Deutsches Institut für Bautechnik

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body for construction products

Member of EOTA
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Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-16/0560 of 21 February 2025

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Edilmatic anchor channels and channel bolts
Product family to which the construction product belongs	Anchor channels
Manufacturer	EDILMATIC S.P.A. Via Gonzaga 11 46020 PEGOGNAGA ITALIEN
Manufacturing plant	EDILMATIC S.P.A. Via Gonzaga 11 46020 PEGOGNAGA ITALIEN
This European Technical Assessment contains	20 pages including 3 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 330008-04-0601, Edition 07/2024
This version replaces	ETA-16/0560 issued on 17 July 2017

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Specific Part

1 Technical description of the product

The Edilmatic anchor channels with channel bolts is a system consisting of C-shaped channel profile of carbon steel and at least two metal anchors non-detachably fixed to the channel back and channel bolts.

The anchor channel is embedded surface-flush in the concrete. Edilmatic channel bolts with appropriate hexagon nuts and washers are fixed to the channel.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

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

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor channel of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance under static and quasi-static tension loading	
- Resistance to steel failure of anchors	$N_{Rk,s,a}$ see Annex C1
- Resistance to steel failure of the connection between anchors and channel	$N_{Rk,s,c}$ see Annex C1
- Resistance to steel failure of channel lips and subsequently pull-out of channel bolt	$N^{0}_{Rk,s,l}$; $s_{l,N}$ see Annex C1
- Resistance to steel failure of channel bolt	$N_{Rk,s}$ see Annex C3
- Resistance to steel failure by exceeding the bending strength of the channel	s_{max} see Annex B2 $M_{Rk,s,flex}$ see Annex C1
- Maximum installation torque to avoid damage during installation	$T_{inst,g}$; $T_{inst,s}$ see Annex B3
- Resistance to pull-out failure of the anchor	$N_{Rk,p}$ see Annex C1
- Resistance to concrete cone failure	h_{ef} see Annex B2 $k_{cr,N}$; $k_{ucr,N}$ see Annex C1
- Minimum edge distances, spacing and member thickness to avoid concrete splitting during installation	s_{min} ; c_{min} ; h_{min} see Annex B2
- Characteristic edge distance and spacing to avoid splitting of concrete under load	$s_{cr,sp}$; $c_{cr,sp}$ see Annex C1
- Resistance to blowout failure - bearing area of anchor head	A_h see Annex A4

Essential characteristic	**Performance**
Characteristic resistance under static and quasi-static shear loading	
- Resistance to steel failure of channel bolt under shear loading without lever arm	$V_{Rk,s}$ see Annex C3
- Resistance to steel failure by bending of the channel bolt under shear load with lever arm	$M^0_{Rk,s}$ see Annex C3
- Resistance to steel failure of channel lips, steel failure of connection between anchor and channel and steel failure of anchor (shear load in transverse direction)	$V^0_{Rk,s,l,y}$; $s_{l,V}$; $V_{Rk,s,c,y}$; $V_{Rk,s,a,y}$ see Annex C2
- Resistance to steel failure of connection between channel lips and channel bolt (shear load in longitudinal channel axis)	No performance assessed
- Factor for sensitivity to installation (longitudinal shear)	No performance assessed
- Resistance to steel failure of the anchor (longitudinal shear)	No performance assessed
- Resistance to steel failure of connection between anchor and channel (longitudinal shear)	No performance assessed
- Resistance to concrete pry-out failure	k_8 see Annex C2
- Resistance to concrete edge failure	$k_{cr,V}$; $k_{ucr,V}$ see Annex C2
Characteristic resistance under combined static and quasi-static tension and shear loading	
- Resistance to steel failure of the anchor channel	k_{13}, k_{14} see Annex C2
Characteristic resistance under fatigue tension loading	
- Fatigue resistance to steel failure of the whole system (continuous or tri-linear function, assessment method A1, A2)	No performance assessed
- Fatigue limit resistance to steel failure of the whole system (assessment method B)	No performance assessed
- Fatigue resistance to steel failure of the whole system (linearized function, assessment method C)	No performance assessed
- Fatigue resistance to concrete related failure (exponential function, assessment method A1, A2)	No performance assessed
- Fatigue limit resistance to concrete related failure (assessment method B)	No performance assessed
- Fatigue resistance to concrete related failure (linearized function, assessment method C)	No performance assessed

Essential characteristic	Performance
Characteristic resistance under seismic loading (seismic performance category C1)	
- Resistance to steel failure under seismic tension loading (seismic performance category C1)	No performance assessed
- Resistance to steel failure under seismic shear loading for shear load in transverse direction (seismic performance category C1)	No performance assessed
- Resistance to steel failure under seismic shear loading for shear load in longitudinal channel axis (seismic performance category C1)	No performance assessed
Characteristic resistance under static and quasi-static tension and/or shear loading	
- Displacements	δ_{N0} ; $\delta_{N\infty}$ see Annex C3 $\delta_{V,y,0}$; $\delta_{V,y,\infty}$ see Annex C3 $\delta_{V,x,0}$; $\delta_{V,x,\infty}$ no performance assessed

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	No performance assessed

3.3 Aspects of durability

Essential characteristic	Performance
Durability	See Annex B1

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 330008-04-0601, the applicable European legal act is: [2000/273/EC].

The system to be applied is: 1

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 21 February 2025 by Deutsches Institut für Bautechnik.

