 150**

Item	Art.-No.	Shaft length L [mm]	Disc Ø [mm]	Disc lock	Colour	Sales unit [pcs]
termofix H 10	**514288**	29	60	PS plug (included)	green	200
termofix H 50	**514289**	69	60	Sealing cap (moulded on)	green	100
termofix H 90	**514290**	109	60	Sealing cap (moulded on)	green	100
termofix H 150	**514291**	169	60	Sealing cap (moulded on)	green	100

Discs for combining nail and frame fixings, as well as screws





Insulating materials in two-leaf external walls

ADVANTAGES

- The various disc diameters allow for individual adaptation to various insulation materials and requirements and offer the greatest flexibility with wide-ranging applications.
- The flexible pins in the DT 90 ensure sustained pressure on the insulation, thus providing a secure hold.
- The DTM 60 made of stainless steel A4 makes it possible to use a frame fixing, and allows for a secure fixing of the insulation material in façade construction in cases of high requirements.

APPLICATIONS

- To fix soft and pressure-resistant insulation materials.
- DT 90/4 on VB wall tie
- DT 60/10, DTM 60/10 and DTM 70/10 in combination with 10 mm frame fixing
- DT 90/8 and insulation washer 8/60 in combination with 8 mm hammerfix
- HV and HK 36 with 5 mm screws

FUNCTIONING

- The disc size is to be selected in line with the compressive strength of the insulating material.
- To be combined with anchors, screws or nails corresponding to the available base material.
- DT 90/4 is suitable for pushing on to fischer wall tie VB.

TECHNICAL DATA



HK 36 plastic | HV 36 zinc | ISO-disk 8/60 | DT 60/10 | DTM-A4 | DTM 70/10 | DT 90

Item	Art.-No.	Disc Ø [mm]	Disc height [mm]	Through hole d_f [mm]	Steel sheet thickness s [mm]	Sales unit [pcs]		
HK 36 plastic	**004283**	36	4.5	5	–	100		
HV 36 zinc	**004286**	36	3.5	5	0,7	100		
HA 36 st. st. A4	**004285**	36	3.5	5	–	100		
ISO-disk 8/60	**001680**	60	7	8	–	100		
DT 60/10	**044317**	60	7	10	–	50		
DTM 60/10 A4	**088805**	60	3	10,5	0,5	100		
DTM 70/10 zinc	**044318**	70	3	10,5	–	50		
DT 90/4	**080957** 1)	90	9.3	4	–	250		
DT 90/8	**080958**	90	9.3	8,2	–	250		

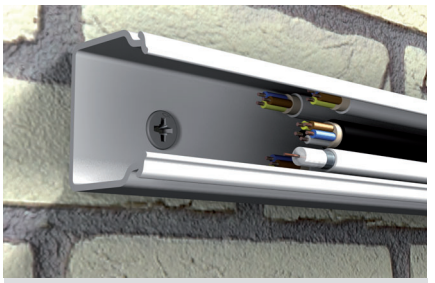
1) The central hole is adapted in such a way that the disc clamps well on the 4 mm wire of the VB walltie.

The hammer-in plug for a simple, fast and economical installation





Timber substructures



Cable ducts

VERSIONS

- Zinc-plated steel
- Stainless steel

CHARACTERISTICS

BUILDING MATERIALS

- Concrete
- Solid sand-lime brick
- Building brick
- Natural stone
- Solid brick made from lightweight concrete
- Aerated concrete
- Solid panel made from gypsum
- Vertically perforated brick
- Perforated sand-lime brick
- Hollow blocks made from lightweight concrete

ADVANTAGES

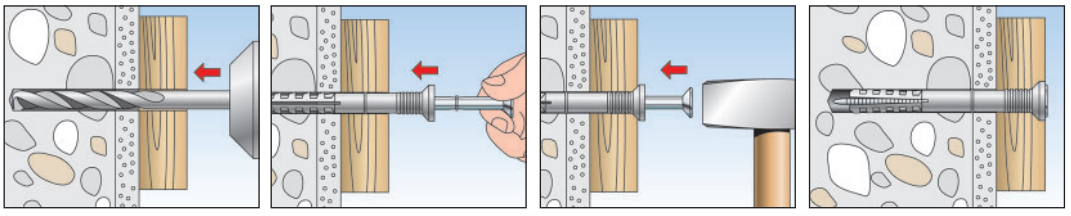
- The rapid hammerset installation reduces the amount of time required and allows for an economic series installation.
- The integrated hammer-in stop prevents the plug from expanding prematurely (jamming), thus enabling a problem-free installation.
- Together with the cross-slot recess, the thread of the nail screw allows the screw to be removed, thus allowing for subsequent dismantling.
- The wide range of diameters, usage lengths and head shapes provides the correct plug for every fixing.

APPLICATIONS

- Substructures made of wood and metal
- Wall connection or plaster profiles
- Slides
- Sheets
- Cable and pipe clips
- Perforated tapes

FUNCTIONING

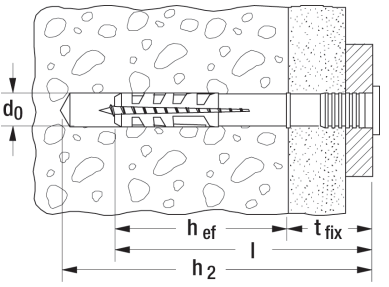
- The Hammerfix N is suitable for push-through installation.
- When hammered in, the nail screw causes the plug to expand in two directions, thus providing a secure anchoring in the building material.
- Countersunk head plugs are recommended for the installation of timber constructions; in the case of metal constructions, use flat-head plugs, and use pan-head plugs for long holes.



TECHNICAL DATA



Hammerfix **N-F** with cylindrical head and nail



Item	Art.-No.	Drill hole diameter d_0 [mm]	Effect. anchorage depth h_{ef} [mm]	Anchor length l [mm]	Min. drill hole depth for through fixings h_2 [mm]	Max. fixture thickness t_{fix} [mm]	Drive	Sales unit [pcs]
N 6 x 40/10 F (50)	**513837**	6	30	40	55	10	PZ2	50
N 6 x 40/10 F (100)	**513840**	6	30	40	55	10	PZ2	100
N 6 x 40/10 F (200)	**513843**	6	30	40	55	10	PZ2	200
N 6 x 60/30 F (50)	**513838**	6	30	60	75	30	PZ3	50
N 6 x 60/30 F (100)	**513841**	6	30	60	75	30	PZ2	100
N 6 x 60/30 F (200)	**513844**	6	30	60	75	30	PZ2	200
N 6 x 80/50 F (50)	**513839**	6	30	80	95	50	PZ3	50
N 6 x 80/50 F (100)	**513842**	6	30	80	95	50	PZ2	100
N 6 x 80/50 F (200)	**513845**	6	30	80	95	50	PZ2	200
N 8 x 60/20 F (50)	**513697**	8	40	60	75	20	PZ3	50
N 8 x 60/20 F (100)	**513701**	8	40	60	75	20	PZ3	100
N 8 x 80/40 F (50)	**513698**	8	40	80	95	40	PZ3	50
N 8 x 80/40 F (100)	**513702**	8	40	80	95	40	PZ3	100
N 8 x 100/60 F (50)	**513699**	8	40	100	115	60	PZ3	50
N 8 x 100/60 F (100)	**513703**	8	40	100	115	60	PZ3	100
N 8 x 120/80 F (50)	**513700**	8	40	120	135	80	PZ3	50
N 8 x 120/80 F (100)	**513704**	8	40	120	135	80	PZ3	100

LOADS

Hammerfix N

Highest recommended loads[1] for a single anchor
The given loads are valid for screw nails with the specified diameter.

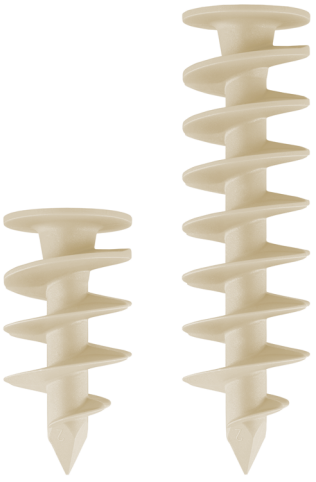
Type			N5	N6[3]	N8	N10
Screw nail diameter	Ø	[mm]	3,5	4	5	7
Recommended loads in the respective base material F_{rec}[2]						
Concrete	≥ C20/25	[kN]	0,20	0,25	0,27	0,33
Solid brick	≥ Mz 12	[kN]	0,14	0,18	0,24	0,30
Solid sand-lime brick	≥ KS 12	[kN]	0,18	0,22	0,24	0,33
Solid brick of lightweight aggregate concrete	≥ V 4	[kN]	0,05	0,12	0,15	0,16
Aerated concrete	≥ PB 2	[kN]	0,03	0,04	0,05	0,10
Aerated concrete	≥ PB 4	[kN]	0,07	0,10	0,13	0,16

[1] Required safety factors are considered.

