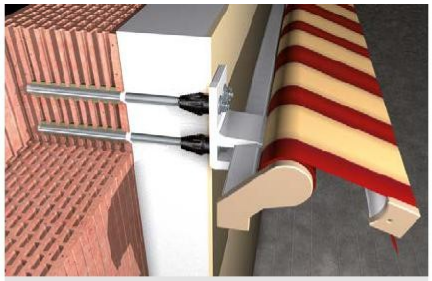
Securing heavy loads Thermax 12/ 16

The fixing without thermal bridge of heavy loads on facades and roofs with thermal insulation.



Awnings

Satellite dishes and air conditioners

SUPPORT MATERIALS

Certificate for:

- Concrete, cracked and not cracked
- Full brick in brick
- Solid brick in calcium silicate
- Semi-filled brick (perforated vertically) in brick
- Semi-filled brick (perforated vertically) in calcium silicate
- Hollow block in lightweight concrete

Also suitable for:

- Aerated concrete, autoclaved (cellular)

CERTIFICATIONS

ADVANTAGES

The system is approved for loads high in a wide range of materials, when used in combination with the injection resins FIS V and FIS EM. This allows a secure fastening.

The plastic cone creates a thermal barrier between the object to be fixed and the inside of the support, creating a fixing optimized from the point of view energetic.

The plastic cone reinforced with

Fiberglass derives its headquarters in the insulating panel ensuring quick and easy installation without the use of special tools.

APPLICATIONS

For the thermally insulated fixing of:

- Awnings
- Canopies
- Railings
- Consul
  Shelves for air conditioners and
- systems

- Satellite dishes

OPERATION

Thermax 12 and 16 are suitable for non-repassable installations.

The self-drilling cone, reinforced in fibreglass, gets its own seat in isolation crossing plaster during the installation.

The insulating cone creates a barrier

minimizing the losses of

heat.

In the case of resistant plaster (for example plaster often based cement) is recommended to use of the appropriate cutter, included in the package, to cut the plaster.

Seal the facade level of plaster filling the space ring finger between the hole and the cone with the sealing adhesive KD ULTRA 60 and/or with the adhesive sealant KD FLEX 20.

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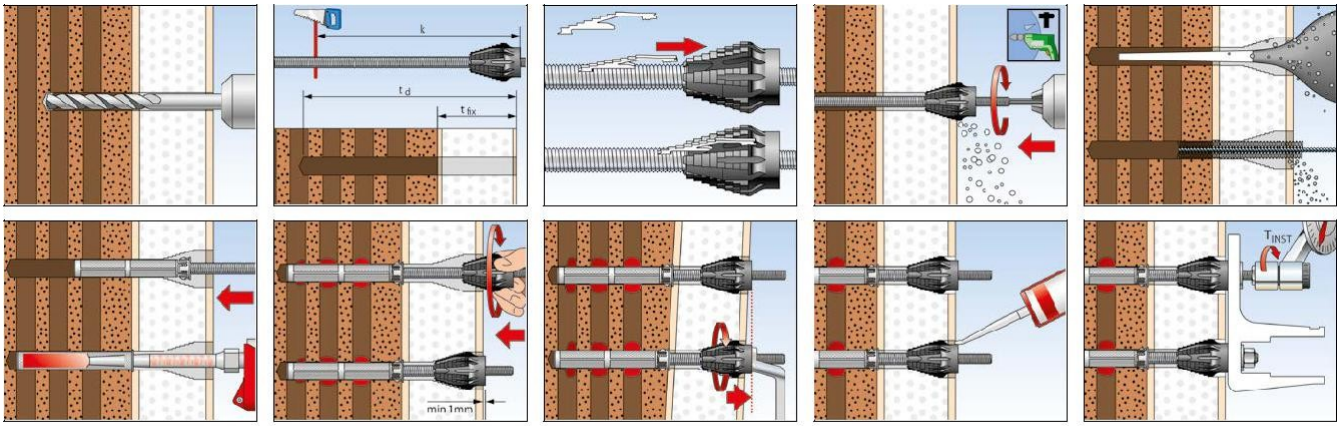
INSTALLATION



