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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

MEMBER OF EOTA

European Technical Assessment ETA-22/0879 of 2023/01/25

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Denmark A/S	
Trade name of the construction product:	fischer FLH R high thermal performance wall bracket
Product family to which the above construction product belongs:	Subframe metallic brackets for cladding kits
Manufacturer:	fischerwerke GmbH & Co. KG Klaus-Fischer-Straße 1 DE-72178 Waldachtal Telephone: +49 7443 120 Internet: www.fischer.de
Manufacturing plant:	fischerwerke GmbH & Co. KG
This European Technical Assessment contains:	21 pages including 14 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 090034-01-0404 Kit composed by subframe and fixings for fastening cladding and external wall elements
This version replaces:	-

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

The FLH R high thermal performance metallic wall bracket are subframe brackets of Group 1, according to EAD 090034-01-0404, chapter 1.1. The brackets are purely metallic brackets with an optional metallic FLH R U-profile inlay washer, which can be fitted to the flange of the bracket. All components are made of austenitic-ferritic (duplex) steel grade 1.4162 according to EN 10088-2:2014. Other grades of austenitic-ferritic steel may be used, provided that the minimum values of yield strength and ultimate tensile strength compared to the tested steel grade 1.4162, can be assumed to meet the declared mechanical performance levels and the corrosion resistance class of the alternative alloy is determined to be of equal or better. The FLH R wall brackets have a nominal material thickness of 1,50 mm ± 0,10 mm. They are available with wing lengths from 120 - 340 mm ± 1 mm in steps of 20 mm. There are two different bracket sizes. The large FLH R wall bracket has a height of 147 mm and the small bracket a height of 70 mm.

The FLH R wall bracket is a non-combustible component made of stainless steel, designed to minimise thermal losses through the building envelope and to transfer horizontal (wind load) and/or vertical (dead weight) loads from profiles with attached skin elements into the substrate. In the specific case of a fixed point, both horizontal and vertical loads are transferred at the same time, in other cases only the horizontal load is transferred.

The components identified in Table 1 have the geometrical characteristics defined in Annex 1.1-1.3.

The FLH R wall brackets and the corresponding optional FLH R U-profile inlays are manufactured from stainless-steel grade 1.4162 as defined in Table 8 of EN 10088-2:2014. This grade of stainless steel is classified as Corrosion Resistance Class (CRC) III according to Table A.3 of DIN EN 1993-1-4:2015-10 and as such is deemed to be fit for purpose in environments with a Corrosion Resistance Factor ($-7 \geq CRF > -15$).

The FLH R wall brackets may be used in subframe kits with vertical and/or horizontal aluminium profiles in atmospheric environments of very low, low or medium corrosivity (categories C1, C2 or C3 as described in Table C.1 of ISO 9223:2012) without the need for additional corrosion protection. In these fields of application, the risk of bimetallic corrosion is considered low for the following reasons:

a) when installed correctly, the drained and ventilated rainscreen cavity ensures that the two metals in contact are not exposed to any long-term moisture; and

b) in spaces which are exposed to short-term moisture and moderate pollution, the ratio of surface area of stainless steel (cathodic) to aluminium (anodic) in a typical subframe connection is significantly less than 1.

In atmospheric environments of high, very high or extreme corrosivity (categories C4, C5 or CX) is it recommended that a suitable corrosion protection tape is applied between the areas of contact of stainless steel and aluminium.

Examples of the FLH R wall bracket in the subframe system are illustrated in Annex 3.2-3.3.

	Designation
FLH R large wall bracket	FLH 120x147x1,5/10,5/F-SP R
	FLH 140x147x1,5/10,5/F-SP R
	FLH 160x147x1,5/10,5/F-SP R
	FLH 180x147x1,5/10,5/F-SP R
	FLH 200x147x1,5/10,5/F-SP R
	FLH 220x147x1,5/10,5/F-SP R
	FLH 240x147x1,5/10,5/F-SP R
	FLH 260x147x1,5/10,5/F-SP R
	FLH 280x147x1,5/10,5/F-SP R
	FLH 300x147x1,5/10,5/F-SP R
	FLH 320x147x1,5/10,5/F-SP R
	FLH 340x147x1,5/10,5/F-SP R
FLH R small wall bracket	FLH 120x70x1,5/10,5/F-SP R
	FLH 140x70x1,5/10,5/F-SP R
	FLH 160x70x1,5/10,5/F-SP R
	FLH 180x70x1,5/10,5/F-SP R
	FLH 200x70x1,5/10,5/F-SP R
	FLH 220x70x1,5/10,5/F-SP R
	FLH 240x70x1,5/10,5/F-SP R
	FLH 260x70x1,5/10,5/F-SP R
	FLH 280x70x1,5/10,5/F-SP R
	FLH 300x70x1,5/10,5/F-SP R
	FLH 320x70x1,5/10,5/F-SP R
	FLH 340x70x1,5/10,5/F-SP R
FLH R U-profile inlay	U-profile washer 11,5/2x6,6 FLH R
	U-profile washer 11,5 FLH R

Table 1: Overview of the FLH R wall brackets product range

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

The FLH R high thermal performance metallic wall bracket are intended to be used as part of a subframe kit for façades with an air space, ventilated or non-ventilated. The bracket is anchored to the supporting structures of new or existing buildings.

The supporting structure can be the substrate wall, which in itself already meets the airtightness and requirements on mechanical strength (resistance to static and dynamic loads), as well as watertightness and a relevant water vapour resistance. The substrate walls can be made of masonry (clay, concrete or stone), concrete (cast on site or as prefabricated panels), timber or metal frame;

Alternatively the wall bracket may be anchored to the supporting structure of the building, which in itself does not meet the airtightness requirement but meets the requirements on mechanical strength (resistance to static and dynamic loads). Usually, the supporting structures of the building are made as frame of concrete (cast on site or prefabricated), masonry, timber or metal elements. In this case, the airtightness requirements are provided by specific non-loadbearing stratum of internal layers of the building envelope.

The FLH R wall bracket does not contribute to the stability of the structure on which it is anchored but the facade can contribute to the durability of the works by providing enhanced protection from the effects of weathering.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the wall brackets of 25 years when installed in the works, provided that the conditions laid down for the installation, packaging, transport and storage as well as appropriate use, maintenance and repair are met.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the 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

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The wall brackets and optional inlay washer are made from stainless-steel classified as performance **class A1** of the characteristic reaction to fire, in accordance with EN 13501-1 and the provisions of Commission Delegated Regulation 2016/364 and EC decision 96/603/EC, amended by EC Decision 2000/605/EC.
3.3 Hygiene, health and the environment (BWR 3)	
Leachable substances	No performance assessed
Content of cadmium	No performance assessed
3.4 Safety and accessibility in use (BWR 4)	
Resistance to horizontal load of assembled kit	Not relevant
Resistance to vertical load of assembled kit	Not relevant
Resistance to vertical load of fixing of skin element	No performance assessed
Resistance to pulsating horizontal load of fixing of skin element	No performance assessed
Pull-through resistance of fastener	No performance assessed
Pull-out resistance of fastener	No performance assessed
Bending resistance of profile	No performance assessed
Dimensions and moment of inertia of profile	No performance assessed
Resistance to vertical load	**See information in annex 2.2-2.5**
Resistance to horizontal load	**See information in annex 2.6-2.7**
Resistance to horizontal pulsating load	Not relevant
Resistance to sustained vertical load	No performance assessed
Resistance to freeze-thaw cycles	Not relevant
Resistance to immersion in water	Not relevant
Resistance to thermal ageing	Not relevant
Resistance to soft body impact	**See information in annex 2.8**

