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-20/0455 of 4 August 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	WÜRTH Frame Anchor IFR
Product family to which the construction product belongs	Plastic anchor for redundant non-structural systems in concrete and masonry
Manufacturer	Wuerth India Pvt. Ltd. 703/704 Windfall, Sahar Plaza Complex Andheri - Kurla Road J B Nagar Andheri (East) MUMBAI, MAHARASHTRA - 400059 INDIEN
Manufacturing plant	Plant 1
This European Technical Assessment contains	22 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 330284-00-0604, edition 12/2020
This version replaces	ETA-20/0455 issued on 15 June 2020

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Specific Part

1 Technical description of the product

The WÜRTH Frame Anchor IFR is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

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 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 anchors 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 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 1

3.2 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Resistance to steel failure under tension loading	See Annex C 1
Resistance to steel failure under shear loading	See Annex C 1
Resistance to pull-out or concrete failure under tension loading (base material group a)	See Annex C 1
Resistance in any load direction without lever arm (base material group b, c, d)	See Annexes C 2 - C 4 and C 9
Edge distance and spacing (base material group a)	See Annex B 2
Edge distance and spacing (base material group b, c, d)	See Annex B 3 - B 5
Displacements under short-term and long-term loading	See Annex C 5 - C 9
Durability	See Annex B 1

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

In accordance with European Assessment Document EAD 330284-00-0604 the applicable European legal act is: 97/463/EC.

The system to be applied is: 2+

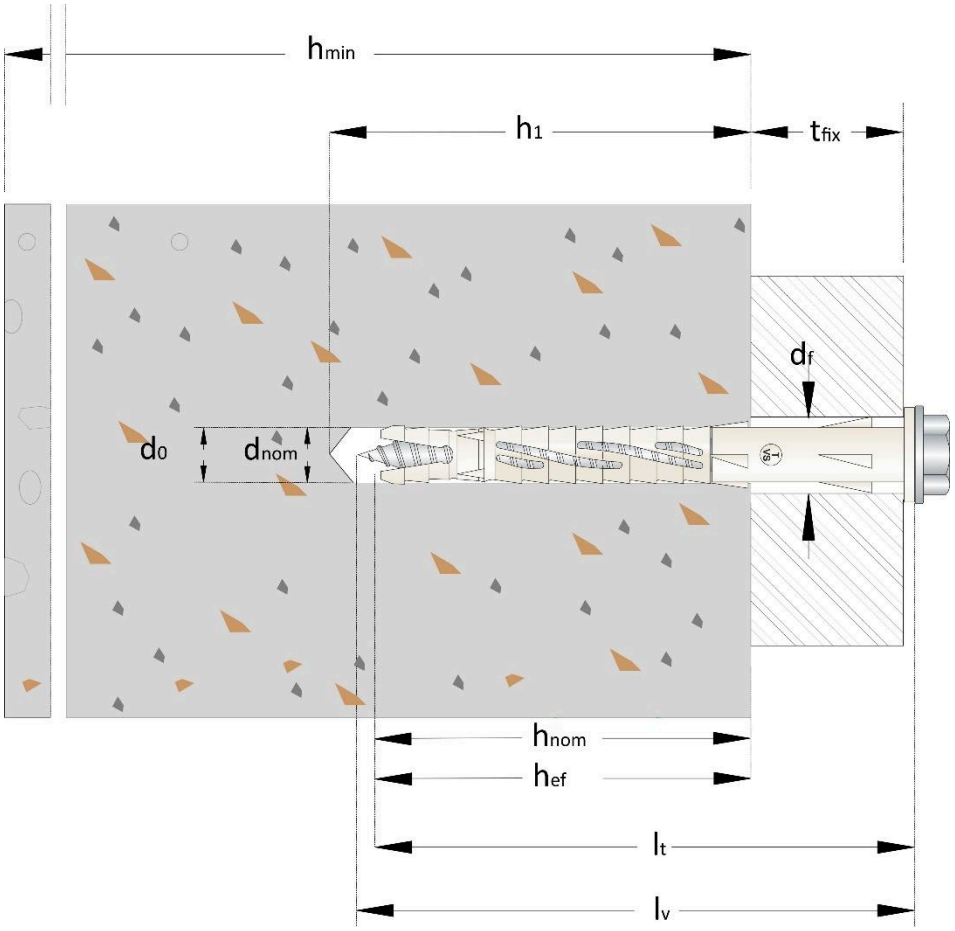
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

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 4 August 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler



Intended use:
Fixing in concrete and different types of masonry.