TECHNICAL DATA

Thermax 12/110 M 12

Thermax 16/170 M 12

	steel galvanized	Certifications DIBt	Content	Packaging [pz]
	Art. No			
Product	gvz		20 threaded bars M 12, 20 insulating cones, 20 locking screws M 12-A4, 20 A4 washers, 20 A4 nuts, 20 network anchors 20 x 130, 5 milling cutters for high density materials, 5 hex inserts, 5 user manuals	
Thermax 12/110 M 12	**051291**			20
Thermax 12/110 M 12 B	**051290**		2 threaded bars M 12, 2 insulating cones, 2 locking screws M 12-A4, 2 A4 washers, 2 A4 nuts, 2 network anchors 20 x 130, 1 milling cutter for high density materials, 1 hex insert, 1 user manual	1
Thermax 16/170 M 12	**051293**		20 threaded bars M 16, 20 insulating cones, 20 locking screws M 12-A4, 20 washers A4, 20 A4 nuts, 20 network plugs 20 x 200, 5 cutters for high density materials, 5 hex inserts, 5 flexible extensions for mixer, 5 user manuals	20
Thermax 16/170 M 12 B	**051292**		2 threaded bars M 16, 2 insulating cones, 2 locking screws M 12-A4, 2 washers A4, 2 A4 nuts, 2 network plugs 20 x 200, 1 cutter for high density materials, 1 hex insert, 1 flexible extension for mixer, 1 user manual	1

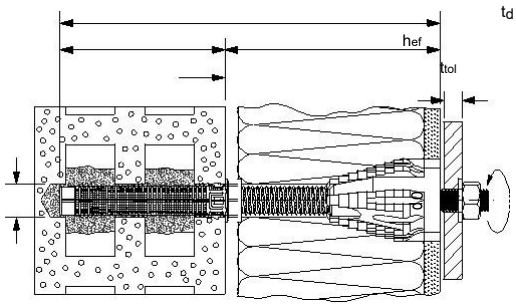
ACCESSORIES FOR THERMAX

THERMAX M12/M10 A4 reduction screw.
Thread reducer pin for Thermax M12 and M16 which includes screw for reduction from M12 to M10, stainless steel washer and nut M10.

Product	Art. No	Buying min/multiple [U.M.]	Content	Suitable for
Thermax M12/M10 A4 reduction screw	**553834**	10	10 thread reduction pins M12/M10 A4 10 rondelle 10,5 x 25 x 3 A4 10 hexagonal nuts M10 A4 (SW17) 1 instruction for installation	Thermax M12-12/110 Thermax M16-12/170

Securing heavy loads Thermax 12/ 16

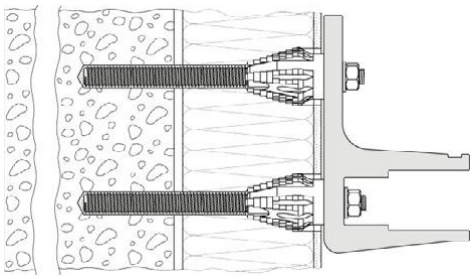
INSTALLATION DATA



Example of single attachment

and

Tinst



Example of multiple attachment

Type	Slash threaded	Length total [mm]	Size cone insulating D x L [mm]	Material supportive	Thickness iso-lante t_{iso} [mm]	Thickness object fixed t_{fix} [mm]	Depth anchorage effective. h_{ef} [mm]	Diameter foro d_o [mm]	Hole depth min. t_d [mm]	Dowel networked	Quantity resin request [unit]	Couple of tightening T_{inst} [Nm]
Thermax M 12/110	M 12	240	45 x 60	Concrete/ Brick	60 - 110[1]	< 16[2]	70	14	t_{fix}+ 70 mm		5	20
M 12 (...)				Semi-filled brick			130	20	t_{fix}+ 130 mm + 5 mm	20 x 130	26	
Thermax M 16/170	M 16	370	45 x 60	Concrete/ Brick	60 - 170[1]	< 16[2]	80	18	t_{fix}+ 80 mm		7	20
M 12 (...)				Semi-filled brick			200	20	t_{fix}+ 200 mm + 5 mm	20 x200	40	