Characteristic	Assessment of characteristic
Dimensions and moment of inertia of bracket	<table><tr><th>Wall bracket</th><th>Length of wing [mm]</th><th>Length of flange [mm]</th><th>Height [mm]</th><th>Thickness [mm]</th><th>Moment of inertia [mm^4]</th></tr><tr><td>Large FLH R wall bracket:</td><td>120 to 340</td><td>50</td><td>147</td><td>1,5</td><td>442.296</td></tr><tr><td>Small FLH R wall bracket:</td><td>120 to 340</td><td>50</td><td>70</td><td>1,5</td><td>50.020</td></tr></table>
Fibre content by weight in composite material	Not relevant
Vicat softening temperature (VST)	Not relevant
Shear resistance to vertical load	No performance assessed
Shear resistance to horizontal load	No performance assessed
Resistance of metallic parts, based on choice of material	**Corrosion resistance class: CRC III**
Resistance of metallic parts, based on their additional coating	No performance assessed

3.6 Energy economy and heat retention (BWR 6)

Point thermal transmittance χ	No performance assessed
Linear thermal transmittance ψ	No performance assessed

See additional information in section 3.8 – 3.9

3.8 Methods of verification

The assessment of the performance of FLH R high thermal performance metallic wall bracket, Group 1 in relation to the applicable BWR's has been made in accordance with the European Assessment Document (EAD) no. EAD 090034-01-0404 Kit composed by subframe and fixings for fastening cladding and external wall elements, chapter 1.1.

The FLH R high thermal performance metallic wall bracket is manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

3.9 General aspects related to the fitness for use of the product.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

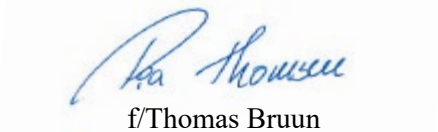
According to the decision 2003/640/EC of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is **2+.**

In addition, with regard to reaction to fire for products covered by this EAD the applicable European legal act is Decision 2003/640/EC.
The reaction to fire classifications covered by this ETA does not result in AVCP level 1.

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 2023-01-25 by



f/Thomas Bruun
Managing Director, ETA-Danmark

FLH Lx147 R large wall bracket & U-profile inlay washer dimensions

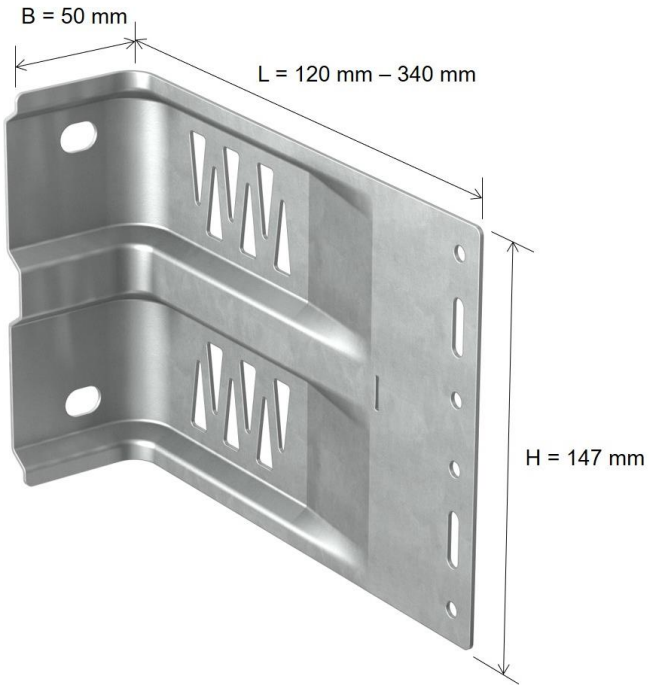


Fig. 1 FLH Lx147 R large wall bracket

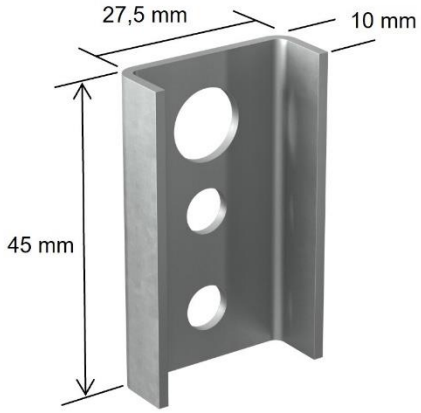


Fig. 2 U-profile inlay washer 11,5/2x6,6 FLH R

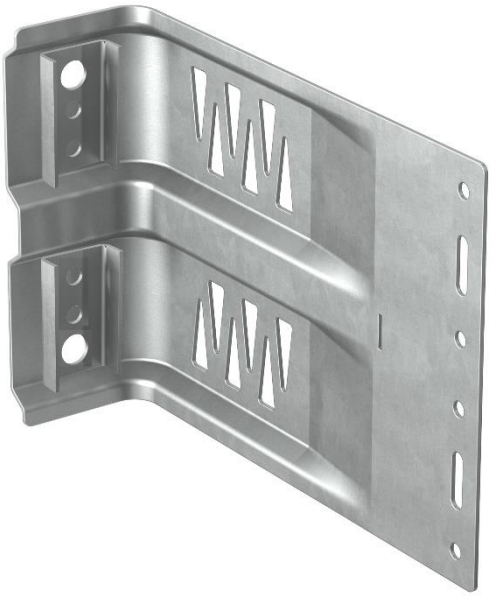


Fig. 3 FLH Lx147 R + U-profile inlay washer for Ø10 mm wall anchors

fischer FLH R high thermal performance wall bracket	**Annex 1.1**
Dimensions and area moment of inertia of bracket	