[2] Valid for tensile load, shear load and oblique load under any angle.

[3] The values have to be reduced by 50% for N 6 x 40/7 P K.

Thermal bridge-free installation in insulation materials





Letterbox



External lighting

BUILDING MATERIALS

- Non-plastered, pressure-resistant insulating boards
- Plastered, pressure-resistant insulating boards
- ETICS insulating boards

ADVANTAGES

- Since the anchor is set exclusively in the insulation itself, fixtures can be installed without thermal bridges.
- The geometry of the FID allows for a simple installation in thin layers of plaster, without the need for pre-drilling, thus saving a stage of installation.
- The FID 50 is used in thin insulating boards from 50mm. The FID 90 is used in thicker insulating boards, and can bear higher loads.
- The bit mounting allows for setting with standard tools, thus allowing for a fast and economic installation.

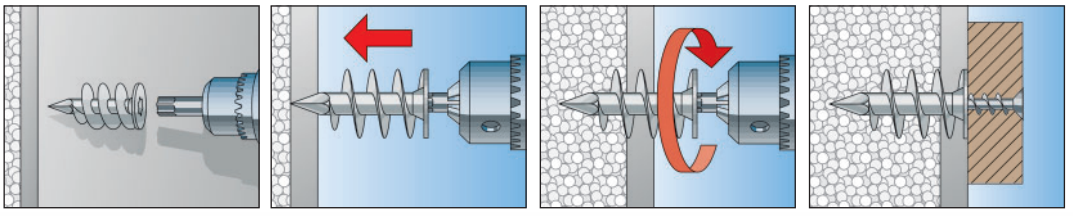
APPLICATIONS

To fix lightweight fixtures in plastered and non-plastered insulating boards made of polystyrene and polyurethane.
The areas of application are:

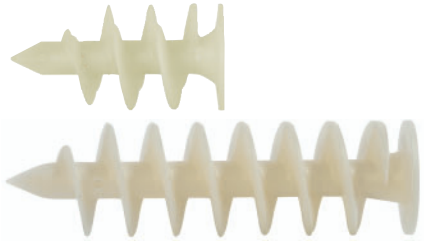
- Façade construction (ETICS)
- Insulating construction
- Electric construction
- Refrigerated and climate construction
- Acoustic construction

FUNCTIONING

- The FID can be set in the insulating board with a cordless screwdriver or by hand.
- The special spiral thread taps itself in the insulating board.
- Fixtures are fixed with a 4.5 mm screw for the FID 50, and with a 6 mm screw for the FID 90.
- Water ingress in the insulation can be prevented by sealing the plug collar with a suitable sealant after successful pre-positioned installation.
- We recommend to predrill an 6 mm hole in ETICs rendering.

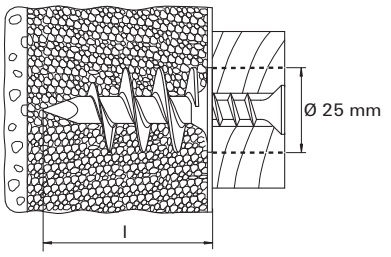


TECHNICAL DATA



Insulation fixing **FID 50**

Insulation fixing **FID 90**



Item	Art.-No.	Anchor length l [mm]	Min. bolt penetration [mm]	Wood and chipboard screws d_S [mm]	Drive	Sales unit [pcs]
FID 50	**048213**	50	50	4,5 - 5	T40	50
FID 90	**510971**	90	90	6	6 mm / 6-kt	25

LOADS

Insulation fixing FID

Highest recommended loads[1)] for a single anchor.

The given loads are valid for chipboard screws with maximum diameter.

Type			FID 50	FID 90
Screw diameter	Ø	[mm]	4,5 - 5,0	6,0
Recommended loads in the respective base material N_{rec}[2)]				
Polystyrene	PS 15	[kN]	0,07	0,17
Polystyrene	PS 20	[kN]	0,10	0,20

[1)] Required safety factors are considered.

[2)] Valid for tensile load.

Thermal bridge-free installation of rainwater downpipes in insulation materials





Rainwater downpipes

BUILDING MATERIALS

- Polystyrene insulating boards
- Wood fibre insulating boards
- External thermal insulation composite system (ETICS)

ADVANTAGES

- Since the anchor is set exclusively in the insulation itself, fixtures can be installed without thermal bridges. The anchor offers an energy-optimised fixing.
- The hard-centering tip cuts its own way through the plaster, without the need for pre-drilling, thus saving a stage of installation.
- The TX-drive allows for setting with standard tools, thus allowing for a fast and economic installation.

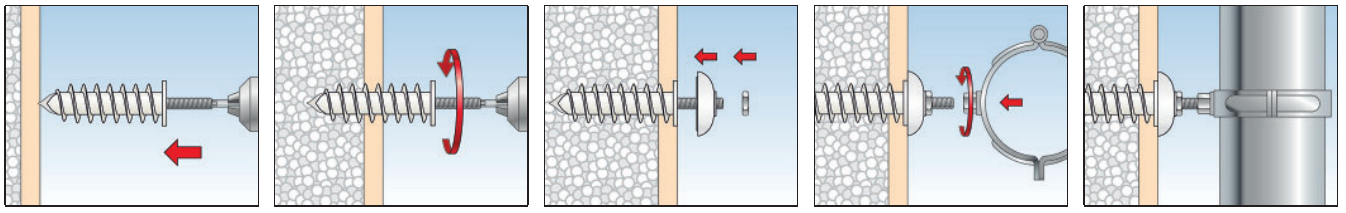
APPLICATIONS

- Thermal bridge-free installation of rainwater downpipes

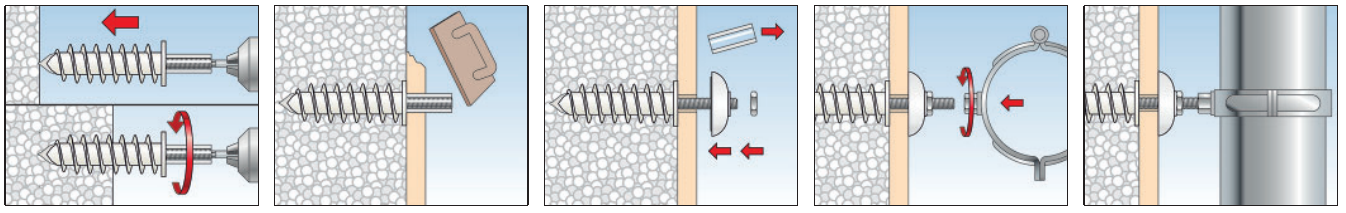
FUNCTIONING

- The installation is carried out without any special tools.
- The spiral thread taps itself in the insulation board.
- For the installation in wood fibre insulating boards a pre-drilling of the insulating board with 16 mm is necessary.
- For the installation before plastering the threaded rod is protected by a tube sleeve.
- The included white covering rosette with glued on PE sealing disc protects again humidity.

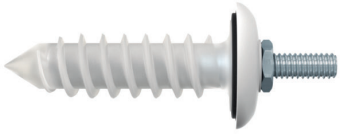
INSTALLATION IN PLASTERED INSULATING BOARDS



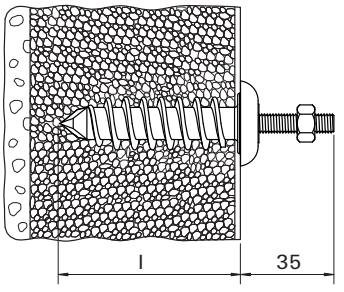
INSTALLATION IN NON-PLASTERED INSULATING BOARDS



TECHNICAL DATA



Insulation fxing **FID-R**



Item	Art.-No.	Anchor length l [mm]	Min. bolt penetration [mm]	Drive	Thread A	Sales unit [pcs]
FID-R	**548404**	95	95	T25	M 10	25
FID-R B	**548405** 1)	95	95	T25	M 10	1

1) Plastic bag with 4 x FID R

LOADS

Insulation fixing FID-R

Highest recommended loads[1)] for a single anchor.

