ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Fax +45 72 24 59 04
Internet www.etadanmark.dk

Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-22/0653 of 2022/10/18

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	ELEMATIC TRIDER, TRIDER/B
Product family to which the above construction product belongs:	Plastic anchor for redundant non-structural systems in masonry
Manufacturer:	ITW Construction Products italy S.r.l V.le Regione Veneto, 5 IT – 35127 Padova Internet www.itw-italy.com
Manufacturing plant:	ITW Construction Products italy S.r.l
This European Technical Assessment contains:	31 pages including 27 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 330284-00-0604 – Plastic anchors for redundant non-structural systems in concrete and masonry
This version replaces:	

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

ELEMATIC TRIDER and ELEMATIC TRIDER/B are plastic and metallic fasteners consisting of both a polymeric and metallic sleeve, an expansion element and a lubricated metric screw (for TRIDER/B version). The metal part of the fasteners is made in steel galvanized electrolytically with a thickness ≥5μ. The plastic part of the fasteners is made in high resistance modified copolymer.

The fastener is placed into pre-drilled hole perpendicular to the surface (maximum deviation 5°) and it is anchored therein by mechanical means such as friction and/or mechanical interlock in solid masonry and hollow material.
These fasteners can be used to connect non-structural elements to structural components.

An illustration of the product is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

The performances given in Section 3 are only valid if the fastener is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the anchor of 50 years.
The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Characteristics of product

Safety in case of fire (BWR 2):
Reaction to fire: anchorage satisfy requirements for class A1.
Resistance to fire: No performance assessed.

Safety in use (BWR4):
The essential characteristics are detailed in the Annexes C1 and C2.

Durability
See annex A3

3.2 Methods of assessment

The assessment of fitness of the fastener for the intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirements 1 and 4 has been made in accordance with EAD 330284-00-0604 - Plastic anchors for redundant non-structural systems in concrete and masonry.

4 Assessment and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/463/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

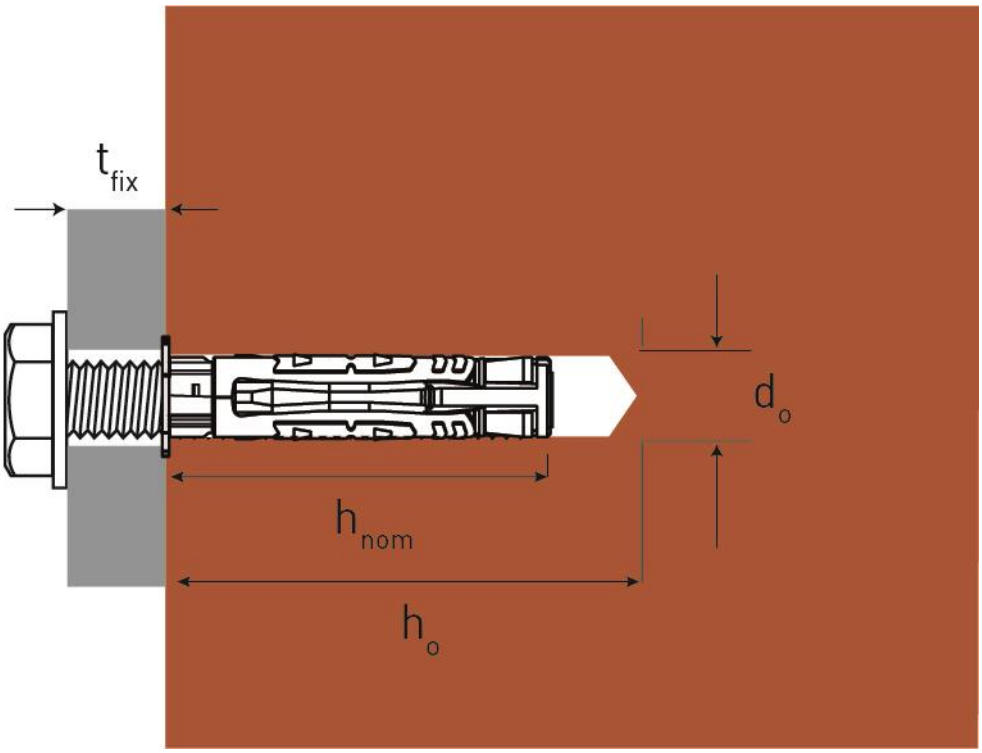
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2022-10-18 by

Thomas Bruun
Managing Director, ETA-Danmark

Figure A1: Elematic TRIDER and TRIDER/B installed condition on masonry (base material group b).



Legend:

h_{nom} = overall nominal embedment depth in the base material
h_0 = depth of the drill hole
t_{fix} = thickness of fixture
d_0 = nominal drill hole diameter

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex A1** of European Technical Assessment ETA-22/0653
Product description – Installed condition solid masonry (base material group b).	

Figure A2.1: Elematic TRIDER and TRIDER/B installed condition on hollow masonry brick (base material group c.1).

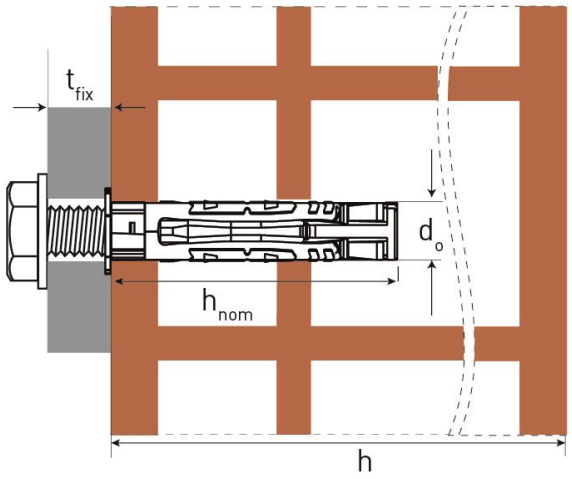
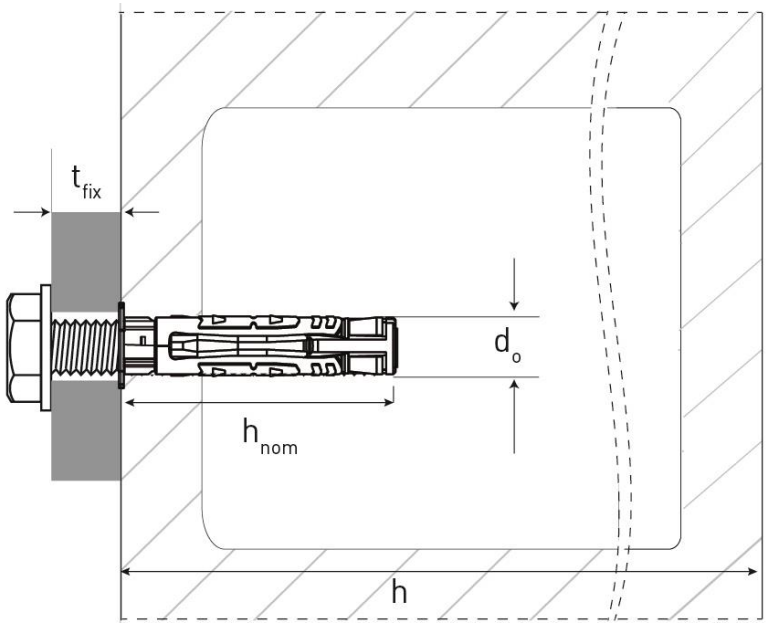


Figure A2.2: Elematic TRIDER and TRIDER/B installed condition on hollow concrete block (base material group c.2).