FLH Lx70 R small wall bracket & U-profile inlay washer dimensions

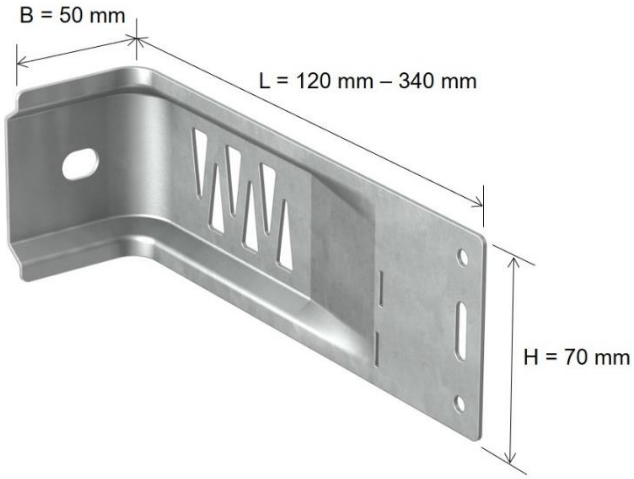


Fig. 4 FLH Lx70 R small wall bracket

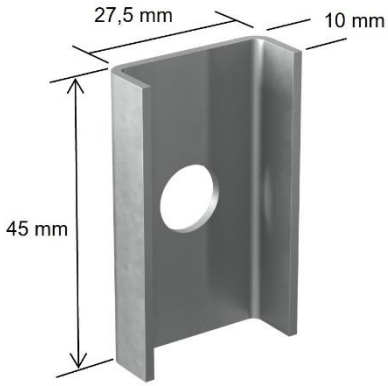


Fig. 5 U-profile inlay washer 11,5 FLH R

Fig. 6 FLH Lx70 R + U-profile inlay washer for Ø10 mm wall anchors

fischer FLH R high thermal performance wall bracket	**Annex 1.2**
Dimensions and area moment of inertia of bracket	

Materials, construction and area moment of inertia of wall brackets

fischer FLH R high thermal performance wall brackets and the optional U-profile inlay washers are manufactured from cold-formed austenitic-ferritic (duplex) steel grade 1.4162 according to EN 10088-2:2014-12.

Wall bracket	Length of wing, L (mm)	Height of bracket, H (mm)	Width of flange, B (mm)	Material thickness, t (mm)	Area moment of inertia, J_x (mm^4)
FLH Lx147 R	120 – 340	147	50	$1{,}50 \pm 0{,}10$	442296
FLH Lx70 R	120 – 340	70	50	$1{,}50 \pm 0{,}10$	50020

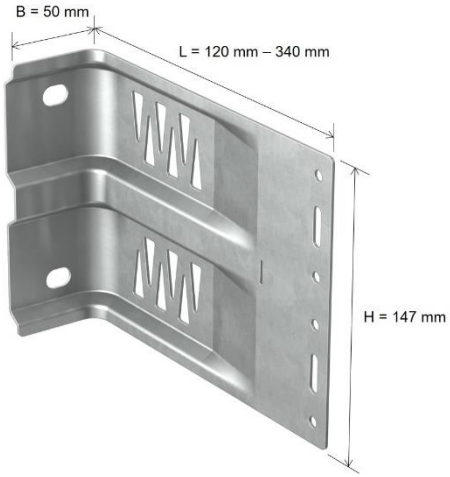


Fig. 7 FLH Lx147 R large wall bracket

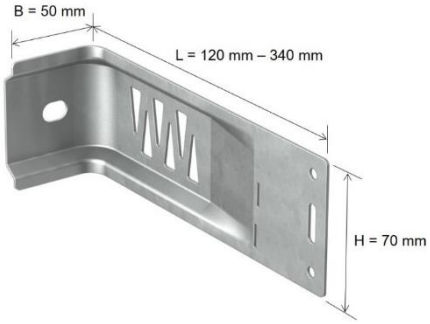


Fig. 8 FLH Lx70 R small wall bracket

fischer FLH R high thermal performance wall bracket	**Annex 1.3**
Dimensions and area moment of inertia of bracket	

Adjustment coefficients for characteristic resistances

Characteristic values of resistance to vertical load (dead weight) and horizontal load (wind suction/pressure) are presented in this ETA without prior adjustment for variations between the actual measured properties of the test specimens' yield strength, $f_{yb,obs}$ and material thickness, $t_{obs,cor}$ and their nominal minimum values. Section A.6.2 of EN 1993-1-3:2006 + AC:2009[1] gives the procedure for determining adjustment coefficients based on equation (A.8).

$$R_{adj,i} = R_{obs,i}/\mu_R \quad \text{... (A.8)}$$

where:

$$\mu_R = \left(\frac{f_{yb,obs}}{f_{yb}}\right)^{\alpha}\left(\frac{t_{obs,cor}}{t_{cor}}\right)^{\beta} \quad \text{... (A.9)}$$

The following determined values of the adjustment coefficients, $\mu_{R,ser}$ and $\mu_{R,ult}$ for serviceability and ultimate limit states respectively should be applied to the characteristic resistances for both vertical and horizontal loads given in Annexes 2.2 to 2.5.

Adjustment coefficient for serviceability limit states

$$\mu_{R,ser} = \left(\frac{1{,}54}{1{,}40}\right)^{1} = 1{,}1000$$

NOTE: For deflection-based serviceability limits, the adjustment coefficient, $\mu_{R,ser}$ is based on minimum material thickness only.

Adjustment coefficient for ultimate limit states

$$\mu_{R,ult} = \left(\frac{614}{530}\right)^{1} \cdot \left(\frac{1{,}54}{1{,}40}\right)^{1} = 1{,}2743$$

NOTE: For ultimate limit states, the adjustment coefficient, $\mu_{R,ult}$ is based on minimum yield strength and minimum material thickness.

Example 1:

Vertical load; 3 mm deflection limit; FLH 200x147 R large wall bracket fixed point arrangement C.

$$R_{adj,k,V,3mm} = R_{k,V,3mm}/\mu_{R,ser} = \frac{2818}{1{,}1000} = 2562 \text{ N per fixed-point bracket}$$

Example 2:

Vertical load; ultimate failure limit; FLH 160x147 R large wall bracket fixed point arrangement A.

$$R_{adj,k,V,S} = R_{k,V,S}/\mu_{R,ult} = \frac{8462}{1{,}2743} = 6640 \text{ N per fixed-point bracket}$$

NOTE: Partial safety factors for materials have not been taken into account using this adjustment procedure.

fischer FLH R high thermal performance wall bracket	**Annex 2.1**
Adjustment coefficients	

FLH Lx147 R large wall bracket fixed-point arrangements A & B (without U-profile inlay washer)

Mean and characteristic resistances to vertical load (N per fixed-point bracket)

Wall bracket	Mean values (N)				Characteristic values (N)			
	$R_{m,V,r}$	$R_{m,V,1mm}$	$R_{m,V,3mm}$	$R_{m,V,S}$	$R_{k,V,r}$	$R_{k,V,1mm}$	$R_{k,V,3mm}$	$R_{k,V,S}$
FLH 120x147 R	1907	2164	5312	11374	1087	1742	4443	10534
FLH 140x147 R	1929	1835	4569	10095	1088	1524	3842	9439
FLH 160x147 R	1950	1556	3929	8983	1090	1326	3350	8462
FLH 180x147 R	1972	1269	3282	7811	1091	1151	2762	7432
FLH 200x147 R	1955	1090	2842	7054	1101	984	2494	6739
FLH 220x147 R	1938	903	2396	6237	1112	839	2130	5991
FLH 240x147 R	1921	752	1993	5585	1122	692	1834	5444
FLH 260x147 R	1815	620	1699	4899	1171	604	1532	4725
FLH 280x147 R	1708	524	1447	4378	1219	514	1298	4206
FLH 300x147 R	1602	511	1389	4064	1268	476	1261	3723
FLH 320x147 R	1344	424	1139	3631	1023	386	958	3397
FLH 340x147 R	1086	394	1006	3333	777	338	762	3101

