

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

European Technical Assessment Body
for construction products



European Technical Assessment

ETA-20/0123
of 19 May 2026

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

Supporting brackets "TRA-WIK-ALU-RF" - "TRA-WIK-
ALU-RL" - "TWL-ALU-RF" - "TWL-ALU-RL"

Product family
to which the construction product belongs

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-
RL" and "TWL-ALU-RF", "TWL-ALU-RL" for the low
thermal bridging fixation of attachment parts in external
thermal insulation composite systems (ETICS)

Manufacturer

Dosteba GmbH
Aspenhaustraße 6
72770 Reutlingen
GERMANY

Manufacturing plant

Plant 2

This European Technical Assessment
contains

58 pages including 53 annexes which form an integral
part of this assessment

This European Technical Assessment is
issued in accordance with Article 95(4) of
Regulation (EU) No 2024/3110, on the basis of

EAD 040868-00-0404

This version replaces

ETA-20/0123 issued on 26 February 2020

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 36(3) of Regulation (EU) No 2024/3110.

Specific Part

1 Technical description of the product

The following supporting brackets correspond to product family b) of EAD 040868-00-0404¹:

- "TRA-WIK-ALU-RF" and "TRA-WIK-ALU-RL"
- "TWL-ALU-RF" and "TWL-ALU-RL"

The supporting brackets consist of

- a sheet steel insert,
- a pressure distribution plate made of HPL,
- an aluminium extrusion profile for fixation of the attachment parts,
- two polypropylene pocket holders for the aluminium plate and the pressure distribution plate and
- an EPS insert as a render base.

The components are joined at the factory and foamed to form a bracket using black rigid polyurethane foam. The supporting brackets have a height of 125 mm with an arm which is flush with/attached to the substrate with a length of 280 mm for "TRA-WIK-ALU" and a length of up to 320 mm for "TWL-ALU" with a thickness of 60 mm and a cantilever arm with a length of 80 mm to 300 mm, in increments of 20 mm with a thickness of 80 mm.

For supporting brackets "TRA-WIK-ALU-RF" and "TWL-ALU-RF", the aluminium plate and the pressure distribution plate (mounting area) for fastening attachment parts are positioned at the face side of the cantilever arm.

For supporting brackets "TRA-WIK-ALU-RL" and at "TWL-ALU-RL", the aluminium plate and the pressure distribution plate (mounting area) for fastening attachment parts are positioned at the longitudinal side of the cantilever arm.

Detailed information and data for all the components are provided in the annexes to this ETA and in the associated test reports and the control plan.

The components and the system setup of the product are provided in Annexes A1 to A4.

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

The supporting brackets are intended for use as a low thermal bridging fixation of primarily static loads from attachment parts such as awnings, canopies, stairways, railings, window blinds and sun protection elements on external walls with external thermal insulation composite systems (ETICS) or other facade systems.

The supporting brackets are fixed with their entire surface to the level, solid, load-bearing external wall (substrate) using three anchor elements.

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

The verifications and assessment methods on which this ETA is based lead to the assumption of a working life of the supporting brackets of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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.

¹ EAD 0040868-00-0404 MAY 2018, EDITION 12/2021- RIGID POLYURETHANE FOAM (PUR) ELEMENTS FOR FASTENING ATTACHMENT PARTS IN EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS

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	E in accordance with DIN EN 13501

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic		Performance
Swelling in thickness after immersion in water		Length/width/thickness [%] 0,07 / 0,37 / 0,21 "TRA-WIK-ALU" 0,03 / 0,19 / 0,25 "TWL-ALU"
Apparent density of PU foam		0,33 g/cm³ with EN 1602 "TRA-WIK-ALU" 0,42 g/cm³ with EN 1602 "TWL-ALU"
Mechanical resistance	Tensile strength	See Annex C2 – C42
	Compressive strength	See Annex C2 – C42
	Shear strength	See Annex C2 – C42
	Lateral tensile strength	No performance assessed
	Flexural strength	No performance assessed
	Pull-through resistance of anchor elements	No performance assessed
	Embedment strength (local bearing strength) of the anchorage area	No performance assessed
Influencing factors		See Annex C1

3.3 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity "TRA-WIK-ALU"	$\lambda < 0,0651 \text{ W/(mK)}^1$ with EN 12677
Thermal conductivity "TWL-ALU"	$\lambda < 0,0876 \text{ W/(mK)}^1$ with EN 12677
Thermal resistance	No performance assessed
Thermal transmittance	No performance assessed
¹ As a measured value which was not exceeded.	

4 Assessment and verification of constancy of performance system applied, with reference to its legal basis

In accordance with European Assessment Document (EAD) no. 040868-00-0404, the following legal basis shall apply: 2003/640/EC.