Type			FID-R
Recommended loads in the respective base material N_{rec}[2)]			
Polystyrene	PS 15	[kN]	0,17
Polystyrene	PS 20	[kN]	0,20

[1)] Required safety factors are considered.

[2)] Valid for tensile load.

Remedial wall tie mechanical VBS-M

The quick façade repair for two-leaf cavity walls





Facing masonry



Repairing outer leafs

VERSIONS

- Zinc-plated steel
- Stainless steel

BUILDING MATERIALS

- Facing masonry with and without an air layer

CERTIFICATES

Zulassung

ADVANTAGES

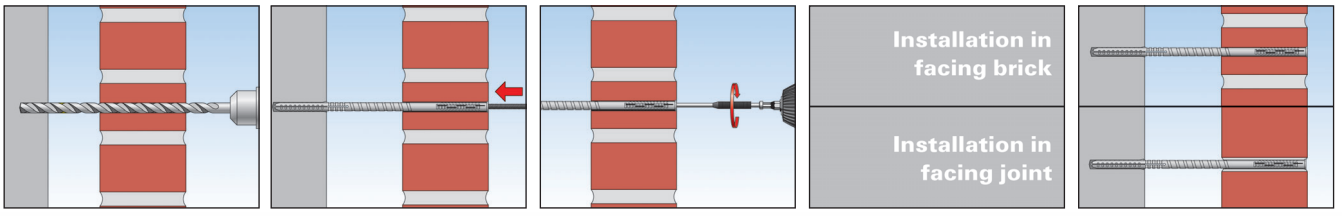
- The approved fixing in stone and in joints from at least 50 mm facing masonry provides a high degree of flexibility and security.
- Use in joints and with a low anchorage depth of just 50 mm allows for a quick and economical installation.
- The small anchor rim and screw head allow for a surface-flush or deep-set installation.
- The drill hole can be retrospectively sealed so that it is no longer visible in the façade.
- A drip coil prevents condensate running into the load-bearing layer, thus preventing frost and corrosive damage.

APPLICATIONS

- VBS-M is especially suitable for applications where external thermal insulation composite systems (ETICS) have been previously installed.
- Retrorespective repair of facing masonry.

FUNCTIONING

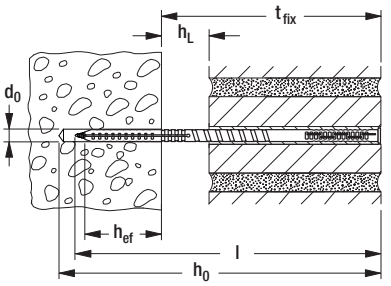
- The remedial wall tie VBS-M is set in the load-bearing layer and into facing masonry using push-through installation.
- In accordance with the approval, no drill hole cleaning is required.
- The two expansion zones in the load-bearing layer and in the facing masonry ensure a secure fixation.
- The plug doesn't fix into the facing masonry until the head grips into the load-bearing layer. This ensures the very best installation safety.



TECHNICAL DATA



Remedial wall tie **VBS-M**



	Zinc-plated steel	Stainless steel	Max. shell distance at 115 mm facing masonry, flush installation	Max. shell distance at 115 mm facing masonry, 20 mm sunk installation	Facing masonry + cavity	Drill diameter	Drill hole depth	Effect. anchorage depth	Anchor length	Sales unit
	Art.-No.	Art.-No.	[mm]	[mm]	t_{fix} [mm]	d_0 [mm]	h_0 [mm]	h_{ef} [mm]	l [mm]	[pcs]
Item	**gvz**	**A4**								
VBS-M 8 x 120	**514243**	**514236**	20*	–	70	8	140	>50	120	100
VBS-M 8 x 185	**514244**	**514237**	20	40	135	8	205	>50	185	100
VBS-M 8 x 205	**514245**	**514238**	40	60	155	8	225	>50	205	100
VBS-M 8 x 225	**514246**	**514239**	60	80	175	8	245	>50	225	100
VBS-M 8 x 245	**514247**	**514240**	80	100	195	8	265	>50	245	100
VBS-M 8 x 265	**514248**	**514241**	100	120	215	8	285	>50	265	100
VBS-M 8 x 285	**514249**	**514242**	120	140	235	8	305	>50	285	100

* Max. 20 mm mortar layer in the case of 50 mm thick economy facing.

The drill hole depth is to be adapted accordingly in the case of sunk installation of the anchor.

ACCESSORIES / DRILLS

SDS Plus IV 8/100/400

SDS Plus II Pointer 8/400/460

Masonry drill bit 8/100/400

Item	Art.-No.	Description	Sales unit [pcs]
SDS Plus IV 8/100/400	**517689**	fischer Quattric drill bit with SDS fixture and short flute for drilling in concrete	1
Masonry drill bit 8/100/400	**517690**	fischer masonry drill bit with SDS fixture and short flute, ground sharp, for rotary drilling in perforated brick and in the bed joint	1
SDS Plus II 8/400/460	**531785**	fischer hammer drill bit for drilling in concrete and in the facing brick	1

ACCESSORIES / BITS



Profi-bit **FPB T**

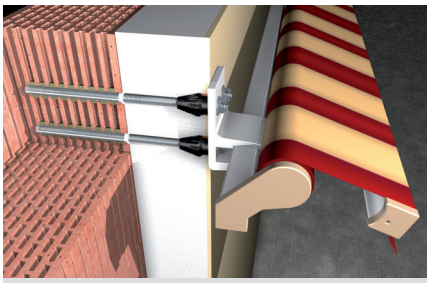


FPB T 25 PROFI

Item	Art.-No.	Description	Sales unit [pcs]
FPB TX 25/5 long	**517693**	fischer Profi-Bit long, which can be extended to 50 mm bit, allows for deep setting in stone and in the bed joint	12
FPB T 25 PROFI Bit W 10	**533115**	fischer Profi-Bit	10

The approved stand-off installation with thermal barrier in external thermal insulation composite systems (ETICS)





Awnings



Satellite dishes and air conditioning units

VERSIONS

- Zinc-plated steel
- Stainless steel

CERTIFICATES

Zulassung

BUILDING MATERIALS

Approved for:

- Concrete, cracked and non-cracked
- Vertically perforated brick
- Hollow blocks made from lightweight concrete
- Perforated sand-lime brick
- Solid sand-lime brick
- Solid brick
- Aerated concrete

ADVANTAGES

- When combined with the injection mortars FIS EM Plus, FIS V, FIS SB and FIS GREEN, the stand-off installation is approved for high loads in a range of materials. This allows for a secure fixing.
- Usable lengths of 62 to 290 mm can be covered with just one Thermax.
- The plastic cone creates a thermal barrier between the fixture and the inner fixture, and offers an energy-optimised fixing.
- The glass-fibre-reinforced plastic cone cuts its own way through the ETICS with a positive fit, and allows for a simple, fast and adjustable installation without the need for any special tools.

APPLICATIONS

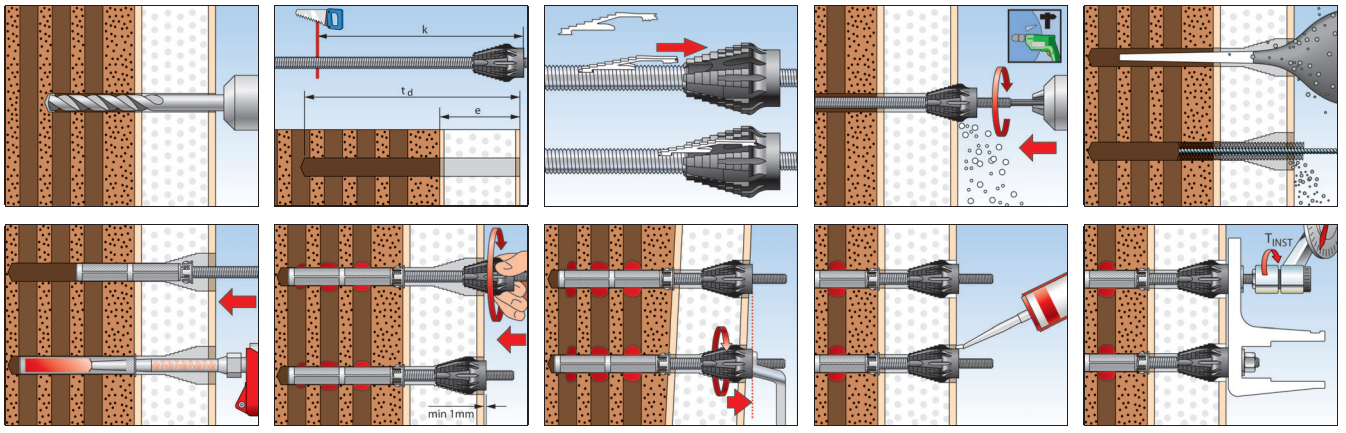
For the thermally separated fixing of:

- Awnings
- Canopies
- French balcony railings
- Air conditioning units
- Satellite dishes

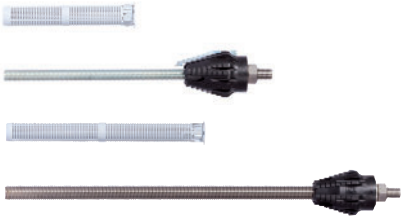
FUNCTIONING

- The Thermax 12 and 16 systems are suitable for pre-positioned installation.
- The self-tapping, glass-fibre-reinforced cone cuts its own way through the plaster into the insulation during installation.
- The anti-cold cone uses a thermal barrier to minimise heat losses.
- In the case of resistant plaster (e.g. thick cement plaster), it is recommended that the Thermax cutting blade included is used for grinding out the plaster.
- The sealing of the annular gap with sealing adhesive KD or construction sealant Premium DKM seals the facade at plaster level.

INSTALLATION



TECHNICAL DATA

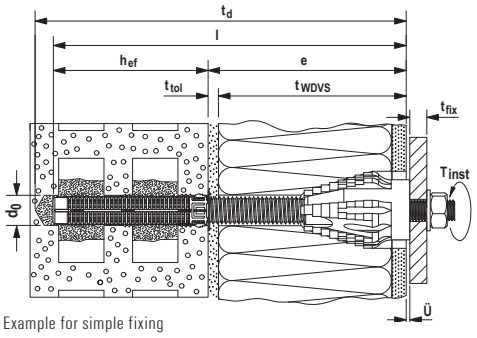


Thermax 12/110 M12

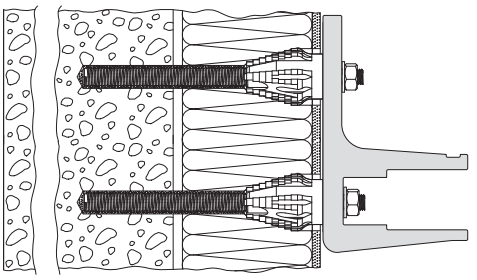
Thermax 16/170 M12

	Zinc-plated steel Art.-No.	Stainless steel Art.-No.	Approval DIBt	Contents	Sales unit [pcs]
Item	gvz	A4			
Thermax 12/110 M12	**051291**	–	●	20 Thermax M12, 20 perforated sleeves 20 x 130, 5 bits, 5 cutting blades, 5 user manuals	20
Thermax 12/110 M12	–	**051537**	●	10 Thermax M12 A4, 10 perforated sleeves 20 x 130, 3 bits, 3 cutting blades, 3 user manuals	10
Thermax 12/110 M12 B	**051290**	–	●	2 Thermax M12, 2 perforated sleeves 20 x 130, 1 bit, 1 cutting blade, 1 user manual	1
Thermax 16/170 M12	**051293**	–	●	20 Thermax M16, 20 perforated sleeves 20 x 200, 5 bits, 5 cutting blades, 5 applicator tip extension hoses, 5 user manuals	20
Thermax 16/170 M12	–	**051543**	●	10 Thermax M16 A4, 10 perforated sleeves 20 x 200, 3 bits, 3 cutting blades, 3 applicator tip extension hoses, 3 user manuals	10
Thermax 16/170 M12 B	**051292**	–	●	2 Thermax M16, 2 perforated sleeves 20 x 200, 1 bit, 1 cutting blade, 1 applicator tip extension hose, 1 user manual	1

INSTALLATION DATA



Example for simple fixing



Example for multiple fixing

Type	Length of Thermax incl. anti-cold cone l [mm]	Threaded rod in building material	Building material + insulation: Building material	Suitable injection anchor sleeve	Drill hole diameter d_0 [mm]	Min. ancho-rage depth h_{ef} [mm]	Drill hole depth t_d [mm]	Thickness of non-bearing layer e [mm]	Fixture: Max. fixture thick-ness t_{fix} [mm]	Con-nection thread [mm]	Max. ins-tallation torque T_{inst} [Nm]	Required resin quantity [Scale unit]
Thermax M12	240	M12	Concrete		14	70	h_{ef} + e	62 - 170	16 [1]	M12	20	5
			Solid brick		14	80	h_{ef} + e	62 - 160				6
			Perforated brick	FIS H 20x130 K	20	130	h_{ef} + e + 10 mm	62 - 110				26
			Aerated concrete		14	100	h_{ef} + e	62 - 140				8
Thermax M16	370	M16	Concrete		18	80	h_{ef} + e	62 - 290	16 [1]	M12	20	7
			Solid brick		18	80	h_{ef} + e	62 - 290				7
			Perforated brick	FIS H 20x200 K	20	200	h_{ef} + e + 10 mm	62 - 170				40
			Aerated concrete		18	100	h_{ef} + e	62 - 270				9

1) The setscrews may be replaced by a setscrew / fixing screw up to a length 200 mm.

TECHNICAL DATA



Epoxy mortar
FIS EM Plus 390 S



Superbond mortar
FIS SB 390 S



Injection mortar
FIS V 360 S



All-round adhesive gluing and sealing **KD-290**

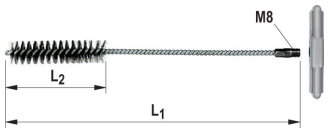


Injection mortar
FIS GREEN 300 T



Construction sealant Premium
DKM WHITE 290ML

Item	Art.-No.	Approval: DIBt	Approval: ETA	Languages on the cartridge	Contents	Sales unit [pcs]
FIS EM Plus 390 S	**544154**	●	■	DE, EN, FR, NL, ES, PT	1 cartridge 390 ml, 2 x FIS MR Plus	6
FIS EM Plus 390 S	**544155**	●	■	EN, ZH, EL, KO, HU, PL	1 cartridge 390 ml, 2 x FIS MR Plus	6
FIS V 360 S	**094404**	●	■	DE, FR, NL, TR, HU, AR	1 cartridge 360 ml, 2 x FIS MR Plus	6
FIS V 360 S	**094405**	●	■	EN, IT, PT, ES, ZH, JA	1 cartridge 360 ml, 2 x FIS MR Plus	6
FIS SB 390 S	**519451**	●	■	DE, FR, NL	1 cartridge 390 ml, 2 x FIS MR Plus	6
FIS SB 390 S	**518831**	●	■	EN, ES, PT	1 cartridge 390 ml, 2 x FIS MR Plus	6
FIS GREEN 300 T	**522989**	–	■	FR	1 cartridge 300 ml, 2 x FIS MR Plus with transparent Clip	4
FIS GREEN 300 T	**523245**	–	■	IT	1 cartridge 300 ml, 2 x FIS MR Plus with transparent Clip	12
FIS GREEN 300 T	**538219**	–	■	CS, SK	1 cartridge 300 ml, 2 x FIS MR Plus	12
FIS GREEN 300 T	**532972**	–	■	DA, SV, NO, FI	1 cartridge 300 ml, 2 x FIS MR Plus with transparent Clip	12
KD WHITE 290ML	**059389**	–	–	DE, EN	1 cartridge 290 ml	12
DKM-290 ML (DE/EN)	**517598**	–	–	DE, EN	1 cartridge 290 ml	12



Cleaning brush **BS**

Item	Art.-No.	Length L_1 [mm]	Length L_2 [mm]	Brush diameter [mm]	For drill diameter [mm]	Sales unit [pcs]
BS ø 14	**078180**	250	80	16	14	1
BS ø 16/18	**078181**	250	80	20	16/18	1
BS ø 20/22	**052277**	180	80	25	20/22	1



Blow-out pump **AB G**

Item	Art.-No.		Sales unit [pcs]
Blow-out pump ABG	**089300**		1



Dispenser **FIS DM S**

Item	Art.-No.	Adapted for	Sales unit [pcs]
FIS DM S	**511118**	Cartridges with 150ml, 300ml, 360ml and 390ml content	1



Cone drill **PBB**



Centring sleeve **PBZ**

Item	Art.-No.	Approval	Match	Contents	Sales unit [pcs]
Cone drill PBB	**090634**	■	M8 - M12; FIS E	1x cone drill PBB	1
Centring sleeve PBZ	**090671**	■	M8 - M12; FIS E	10x centring sleeve PBZ, 5x injection adapter	10

LOADS

Stand-off installation Thermax 12 and 16 with load-bearing anchor rod made of zinc-plated steel 8.8 and a displacement of 1 mm

The below load table is valid for short-term loading (e.g. wind load). If the sealing of the annular gap between Thermax and plaster is assured by fischer all-round sealing KD, the Thermax version with an anchor rod on base substrate side made of zinc-plated steel may be used. Highest permissible loads[1) 5) 7)] of a Thermax within an anchor group[2)] in concrete with the injection mortars FIS V or FIS SB and in masonry with the injection mortar FIS V.