Legend:

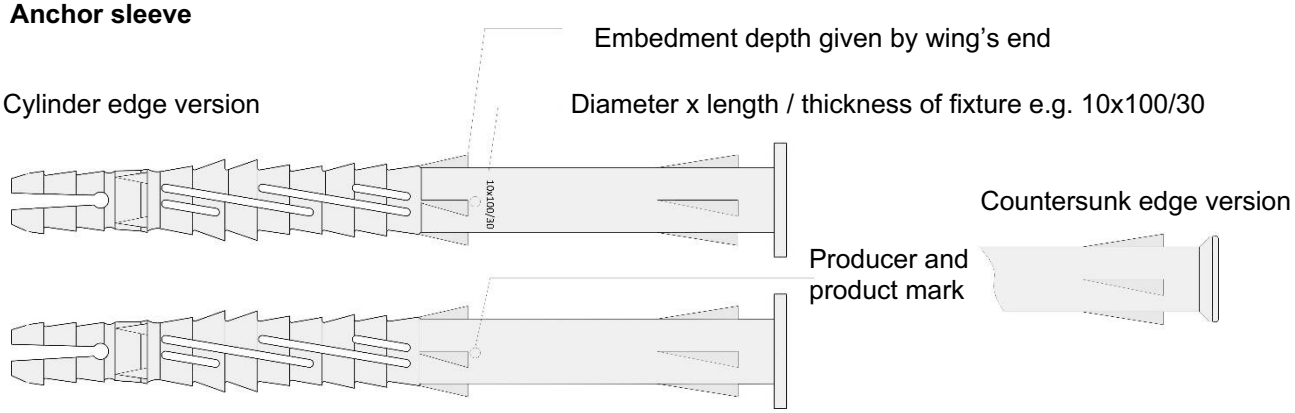
h_{min}:	minimum thickness of concrete member
h_{nom}:	minimum overall embedment depth
h_{ef}:	minimum effective embedment depth
d_{nom}:	anchor diameter
l_t:	anchor length
l_v:	screw length
d_0:	drill hole diameter
h_1:	minimum depth of drill hole
t_{fix}:	maximum thickness of fixture
d_f:	diameter of clearance hole in the fixture

WÜRTH Frame Anchor IFR

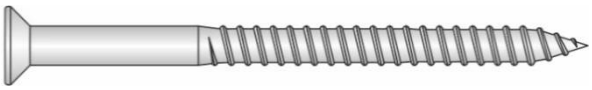
Product description
Installed condition

Annex A 1

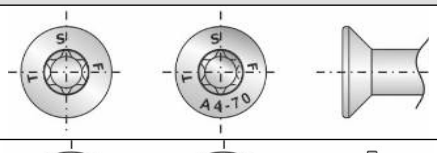
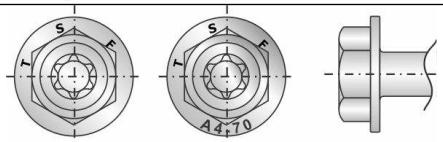
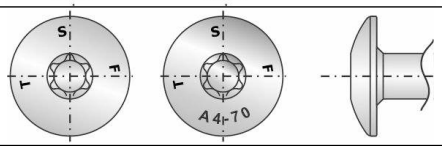
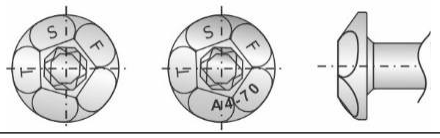
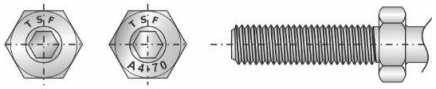
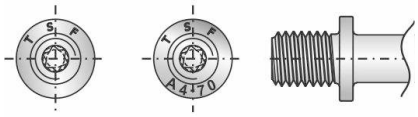
Anchor sleeve



Special screw (Carbon steel version and stainless steel A4 version)



Different available head

Different head screw	Anchor code			
	Countersunk edge version		Cylinder edge version	
	Carbon steel screw	Stainless steel screw	Carbon steel screw	Stainless steel screw
	IFR11	IFR13		
	IFR31	IFR33	IFR81	IFR83
	IFR21	IFR23	IFR71	IFR73
	IFR26	IFR28	IFR76	IFR78
	IFR41	IFR43	IFR91	IFR93
	IFR61	IFR63	IFR66	IFR68

WÜRTH Frame Anchor IFR

Product description
Anchor types / specific screw – marking and dimensions

Annex A 2

Table 1: Dimensions

Anchor type		IFR Ø 8	IFR Ø 10
Outside diameter of anchor	d_{nom}= [mm]	8	10
Length of the anchor	l_t = [mm]	≥80	
Screw diameter	dv = [mm]	6	7
Screw length	lv = [mm]	≥85	≥85

Table 2: Materials

Anchor sleeve	Polyamide PA 6, colour: light grey
Carbon steel screw	Carbon Steel grade 5.8, Electroplated coating of zinc minimum 5 µm according to ISO 4042:2022 (hereinafter designated "zinc plated carbon steel")
Stainless steel screw	SS A4/70 according to ISO 3506-1:2020 and EN 10088-3:2014 Corrosion Resistance Class CRC III according to EN 1993-1-4:2006+A1:2015