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Müller

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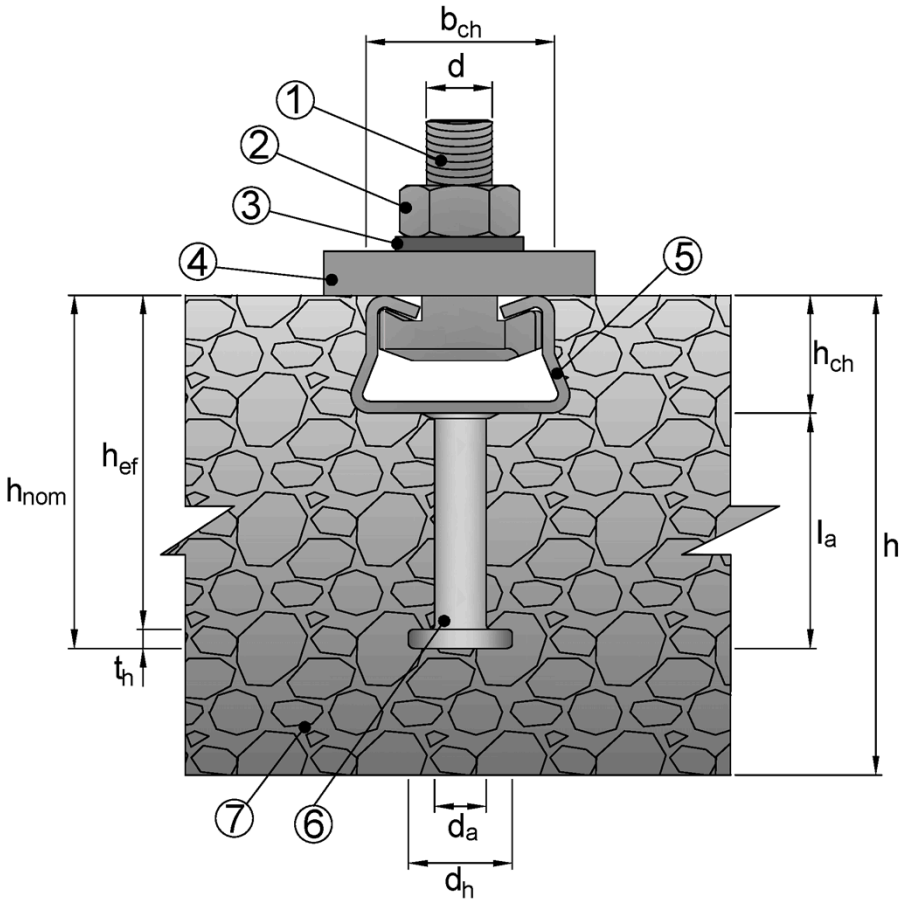
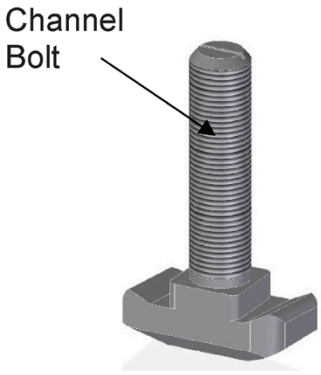
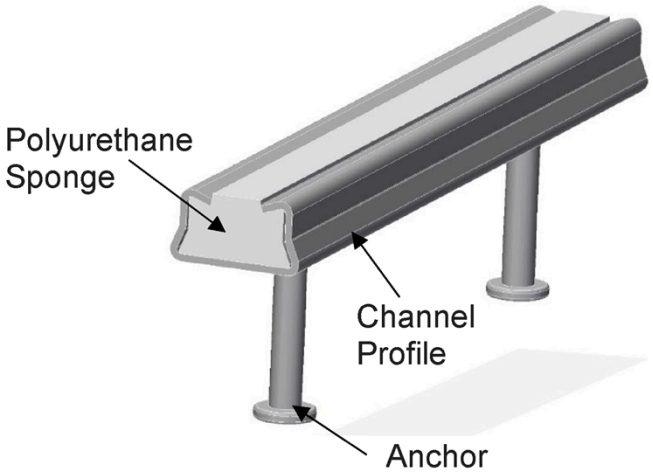
Product and installation condition



Key

1 Channel Bolt
2 Hexagonal nut
3 Washer
4 Fixture
5 Channel Profile
6 Anchor
7 Concrete member





Edilmatic anchor channels with channel bolts

Product description
Installed condition

Annex A1

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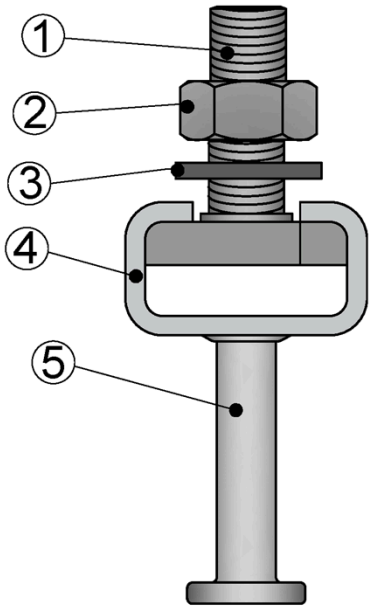
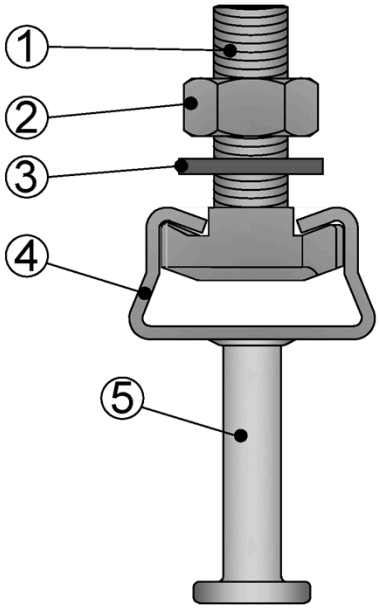
Anchor channel types