Legend:

h_{nom} = overall nominal embedment depth in the base material
t_{fix} = thickness of fixture
d_0 = nominal drill hole diameter
h = thickness of the member

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex A2** of European Technical Assessment ETA-22/0653
Product description – Installed condition hollow base materials (base material group c).	

Figure A3.1: Elematic TRIDER fastener part designation.

The Hexagon head screw and the washer according to Table A7.1 and Table A7.2 must be provided by the user**.**

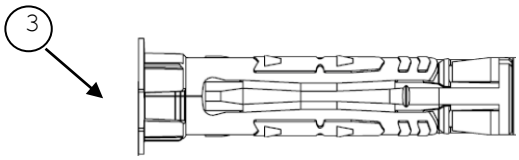
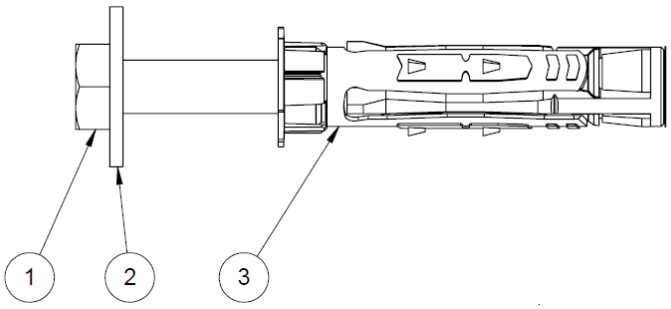


Figure A3.2: Elematic TRIDER/B fastener part designation.

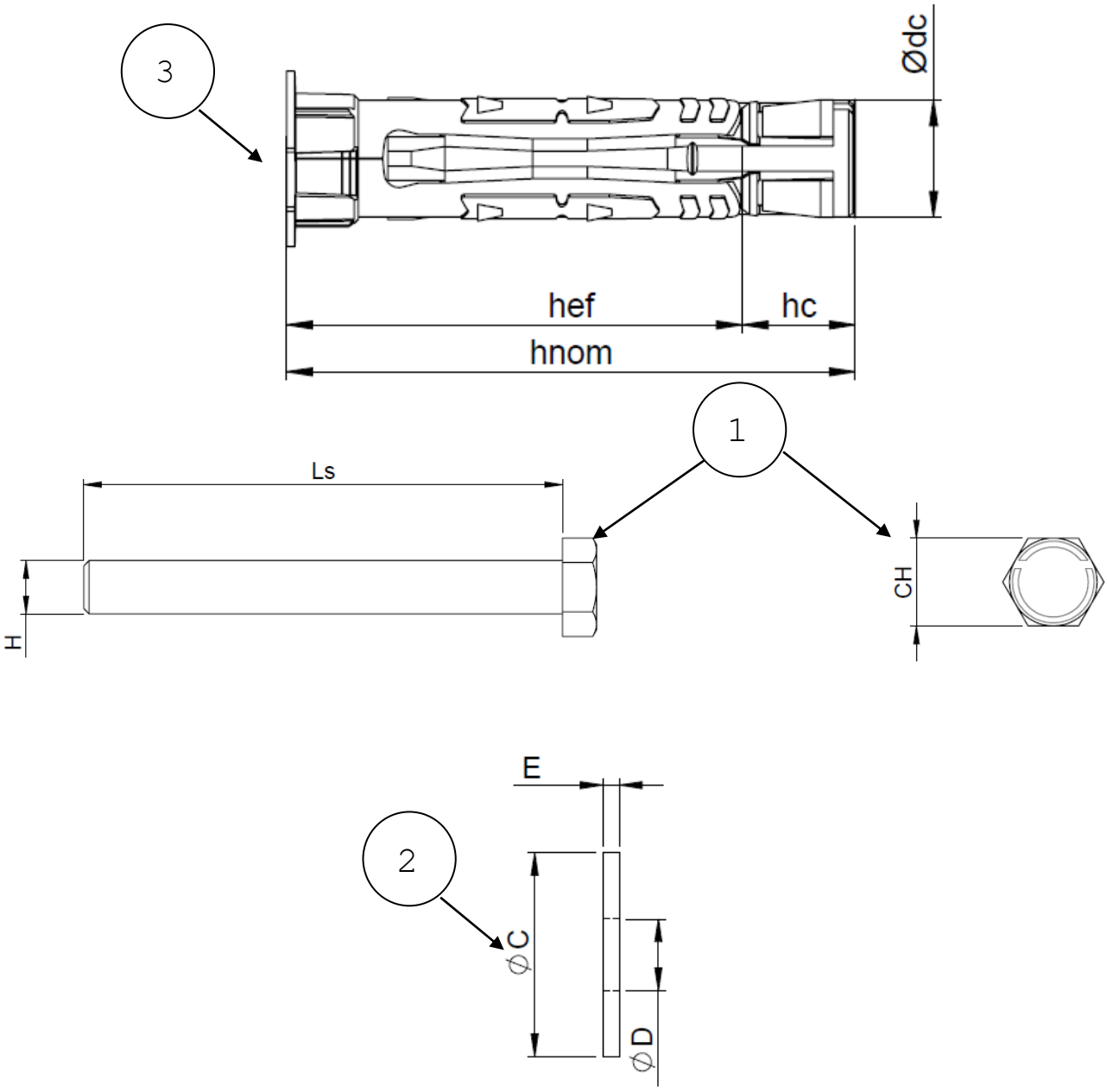
The Hexagon head screw and the washer is provided by the manufacturer together with the fastener sleeve.



Part	Type			
	M5	**M6**	**M8**	**M10**
Designation				
①	Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014 8.8 M5x60	Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014 8.8 M6x65	Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014 8.8 M8x70	Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014 8.8 M10x90
②	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000 M5	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000 M6	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000 M8	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000 M10
③	Fastener sleeve M5	Fastener sleeve M6	Fastener sleeve M8	Fastener sleeve M10

(fig. not in scale)

Figure A4: Fastener components.



(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex A4** of European Technical Assessment ETA-22/0653
Product description – Fastener components.	

Table A5.1: Elematic TRIDER, TRIDER/B sleeve dimensions.

Sleeve dimensions				Type			
				M5	M6	M8	M10
Part	Designation	Parameter					
③	Elematic Trider, Trider/B sleeve	h_{ef}	[mm] =	40,0	43,0	46,0	57,0
		h_{nom}	[mm] =	48,5	54,5	58,1	72,5
		h_c	[mm] =	8,5	11,5	12,1	15,5
		Ød_c	[mm] =	8,0	10,0	12,0	15,0

Figure A5: Elematic TRIDER, TRIDER/B sleeve.