WÜRTH Frame Anchor IFR	**Annex A 3**
Product description Dimensions and materials	

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Specifications of intended use

Anchorages subject to:

- Static and quasi-static loads:
- Redundant non-structural systems

Base materials:

- Reinforced or unreinforced compacted normal weight concrete without fibres with strength classes ≥ C16/20 (base material group a), according to EN 206:2013 + A1:2016. See Annex C 1.
- Solid brick masonry (base material group b). See Annex C 2.
  Note: The characteristic resistance is also valid for larger brick sizes and larger compressive strength of the masonry unit.
- Hollow or perforated brick masonry (base material group c). See Annexes C 3 and C 4.
- Autoclaved aerated concrete (base material group d). See Annex C 9
- Mortar strength class of the masonry ≥ M2,5 at minimum according to EN 998-2:2016.
- For other base materials of the base material group a, b, c or d the characteristic resistance of the anchor may be determined by job site tests according to EOTA TR 051:2018-04.

Temperature Range:

- a: - 40 °C to 40 °C (max. short term temperature + 40 °C and max long term temperature + 24 °C)
- b: - 40 °C to 80 °C (max. short term temperature + 80 °C and max long term temperature + 50 °C)

Use conditions (Environmental conditions)

- Structures subject to dry internal conditions: zinc plated carbon steel screws, A4 stainless steel screws.
- The specific screw made of zinc plated carbon steel may also be used in structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist: A4 stainless steel screws.
  Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:

- The anchorages are designed in accordance with TR 064:2018-05 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.

Installation:

- Hole drilling by the drill modes according to Annex C 1, C 2, C 3, C 4, C 9.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Installation temperature ≥ 0°C
- Exposure to UV due to solar radiation of the anchor not protected ≤ 6 weeks
- No ingress of water in the core hole < 0°C

WÜRTH Frame Anchor IFR	**Annex B 1**
Intended use Specifications	

Table 3: Installation parameters

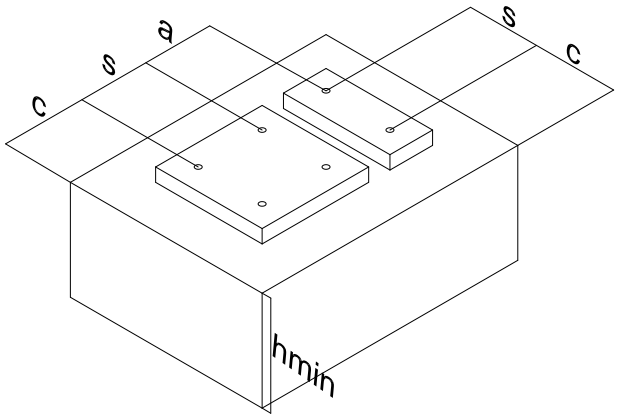
Parameter / Size		**IFR Ø 8**	**IFR Ø 10**
Nominal drill hole diameter	d_o [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$[mm]	8,45	10,45
Depth of drill hole	h_1 = [mm]	90	90
Effective anchorage depth	h_{ef} = [mm]	70	70
Diameter of clearance hole in the fixture	d_f = [mm]	9	11
Thickness of fixture	t_{fix} = [mm]	≥10	
Hexalobular socket number (ISO 10664)	T [-]	30	40
Wrench size (for hexagonal head only)	SW = [mm]	10	13

Table 4: Minimum thickness of the member, edge distance and spacing in concrete

Parameter / Size		**IFR Ø 8**	**IFR Ø 10**
Concrete strength class		≥ C16/20	
Minimum thickness of the member	h_{min} [mm]	140	
Characteristic edge distance	$c_{cr,N}$ [1)] [mm]	105	105
Characteristic spacing	$S_{cr,N}$ [1)] [mm]	75	90
Minimum spacing and edge distance [1)]	s_{min} [mm]	90	100
	c_{min} [mm]	90	100

[1)] Intermediate value by linear interpolation

Scheme of edge distance and spacing in concrete and masonry



Fixing points with a spacing a ≤ $s_{cr,N}$ are considered as a group with a maximum characteristic resistance $N_{Rk,p}$ according to Table 17. For a spacing a > $s_{cr,N}$ the anchors are considered as single anchors, each with a characteristic resistance $N_{Rk,p}$ according to Table 17.