1)For further useful lengths see the approval.
2)According to the approval, a working length of up to 200 mm is permitted.

TECHNICAL DATA

Resin in cartridge
FIS EM Plus 390 S

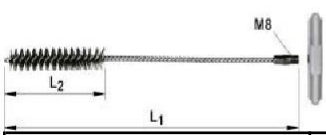
Adhesive sealant
KD ULTRA 60

Resin in cartridge
FIS V 410 C

Adhesive sealant
KD FLEX 20

		Certifications		Languages on the cartridge	Content	Packaging
Product	**Art. No**	**ETA**	**CE**			[pz]
FIS EM Plus 390 S	**544163**	■	–	I	1 cartridge 390 ml, 2 mixers FIS MR PLUS	6
FIS V 410 C	**521431**	■	–	I, D, GB	1 cartridge 410 ml, 2 mixers FIS MR PLUS	16
KD ULTRA 60 BI	**545169**	–	▲	I	1 cartridge 290 ml	12
KD ULTRA 60 GR	**545170**	–	▲	I	1 cartridge 290 ml	12
KD FLEX 20 BI	**545167**	–	▲	I	1 cartridge 290 ml	12
KD FLEX 20 GR	**545168**	–	▲	I	1 cartridge 290 ml	12

ACCESSORIES FOR CLEANING THE HOLE



Pipe cleaner in steel
for concrete and masonry **BS**

Product	Art. No	Length L_1 [mm]	Length L_2 [mm]	Pipe cleaner diameter [mm]	By hole diameter [mm]	Packaging [pz]
BSSOMEONE	**078180**	250	80	16	14	1
BS	**078181**	250	80	20	16/18	1
BS ¿20/22	**052277**	250	80	25	20/22	1

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ACCESSORIES FOR CLEANING THE

Pump **ABG**

Product	Art. No, no.	Packaging [pz]
Pump ABG	**089300**	1

PISTOLS

Manual gun **FIS DM S**

Manual gun **FIS DM C**

Product	Art. No, no.	Suitable for	Packaging [pz]
FIS DM S	**511118**	FIS SB 390 S, FIS EM 390 S, FIS HB 345 S, FIS P 360 S, FIS V 360 S,	1
FIS DM C	**009191**	FIS V-BOND 300 T, T-BOND PLUS, FIS VS 150 C, PE 300 SF FIS V 410 C, FIP C 700 HP PLUS, PE 410 SF	

Drill for conical hole **PBB**

PBZ Centering Dowel **Pin**

Product	Art. No	Certifications	Suitable for	Packaging [pz]
			DIBt	
Punta PBB	**090634**		M8 - M12; FIS E	1
Dowel PBZ	**090671**		M8 - M12; FIS E	10

Securing heavy loads Thermax 12/ 16

LOADS

Thermax 12 and 16 spaced load fixings

Permissible loads[1) 6)] for a Thermax on concrete and [full] brick masonry[8)] [for group fixings 2)]

For the design must be consulted the German Homologation Z-21.8-1837 as well as the approvals of the chemical anchor used.