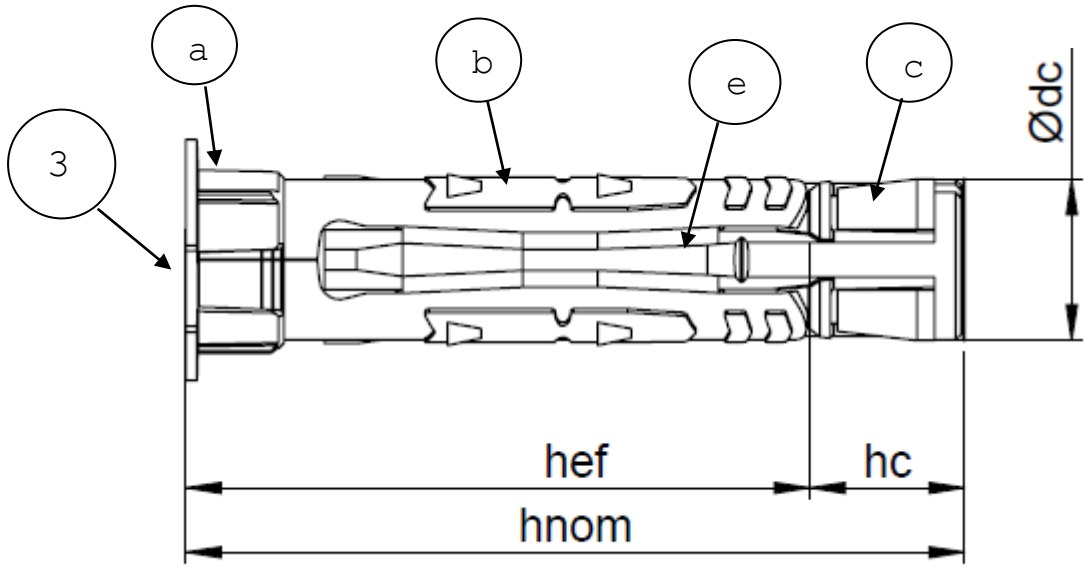


Table A5.2: Elematic TRIDER, TRIDER/B sleeve materials.

Sleeve materials				
Part		Sub-part	Designation	Description
③	TRIDER and TRIDER/B sleeve	a	Collar	Modified copolymer. Colour black
		b	Metallic sleeve part	Steel galvanized electrolytically with a thickness ≥5µ. Colour: white-blue
		c	Expansion cone	Steel galvanized electrolytically with a thickness ≥5µ. Colour: white-blue
		e	Plastic sleeve part	Modified copolymer. High resistance. Colour Black

(fig. not in scale)

Table A6.1: Elematic TRIDER/B screw dimensions

Screw dimensions				Type			
				TRIDER/B 5	TRIDER/B 6	TRIDER/B 8	TRIDER/B 10
Part	Designation	Parameter					
①	Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014	H	[-]	M5	M6	M8	M10
		L_S	[mm] =	60	65	70	90
		C_H	[-]	CH8	CH10	CH13	CH17

Figure A6: Elematic TRIDER/B screw

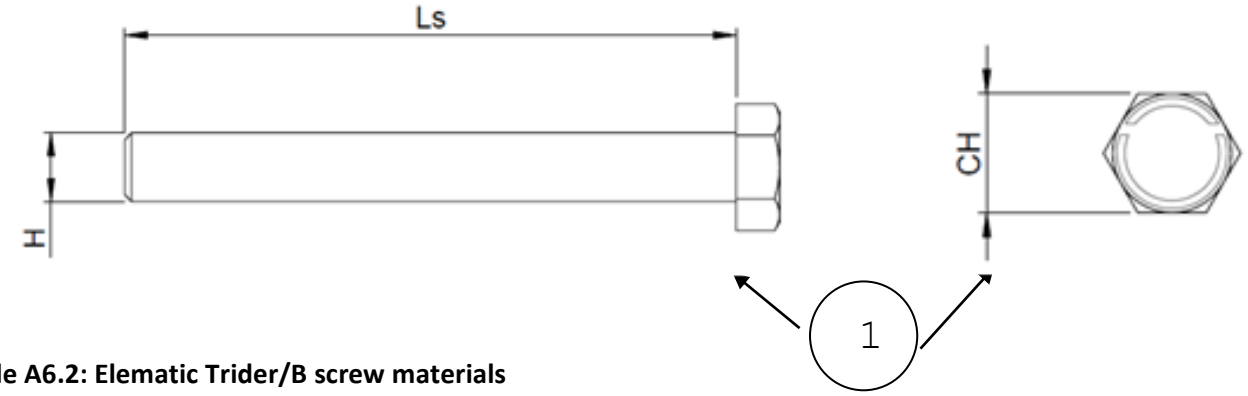


Table A6.2: Elematic Trider/B screw materials

Screw materials		
Part	Designation	Description
①	**Hexagon head screw EN ISO 4017: 2014/ISO 4017: 2014**	Hexagon head screw, steel class 8.8 galvanized electrolytically with a thickness ≥5µ. Colour: white-blue. Dry film lubrication: after the electrolytical galvanisation the screws are immersed in lubrication solution bath and then dried (Lubrification process type Agewachs 1026 or equivalent).

(fig. not in scale)

Table A7.1: Elematic TRIDER/B washer dimensions

Washer dimensions				Type			
				TRIDER/B 5	TRIDER/B 6	TRIDER/B 8	TRIDER/B 10
Part	Designation	Parameter					
②	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000	ØC	[mm] =	15,0	18,0	24,0	30,0
		ØD	[mm] =	5,3	6,4	8,4	10,5
		E	[mm] =	1,5	2,0	2,0	2,5

Figure A7: Elematic TRIDER/B washer

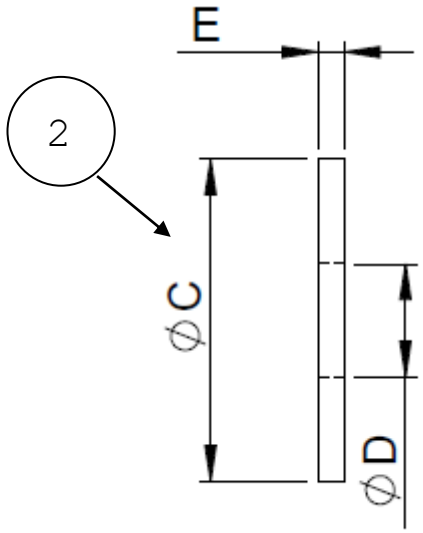


Table A7.2: Elematic Trider/B washer materials

Washer materials		
Part	Designation	Description
②	Washer EN ISO 7093-2: 2001/ISO 7093-2: 2000	Steel galvanized electrolytically with a thickness ≥7µ. Colour: white-blue

(*fig. not in scale*)

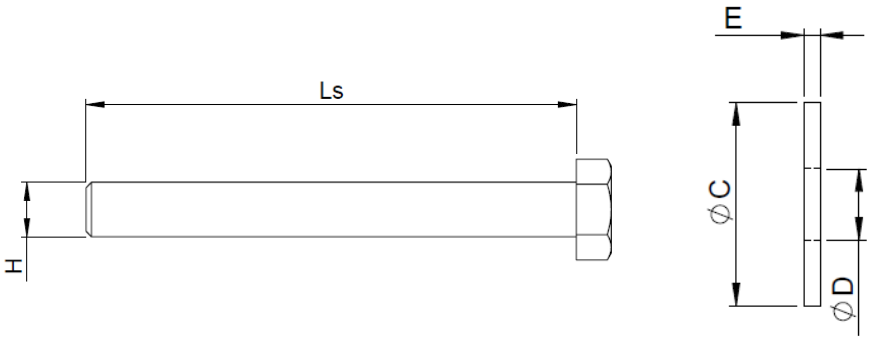
Table A8.1: Elematic TRIDER selection criteria for the hexagon head screw

Elematic TRIDER			Type			
			TRIDER 5	TRIDER 6	TRIDER 8	TRIDER 10
Description	**Parameter**					
Length of the hexagon head screw	L_S	[mm]	$\geq t_{fix}+E+49$	$\geq t_{fix}+E+55$	$\geq t_{fix}+E+58$	$\geq t_{fix}+E+73$
Thread size	H	[-]	M5	M6	M8	M10
Standardization	EN ISO 4017: 2014/ISO 4017: 2014					
Material	Steel, property class 8.8					
Treatment	Galvanized electrolytically with a thickness ≥5µ; dry film lubrication: after the electrolytical galvanisation the screws are immersed in lubrication solution bath and then dried (Lubrification process type Agewachs 1026 or equivalent).					