WÜRTH Frame Anchor IFR	**Annex B 2**
Intended use Installation parameters, edge distances and spacing for use in concrete	

Table 5: Minimum distances and dimensions in solid brick masonry - Type "A"

Minimum thickness of the member	h_{min} [mm]	110
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

Table 6: Minimum distances and dimensions in solid brick masonry - Type "B"

Minimum thickness of the member	h_{min} [mm]	120
Single anchor		
Minimum edge distance	c_{min} [mm]	125
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	250
Spacing parallel to free edge	$S_{2,min}$ [mm]	500
Minimum edge distance	c_{min} [mm]	125

Table 7: Minimum distances and dimensions in solid brick masonry - Type "E"

Minimum thickness of the member	h_{min} [mm]	370
Single anchor		
Minimum edge distance	c_{min} [mm]	185
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	370
Spacing parallel to free edge	$S_{2,min}$ [mm]	740
Minimum edge distance	c_{min} [mm]	185

Table 8: Minimum distances and dimensions in solid brick masonry - Type "F"

Minimum thickness of the member	h_{min} [mm]	240
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

WÜRTH Frame Anchor IFR

Intended use
Edge distances and spacing for use in solid brick masonry

Annex B 3

Table 9: Minimum distances and dimensions in perforated brick masonry – Type "C"

Minimum thickness of the member	h_{min} [mm]	120
Single anchor		
Minimum edge distance	c_{min} [mm]	125
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	250
Spacing parallel to free edge	$S_{2,min}$ [mm]	500
Minimum edge distance	c_{min} [mm]	125

Table 10: Minimum distances and dimensions in perforated brick masonry – Type "D"

Minimum thickness of the member	h_{min} [mm]	120
Single anchor		
Minimum edge distance	c_{min} [mm]	125
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	250
Spacing parallel to free edge	$S_{2,min}$ [mm]	500
Minimum edge distance	c_{min} [mm]	75

Table 11: Minimum distances and dimensions in perforated brick masonry – Type "G"

Minimum thickness of the member	h_{min} [mm]	240
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

Table 12: Minimum distances and dimensions in perforated brick masonry – Type "H"

Minimum thickness of the member	h_{min} [mm]	115
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

WÜRTH Frame Anchor IFR

Intended use
Edge distances and spacing for use in perforated brick masonry

Annex B 4

Table 13: Minimum distances and dimensions in hollow brick masonry – Type "I"

Minimum thickness of the member	h_{min} [mm]	175
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

Table 14: Minimum distances and dimensions in autoclaved aerated concrete

Minimum thickness of the member	h_{min} [mm]	240
Single anchor		
Minimum edge distance	c_{min} [mm]	120
Anchor Group		
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240
Spacing parallel to free edge	$S_{2,min}$ [mm]	480
Minimum edge distance	c_{min} [mm]	120

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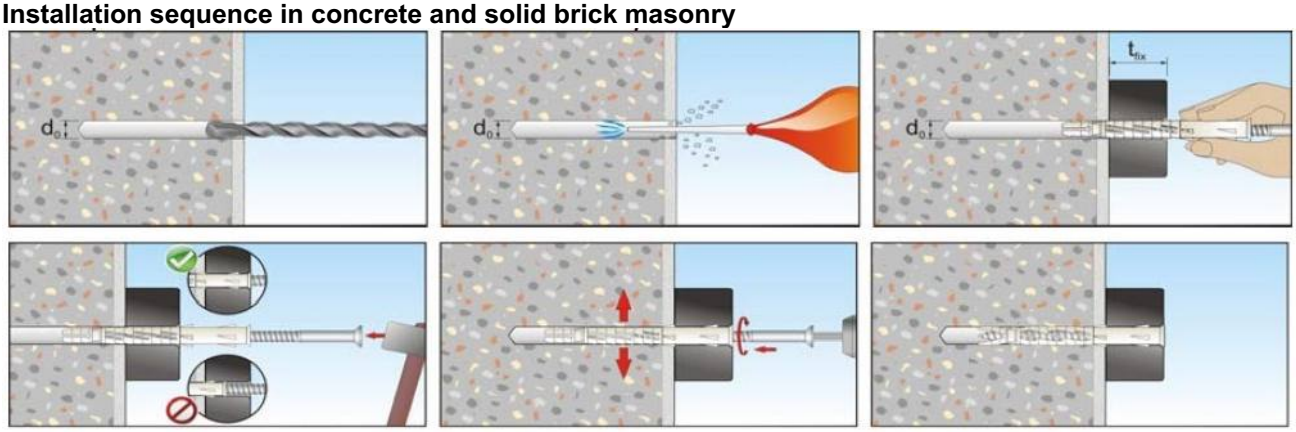
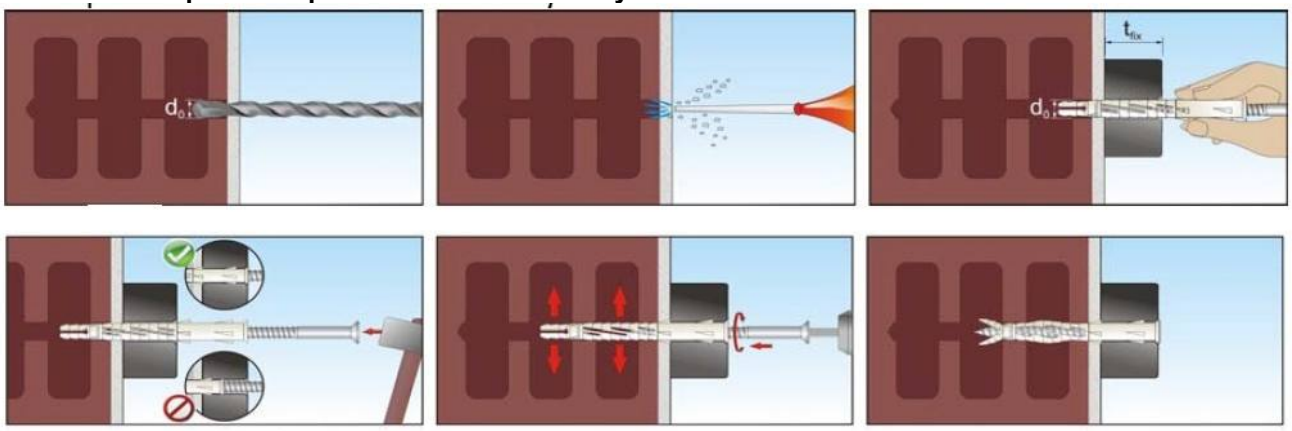
Setting instructions