Type	Minimum effective anchorage depth h_{ef} [4)8)] [mm]	Permissible tensile load N_{perm} [3)] [kN]	Permissible shear load at e = 62 mm V_{perm} [3)] [kN]	Permissible shear load at e = 100 mm V_{perm} [3)] [kN]	Permissible shear load at e = 120 mm V_{perm} [3)] [kN]	Permissible shear load at e = 140 mm V_{perm} [3)] [kN]	Permissible shear load at e = 160 mm V_{perm} [3)] [kN]	Permissible shear load at e = 180 mm V_{perm} [3)] [kN]	Permissible shear load at e = 200 mm V_{perm} [3)] [kN]	Permissible shear load at e = 250 mm V_{perm} [3)] [kN]	Permissible shear load at e = 300 mm V_{perm} [3)] [kN]	Minimum member thickness h_{min} [mm]	Minimum spacing $s_{min} \parallel$ / $s_{min} \perp$ [9)] [mm]	Minimum edge distance c_{min} [mm]
Concrete, cracked and non-cracked, strength class ≥ C20/25														
Thermax 12[8)]	70	3,40[6)]	1,07	0,69	0,58	0,42	0,32	0,24	0,18	0,08	0,04	100	55	55
Thermax 16[8)]	80	3,40[6)]	1,51	0,98	0,83	0,71	0,63	0,48	0,34	0,16	0,08	116	65	65
Solid brick, Mz, EN 771-1; f_b ≥ 12 N/mm²; ρ ≥ 1,8 kg/dm³; LxWxH ≥ 240x115x71 mm, NF														
Thermax 12[8)]	200	2,71	0,85	0,55	0,47	0,40	0,32	0,24	0,18	0,08	0,04	240	80/80	60
Thermax 16[8)]	200	2,71	1,29	0,98	0,83	0,71	0,63	0,48	0,34	0,16	0,08	240	80/80	60
Solid sand-lime brick, KS, EN 771; f_b ≥ 20 N/mm²; ρ ≥ 2,0 kg/dm³; LxWxH ≥ 250x240x240 mm, 8DF														
Thermax 12[8)]	50	2,86	0,85	0,55	0,47	0,40	0,32	0,24	0,18	0,08	0,04	240	80/80	60
Thermax 16[8)]	50	2,14	1,51	0,98	0,83	0,71	0,63	0,48	0,34	0,16	0,08	240	80/80	60
Vertically perforated brick type B, HLz, EN 771-1; f_b ≥ 12 N/mm²; ρ ≥ 1,0 kg/dm³; LxWxH = 370x240x237 mm resp. 500x175x237 mm														
Thermax 12[4)]	110	1,14	0,57	0,55	0,47	0,40	0,32	0,24	0,18	0,08	0,04	175	100/100	100
Thermax 16[4)]	110	1,14	0,57	0,57	0,57	0,57	0,57	0,48	0,34	0,16	0,08	175	100/100	100
Perforated sand-lime brick, KSL, EN 771-2; f_b ≥ 12 N/mm²; ρ ≥ 1,4 kg/dm³; LxWxH = 240x175x113 mm, 3DF														
Thermax 12[4)]	85	1,00	0,85	0,55	0,47	0,40	0,32	0,24	0,18	0,08	0,04	175	100/115	80
Thermax 16[4)]	85	1,00	1,14	0,98	0,83	0,71	0,63	0,48	0,34	0,16	0,08	175	100/115	80
Hollow block made of light weight concrete, Hbl, EN 771-3; f_b ≥ 2 N/mm²; ρ ≥ 1,0 kg/dm³; LxWxH = 362x240x240 mm														
Thermax 12[4)]	110	0,43	0,26	0,26	0,26	0,26	0,26	0,24	0,18	0,08	0,04	240	100/240	60
Thermax 16[4)]	180	0,71	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,16	0,08	240	100/240	60
Aerated concrete (cylindrical drill hole), EN 771-4; f_b ≥ 2 N/mm²; ρ ≥ 0,35 kg/dm³; LxWxH ≥ 599x240x249 mm														
Thermax 12[8)]	200	1,43	0,43	0,43	0,43	0,40	0,32	0,24	0,18	0,08	0,04	240	80/80	100
Thermax 16[8)]	200	1,43	0,43	0,43	0,43	0,43	0,43	0,43	0,34	0,16	0,08	240	80/80	100

For the design the complete approval Z-21.8-1837 as well as the European Technical Assessments ETA-10/0383, ETA-02/0024 or ETA-12/0258 have to be considered.

1) The required partial safety factors for material resistance as well as a partial safety factor for load actions of γ_L = 1,4 are considered.

2) Set-up of one or more Thermax in a row in direction of shear, for which the clamping of the attachment prevents a torsion on attachment side due to a sufficient stiffness of the attachment or connecting construction. For a clamping on base substrate side only, see approval.

3) For combinations of tensile and shear loads as well as reduced edge distances or spacings (anchor groups) see approval. The values for tensile loads in masonry are valid only, if the joints of the masonry is completely filled with masonry mortar. If the joints are not filled with masonry mortar are not filled with masonry mortar and the edge distance towards the joints is less than c_{min}, the loads have to be reduced by the factor a_j = 0,75. The values for shear loads are valid only, if the joints are filled with masonry mortar. For not completely filled joints they have to be handled like a free edge and a minimum edge distance c_{min} of the anchors to the joints has to be observed. For compression loads and perforated bricks or hollow blocks see approval. Calculative assumed thickness of the attachment t_{fix} = 6 mm.

4) In vertically perforated bricks HLz, perforated sand-lime bricks KSL as well as hollow blocks made of light weight concrete Hbl the Thermax 12 (standard version) can bridge non-load bearing layers up to 110 mm and the Thermax 16 can bridge them up to 170 mm. Larger usable lengths up to 300 mm are possible, if other perforated sleeves and where required longer anchor rods are used and again the anchorage depth gets reduced - see approval.

5) The stated permissible loads are valid for anchorages in dry base substrates - use category d/d - and for temperatures up to +50 °C (resp. short-term up to +80 °C) in the area of the injection mortar and during drill hole cleaning in accordance with the approval. The load values apply to anchor rods on base substrate side made of zinc-plated steel grade 8.8 - for other steel grades or stainless steel see approval.

6) Complies with the permissible tensile load of the Thermax Cone.

7) Intermediate values of the shear load may be linearly interpolated in dependence of "e", if nothing else is mentioned in the approval.

8) In solid bricks Mz and solid sand-lime bricks KS the Thermax 12 (standard version) can bridge non-load bearing layers up to 190 mm (140 mm in aerated concrete) and the Thermax 16 can bridge them up to 300 mm (270 mm in aerated concrete) - but in solid brick Mz and aerated concrete the above load values have to be reduced. In concrete the Thermax 12 (standard version) can bridge non-loadbearing layers up to 170 mm and the Thermax 16 can bridge them up to 290 mm. Larger usable lengths up to 300 mm are possible, if longer anchor rods are used and again in solid bricks Mz if the anchorage depth (compared to above values) gets reduced where required - see approval.

9) Minimum spacings for at the same time reduced permissible loads, where required.

LOADS

Stand-off installation Thermax 12 and 16 with load-bearing anchor rod made of stainless steel A4-70 and a displacement of 3 mm

The below load table is valid for short-term loading (e.g. wind load). Measures for sealing see approval, section 3.2.4.
Highest permissible loads[1) 5) 7)] of a Thermax within an anchor group[2)] in concrete with the injection mortars FIS V or FIS SB and in masonry with the injection mortar FIS V.