Table A8.2: Elematic TRIDER selection criteria for the washer

Elematic TRIDER				Type			
				TRIDER 5	TRIDER 6	TRIDER M8	TRIDER M10
Description	**Parameter**						
Hole diameter	ØD	[mm]	min	5,0	6,0	8,0	10,0
			max	5,5	6,6	8,6	10,8
External diameter	ØC	[mm]		≥ 10,0	≥ 11,0	≥ 15,0	≥ 19,0
Thickness	E	[mm]	min	1,0	1,4	1,4	1,8
			max	2,0	3,0	3,0	4,0
Material	Steel, hardness class min 140 HV						
Treatment	Steel galvanized electrolytically with a thickness ≥5µ.						

Figure A8 – Elematic TRIDER screw and washer



(fig.not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex A8** of European Technical Assessment ETA-22/0653
Product description – Elematic TRIDER selection criteria for hexagon head screw and washer, dimension and materials	

Use:
The fasteners are intended to be used for anchorages for which requirements for safety and accessibility in use in the sense of the Basic Requirements 4 of Regulation 305/2011 (EU) shall be fulfilled and failure of anchorages made with these products would compromise the stability of the works, cause risk to human life and/or lead to considerable economic consequences.

Fasteners subject to:
- Static and quasi-static loads;
- Multiple fixing of non-structural application.

Base materials:
- Solid brick masonry (base material group b) according to Annex B11;
  Note: The characteristic resistance is also valid for larger brick size and higher compressive strength of the masonsy unit;
- Hollow brick masonry (base material group c) according to Annex B12;
- Hollow concrete block (base material group c) according to Annex B12;
- For other base materials of the base material groups a or b the characteristic resistance of the fastener may be determined by job site tests according to TR 051:2018-04.

Temperature Range for use:
- Temperature RANGE A: max short term temperature + 40°C and max long term temperature +24°C;
- Temperature RANGE B: max short term temperature + 80°C and max long term temperature +50°C;
- Lowest installation temperature: 0°C;
- Lowest service temperature: -20°C.

Use conditions (Environmental conditions):
- Internal dry conditions.

Installation:
- Fastener installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Fastener installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Edge distances and spacings not less than the specified values without minus tolerances.
- Hole shall be clear.
- Hole drilling by the drilling method in accordance with Annex B11 and B12 for base material group b and c;
- Installation temperature: 0°C to +40 °C.

Proposed design methods:
- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be transmitted. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).
- Fasteners are only to be used for redundant non-structural system. Anchorages under static and quasi-static loads are designed in accordance with EN 1992-4.

Figure B2: Elematic TRIDER installation parameter for use in solid masonry (base material group b).

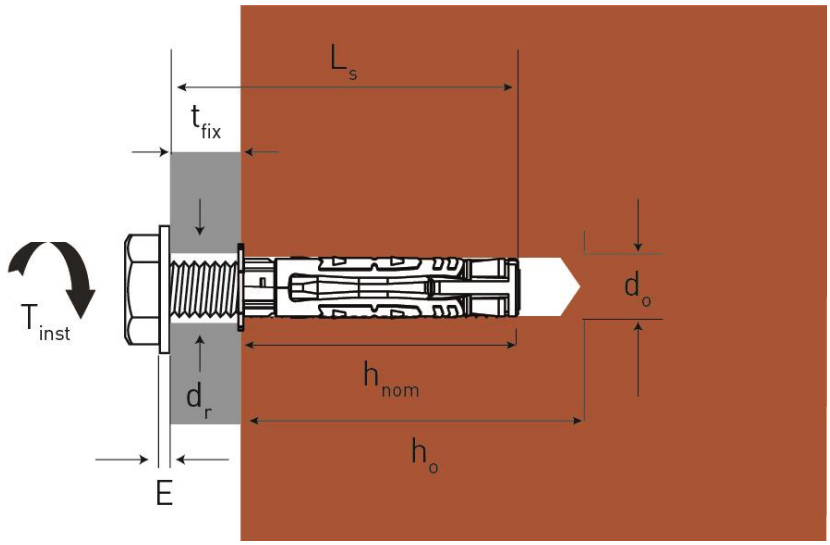


Table B2: Installation parameters

Essential characteristic Elematic TRIDER			Type			
			TRIDER 5	TRIDER 6	TRIDER 8	TRIDER 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
h_0	Depth of drill hole	[mm] ≥	L_s-t_{fix}+10	L_s-t_{fix}+15		L_s-t_{fix}+20
L_s	Length of the hexagon head screw	[mm] ≥	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
E	Thickness of the washer	[mm] =	min 1,0	1,4	1,4	1,8
			max 2,0	3,0	3,0	4,0
t_{fix}	Thickness of the fixture	[mm] =	min 1,0			
			max 30,0	90,0	155,0	140,0
T_{inst}	Installation moment	[Nm] =	3,5	15,0	20,0	30,0

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex B2** of European Technical Assessment ETA-22/0653
Intended use – Elematic TRIDER installation parameters for use in solid masonry (base material group b).	

Figure B3: Elematic TRIDER/B installation parameter for use in solid masonry (base material group b).

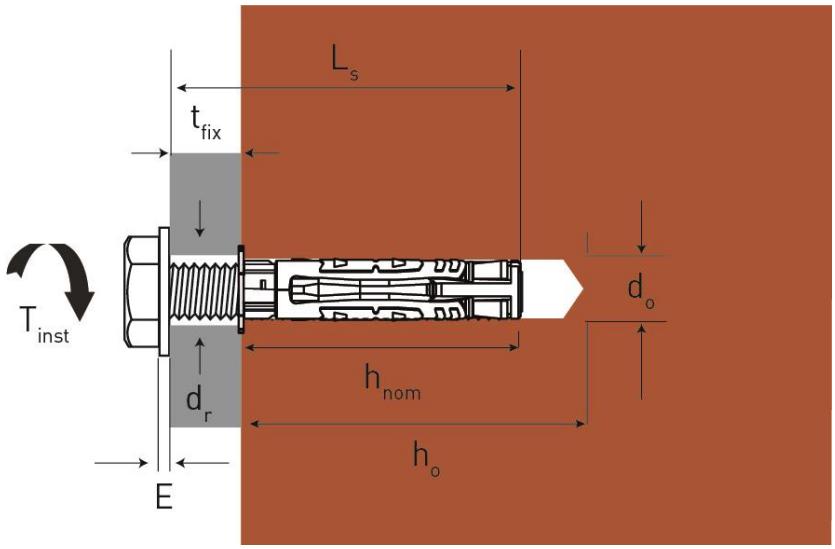


Table B3: Installation parameters

Essential characteristic Elematic TRIDER/B				Type		
			TRIDER/B 5	TRIDER/B 6	TRIDER/B 8	TRIDER/B 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
h_0	Depth of drill hole	[mm] ≥	60,0	65,0	70,0	85,0
L_s	Length of the hexagon head screw	[mm] =	60,0	65,0	70,0	90,0
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
t_{fix}	Thickness of fixture	[mm] =	min 1,0			
			max 10,0	10,0	10,0	15,0
T_{inst}	Installation moment	[Nm] =	3,5	15,0	20,0	30,0

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex B3** of European Technical Assessment ETA-22/0653
Intended use – Elematic TRIDER/B installation parameters for use in solid masonry (base material group b).	

Figure B4: Scheme of distance and spacing for TRIDER and TRIDER/B in solid masonry (base material group b).