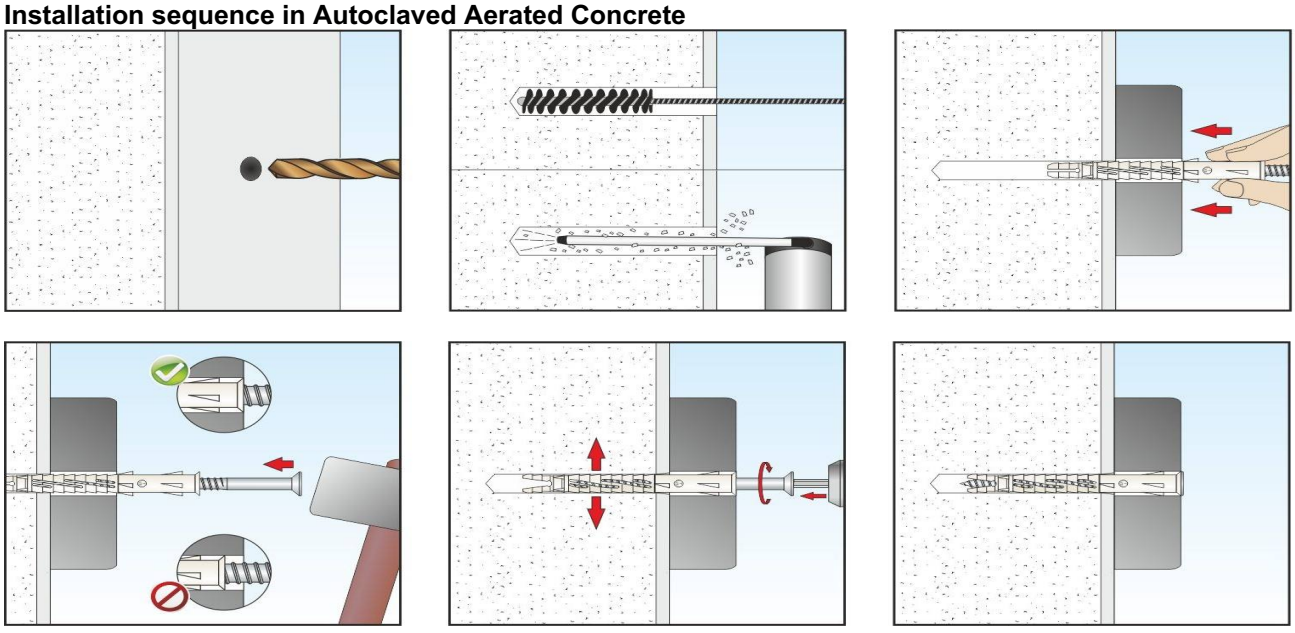
Installation sequence in concrete and solid brick masonry



Installation sequence in perforated brick masonry



Installation sequence in Autoclaved Aerated Concrete



WÜRTH Frame Anchor IFR	**Annex B 6**
Intended use Setting instructions	

Table 15: Characteristic bending resistance of the screw

Parameter / Size			IFR Ø 8		IFR Ø 10	
			Galvanized steel	Stainless steel	Galvanized steel	Stainless steel
Characteristic bending resistance	$M_{Rk,s}$	[Nm]	12,1	16,9	19,3	27,1
Partial safety factor	γ_{Ms}	[-]	1,25			

Table 16: Characteristic resistance of the screw

Parameter / Size			IFR Ø 8		IFR Ø 10	
			Galvanized steel	Stainless steel	Galvanized steel	Stainless steel
Characteristic tension resistance	$N_{Rk,s}$	[kN]	11,3	15,8	15,4	21,6
Partial safety factor	γ_{Ms}	[-]	1,5			
Characteristic shear resistance	$V_{Rk,s}$	[kN]	5,6	7,9	7,7	10,8
Partial safety factor	γ_{Ms}	[-]	1,25			