Anchor channel type
GF and GI
with channel bolt type
TMG1 and TMG2



Anchor channel type
GD, GE and GM
with channel bolt type
TAG1 and TAG2

Key
1 Hexagon nut
2 Washer
3 Channel Bolt
4 Channel Profile
5 Anchor

Edilmatic anchor channels with channel bolts	**Annex A2**
Product description Anchor channel types	

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Marking of the Edilmatic anchor channel:

E-X

E = Identifying mark of the manufacturer (Edilmatic)
X = Size of Anchor Channel

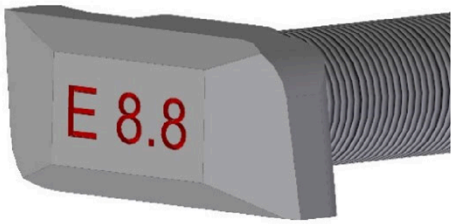
(e.g. E-GD)

E = EDILMATIC
GD = Anchor channel size GD

Marking of the Edilmatic channel bolt:

E-X

E = Identifying mark of the manufacturer (Edilmatic)
X = Steel grade



(e.g. E-8.8)

E = EDILMATIC
8.8 = Steel grade

Edilmatic anchor channels with channel bolts	**Annex A3**
Product description Marking of channel and channel bolt	

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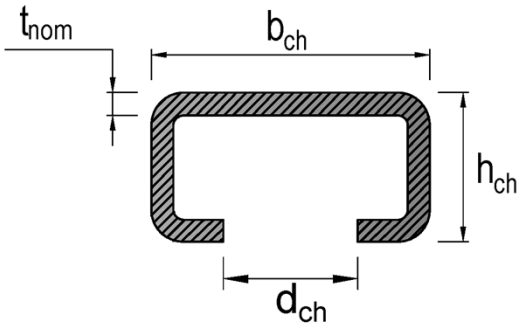
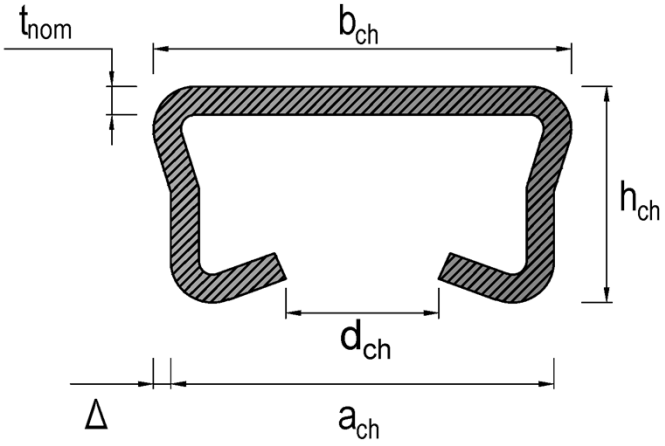
Anchor channels



Anchor channel type GF and GI



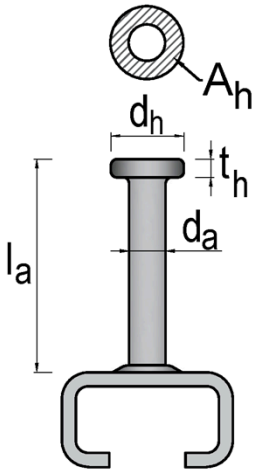
Anchor channel type GD, GE and GM

Table A1: Dimensions of channel profile

Anchor Channel	a_{ch}	b_{ch}	Δ	h_{ch}	t_{nom}	d_{ch}	I_y
	[mm]						[mm⁴]
GF	--	28,0	-	15,0	2,3	12,2	3776
GI	--	38,0	-	17,0	3,0	17,5	9080
GD	40,5	46,0	2,75	25,0	2,5	17,5	21055
GE	52,0	56,0	2	30,5	3,3	21,5	48251
GM	52,0	56,0	2	31,0	4,0	21,5	59279

Table A2: Dimensions of anchor

Anchor Channel	d_a	d_h	t_h	min l_a	A_h
	[mm]				[mm]
GF	6,0	12,0	2,5	34,1	84,8
GI	11,0	21,0	4,0	45,0	251,3
GD	11,0	21,0	4,0	47,0	251,3
GE	13,5	25,0	5,0	64,0	347,7
GM	13,0	25,5	5,0	98,5	378,0