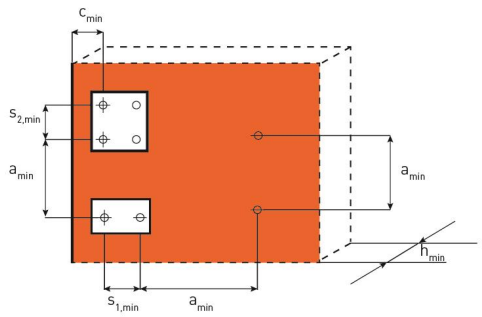


Table B4: Minimun thickness of the member, edge distance and spacing for Elematic TRIDER and TRIDER/B in solid masonry (base material group b).

Essential characteristic Elematic TRIDER and TRIDER/B			Type			
			TRIDER-TRIDER/B 5	TRIDER-TRIDER/B 6	TRIDER-TRIDER/B 8	TRIDER-TRIDER/B 10
Installation parameters						
h_{min}	Minimum thickness of the member	[mm]=	120	120	120	120
Single anchor						
a_{min}	Minimum spacing	[mm]=	a > max (250; s_{min})	a > max (250;s_{min})	a > max (250; s_{min})	a > max (250; s_{min})
c_{min}	Minimum edge distance	[mm]=	120	120	120	180
Anchor Group						
$s_{1,min}$	Minimum spacing perpendicular to free edge	[mm]=	240	240	240	360
$s_{2,min}$	Minimum spacing parallel to free edge	[mm]=	480	480	480	720
a_{min}	Spacing between anchor groups and/or single anchor	[mm]=	a > max (250; s_{min})	a > max (250; s_{min})	a > max (250; s_{min})	a > max (250; s_{min})
c_{min}	Minimum edge distance	[mm]=	120	120	120	180

(fig. not in scale)

Figure B5: Elematic TRIDER installation parameter for use in hollow masonry brick (base material group c.1)

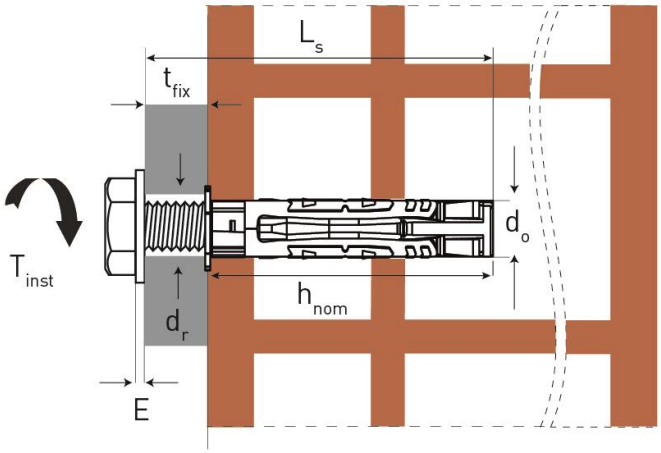


Table B5: Installation parameters

Essential characteristic Elematic TRIDER			Type			
			TRIDER 5	TRIDER 6	TRIDER 8	TRIDER 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
L_s	Length of the hexagon head screw	[mm] ≥	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
E	Thickness of the washer	[mm] =	min 1,0	1,4	1,4	1,8
			max 2,0	3,0	3,0	4,0
t_{fix}	Thickness of the fixture	[mm] =	min 1,0			
			max 30,0	90,0	155,0	140,0
T_{inst}	Installation moment	[Nm] =	3,0	5,0	6,0	8,0

(fig. not in scale)

Figure B6: Elematic TRIDER/B installation parameter for use in hollow masonry brick (base material group c.1)

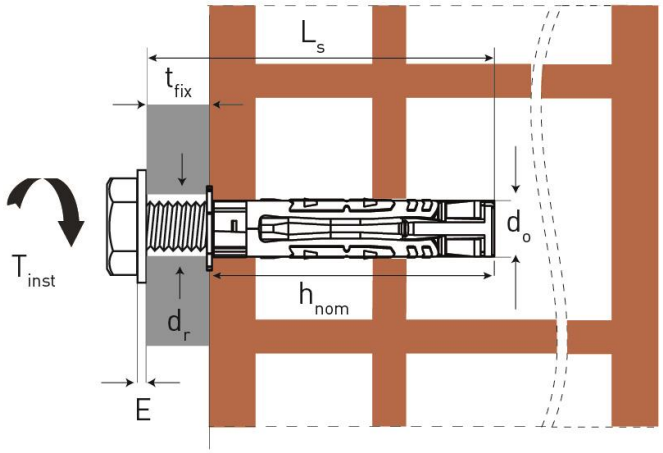


Table B6: Installation parameters

Essential characteristic Elematic TRIDER/B			Type			
			TRIDER/B 5	TRIDER/B 6	TRIDER/B 8	TRIDER/B 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
L_s	Length of the hexagon head screw	[mm] =	60,0	65,0	70,0	90,0
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
t_{fix}	Thickness of fixture	[mm] =	min 1,0			
			max 10,0	10,0	10,0	15,0
T_{inst}	Installation moment	[Nm] =	3,0	5,0	6,0	8,0

(fig. not in scale)

Figure B7: Scheme of distance and spacing for TRIDER and TRIDER/B in hollow masonry brick (base material group c.1).

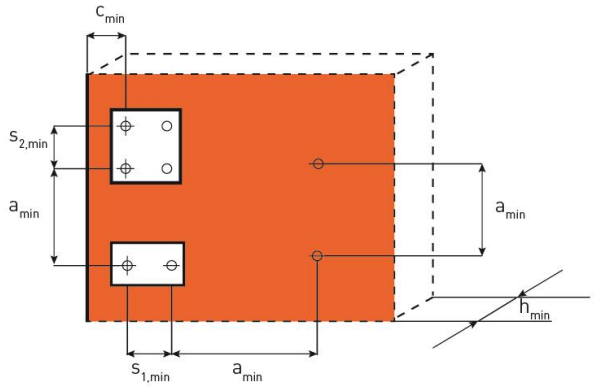


Table B7: Minimun thickness of the member, edge distance and spacing for Elematic TRIDER and TRIDER/B in hollow masonry brick (base material group c.1).

Essential characteristic Elematic TRIDER and TRIDER/B			Type			
			TRIDER-TRIDER/B 5	TRIDER-TRIDER/B 6	TRIDER-TRIDER/B 8	TRIDER-TRIDER/B 10
Installation parameters						
h_{min}	Minimum thickness of the member	[mm]=	300	300	300	300
Single anchor						
a_{min}	Minimum spacing	[mm]=	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})
c_{min}	Minimum edge distance	[mm]=	100	100	100	100
Anchor Group						
$s_{1,min}$	Minimum spacing perpendicular to free edge	[mm]=	200	200	200	200
$s_{2,min}$	Minimum spacing parallel to free edge	[mm]=	400	400	400	400
a_{min}	Spacing between anchor groups and/or single anchor	[mm]=	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})
c_{min}	Minimum edge distance	[mm]=	100	100	100	100

(fig. not in scale)

Figure B8: Elematic TRIDER installation parameter for use in hollow concrete block (base material group c.2)