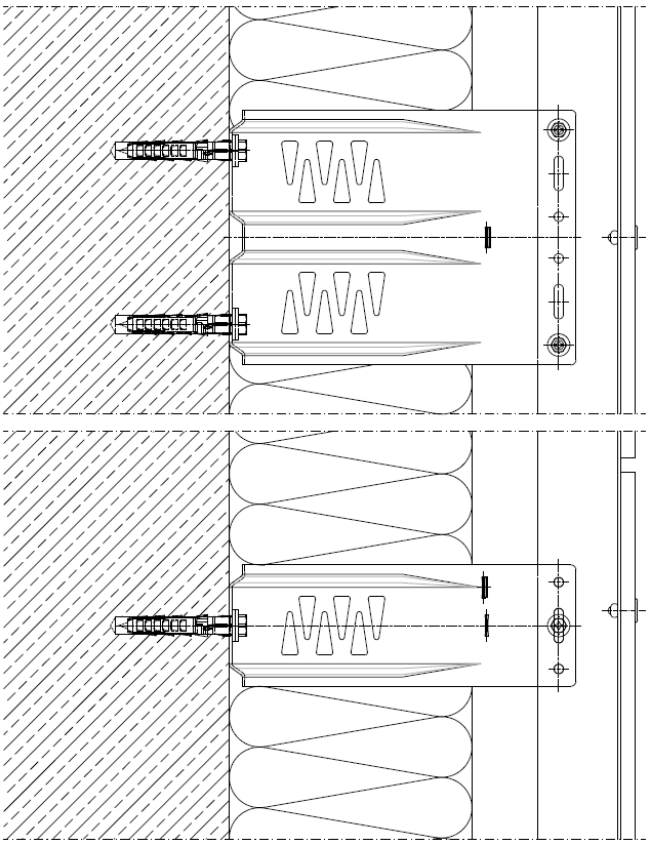


Fig. 9 FLH Lx147 R fixed-point arrangement A (without U-profile inlay washer)

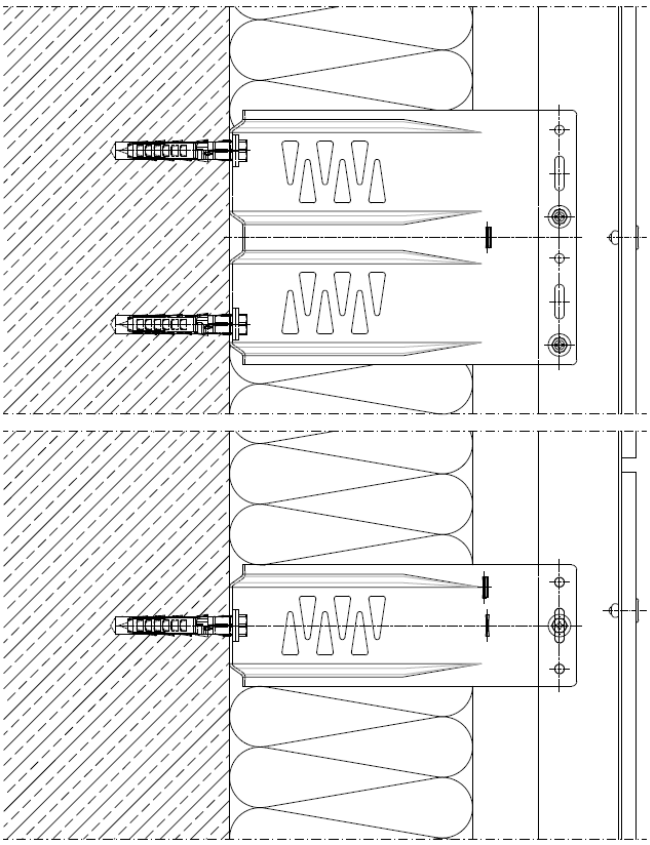


Fig. 10 FLH Lx147 R fixed-point arrangement B (without U-profile inlay washer)

fischer FLH R high thermal performance wall bracket	**Annex 2.2**
Resistance to vertical load	

FLH Lx147 R large wall bracket fixed-point arrangements C & D (with U-profile inlay washer)

Mean and characteristic resistances to vertical load (N per fixed-point bracket)

Wall bracket	Mean values (N)				Characteristic values (N)			
	$R_{m,V,r}$	$R_{m,V,1mm}$	$R_{m,V,3mm}$	$R_{m,V,S}$	$R_{k,V,r}$	$R_{k,V,1mm}$	$R_{k,V,3mm}$	$R_{k,V,S}$
FLH 120x147 R + W	2645	2600	6181	11660	1786	2307	5364	10588
FLH 140x147 R + W	2507	2162	5225	10504	1610	1925	4586	9682
FLH 160x147 R + W	2370	1816	4431	9438	1433	1621	3924	8791
FLH 180x147 R + W	2232	1387	3575	8445	1257	1256	3251	8055
FLH 200x147 R + W	2166	1244	3110	7562	1274	1118	2818	7189
FLH 220x147 R + W	2099	1018	2584	6753	1292	918	2373	6477
FLH 240x147 R + W	2033	885	2166	6035	1309	782	1971	5820
FLH 260x147 R + W	2012	686	1801	5391	1365	622	1700	5231
FLH 280x147 R + W	1991	591	1553	4839	1420	527	1474	4698
FLH 300x147 R + W	1970	591	1553	4378	1476	555	1474	4115
FLH 320x147 R + W	1873	489	1299	3991	1524	439	1231	3810
FLH 340x147 R + W	1776	447	1203	3690	1572	394	1126	3531

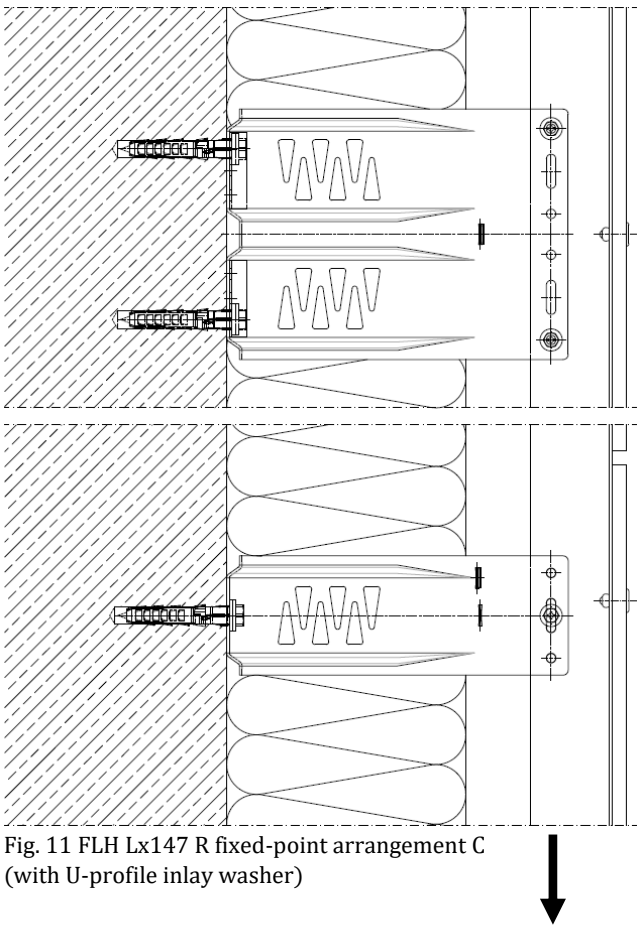


Fig. 11 FLH Lx147 R fixed-point arrangement C (with U-profile inlay washer)