					Concrete and solid brick masonry											
Type	Resi-	Type of	Profon-	Couple of	Laden	Permissible shear load for									Inte-	Distance
	support	brick by agreement	dity of anchoring	tightening	ammis-	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	^{t}fix =	rasse	dal
	compres-	alla DIN[7)]	effective		hiss to	62mm[5)]	100mm[5)]	120mm[5)]	140mm[5)]	160mm[5)]	180mm[5)]	200mm[5)]	250mm[5)]	300mm[5)]	minimu m[3)]	edge minimu m[11)]
	sion brick				traction											
	f_b	[-]	$h_{ef,min}$	$T_{inst,max}$[9)]	N[3)]	V[3)]	V[3)]	V[3)]	V[3)]	V[3)]	V[3)]	V[3)]	V[3)]	V[3)]	s_{min} (a_c)	c_{min} (a_r)
	[N/mm²]	[-]	[mm]	[Nm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[mm]	[mm]
Cracked concrete[10)] **and non-cracked**[12)]																
Thermax 12	25	C20/25	70	20,0	3,40[4)]	0,88	0,49	0,31	0,21	0,16	0,11	0,08	-	-	55	55
Thermax 16	25	C20/25	80	20,0	3,40[4)]	1,51	0,85	0,62	0,45	0,34	0,26	0,21	0,14	0,08	65	65
Full brick brick Mz																
Thermax 12	12	Mz	75	20,0	1,70	0,88	0,49	0,31	0,21	0,16	0,11	0,08	-	-	50	60
Thermax 16	12	Mz	75	20,0	1,70	1,51	0,85	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	60
Full brick and full block in calcium silicate KS																
Thermax 12	12	KS	75	20,0	1,70	0,88	0,49	0,31	0,21	0,16	0,11	0,08	-	-	50	60
Thermax 16	12	KS	75	20,0	1,70	1,51	0,85	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	60

1) The appropriate safety factors were taken into account.

2) For single fixing, please consult the approval.

3) The minimum wheelbase can only be used by reducing the permissible load. For combinations of tensile, shear and bending moments, as well as for wheelbases and/or distances from the edge (group anchors) see the approval.

4) Corresponding to the permissible tensile load of the Thermax cone.

5) The permissible loads refer to the Thermax fixing with galvanized steel threaded bar applied without a net dowel. When the displacement due to short-term loads (e.g. wind load) is limited to 1 mm, it is sufficient to seal the annular space between hole and cone with the fischer sealing adhesive KD ULTRA 60. For displacements greater than 1 mm see Chap. 3.2.4 of the approval.

6) The load values shown are valid for fixings on dry and wet concrete with tempera-tu re up to +50 °C. (in the short term up to +80 °C) and with clean holes according to type approval.

7) Please refer to the approval for further conditions.

8) Masonry with sufficient overload and without influence of edges.

9) Fixing screw M 12.

10) The use of the FIS V anchor is only certified for non-cracked concrete applications.

11) Valid only for masonry sufficiently overloaded or with anti-tipping systems. Not valid for shear loads acting towards a free edge.

12) The use of the FIS EM anchor is certified for cracked and non-cracked concrete applications.

Securing heavy loads Thermax 12/ 16

LOADS

Thermax 12 and 16 spaced load fixings

Permissible loads [1] 6) 11) for a Thermax on semi-solid brick masonry (vertically drilled) 8) for group fixings 2).

For the design must be consulted the German Homologation Z-21.8-1837 as well as the approvals of the chemical anchor used.