Type	Minimum effective anchorage depth h_{ef} [4)8)] [mm]	Permissible tensile load N_{perm} [3)] [kN]	Permissible shear load at e = 62 mm V_{perm} [3)] [kN]	Permissible shear load at e = 100 mm V_{perm} [3)] [kN]	Permissible shear load at e = 120 mm V_{perm} [3)] [kN]	Permissible shear load at e = 140 mm V_{perm} [3)] [kN]	Permissible shear load at e = 160 mm V_{perm} [3)] [kN]	Permissible shear load at e = 180 mm V_{perm} [3)] [kN]	Permissible shear load at e = 200 mm V_{perm} [3)] [kN]	Permissible shear load at e = 250 mm V_{perm} [3)] [kN]	Permissible shear load at e = 300 mm V_{perm} [3)] [kN]	Minimum member thickness h_{min} [mm]	Minimum spacing $s_{min}\parallel$ / $s_{min}\perp$ [9)] [mm]	Minimum edge distance c_{min} [mm]
Concrete, cracked and non-cracked, strength class ≥ C20/25														
Thermax 12[8)]	70	3,40[6)]	1,07	0,69	0,58	0,50	0,44	0,39	0,35	0,24	0,12	100	55	55
Thermax 16[8)]	80	3,40[6)]	1,51	0,98	0,83	0,71	0,63	0,56	0,51	0,41	0,24	116	65	65
Solid brick, Mz, EN 771-1; f_b ≥ 12 N/mm²; ρ ≥ 1,8 kg/dm³; LxWxH ≥ 240x115x71 mm, NF														
Thermax 12[8)]	200	2,71	0,59	0,39	0,33	0,28	0,25	0,22	0,20	0,16	0,12	240	80/80	60
Thermax 16[8)]	200	2,71	1,29	0,96	0,81	0,70	0,62	0,56	0,50	0,41	0,24	240	80/80	60
Solid sand-lime brick, KS, EN 771; f_b ≥ 20 N/mm²; ρ ≥ 2,0 kg/dm³; LxWxH ≥ 250x240x240 mm, 8DF														
Thermax 12[8)]	50	2,86	0,59	0,39	0,33	0,28	0,25	0,22	0,20	0,16	0,12	240	80/80	60
Thermax 16[8)]	50	2,14	1,46	0,96	0,81	0,70	0,62	0,56	0,50	0,41	0,24	240	80/80	60
Vertically perforated brick type B, HLz, EN 771-1; f_b ≥ 12 N/mm²; ρ ≥ 1,0 kg/dm³; LxWxH = 370x240x237 mm resp. 500x175x237 mm														
Thermax 12[4)]	110	1,14	0,57	0,39	0,33	0,28	0,25	0,22	0,20	0,16	0,12	175	100/100	100
Thermax 16[4)]	110	1,14	0,57	0,57	0,57	0,57	0,57	0,56	0,50	0,41	0,24	175	100/100	100
Perforated sand-lime brick, KSL, EN 771-2; f_b ≥ 12 N/mm²; ρ ≥ 1,4 kg/dm³; LxWxH = 240x175x113 mm, 3DF														
Thermax 12[4)]	85	1,00	0,59	0,39	0,33	0,28	0,25	0,22	0,20	0,16	0,12	175	100/115	80
Thermax 16[4)]	85	1,00	1,14	0,96	0,81	0,70	0,62	0,56	0,50	0,41	0,24	175	100/115	80
Hollow block made of light weight concrete, Hbl, EN 771-3; f_b ≥ 2 N/mm²; ρ ≥ 1,0 kg/dm³; LxWxH = 362x240x240 mm														
Thermax 12[4)]	110	0,43	0,26	0,26	0,26	0,26	0,25	0,22	0,20	0,16	0,12	240	100/240	60
Thermax 16[4)]	180	0,71	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,24	240	100/240	60
Aerated concrete (cylindrical drill hole), EN 771-4; f_b ≥ 2 N/mm²; ρ ≥ 0,35 kg/dm³; LxWxH ≥ 599x240x249 mm														
Thermax 12[8)]	200	1,43	0,43	0,39	0,33	0,28	0,25	0,22	0,20	0,16	0,12	240	80/80	100
Thermax 16[8)]	200	1,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,41	0,24	240	80/80	100

For the design the complete approval Z-21.8-1837 as well as the European Technical Assessments ETA-10/0383, ETA-02/0024 or ETA-12/0258 have to be considered.

1) The required partial safety factors for material resistance as well as a partial safety factor for load actions of γ_L = 1,4 are considered.

2) Set-up of one or more Thermax in a row in direction of shear, for which the clamping of the attachment prevents a torsion on attachment side due to a sufficient stiffness of the attachment or connecting construction. For a clamping on base substrate side only, see approval.

3) For combinations of tensile and shear loads as well as reduced edge distances or spacings (anchor groups) see approval. The values for tensile loads in masonry are valid only, if the joints of the masonry is completely filled with masonry mortar. If the joints are not filled with masonry mortar are not filled with masonry mortar and the edge distance towards the joints is less than c_{min}, the loads have to be reduced by the factor a_j = 0,75. The values for shear loads are valid only, if the joints are filled with masonry mortar. For not completely filled joints they have to be handled like a free edge and a minimum edge distance c_{min} of the anchors to the joints has to be observed. For compression loads and perforated bricks or hollow blocks see approval. Calculative assumed thickness of the attachment t_{fix} = 6 mm.

4) In vertically perforated bricks HLz, perforated sand-lime bricks KSL as well as hollow blocks made of light weight concrete Hbl the Thermax 12 (standard version) can bridge non-load bearing layers up to 110 mm and the Thermax 16 can bridge them up to 170 mm. Larger usable lengths up to 300 mm are possible, if other perforated sleeves and where required longer anchor rods are used and again the anchorage depth gets reduced - see approval.

5) The stated permissible loads are valid for anchorages in dry base substrates - use category d/d - and for temperatures up to +50 °C (resp. short-term up to +80 °C) in the area of the injection mortar and during drill hole cleaning in accordance with the approval. The load values apply to anchor rods on base substrate side made of stainless steel of the grade A4-70.

6) Complies with the permissible tensile load of the Thermax Cone.

7) Intermediate values of the shear load may be linearly interpolated in dependence of "e", if nothing else is mentioned in the approval.

8) In solid bricks Mz and solid sand-lime bricks KS the Thermax 12 (standard version) can bridge non-load bearing layers up to 190 mm (140 mm in aerated concrete) and the Thermax 16 can bridge them up to 300 mm (270 mm in aerated concrete) - but in solid brick Mz and aerated concrete the above load values have to be reduced. In concrete the Thermax 12 (standard version) can bridge non-loadbearing layers up to 170 mm and the Thermax 16 can bridge them up to 290 mm. Larger usable lengths up to 300 mm are possible, if longer anchor rods are used and again in solid bricks Mz if the anchorage depth (compared to above values) gets reduced where required - see approval.

9) Minimum spacings for at the same time reduced permissible loads, where required.

The economical solution for the repair of triple-skin outer wall panels





Repairing weather shells



Detail: Repairing weather shells

VERSIONS

- Stainless steel

BUILDING MATERIALS

- Triple-skin outer wall panels made of concrete ≥ C12/15

CERTIFICATES

Zulassung

ADVANTAGES

- The FWS II achieves a high shear load-bearing capacity due to its large anchor diameter. This reduces the number of reconstruction anchors needed for each plate to a minimum, thus saving costs.
- The drill hole can be drilled in one step using standard diamond drill bits. This ensures quick progress is made.
- Installation is already approved from a sub-base thickness ≥ 80 mm.
- Approval with a new measuring strategy allows a safer and economically static calculation while making it possible to document loads from temperature changes.