Table 17: Characteristic resistance for use in concrete[1)]

Plastic sleeve pull-out failure			IFR Ø 8		IFR Ø 10	
Temperature range			24/40 °C	50/80 °C	24/40 °C	50/80 °C
Characteristic tension resistance	$N_{Rk,p}$	[kN]	3,5	3,0	4,5	4,0
Partial safety factor	γ_{Mc}[2)]	[-]	1,8			

[1)] Concrete strength $f_{ck} \geq 16$ N/mm² (strength class C16/20 according to EN 206:2013 + A1:2016)
Drill method: hammer drilling
[2)] In absence of other national regulations

Table 18: Characteristic resistance under fire exposure in concrete[1)] in any load direction, no permanent centric tension load and without lever arm, fastening of façade systems

Anchor type	Fire resistance class	$F_{Rk,fi,90}$ [kN]	$\gamma_{M,fi}$ [2)] [-]
IFR	R 90	0,8	1,0

[1)] Concrete strength $f_{ck} \geq 16$ N/mm² (strength class C16/20 according to EN 206:2013 + A1:2016)
Drill method: hammer drilling
[2)] In absence of other national regulations

WÜRTH Frame Anchor IFR

Performances
Characteristic resistance of the screw, characteristic resistance for use in concrete

Annex C 1

Table 19: Characteristic resistance – Solid brick masonry type "A" (base material group "b")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	-	[kg/dm³]	[N/mm²]	[kN]	[kN]
Solid clay brick according to EN 771-1:2011+A1:2015 Mattone pieno 110x60x240 "Danesi"	Rotary + hammer	1,7	20,0	3,0[1)]	2,0[1)]

Table 20: Characteristic resistance – Solid brick masonry type "B" (base material group "b")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	-	[kg/dm³]	[N/mm²]	[kN]	[kN]
Solid clay brick according to EN 771-1:2011+A1:2015 Mattone pieno 250x120x55 "Terreal Italia"	Rotary + hammer	1,7	20,0	4,0[1)]	5,0[1)]

Table 21: Characteristic resistance – Solid brick masonry type "E" (base material group "b")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	-	[kg/dm³]	[N/mm²]	[kN]	[kN]
Vulcanic tuff brick according to EN 771-3:2011+A1:2015 Fior di tufo 370x370x110 "Cave reunite"	Rotary + hammer	2,4	7,5	-	0,3

Table 22: Characteristic resistance – Solid brick masonry type "F" (base material group "b")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	-	[kg/dm³]	[N/mm²]	[kN]	[kN]
Calcium silicate solid brick according to EN 771-2:2011+A1:2015 Kalksandsteine KS-Plansteine KS-R(P)-20-2,0-8DF (240) "Heidelberger-Kalksandstein"	Rotary + hammer	1,9	20,0	5,5[1)]	6,0[1)]

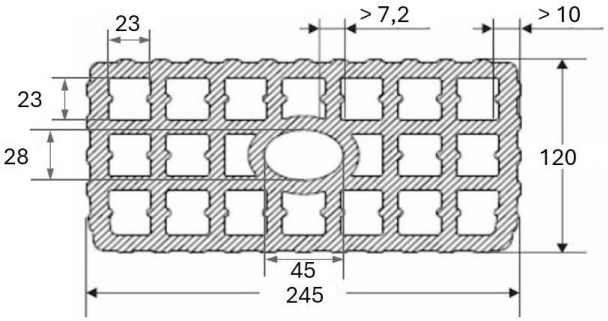
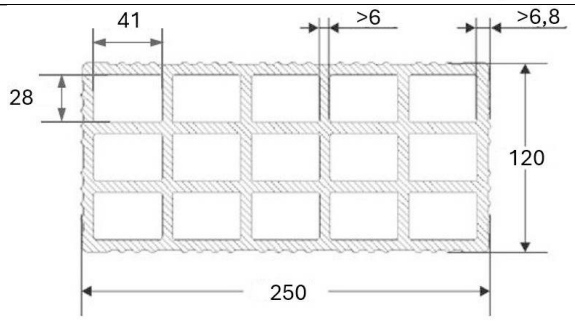
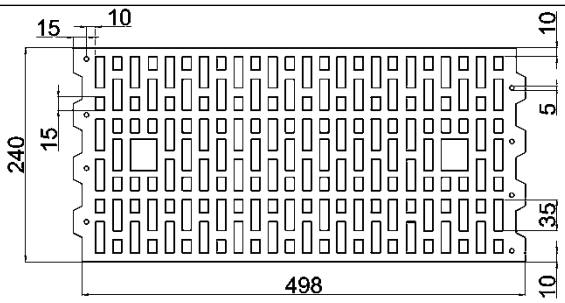
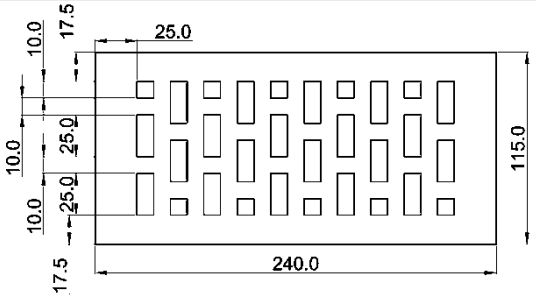
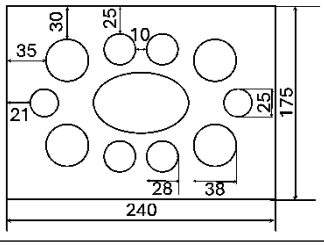
[1)] For brick with mean compressive strength in the range 10 - 20 N/mm²: $F_{Rk,low}$= 0,7 x F_{Rk} (with F_{Rk} for 20 N/mm²)