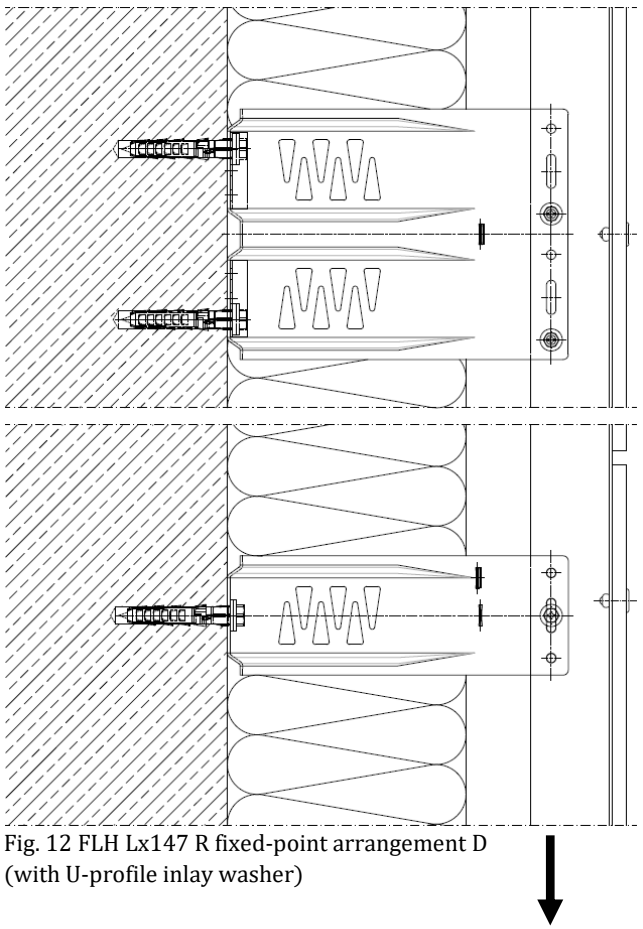


Fig. 12 FLH Lx147 R fixed-point arrangement D (with U-profile inlay washer)

fischer FLH R high thermal performance wall bracket	**Annex 2.3**
Resistance to vertical load	

FLH Lx70 R small wall bracket double fixed-point arrangement E (without U-profile inlay washer)

Mean and characteristic resistances to vertical load (N per double fixed-point)

Wall bracket	Mean values				Characteristic values			
	$R_{m,V,r}$	$R_{m,V,1mm}$	$R_{m,V,3mm}$	$R_{m,V,S}$	$R_{k,V,r}$	$R_{k,V,1mm}$	$R_{k,V,3mm}$	$R_{k,V,S}$
FLH 120x70 R DFP	798	960	1824	3872	456	529	1272	3601
FLH 140x70 R DFP	725	824	1538	3382	430	485	1097	3132
FLH 160x70 R DFP	651	702	1283	2936	404	444	940	2705
FLH 180x70 R DFP	578	595	1060	2535	378	406	800	2320
FLH 200x70 R DFP	504	502	867	2178	351	371	678	1977
FLH 220x70 R DFP	431	424	705	1864	325	338	574	1677
FLH 240x70 R DFP	357	359	575	1596	299	310	487	1417
FLH 260x70 R DFP	345	311	474	1370	285	279	418	1202
FLH 280x70 R DFP	333	277	405	1189	271	254	367	1028
FLH 300x70 R DFP	322	258	386	1052	257	231	333	896
FLH 320x70 R DFP	310	258	386	959	243	211	319	806
FLH 340x70 R DFP	298	258	386	912	229	199	319	756

NOTE: The values given for a double fixed-point refer to a total of two brackets with wall anchor centres 250 mm ≤ a ≤ 600 mm (see Fig. 13).

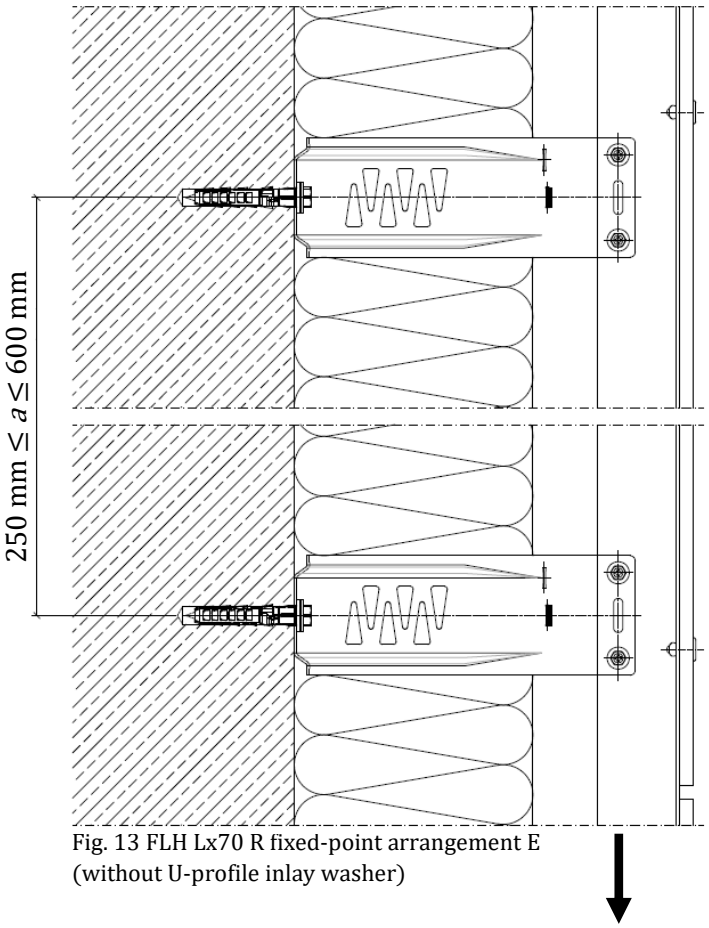


Fig. 13 FLH Lx70 R fixed-point arrangement E (without U-profile inlay washer)

fischer FLH R high thermal performance wall bracket	
Resistance to vertical load	**Annex 2.4**

FLH Lx70 R small wall bracket double fixed-point arrangement F (with U-profile inlay washer)