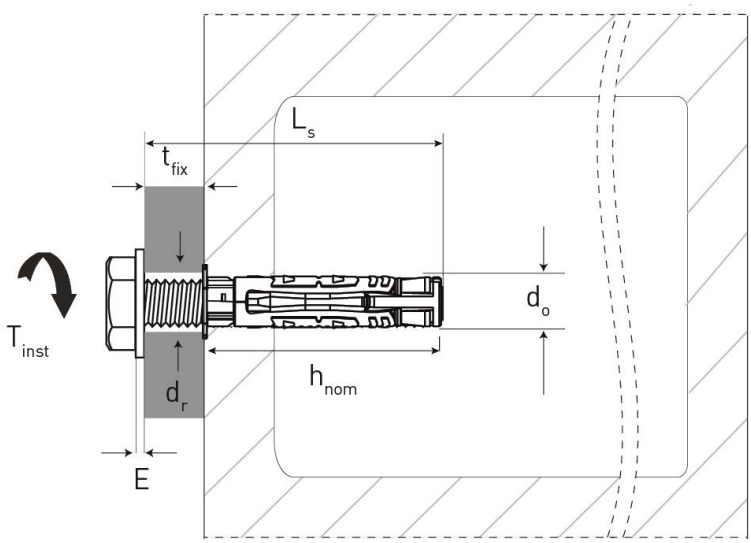


Table B5: Installation parameters

Essential characteristic Elematic TRIDER			Type			
			TRIDER 5	TRIDER 6	TRIDER 8	TRIDER 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
L_s	Length of the hexagon head screw	[mm] ≥	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}	t_{fix} + E + h_{nom}
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
E	Thickness of the washer	[mm] =	min 1,0	1,4	1,4	1,8
			max 2,0	3,0	3,0	4,0
t_{fix}	Thickness of the fixture	[mm] =	min 1,0			
			max 30,0	90,0	155,0	140,0
T_{inst}	Installation moment	[Nm] =	4,0	6,0	7,0	10,0

(fig. not in scale)

Figure B9: Elematic TRIDER/B installation parameter for use in hollow concrete block (base material group c.2)

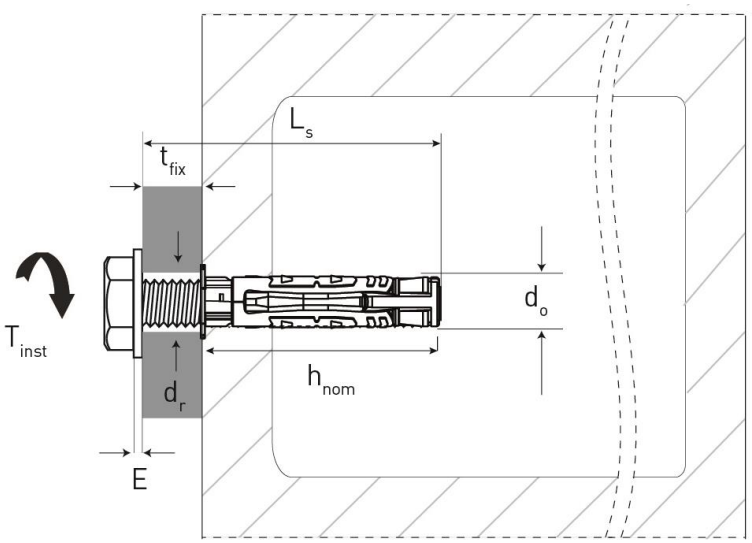


Table B6: Installation parameters

Essential characteristic Elematic TRIDER/B				Type		
			TRIDER/B 5	TRIDER/B 6	TRIDER/B 8	TRIDER/B 10
Installation parameters						
Ø d_0	Nominal drill hole diameter	[mm] =	8,0	10,0	12,0	15,0
Ø d_r	Diameter of the clearance hole in the fixture	[mm] ≤	6,0	7,0	9,0	11,0
L_s	Length of the hexagon head screw	[mm] =	60,0	65,0	70,0	90,0
h_{nom}	Nominal embedment depth in the base material	[mm] =	48,5	54,5	58,1	72,5
t_{fix}	Thickness of fixture	[mm] =	min 1,0			
			max 10,0	10,0	10,0	15,0
T_{inst}	Installation moment	[Nm] =	4,0	6,0	7,0	10,0

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex B9** of European Technical Assessment ETA-22/0653
Intended use - Elematic TRIDER/B Installation parameters for use in hollow concrete block (base material group c.2).	

Figure B10: Scheme of distance and spacing for TRIDER and TRIDER/B in hollow concrete block (base material group c.2).

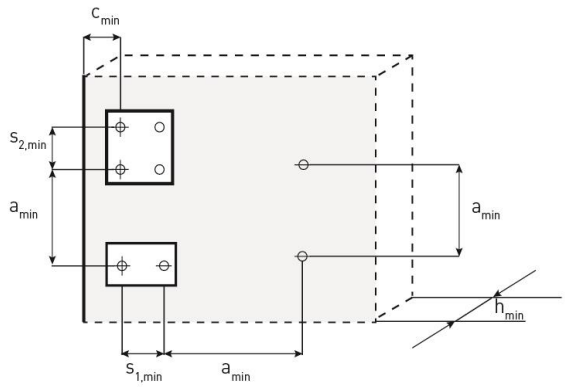
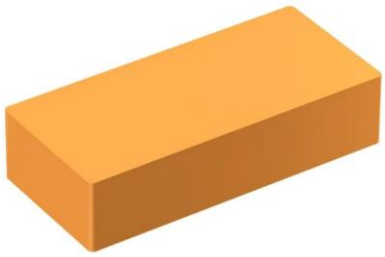
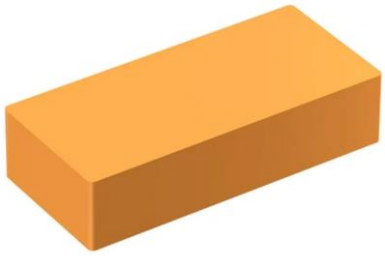


Table B10: Minimun thickness of the member, edge distance and spacing for Elematic TRIDER and TRIDER/B in hollow concrete block (base material group c.2).

Essential characteristic Elematic TRIDER and TRIDER/B			Type			
			TRIDER-TRIDER/B 5	TRIDER-TRIDER/B 6	TRIDER-TRIDER/B 8	TRIDER-TRIDER/B 10
Installation parameters						
h_{min}	Minimum thickness of the member	[mm]=	200	200	200	200
Single anchor						
s_{min}	Minimum spacing	[mm]=	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})
c_{min}	Minimum edge distance	[mm]=	100	100	100	100
Anchor Group						
$s_{1,min}$	Minimum spacing perpendicular to free edge	[mm]=	200	200	200	200
$s_{2,min}$	Minimum spacing parallel to free edge	[mm]=	400	400	400	400
s_{min}	Spacing between anchor groups and/or single anchor	[mm]=	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})	a > max (250;s_{min})
c_{min}	Minimum edge distance	[mm]=	100	100	100	100

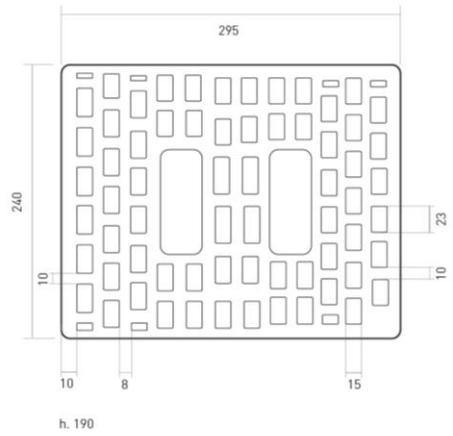
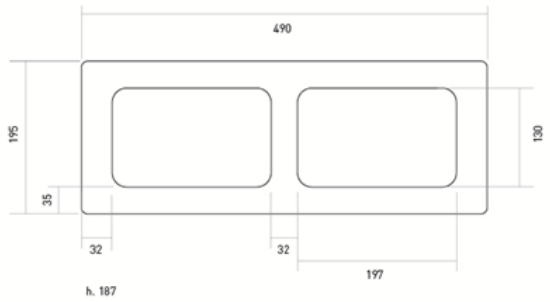
(fig. not in scale)