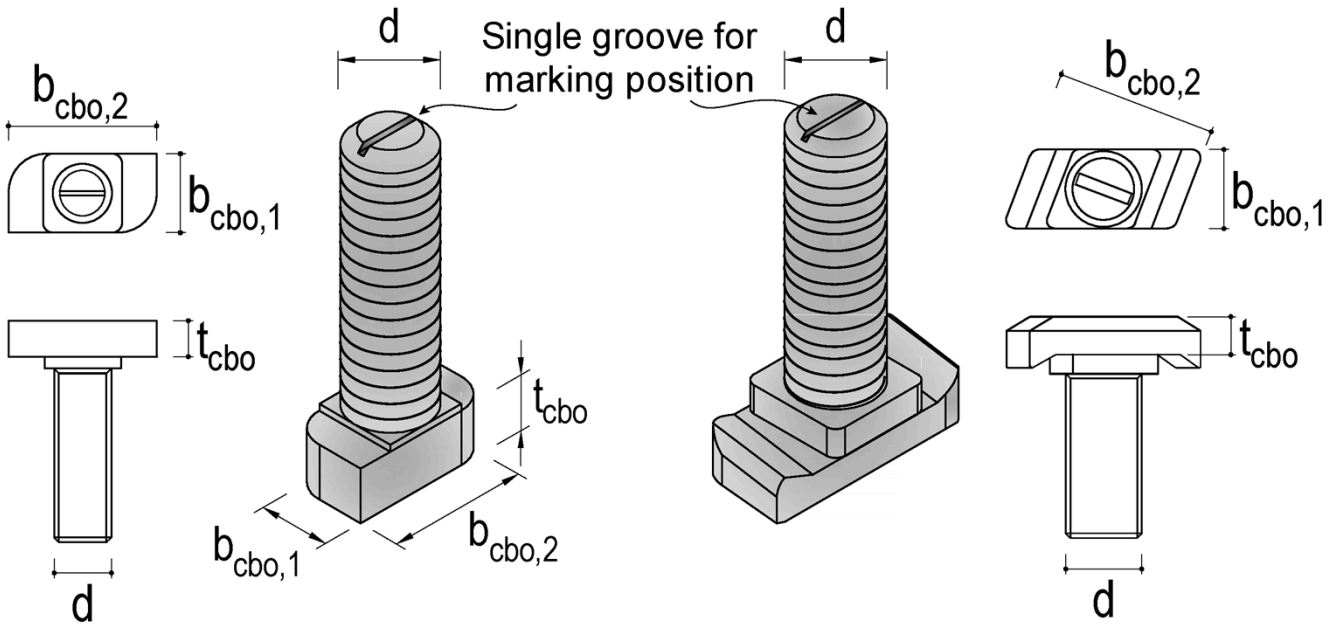


Edilmatic anchor channels with channel bolts

Product description
Dimensions of channel profiles and anchors

Annex A4

Channel bolts



Size TMG1 and TMG2 for channel GF and GI

Size TAG1 and TAG2 for channel GD, GE and GM

Table A3: Dimensions of channel bolts

Anchor channel	Channel bolt type	Dimensions			
		$b_{cbo,1}$	$b_{cbo,2}$	t_{cbo}	d
		[mm]			
GF	TMG1	12,0	22,0	7,5	12
GI	TMG2	16,0	30,0	7,5	12
GD	TAG1	16,5	33,5	8,0	12
					14
					16
GE	TAG2	20,0	46,0	9,5	16
GM					

Edilmatic anchor channels with channel bolts

Product description
Dimensions of channel bolts

Annex A5

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Table A4: Materials

Specification	Intended use	
	1	2
	Dry internal conditions	Internal conditions with usual humidity
	Anchor channels may only be used in structures subject to dry internal conditions	Anchor channels may also be used in structures subject to internal conditions with usual humidity (e.g. kitchen, bath and laundry in residential buildings, exceptional permanent damp conditions and application under water)
	Materials	
Channel profile	**Materia**l: S235 JR EN 10346:2015 **Material Number**: 1.0244 **Coating**: Hot dip galvanized (with Sendzimir method) **Thickness**:19µm < t < 21µm	**Material**: S235 JR EN 10025-1:2004 **Material Number**: 1.0038 **Coating**: Hot dip galvanized (on the basis of EN ISO 1461:2022) **Thickness**: t ≥ 50 µm
Anchor	**Material:** S235 JR EN 10263-3:2017 **Material Number**:1.1152 **Coating**: electroplated (on the basis of EN ISO 4042:1999) **Thickness**: t ≥ 5 µm	**Material:** S235 JR EN 10263-3:2017 **Material Number**:1.1152 **Coating**: Hot dip galvanized (on the basis of EN ISO 1461:2022) **Thickness**: t ≥ 50 µm
EDILMATIC Channel bolt	**Material:** Steel strength grade 8.8 (according to EN ISO 898-1:2013+AC:2013) **Coating**: electroplated (on the basis of EN ISO 4042:1999) **Thickness**: t ≥ 5 µm	**Material:** Steel strength grade 8.8 (according to EN ISO 898-1:2013+AC:2013) **Coating:** Hot dip galvanized (on the basis of EN ISO 10684:2004+AC:2009) **Thickness**: t ≥ 50 µm
Washer EN 7089:2000	**Material:** Steel acc. to EN 10025-1:2004 **Coating**: electroplated (on the basis of EN ISO 4042:1999) **Thickness**: t ≥ 5 µm	**Material:** Steel acc. to EN 10025-1:2004 **Coating**: Hot dip galvanized (on the basis of EN ISO 10684:2004+AC:2009) **Thickness**: t ≥ 50 µm
Hexagonal nut EN 4032:2023	**Material:** Steel acc. to EN 898-2:2022 **Coating**: electroplated (on the basis of EN ISO 4042:1999) **Thickness**: t ≥ 5 µm	**Material:** Steel acc. to EN 898-2:2022 **Coating**: Hot dip galvanized (on the basis of EN ISO 10684:2004+AC:2009) **Thickness**: t ≥ 50 µm

Edilmatic anchor channels with channel bolts

Product description
Materials and intended use

Annex A6

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Specification of intended use

Anchor channels and channel bolts subject to:

- Static and quasi-static tension and shear perpendicular to the longitudinal axis of the channel.