Mean and characteristic resistances to vertical load (N per double fixed-point)

Wall bracket	Mean values				Characteristic values			
	$R_{m,V,r}$	$R_{m,V,1mm}$	$R_{m,V,3mm}$	$R_{m,V,S}$	$R_{k,V,r}$	$R_{k,V,1mm}$	$R_{k,V,3mm}$	$R_{k,V,S}$
FLH 120x70 R DFP + W	1073	1256	2325	5024	904	1159	2046	4639
FLH 140x70 R DFP + W	1014	1126	2050	4481	843	1024	1770	4144
FLH 160x70 R DFP + W	954	1004	1796	3977	781	900	1519	3683
FLH 180x70 R DFP + W	895	891	1564	3513	720	786	1292	3257
FLH 200x70 R DFP + W	835	786	1352	3089	658	682	1091	2864
FLH 220x70 R DFP + W	776	690	1162	2703	597	589	915	2505
FLH 240x70 R DFP + W	716	600	994	2357	535	507	763	2182
FLH 260x70 R DFP + W	643	523	844	2051	479	433	638	1888
FLH 280x70 R DFP + W	571	452	717	1784	422	370	537	1631
FLH 300x70 R DFP + W	498	390	611	1556	366	318	461	1407
FLH 320x70 R DFP + W	426	337	525	1368	309	277	410	1217
FLH 340x70 R DFP + W	353	288	464	1219	253	248	382	1066

NOTE: The values given for a double fixed-point refer to a total of <u>two</u> brackets with wall anchor centres 250 mm ≤ a ≤ 600 mm (see Fig. 14).

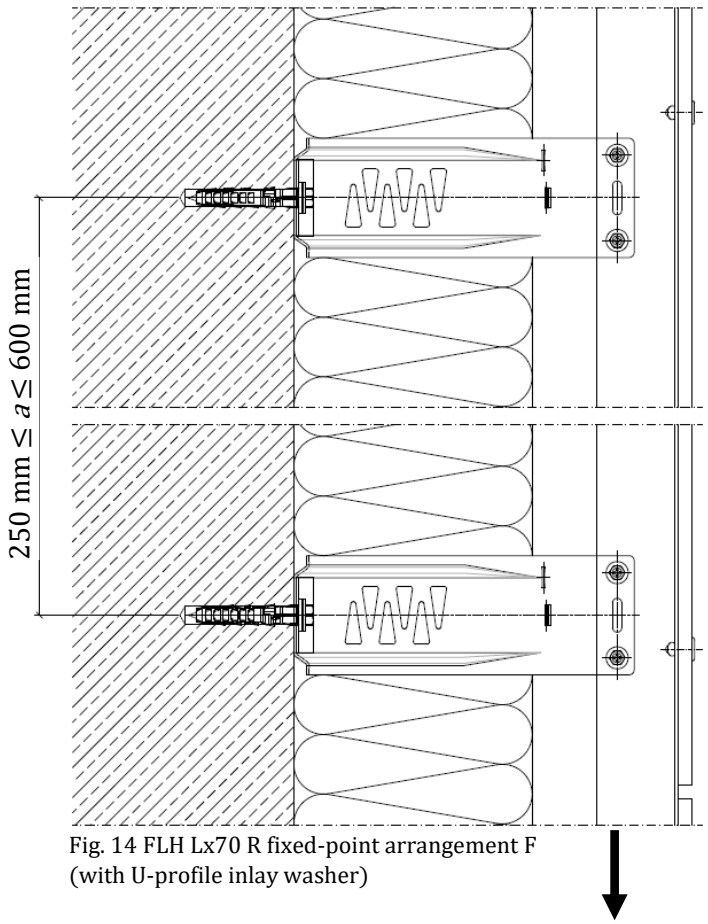
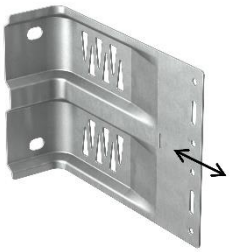


Fig. 14 FLH Lx70 R fixed-point arrangement F (with U-profile inlay washer)

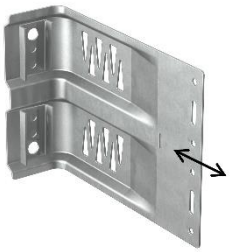
fischer FLH R high thermal performance wall bracket	**Annex 2.5**
Resistance to vertical load	



FLH Lx147 R large wall bracket (without U-profile inlay washer)

Characteristic resistances to horizontal load (N per bracket)

Wall bracket	Mean values		Characteristic values	
	$R_{m,H,1mm}$	$R_{m,V,S}$	$R_{k,H,1mm}$	$R_{k,V,S}$
FLH 120x147 R	3728	13339	3307	12955
FLH 140x147 R				
FLH 160x147 R				
FLH 180x147 R				
FLH 200x147 R				
FLH 220x147 R				
FLH 240x147 R				
FLH 260x147 R				
FLH 280x147 R				
FLH 300x147 R				
FLH 320x147 R				
FLH 340x147 R				



FLH Lx147 R large wall bracket (with U-profile inlay washer)

Characteristic resistances to horizontal load (N per bracket)

Wall bracket	Mean values		Characteristic values	
	$R_{m,H,1mm}$	$R_{m,V,S}$	$R_{k,H,1mm}$	$R_{k,V,S}$
FLH 120x147 R + W	4563	14737	3716	14244
FLH 140x147 R + W				
FLH 160x147 R + W				
FLH 180x147 R + W				
FLH 200x147 R + W				
FLH 220x147 R + W				
FLH 240x147 R + W				
FLH 260x147 R + W				
FLH 280x147 R + W				
FLH 300x147 R + W				
FLH 320x147 R + W				
FLH 340x147 R + W				

fischer FLH R high thermal performance wall bracket	**Annex 2.6**
Resistance to horizontal load	

FLH Lx70 R small wall bracket (without U-profile inlay washer)

Characteristic resistances to horizontal load (N per bracket)

Wall bracket	Mean values		Characteristic values	
	$R_{m,H,1mm}$	$R_{m,V,S}$	$R_{k,H,1mm}$	$R_{k,V,S}$
FLH 120x70 R	1627	6108	1455	5657
FLH 140x70 R				
FLH 160x70 R				
FLH 180x70 R				
FLH 200x70 R				
FLH 220x70 R				
FLH 240x70 R				
FLH 260x70 R				
FLH 280x70 R				
FLH 300x70 R				
FLH 320x70 R				
FLH 340x70 R				

FLH Lx70 R small wall bracket (with U-profile inlay washer)

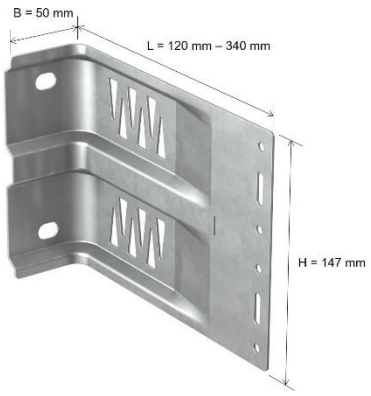
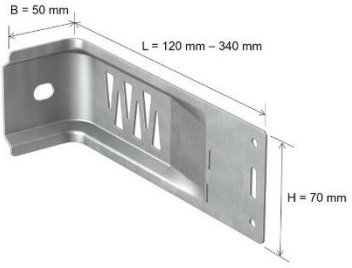
Characteristic resistances to horizontal load (N per bracket)