Type	Resi- support compres- sion f_b [N/mm²]	Type of brick by agreement alla DIN [7] [-]	Profon- dity of anchoring effective $h_{ef,min}$ [mm]	Couple of tightening $T_{inst,max}$ [Nm]	Semi-solid brick masonry (perforated vertically)											
					Laden ammis- hiss to traction N_{amm} [kN]	Permissible shear load for t_{fix} = 62mm5) V_{amm} [kN]	t_{fix} = 100mm5) V_{amm} [kN]	t_{fix} = 120mm5) V_{amm} [kN]	t_{fix} = 140mm5) V_{amm} [kN]	t_{fix} = 160mm5) V_{amm} [kN]	t_{fix} = 180mm5) V_{amm} [kN]	t_{fix} = 200mm5) V_{amm} [kN]	t_{fix} = 250mm5) V_{amm} [kN]	t_{fix} = 300mm5) V_{amm} [kN]	Inte- rasse minimu m s_{min} (a) [mm]	Distance dal edge min12) c_{min} (a) [mm]
Semi-solid brick (perforated vertically) in Hlz brick																
Thermax 12	4	HLz	130	20,0	0,60	0,60	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	4	HLz	200	20,0	0,60	0,60	0,60	0,60	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Thermax 12	6	HLz	130	20,0	0,80	0,80	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	6	HLz	200	20,0	0,80	0,80	0,80	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Thermax 12	12	HLz	130	20,0	1,00	0,88	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	12	HLz	200	20,0	1,00	1,00	0,85	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Semi-solid brick (perforated vertically) in KSL calcium silicate																
Thermax 12	4	KSL	130	20,0	0,60	0,60	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	4	KSL	200	20,0	0,60	0,60	0,60	0,60	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Thermax 12	6	KSL	130	20,0	0,80	0,80	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	6	KSL	200	20,0	0,80	0,80	0,80	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Thermax 12	12	KSL	130	20,0	1,40	0,88	0,49	0,31	0,21	0,16	0,11	0,08	.	-	50	50
Thermax 16	12	KSL	200	20,0	1,40	1,40	0,85	0,62	0,45	0,34	0,26	0,21	0,14	0,08	50	50
Cable block of lightened concrete Hbl																
Thermax 12	2	Hbl	130	20,0	0,50	0,50	0,49	0,31	0,21	0,16	0,11	0,08	.	-	200 13)	50
Thermax 16	2	Hbl	200	20,0	0,50	0,50	0,50	0,50	0,45	0,34	0,26	0,21	0,14	0,08	200 13)	50
Thermax 12	4	Hbl	130	20,0	0,80	0,80	0,49	0,31	0,21	0,16	0,11	0,08	.	-	200 13)	50
Thermax 16	4	Hbl	200	20,0	0,80	0,80	0,80	0,62	0,45	0,34	0,26	0,21	0,14	0,08 14)	200 13)	50
Hbn normal concrete hollow block																
Thermax 12	4	Hbn	130	20,0	0,80	0,80	0,49	0,31	0,21	0,16	0,11	0,08	.	-	200 13)	50
Thermax 16	4	Hbn	200	20,0	0,80	0,80	0,80	0,62	0,45	0,34	0,26	0,21	0,14	0,08	200 13)	50

1) The appropriate safety factors were taken into account.

2) For single fixing, please consult the approval.

3) The minimum wheelbase can only be used by reducing the permissible load. For combinations of tensile, shear and bending moments, as well as for wheelbases and/or distances from the edge (group anchors) consult your consent.

4) Values are valid for rotating drilling (without percussion). The KSL block shall have an outer edge thickness of at least 30 mm (existing blocks).

5) The permissible loads refer to the Thermax fastening with galvanized steel threaded bar applied with mesh dowel. When the displacement due to short-term loads (e.g. wind load) is limited to 1 mm, it is sufficient to seal the annular space between hole and cone with the fischer sealing adhesive KD ULTRA 60. For displacements greater than 1 mm see Chap. 3.2.4 of the approval.

6) The load values shown are valid for both dry and damp masonry fixings with tempera-tu re up to +50, (in the short term up to +80 °C) and with clean holes according to the homologation

7) Please refer to the approval for further conditions.

8) Masonry with sufficient overload and without influence of edges.

9) Fixing screw M 12.

10) Also valid with the FIS H 20 x 85 K network plug.

11) The values are valid for the anchor FIS V, German Homologation No. Z-21.3-1824.

12) Valid only for masonry sufficiently overloaded or with anti-tipping systems. Not valid for shear loads acting towards a free edge.

13) It is not necessary to reduce the permissible load.