Base materials:

- Reinforced or unreinforced compacted, normal weight concrete without fibers, acc. to EN 206:2013+AC:2021.
- Strength classes C12/15 to C90/105 according to EN 206:2013+AC:2021.
- Cracked or uncracked concrete.

Use conditions (Environmental conditions)

- Structures subject to dry internal conditions: anchor channels and channel bolts acc. to Annex A6, Table A4, column 1 and 2.
- Structures subject to internal conditions with usual humidity (e.g. kitchen, bath and laundry in residential buildings, exceptional permanently damp conditions, and application under water):
  anchor channels and channel bolts acc. to Annex A6, Table A4, column 2.

Design:

- Anchor channels 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 anchored. The position of the anchor channel and channel bolt are indicated on the design drawings (e. g. position of the anchor channel relative to reinforcement or to supports, etc.).
- For static and quasi-static loading the anchor channels are designed in accordance with EN 1992-4:2018 and EOTA TR 047 “Calculation Method for the Performance of Anchor Channels", May 2021.

Installation:

- The installation of anchor channels is carried out by appropriately qualified personnel under the supervision of the person responsible for the technical matters on site.
- Use of the anchor channels only as supplied by the manufacturer – without any manipulations, repositioning or exchanging of channel components.
- Installation in accordance with the manufacturer’s specifications given in Annexes B4, B5 and B6.
- The anchor channels are fixed on the formwork, reinforcement or auxiliary construction such that no movement of the channels will occur during the time of laying the reinforcement and of placing and compacting the concrete.
- The concrete under the head of the anchors are properly compacted. The channels are protected from penetration of concrete into the internal space of the channels.
- Washer may be chosen according to Annex A5 and provided separately by the user.
- Orientating the channel bolt (groove according to Annex B5) rectangular to the channel axis.
- The required installation torques given in Annex A3, Table B3 must be applied and must not be exceeded.

Edilmatic anchor channels with channel bolts	**Annex B1**
Intended Use Specifications and Installation	

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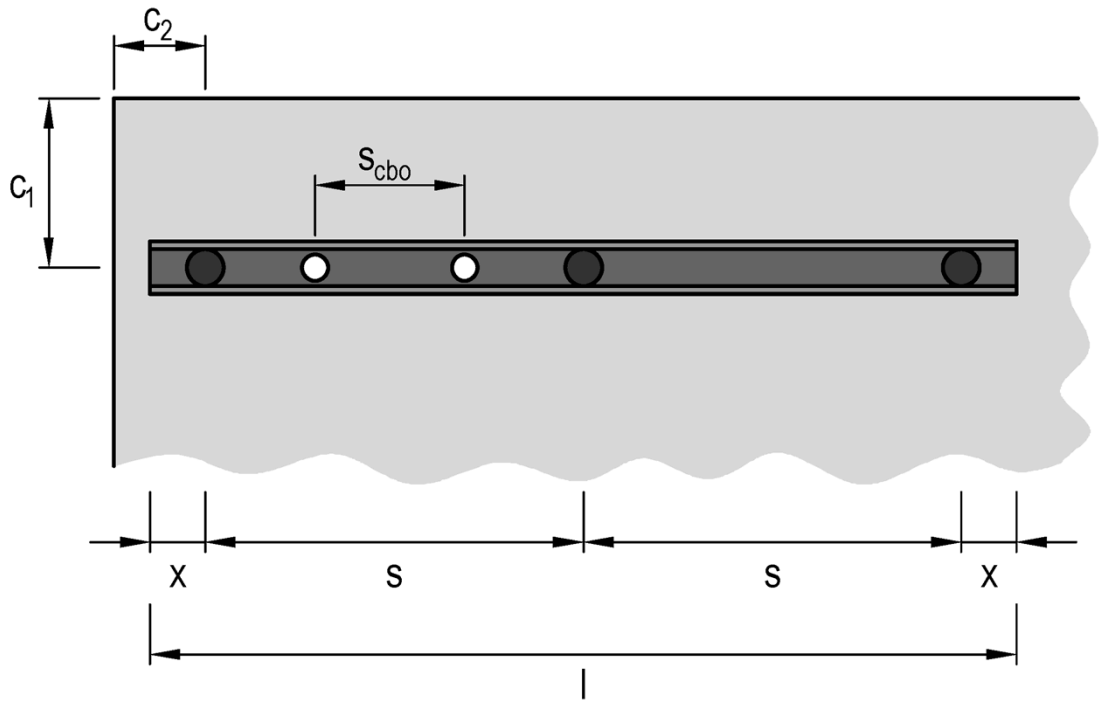
Table B1: Installation parameters for anchor channels