WÜRTH Frame Anchor IFR

Performances
Characteristic resistance for use in solid brick masonry

Annex C 2

Table 23: Hollow and perforated brick masonry (base material group "c") dimensional details

Brick type	Base material description	Dimensions [mm]	Dimensional details
"C"	Perforated clay brick Doppio doppio UNI "Danesi"	120x245x250	
"D"	Perforated clay brick according to EN-771-1:2011+A1:2015 Forati "Wienerberger"	120x250x250	
"G"	Perforated clay brick, according to EN 771-1:2011+A1:2015 Poroton-Hochlochziegel-Block-T-24,0-0,9 L "Wienerberger"	240x500x238	
"H"	Perforated clay brick, according to EN 771-1:2011+A1:2015 Poroton-Kleinformat HlzB- 2DF -0,9 "Wienerberger"	115x240x113	
"I"	Hollow calcium silicate brick according to EN 771-2:2011+A1:2015 "Heidelberger-Kalksandstein" KS-L	175x240x113	

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Annex C 3

Performances
Hollow and perforated brick masonry dimensional details

Table 24: Characteristic resistance - perforated and hollow brick masonry (base material group "c")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	-	[kg/dm³]	[N/mm²]	[kN]	[kN]
Masonry type "C"					
Perforated clay brick according to EN 771-1:2011+A1:2015 Doppio doppio UNI 120x245x250 "Danesi"	Rotary	0,9	13,0	-	0,3
Masonry type "D"					
Perforated clay brick according to EN 771-1:2011+A1:2015 Forati 120x250x250 "Wienerberger"	Rotary	0,6	2,0	0,3	-
Masonry type "G"					
Perforated clay brick, according to EN 771-1:2011+A1:2015 Poroton-Hochlochziegel-Block-T-24,0-0,9 L"Wienerberger"	Rotary	0,9	7,0	0,9	0,9
Masonry type "H"					
Perforated clay brick, according to EN 771-1:2011+A1:2015 Poroton-Kleinformat HlzB- 2DF -0,9 "Wienerberger"	Rotary	0,9	15,0	0,9	0,9
Masonry type "I"					
Hollow calcium silicate brick according to EN 771-2:2011+A1:2015 "Heidelberger-Kalksandstein" KS-L	Rotary	1,5	15,0	5,0	5,5

Table 25: Displacements under tension load in concrete

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service tension load concrete	**N**	**[kN]**	1,2	1,6
Displacements	δ_{N0}	**[mm]**	0,24	0,29
	$\delta_{N\infty}$	**[mm]**	0,48	0,58

Table 26: Displacements under shear load in concrete

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in concrete	**V**	**[kN]**	3,2	4,4
Displacements	δ_{V0}	**[mm]**	2,00	1,67
	$\delta_{V\infty}$	**[mm]**	3,00	2,50

Table 27: Displacements under tension load in solid brick masonry - type "A"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service tension load in solid masonry	**N**	**[kN]**	0,9	0,6
Displacements	δ_{N0}	**[mm]**	0,04	0,06
	$\delta_{N\infty}$	**[mm]**	0,08	0,12

Table 28: Displacements under tension load in solid brick masonry - type "B"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service tension load in solid masonry	**N**	**[kN]**	1,1	1,4
Displacements	δ_{N0}	**[mm]**	0,25	0,67
	$\delta_{N\infty}$	**[mm]**	0,50	1,34

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Annex C 5

Performances
Displacements in concrete and solid masonry

Table 29: Displacements under tension load in solid brick masonry - type "E"

Parameter / Size			**IFR Ø 8**
Service tension load in solid masonry	**N**	**[kN]**	0,09
Displacements	δ_{N0}	**[mm]**	0,01
	$\delta_{N\infty}$	**[mm]**	0,02