Wall bracket	Mean values		Characteristic values	
	$R_{m,H,1mm}$	$R_{m,V,S}$	$R_{k,H,1mm}$	$R_{k,V,S}$
FLH 120x70 R + W	2460	9533	2156	9134
FLH 140x70 R + W				
FLH 160x70 R + W				
FLH 180x70 R + W				
FLH 200x70 R + W				
FLH 220x70 R + W				
FLH 240x70 R + W				
FLH 260x70 R + W				
FLH 280x70 R + W				
FLH 300x70 R + W				
FLH 320x70 R + W				
FLH 340x70 R + W				

fischer FLH R high thermal performance wall bracket	**Annex 2.7**
Resistance to horizontal load	

Classification of resistance to soft body impact

Test procedure according to ISO 7892

Wall bracket		Classified impact category
FLH Lx147 R		Cat. I
FLH Lx70 R		Cat. II

Specification of impact categories

Impact category	Area of application	Use of façade cleaning gondolas
Cat. I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use (e.g.: façade bases in buildings sited in public locations, such as squares, schoolyards or parks).	Yes
Cat. II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care (e.g.: façade bases in buildings not sited in public locations (e.g. squares, schoolyards, parks) or upper façade levels in buildings sited in public locations, that occasionally can be hit by a thrown object (e.g. ball, stone, etc.)).	Yes
Cat. III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects (e.g.: upper façade levels in buildings (not including base) not sited in public locations, that occasionally can be hit by a thrown object (e.g. ball, stone, etc.)).	No
Cat. IV	A zone out of reach from ground level (e.g.: high façade levels that cannot be hit by a throw object).	No

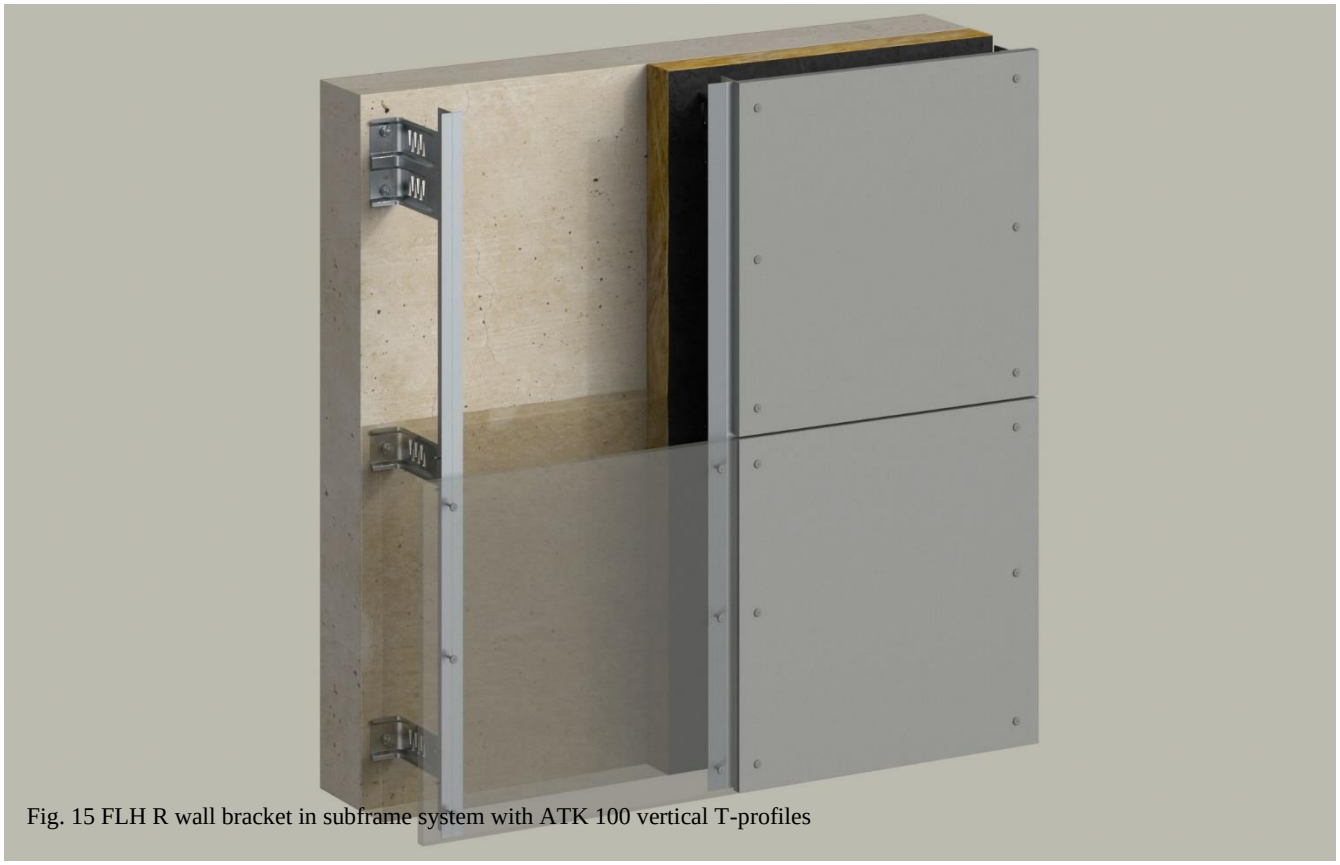


Fig. 15 FLH R wall bracket in subframe system with ATK 100 vertical T-profiles

Fig. 16 FLH R wall bracket in subframe system with ATK 103 horizontal rails

fischer FLH R high thermal performance wall bracket	**Annex 3.1**
Typical ventilated rainscreen façade applications	