Anchor channel			**GF**	**GI**	**GD**	**GE**	**GM**
Effective embedment depth	h_{ef}	[mm]	46,5	59,0	69,0	91,0	126,0
Minimum spacing	s_{min}	[mm]	100	100	100	100	100
Maximum spacing	s_{max}	[mm]	200	200	200	200	200
End spacing	x	[mm]	50	50	50	50	50
Minimum channel length	l_{min}	[mm]	200	200	200	200	200
Minimum edge distance	$c_{min,1}$	[mm]	60	60	100	100	100
	$c_{min,2}$	[mm]	40	40	80	80	100
Minimum thickness of concrete member	h_{min}	[mm]	100	100	150	150	200



Edilmatic anchor channels with channel bolts

Intended Use
Installation parameters for anchor channels

Annex B2

Deutsches Institut für Bautechnik DIBt

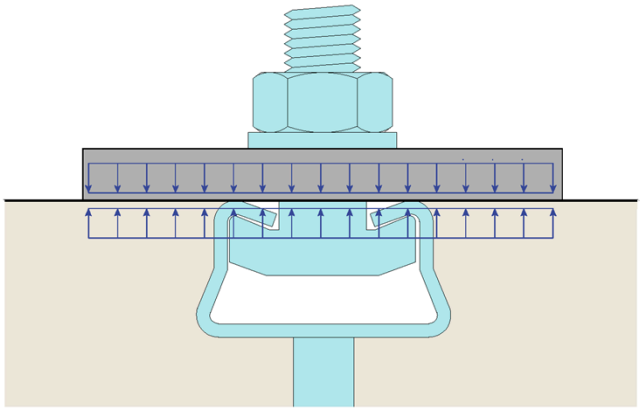
Table B2: Minimum spacing for channel bolts

Channel bolt			**M12**	**M14**	**M16**
Minimum spacing between channel bolts	$s_{cbo,min}$	[mm]	60	70	80

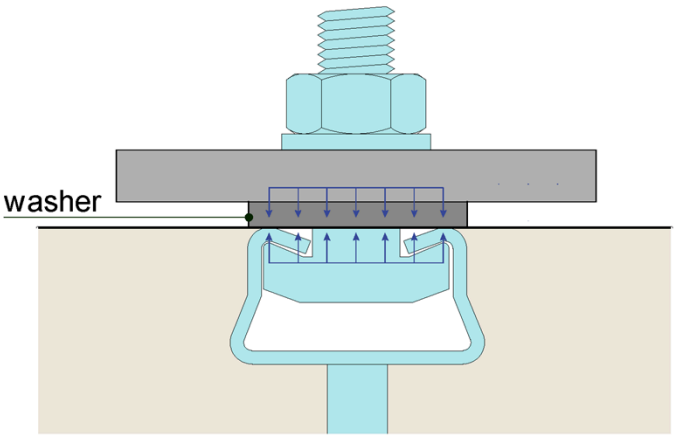
s_{cbo} = center to center spacing between channel bolts ($s_{cbo,min}$ = 5d)

Table B3: Required installation torque T_{inst} (general application and steel-steel contact)

Anchor channel			**GF**	**GI**	**GD**			**GE**	**GM**
Bolt size			M12	M12	M12	M14	M16	M16	M16
Installation torque	$T_{inst,g} = T_{inst,s}$	[Nm]	15	16	30	40	40	60	60



General. The fixture is in contact with the channel profile and the concrete surface.



Steel-steel contact. The fixture is fastened to the anchor channel by suitable steel part (e.g. washer). The fixture is in contact with the channel profile only.

Edilmatic anchor channels with channel bolts	**Annex B3**
Intended Use Installation instructions for anchor channels (part 1)	

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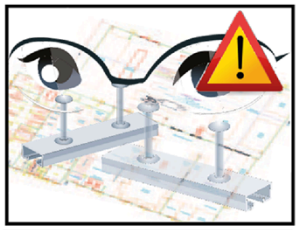
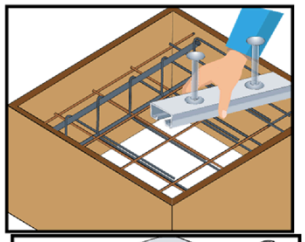
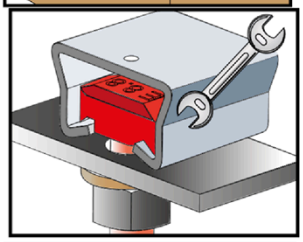
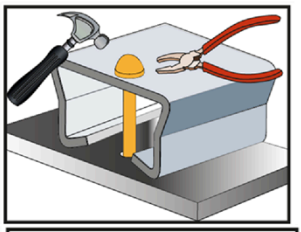
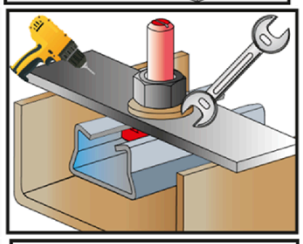
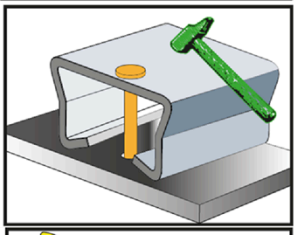
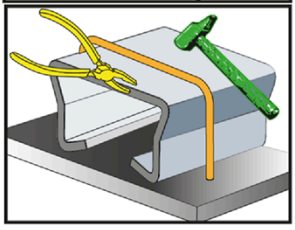
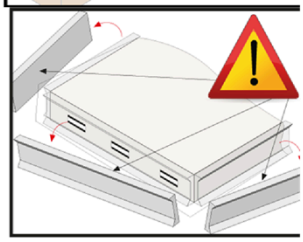
1	**Selection of anchor channel, in accordance to the planning document**	
2	**Placing channel into formwork**	
2a)	Steel formwork: Fixing with Edilmatic channel bolts through the form	
2b)	Steel formwork: Fixing with rivets using the prefabricated holes in the back of the anchor channel	
2c))	Top surface of concrete: Fixing by using auxiliary construction or fixing from above directly to the reinforcement	
2d)	Wood formwork: Fixing with nails using the prefabricated holes in the back of the anchor channel	
2e)	Wood formwork: Fixing with staples	