Table 30: Displacements under tension load in solid brick masonry - type "F"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service tension load in solid masonry	**N**	**[kN]**	1,57	1,71
Displacements	δ_{N0}	**[mm]**	0,14	0,07
	$\delta_{N\infty}$	**[mm]**	0,29	0,15

Table 31: Displacements under shear load in solid brick masonry - type "A", "B" and "E"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in solid masonry	**V**	**[kN]**	3,2	4,4
Displacements	δ_{V0}	**[mm]**	2,67	3,67
	$\delta_{V\infty}$	**[mm]**	4,00	5,50

Table 32: Displacements under shear load in solid brick masonry - type "F"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in solid masonry	**V**	**[kN]**	1,57	1,71
Displacements	δ_{V0}	**[mm]**	1,31	1,43
	$\delta_{V\infty}$	**[mm]**	1,96	2,14

Table 33: Displacements under tension load in perforated brick masonry - type "C"

Parameter / Size			IFR Ø 10
Service tension load in hollow masonry	N	[kN]	0,09
Displacements	δ_{N0}	[mm]	0,12
	$\delta_{N\infty}$	[mm]	0,24

Table 34: Displacements under tension load in perforated brick masonry - type "D"

Parameter / Size			IFR Ø 8
Service tension load in hollow masonry	N	[kN]	0,09
Displacements	δ_{N0}	[mm]	0,03
	$\delta_{N\infty}$	[mm]	0,06

Table 35: Displacements under tension load in perforated brick masonry - type "G"

Parameter / Size			IFR Ø 8	IFR Ø 10
Service tension load in hollow masonry	N	[kN]	0,26	0,26
Displacements	δ_{N0}	[mm]	0,01	0,01
	$\delta_{N\infty}$	[mm]	0,02	0,02

Table 36: Displacements under tension load in perforated brick masonry - type "H"

Parameter / Size			IFR Ø 8	IFR Ø 10
Service tension load in hollow masonry	N	[kN]	0,26	0,26
Displacements	δ_{N0}	[mm]	0,01	0,01
	$\delta_{N\infty}$	[mm]	0,02	0,02

Table 37: Displacements under tension load in hollow brick masonry - type "I"

Parameter / Size			IFR Ø 8	IFR Ø 10
Service tension load in hollow masonry	N	[kN]	1,43	1,57
Displacements	δ_{N0}	[mm]	0,11	0,08
	$\delta_{N\infty}$	[mm]	0,21	0,17

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Performances
Displacements under tension load in perforated and hollow brick masonry

Annex C 7

Table 38: Displacements under shear load in perforated brick masonry type "C" and "D"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in hollow masonry	**V**	**[kN]**	3,2	4,4
Displacements	δ_{V0}	**[mm]**	6,40	8,80
	$\delta_{V\infty}$	**[mm]**	9,60	13,20

Table 39: Displacements under shear load in perforated brick masonry type "G" and "H"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in hollow masonry	**V**	**[kN]**	0,26	0,26
Displacements	δ_{V0}	**[mm]**	0,21	0,21
	$\delta_{V\infty}$	**[mm]**	0,32	0,32

Table 40: Displacements under shear load in hollow brick masonry type "I"

Parameter / Size			**IFR Ø 8**	**IFR Ø 10**
Service shear load in hollow masonry	**V**	**[kN]**	1,43	1,57
Displacements	δ_{V0}	**[mm]**	1,19	1,31
	$\delta_{V\infty}$	**[mm]**	1,79	1,96

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Annex C 8

Performances
Displacements under shear load in perforated and hollow brick masonry

Table 41: Characteristic resistance in autoclaved aerated concrete (base material group "d")

Base material	Drill method	Bulk density ρ	Mean compressive strength as per EN 771 $f_{cm,decl}$	IFR Ø 8 F_{Rk}	IFR Ø 10 F_{Rk}
description	**-**	**[kg/dm³]**	**[N/mm²]**	**[kN]**	**[kN]**
Uncracked autoclaved aerated concrete blocks EN 771-4:2011+A1:2015	Rotary only	0,5	3,5	0,5	0,6

Table 42: Displacements under tension load in autoclaved aerated concrete

Parameter / Size			IFR Ø 8	IFR Ø 10
Service tension load	**N**	**[kN]**	0,18	0,21
Displacements	δ_{N0}	**[mm]**	0,01	0,01
	$\delta_{N\infty}$	**[mm]**	0,02	0,02

Table 43: Displacements under shear load in autoclaved aerated concrete

Parameter / Size			IFR Ø 8	IFR Ø 10
Service shear load	**V**	**[kN]**	0,18	0,21
Displacements	δ_{V0}	**[mm]**	0,36	0,43
	$\delta_{V\infty}$	**[mm]**	0,54	0,64

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Performances
Characteristic resistance and displacements for use in autoclaved aerated concrete

Annex C 9