Table B11: Characteristic resistance for use in masonry (base material group b)

Base material Specification	Brick dimensions [mm] Drilling method	Minimum compressive strength [N/mm²]
 Solid Masonry Brick DANESI DM116 UNI 12.6.25 Density= 1665 kg/m³	250x120x4 Rotary Drilling Only	≥ 42
 Solid Masonry Brick DANESI DM116 UNI 12.6.25 Density= 1665 kg/m³	250x120x4 Rotary Drilling Only	≥ 18

(fig. not in scale)

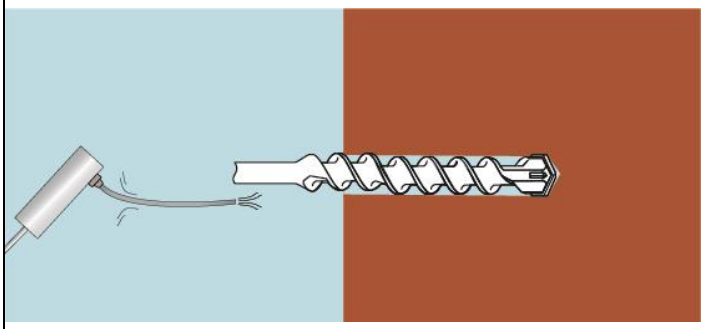
Table B12: Characteristic resistance for use in hollow masonry brick and hollow concrete block (base material group c)

Base material **Specification**	**Brick dimensions [mm]** **Drilling method**	**Minimum compressive strength [N/mm²]**
Base material group c.1  Poroton Alveolater 25/30 h19 Density = 842 kg/m³	250x300x190 Rotary Drilling Only	≥ 6
Base material group c.2  Lecablocco BC 20 Density = 1600 kg/m³	200x500x200 Hammer Drilling	≥ 8

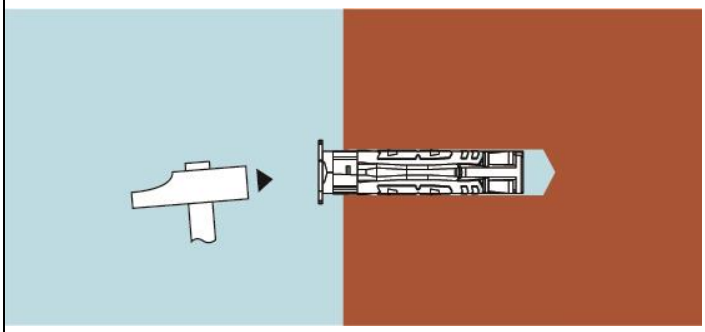
(fig. not in scale)

Installation instruction:

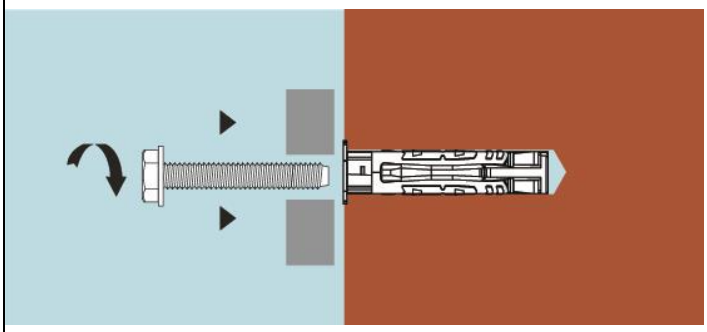
Base material group b



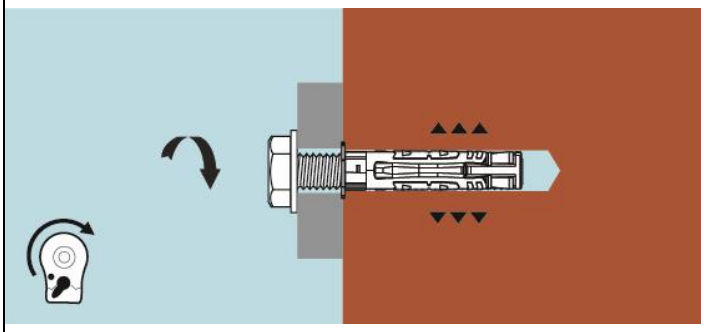
1) Drill the hole with rotary-drill only; the hole must be cleaned of drilling dust.



2) Set the fastener sleeve by slight hammer blows.



3) Attach the fixture and turn the screw in.



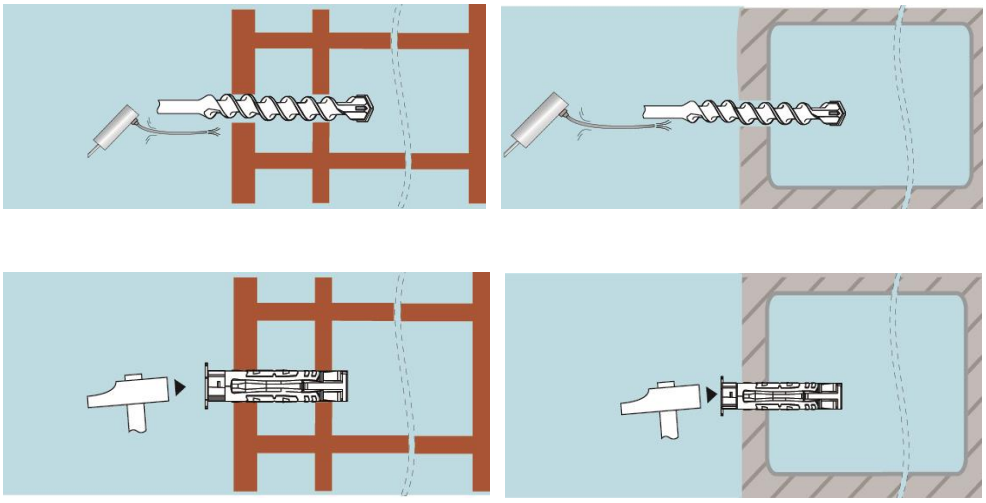
4) Apply required torque moment T_{inst}. Check the required torque moment T_{inst} using a torque wrench.

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex B13** of European Technical Assessment ETA-22/0653
Intended use – Installation instruction solid masonry (base material group b).	

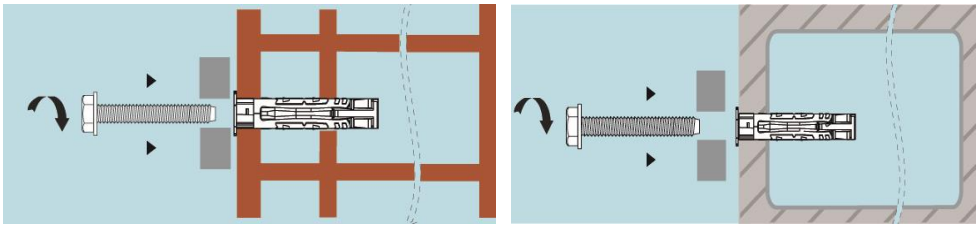
Installation instruction:

Base material group c.1 | Base material group c.2

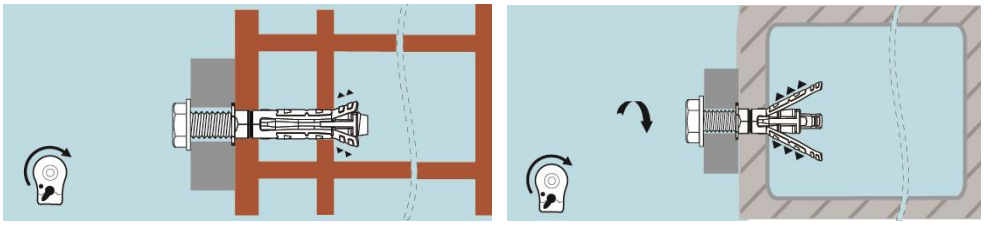


1) Drill the hole with rotary-drill only for base material group b and with hammer-drill for base material group c; the hole must be cleaned of drilling dust.