Edilmatic anchor channels with channel bolts	**Annex B4**
Intended Use Installation instructions for anchor channels (part 2)	

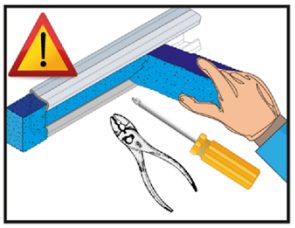
Deutsches Institut für Bautechnik DIBt

3 **Cast in and compact the concrete and hardening of concrete**

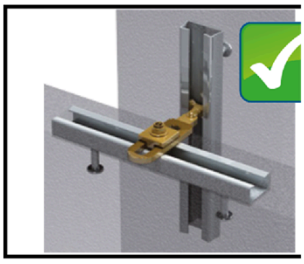
4 **Striking the formwork:** Removing of the steel or wood formwork



5 **Removing the foam filler**



6 **Installation of the anchor channel is finished**



Edilmatic anchor channels with channel bolts

Intended Use
Installation instructions for anchor channels (part 3)

Annex B5

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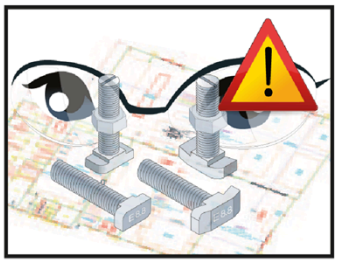
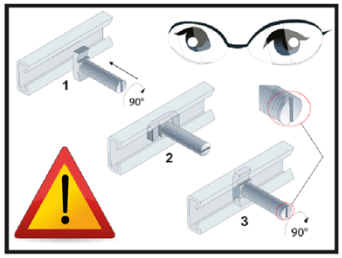
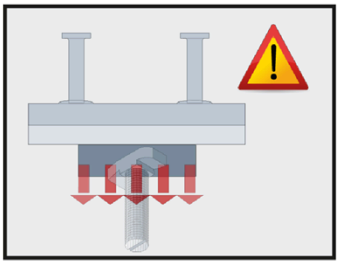
1 **Selection of the EDILMATIC channel bolt in accordance to the planning document.**



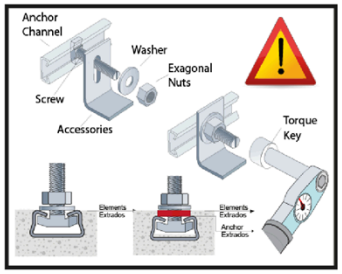
2 **Insert the channel bolt into the channel.**
After 90° turn clockwise, the channel bolt locks into the channel (check the position of the bolt by groove)



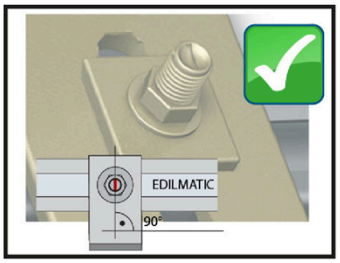
4 **Positioning of the channel bolt.**
At the channel ends a minimum clearance must be maintained, which corresponds with the overhang beyond the last anchor.



5 **Tighten the hexagonal nut to the installation torque** according to Annex B3, Table B3.
T_{inst} must not be exceeded



6 **After fixing the nuts check the correct position of the bolt with the groove at the bolt shaft.**
Groove has to be perpendicular to the longitudinal axis of the channel. The channel bolt has to be released completely, inserted and tightened again if it is not so.



Installation of the channel bolt is finished.

Edilmatic anchor channels with channel bolts	**Annex B6**
Intended Use Installation instructions for anchor channels (part 4)	

Deutsches Institut für Bautechnik DIBt

Table C1: Characteristic resistances under tension load – steel failure of anchor channel

Anchor channel				GF	GI	GD	GE	GM
Steel failure: Anchor								
Characteristic resistance	$N_{Rk,s,a}$	[kN]		11,3	38,0	38,0	57,3	53,1
Partial factor	γ_{Ms} [1)]					2,0		
Steel failure: Connection between anchor and channel								
Characteristic resistance	$N_{Rk,s,c}$	[kN]		8,8	27,0	24,2	31,5	47,8
Partial factor	$\gamma_{Ms,ca}$ [1)]					1,8		
Steel failure: Local failure by flexure of channel lips								
Characteristic spacing of channel bolt for $N_{Rk,s,l}$	$s_{l,N}$	[mm]		56	76	92	112	112
Characteristic resistance	$N^0_{Rk,s,l}$	[kN]		8,8	27,0	24,2	31,5	47,8
Partial factor	$\gamma_{Ms,l}$ [1)]					1,8		
Steel failure: Flexure of channel								
Characteristic resistance	$M_{Rk,s,flex}$	[Nm]		159	288	507	938	1152
Partial factor	$\gamma_{Ms,flex}$ [1)]					1,15		

1) In absence of other national regulations.