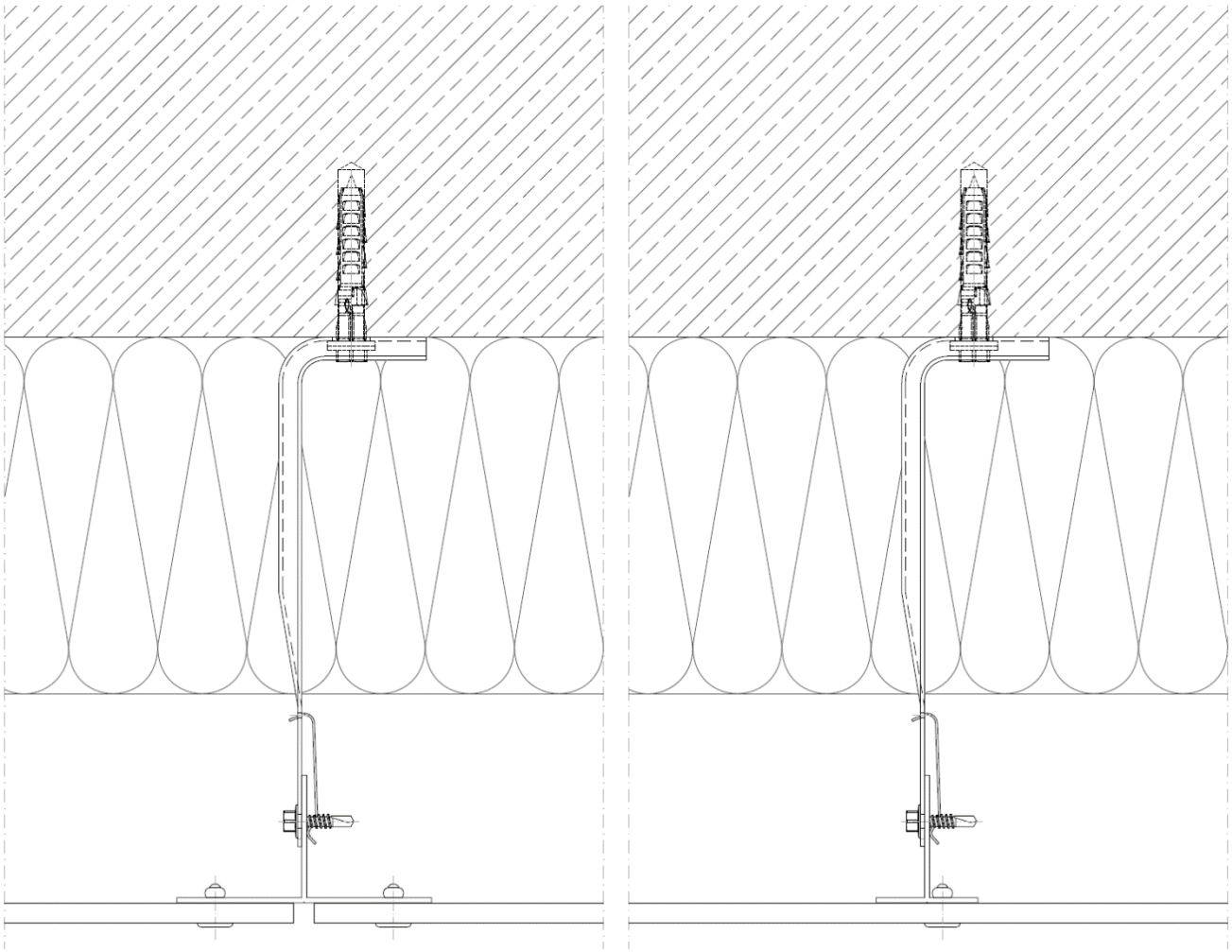


Fig. 17 Horizontal section with ATK 100 vertical T-profiles and face-fixed HPL façade panels

fischer FLH R high thermal performance wall bracket	**Annex 3.2**
Example of FLH R wall bracket in subframe system	

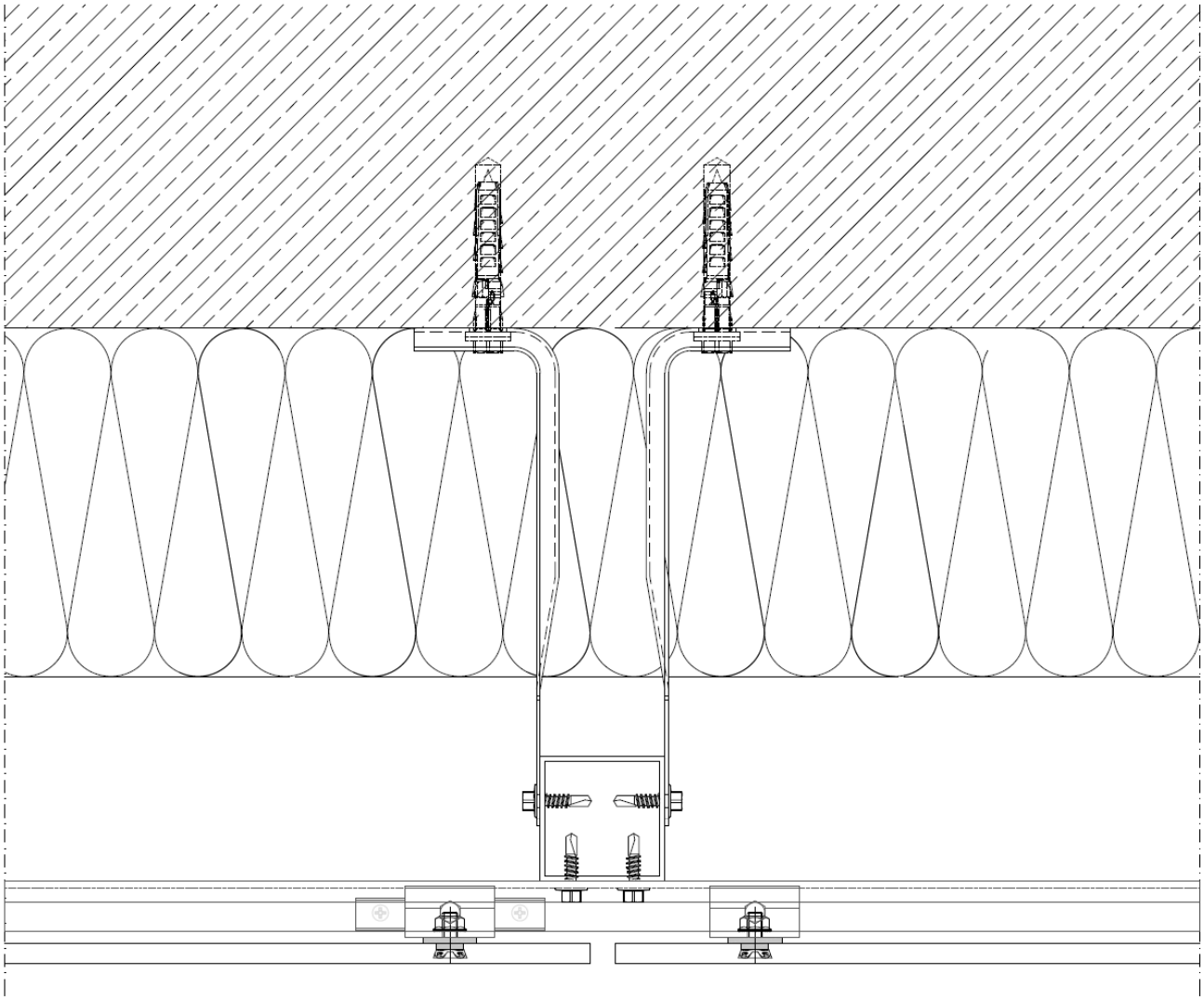


Fig. 18 Horizontal section with ATK 101 vertical box-section, ATK 103 subframe and FZP II undercut anchors for ceramic panels

fischer FLH R high thermal performance wall bracket	**Annex 3.3**
Example of FLH R wall bracket in subframe system	