2) Set the fastener sleeve by slight hammer blows.



3) Attach the fixture and turn the screw in.



4) Apply required torque moment T_{inst}. Check the required torque moment T_{inst} using a torque wrench.

(fig. not in scale)

ELEMATIC TRIDER, TRIDER/B	**Annex B14** of European Technical Assessment ETA-22/0653
Intended use – Installation instruction hollow block (base material group c).	

Table C1.1: Characteristic resistance of the screw

Essential characteristics			Performance			
			M5	M6	M8	M10
Steel failure for shear loads						
$N_{Rk,s}$	Characteristic loads	[kN]	11,4	16,1	29,3	46,4
γ_{Ms} 1)	Partial safety factor	[-]	1,5			
$V_{Rk,s}$	Characteristic loads	[kN]	5,7	8,0	14,6	23,2
$M^0_{Rk,s}$	Characteristic bending resistance	[Nm]	7,2	12,2	30,0	59,8
γ_{Ms} 1)	Partial Safety Factor	[-]	1,25			

Table C1.2: Characteristic resistance for use in solid masonry (base material group b).

Essential characteristics			Performance			
			M5	**M6**	**M8**	**M10**
Characteristic resistance for use in solid masonry $f_b \geq 42$ MPa						
f_b	Nominal strength of the base material	[MPa]	42,0			
F_{Rk}	Characteristic resistance - Temp. RANGE A2)	[kN]	1,2	2,5	2,5	3,5
F_{Rk}	Characteristic resistance - Temp. RANGE B3)	[kN]	1,2	2,5	2,5	3,5
γ_M 1)	Partial safety factor	[-]	2,5			
Characteristic resistance for use in solid masonry $f_b \geq 18$ MPa						
f_b	Nominal strength of the base material	[MPa]	18,0			
F_{Rk}	Characteristic resistance - Temp. RANGE A2)	[kN]	0,9	2,0	2,0	2,5
F_{Rk}	Characteristic resistance - Temp. RANGE B3)	[kN]	0,9	2,0	2,0	2,5
γ_M 1)	Partial safety factor	[-]	2,5			

1) In absence of other national regulation.

2) Temperature RANGE A: max short term temperature + 40°C and max long term temperature +24°C.

3) Temperature RANGE B: max short term temperature + 80°C and max long term temperature +50°C.

Table C2.1: Characteristic resistance for use in hollow masonry brick (base material group c.1).

Essential characteristics			Performance			
			M5	M6	M8	M10
Characteristic resistance for use in hollow masonry brick						
f_b	Nominal strength of the base material	[MPa]	≥ 6,00			
F_{Rk}	Characteristic resistance - Temp. RANGE A[1)]	[kN]	0,75	0,75	1,50	1,50
F_{Rk}	Characteristic resistance - Temp. RANGE B[2)]	[kN]	0,60	0,60	1,50	1,50
γ_M [3)]	Partial safety factor	[-]	2,50			

Table C2.2: Characteristic resistance for use in hollow concrete block (base material group c.2).

Essential characteristics			Performance			
			M5	M6	M8	M10
Characteristic resitance for use in hollow concrete block						
f_b	Nominal strength of the base material	[MPa]	≥ 8,00			
F_{Rk}	Characteristic resistance - Temp. RANGE A[1)]	[kN]	1,50	1,50	2,00	2,00
F_{Rk}	Characteristic resistance - Temp. RANGE B[2)]	[kN]	1,50	1,50	2,00	2,00
γ_M [3)]	Partial safety factor	[-]	2,50			

[1)] Temperature RANGE A: max short term temperature + 40°C and max long term temperature +24°C.

[2)] Temperature RANGE B: max short term temperature + 80°C and max long term temperature +50°C.

[3)] In absence of other national regulation.

Table C3: Displacements[1] under tension and shear loading in solid masonry (base material group b).

Anchor Type	F[2]	Tension Load		Shear load	
		δ_{N0}	$\delta_{N\infty}$	δ_{V0}	$\delta_{V\infty}$
	[kN]	[mm]	[mm]	[mm]	[mm]
In solid masonry $f_b \geq 42$ MPa					
M5	0,34	0,22	0,43	0,29	0,43
M6	0,71	0,22	0,43	0,60	0,89
M8	0,71	0,19	0,39	0,60	0,89
M10	1,00	0,25	0,49	0,83	1,25
In solid masonry $f_b \geq 18$ MPa					
M5	0,26	0,16	0,32	0,21	0,32
M6	0,57	0,16	0,32	0,48	0,71
M8	0,57	0,15	0,31	0,48	0,71
M10	0,71	0,18	0,35	0,60	0,89

[1] Valid for temperature RANGE A and temperature RANGE B

[2] The values of the displacements under short and long-term tension and shear loading are evaluated using the following equation, with γ_F=1,4 and γ_{Mc}=2,5:

$$F = \frac{F_{Rk}}{\gamma_F \cdot \gamma_{Mc}}$$

Table C4.1: Displacements under tension and shear loading in hollow masonry brick (base material group c.1).

Anchor Type	F[1)]	Tension Load		Shear load	
		δ_{N0}	$\delta_{N\infty}$	δ_{V0}	$\delta_{V\infty}$
	[kN]	[mm]	[mm]	[mm]	[mm]
Hollow Masonry Brick[2)] Temp. RANGE A[3)]					
M5	0,21	0,08	0,16	0,18	0,27
M6	0,21	0,08	0,16	0,18	0,27
M8	0,43	0,12	0,23	0,36	0,54
M10	0,43	0,26	0,52	0,36	0,54
Hollow Masonry Brick[2)] Temp. RANGE B [4)]					
M5	0,17	0,06	0,13	0,14	0,21
M6	0,17	0,06	0,13	0,14	0,21
M8	0,43	0,12	0,23	0,36	0,54
M10	0,43	0,26	0,52	0,36	0,54

1) The values of the displacements under short and long-term tension and shear loading are evaluated using the following equation, with γ_F=1,4 and γ_{Mc}=2,5:

$$F = \frac{F_{Rk}}{\gamma_F \cdot \gamma_{Mc}}$$

2) Base material group c.1.

3) Temperature RANGE A: max short term temperature + 40°C and max long term temperature +24°C.

4) Temperature RANGE B: max short term temperature + 80°C and max long term temperature +50°C.

Table C4.2: Displacements[5)] under tension and shear loading in hollow masonry brick (base material group c.2).

Anchor Type	F[6)]	Tension Load		Shear load	
		δ_{N0}	$\delta_{N\infty}$	δ_{V0}	$\delta_{V\infty}$
	[kN]	[mm]	[mm]	[mm]	[mm]
M5	0,43	0,23	0,46	0,36	0,54
M6	0,43	0,23	0,46	0,36	0,54
M8	0,57	0,07	0,14	0,48	0,71
M10	0,57	0,07	0,14	0,48	0,71

5) Valid for temperature RANGE A and temperature RANGE B

6) The values of the displacements under short and long-term tension and shear loading are evaluated using the following equation, with γ_F=1,4 and γ_{Mc}=2,5:

$$F = \frac{F_{Rk}}{\gamma_F \cdot \gamma_{Mc}}$$