Table C2: Characteristic resistances under tension load – concrete failure

Anchor channel				GF	GI	GD	GE	GM
Pullout								
Characteristic resistance in cracked concrete	C12/15	$N_{Rk,p}$	[kN]	7,6	22,6	22,6	31,3	34,0
Increasing factor of $N_{Rk,p} = N_{Rk,p(C12/15)} \cdot \psi_c$	C20/25	ψ_c	[-]			1,67		
	C25/30					2,08		
	C30/37					2,50		
	C35/45					2,92		
	C40/50					3,33		
	C45/55					3,75		
	C50/60					4,17		
Partial factor		$\gamma_{Mp} = \gamma_{Mc}$ [1)]	[-]			1,5		
Concrete cone failure								
Product factor cracked concrete		$k_{cr,N}$	[-]	7,3	7,5	7,7	8,0	8,4
Product factor uncracked concrete		$k_{ucr,N}$	[-]	10,4	10,7	11,0	11,5	12,0
Partial factor		γ_{Mc} [1)]				1,5		
Splitting								
		$c_{cr,sp}$	[-]			3,0 h_{ef}		
		$s_{cr,sp}$	[-]			6,0 h_{ef}		
Partial factor		$\gamma_{M,sp} = \gamma_{Mc}$ [1)]	[-]			1,5		

1) In absence of other national regulations.

Edilmatic anchor channels with channel bolts

Performance
Characteristic resistances of anchor channels under tension load

Annex C1

Deutsches Institut für Bautechnik DIBt

Table C3: Characteristic resistances under tension load – steel of anchor channel and concrete failure

Anchor channel				GF	GI	GD	GE	GM
Steel failure: Anchor								
Characteristic resistance		$V_{Rk,s,a,y}$	[kN]	11,3	38,0	38,0	57,3	53,1
Partial factor		$\gamma_{Ms,}$ [1)]	[-]	1,67				
Steel failure: Connection between anchor and channel								
		$V_{Rk,s,c,y}$	[kN]	8,8	27,0	24,2	31,5	47,8
Partial factor		$\gamma_{Ms,c}$ [1)]	[-]	1,8				
Steel failure: Local flexure of channel lips								
Characteristic spacing of channel bolts for $V_{Rk,s,l}$		$s_{l,V}$	[mm]	56	76	92	112	112
Characteristic resistance		$V_{Rk,s,l,y}$	[kN]	8,8	27,0	26,9	31,5	47,8
Partial factor		$\gamma_{Ms,l}$ [1)]	[-]	1,8				
Concrete pry-out								
Product factor		k_8	[kN]	1,0	1,0	2,0	2,0	2,0
Partial factor		γ_{Mc}		1,5				
Concrete edge failure								
Product factors	cracked concrete	$k_{cr,V}$	[-]	4,5				
	uncracked concrete	$k_{ucr,V}$	[-]	6,3				
Partial factor		γ_{Mc}	[-]	1,5				

1) In absence of other national regulations.

Table C4: Characteristic resistances under combined tension and shear load

Anchor channel			GF	GI	GD	GE	GM
Steel failure, local failure by flexure of channel lips and failure by flexure of channel							
Product factor	k_{13}	[-]	Values according to EN 1992-4:2018, section 7.4.3.1				
Steel failure, failure of anchor and connection between anchor and channel							
Product factor	k_{14}	[-]	Values according to EN 1992-4:2018, section 7.4.3.1				

Edilmatic anchor channels with channel bolts

Performance
Characteristic resistances of anchor channels under shear load
Characteristic resistance under combined tension and shear load

Annex C2

Deutsches Institut für Bautechnik DIBt

Table C5: Characteristic resistances tension load – steel failure of Edilmatic channel bolts

Channel bolt			M12	M14	M16
Characteristic resistance	$N_{Rk,s}$	[kN]	56,0	59,5	63,7
Partial factor	γ_{Ms}	[-]	1,5		

Table C6: Characteristic resistances shear load – steel failure of Edilmatic channel bolts

Channel bolt			M12	M14	M16
Characteristic resistance	$V_{Rk,s}$	[kN]	33,7	46,0	62,8
Partial factor	γ_{Ms}	[-]	1,25		
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	82,4	167,0	267,0
Partial factor	γ_{Ms}	[-]	1,25		

Table C7: Displacements under tension load

Anchor channel			GF	GI	GD	GE	GM
Tension load	N	[kN]	3,5	10,7	7,7	12,1	20,0
Short-term displacement	δ_{N0}	[mm]	0,6	0,8	0,7	1,0	1,3
Long-term displacement	$\delta_{N\infty}$	[mm]	1,2	1,6	1,4	2,0	2,6

Table C8: Displacements under shear load

Anchor channel			GF	GI	GD	GE	GM
Shear load	V	[kN]	3,5	10,7	7,7	12,1	20,0
Short-term displacement	$\delta_{V,y,0}$	[mm]	0,9	1,2	1,1	1,5	2,0
Long-term displacement	$\delta_{V,y,\infty}$	[mm]	1,4	1,8	1,7	2,3	3,0

Edilmatic anchor channels with channel bolts

Performance
Characteristic resistances of channel bolts under tension and shear loads
Displacements under tension and shear loads

Annex C3