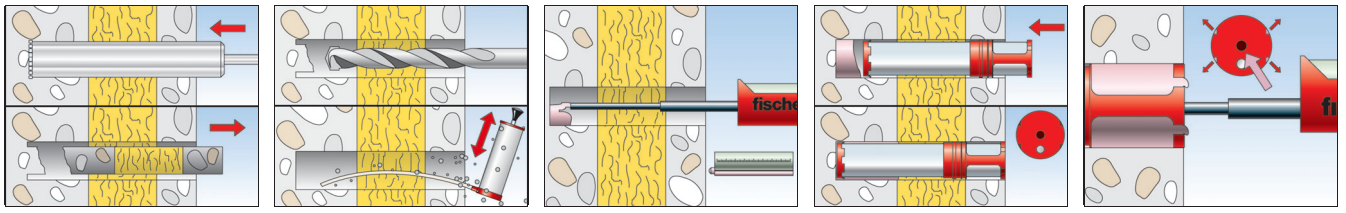
APPLICATIONS

- For post-installation securing of triple-skin outer wall panels
- Strengthening outer wall panels for additional exterior insulation

FUNCTIONING

- The FWS II weather facing reconstruction anchors can be bedded in mortar into the load-bearing skin and weather shell with the FIS V, FIS VW or FIS VS injection mortar.
- The red plastic coating protects the insulation from being penetrated with mortar.
- You can see the correct anchor filling with the weather shell through the inspection openings on the head of the anchor.

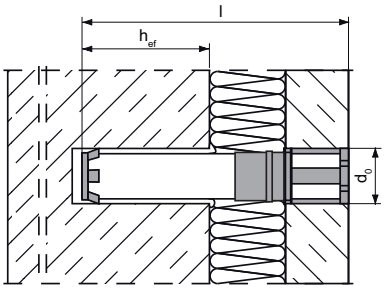
INSTALLATION IN TRIPLE-SKIN OUTER WALL PANELS WITH FIS V AND FWS II-A



TECHNICAL DATA



Weather facing reconstruction system
FWS II - A



	Art.-No.	Approval DIBt	Total length l [mm]	Nom. drill diameter d_0 [mm]	Effect. anchorage depth in the load-bearing skin h_{ef} [mm]	Anchors per cartridge FIS V / FIS VS / FIS VW 360 ml	Sales unit [pcs]
Item							
FWS II - A 180	**532883**	●	180	40 - 41	70	5	5
FWS II - A 205	**532884**	●	205	40 - 41	70	5	5
FWS II - A 230	**532885**	●	230	40 - 41	70	5	5

TECHNICAL DATA



Injection mortar **FIS V 360 S**

		Approval		Languages on the cartridge	Scale unit	Contents	Sales unit
Item	**Art.-No.**	**DIBt**	**ETA**				**[pcs]**
FIS V 360 S	**094404**	●	■	DE, FR, NL, TR, HU, AR	180	1 cartridge 360 ml, 2 x FIS MR Plus	6
FIS DM S	**511118**	–	–	–	–	–	1

LOADS

Weather facing reconstruction system FWS II

Highest permissible shear loads[1) 5)] for a single anchor in a load-bearing skin made of concrete ≥ C12/15.
For the design the complete approval Z-21.8-2029 has to be considered.

						Cracked or non-cracked concrete	
Type	**Effective anchorage depth in the load bearing skin h_{ef} ≥ [mm]**	**Thickness of load-bearing layer h_T ≥ [mm]**	**Thickness of thermal insolution[2)] h_D ≤ [mm]**	**Thickness of outer leaf h_W ≥ [mm]**	**Permissible bending moment M_{perm} [Nm]**	**Permissible shear load [4)] V_{perm} [kN]**	**Minimum edge distance [3)] $c_{min}(c_W, c_T)$ [mm]**
FWS II - A 180	70	80	70	40	1310	11,5	150
FWS II - A 205	70	80	95	40	1310	9,5	150
FWS II - A 230	70	80	120	40	1310	8,1	150

[1)] Required safety factors are considered. The given loads are valid under the pre-condition that an additional thermal insulation will be applied on the weather facing.

[2)] For bigger insulation thicknesses special lengths are possible.

[3)] For exact arrangement of the bolts as well as for eventually needed additional proofs see approval.

[4)] The determination of the permissible shear load for special lengths is done according Annex 3 and 4 of the approval.

[5)] The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according to approval.

Fixing selection by usage category

The most common building materials are classified by usage category in line with ETAG 014. This makes it easier to choose the most suitable fixing.

Usage category A



Concrete

Usage category B



Solid brick



Solid sand-lime brick

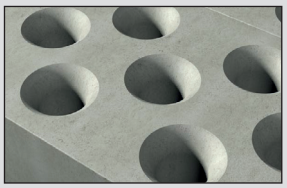


Solid lightweight concrete blocks

Usage category C



Vertically perforated brick



Perforated sand-lime brick



Hollow blocks made from lightweight concrete

Usage category D



Lightweight aggregate concrete

Usage category E



Aeratet concrete

Selecting the fixing length

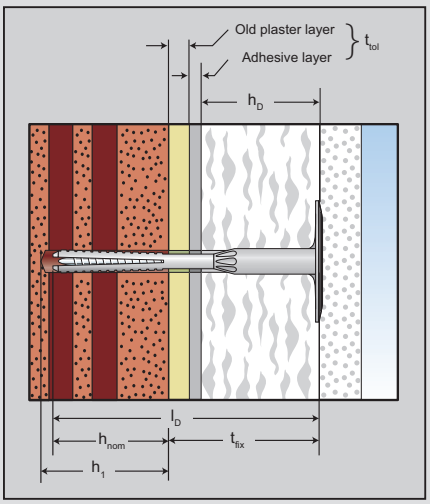
Correctly calculating the fixing length is key to achieving the greatest possible fixing safety. The specific characteristics of the job in hand must always be taken into account

Determination of the required fixing length:

Anchorage depth h_{nom}
\+ Tolerance compensation t_{tol}
\+ Insulation thickness h_D
= Required fixing length ID

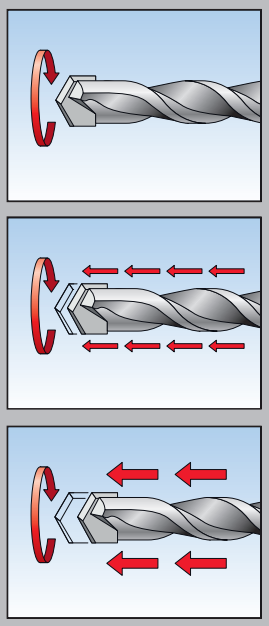
The tolerance compensation comprises the following:

Non-load-bearing layers (thickness of old plaster, HWL panels, economy facings, etc.)
\+ Thickness of the adhesive mortar layer after pressing the insulation boards onto the wall (generally approx. 10 mm)
\+ Additional compensation for uneven surface
= Tolerance compensation t_{tol}



h_{nom}	Anchorage depth
h_1	Drill hole depth
t_{fix}	Usage length
t_{tol}	Tolerance compensation
h_D	Insulation thickness
t_{tol}	Tolerance compensation
l_D	Required fixing length

Drilling



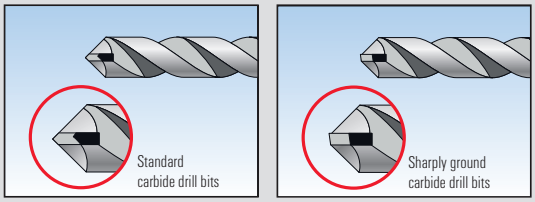
The building material is decives when drilling. Four methods are available:

Rotary drilling: Drilling in rotary mode without impact, with a sharply ground carbide drill bit. For perforated bricks and materials with low strength, the drill hole does not become too large with it and the bars in the perforated bricks do not break.

Carbide drill bits drill faster if they are ground sharp, similar to steel drill bits. There are also special masonry drill bits available.

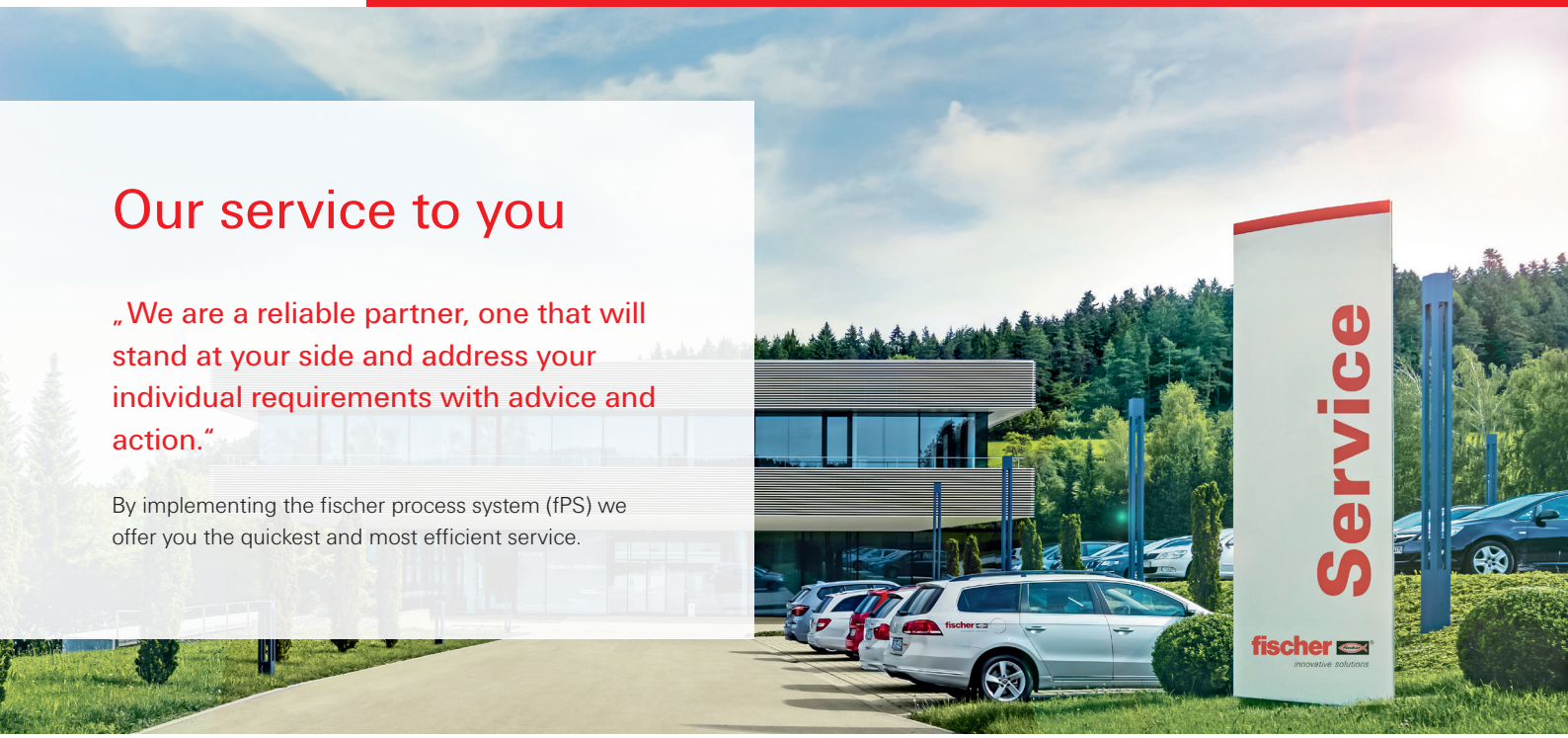
Impact drilling: Rotation and a high number of light impacts with the impact drilling machine, for solid building materials with dense structure.

Hammer drilling: Rotation and a small number of minor impacts with high impact energy with the drilling hammer, also for solid building materials with dense structure.



▸ Expert tip

- For almost all permissible fixings, **rotary drillings and hammer drillings are prescribed** in the approval or guideline.
- **Do not use drills with excessively worn out cutting edge width across corners anymore** (see rules of approval).
- The **drill hole depth** is always specified exactly and based on a definite thickness of the anchoring base. The following rule of thumb is followed for general applications without approval: Necessary thickness of the anchoring base = drill hole depth + 30 mm.
- To avoid tilting of the fixture, it must always be drilled **perpendicular** to the anchoring base. Exceptional cases are regulated in the anchor approvals and/or the manufacturer's specifications **(up to 5 ° is tolerable).**



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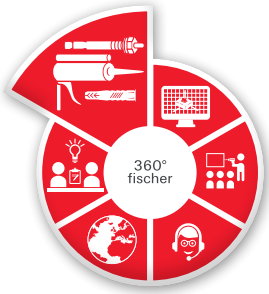




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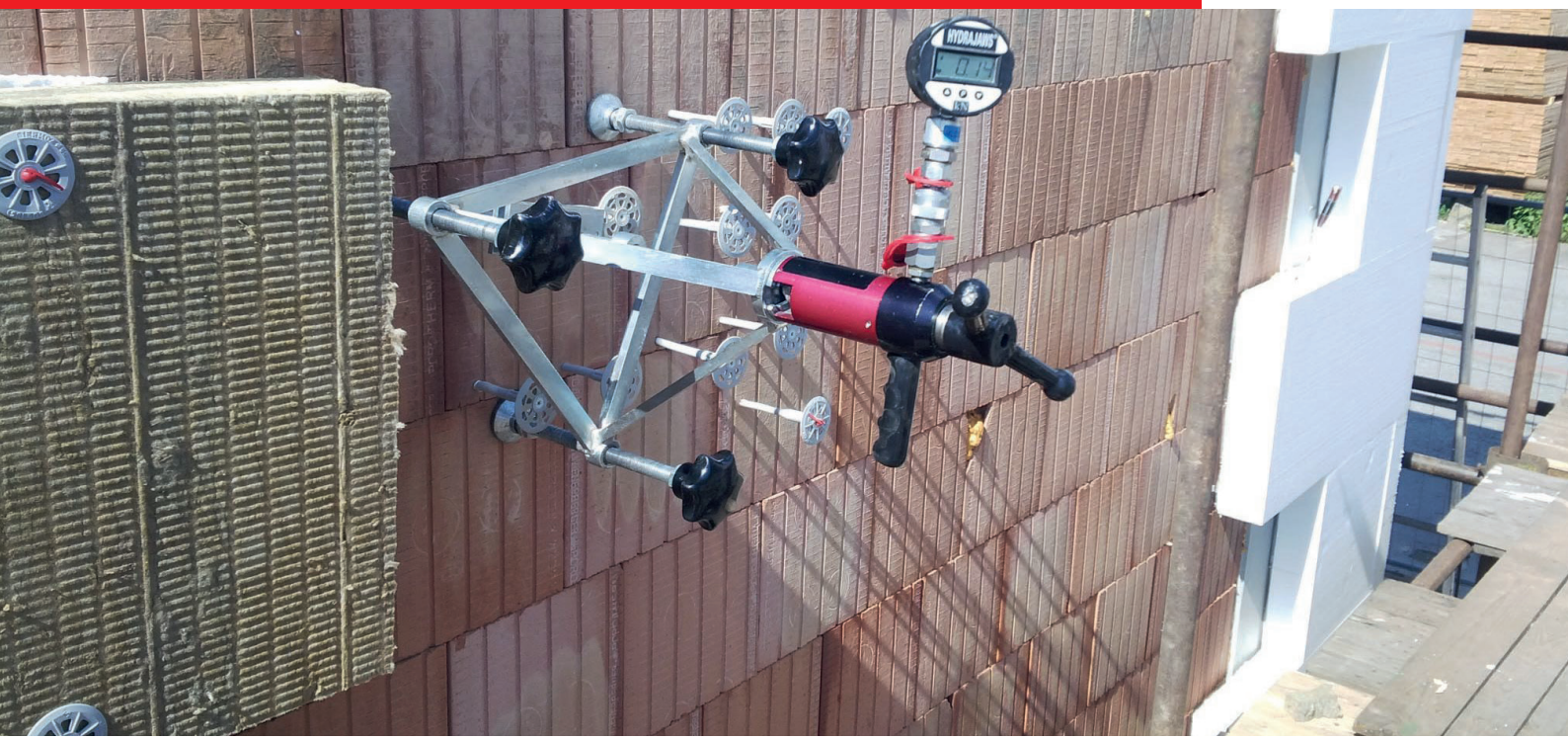
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Anchor Pull-out tests
by the technical field service of fischer

- We recommend for safety-relevant fixings in unknown or old substrates plug pull-out tests to do.
- This allows statements to be made about the bearing capacity of the subsoil and the selection of a suitable anchor.

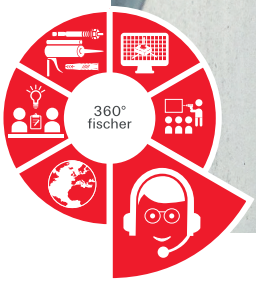


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The information in this brochure is intended for general guidance only and is given without engagement. Additional information and advice on specific applications is available from our Technical Support Team. For this however, we require a precise description of your particular application.
All the data in this brochure concerning work with our fixing elements must be adapted to suit local conditions and the type of materials in use.
If no detailed performance specifications are given for certain articles and types, please contact our Technical Service Department for advice.

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