The following system for the assessment and verification of constancy of performance (AVCP) shall be used for the supporting brackets: 2+ for all intended uses except for uses subject to reaction-to-fire requirements.

For intended uses subject to reaction-to-fire requirements, AVCP system 1, 3 or 4 shall be used for the reaction to fire, depending on the boundary conditions listed in the above-mentioned Decision.

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

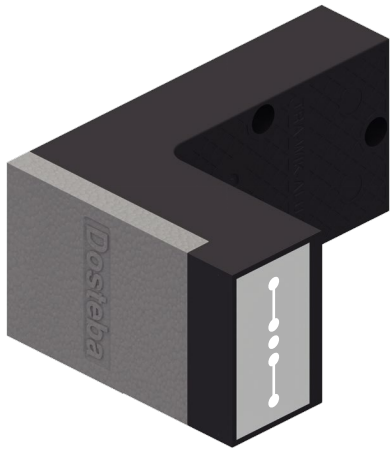
The technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with DIBt.

Issued in Berlin on 19 May 2026 by Deutsches Institut für Bautechnik

Inka Fischer
Head of Section

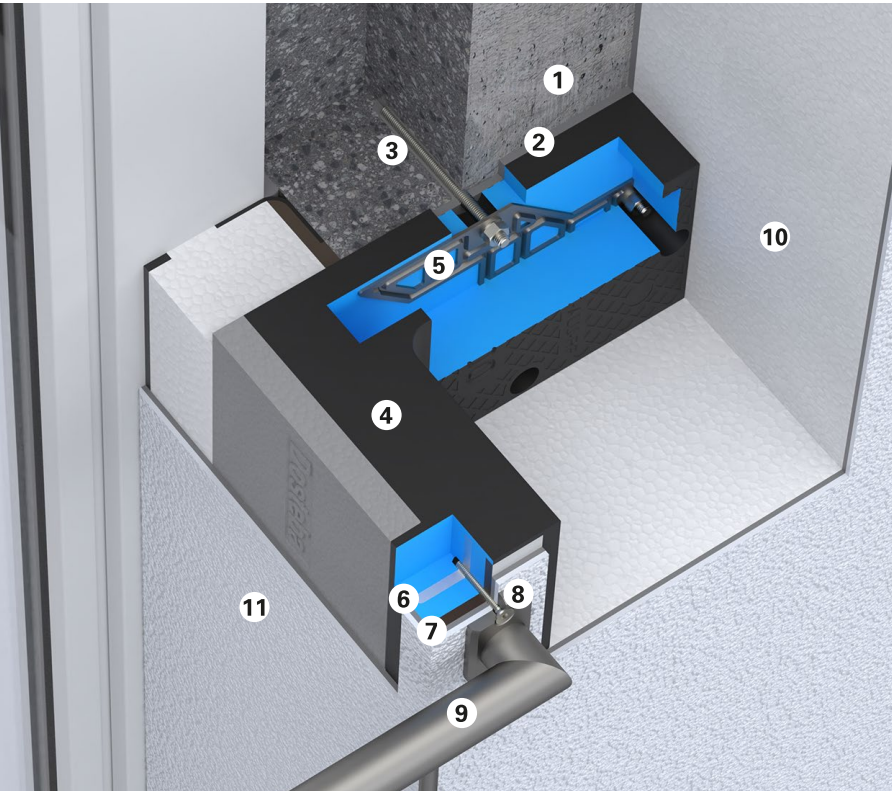
beglaubigt:
Beckmann

Support bracket TRA-WIK-ALU-RF



Fastening of attachment part front-side
Load application according to Annex B2 and B3

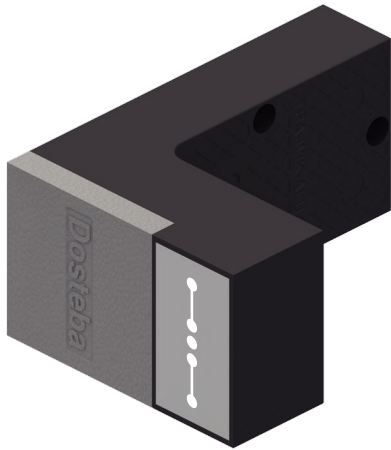
Installation situation using the example of a railing on the fassade



- 1 Exterior wall
- 2 e.g. adhesive mortar of ETICS
- 3 Anchoring of support bracket in exterior wall using 3 anchors in accordance with Annex B1
- 4 Support bracket TRA-WIK-ALU-RF
- 5 Steel sheet insert of support bracket
- 6 Aluminium plate of the support bracket
- 7 Pressure distribution plate of support bracket
- 8 Fastening of attachment part to support bracket using one or two screws in accordance with Annexes B2 and B3
- 9 Attachment part
- 10 e.g. insulation layer of ETICS
- 11 e.g. render system of ETICS

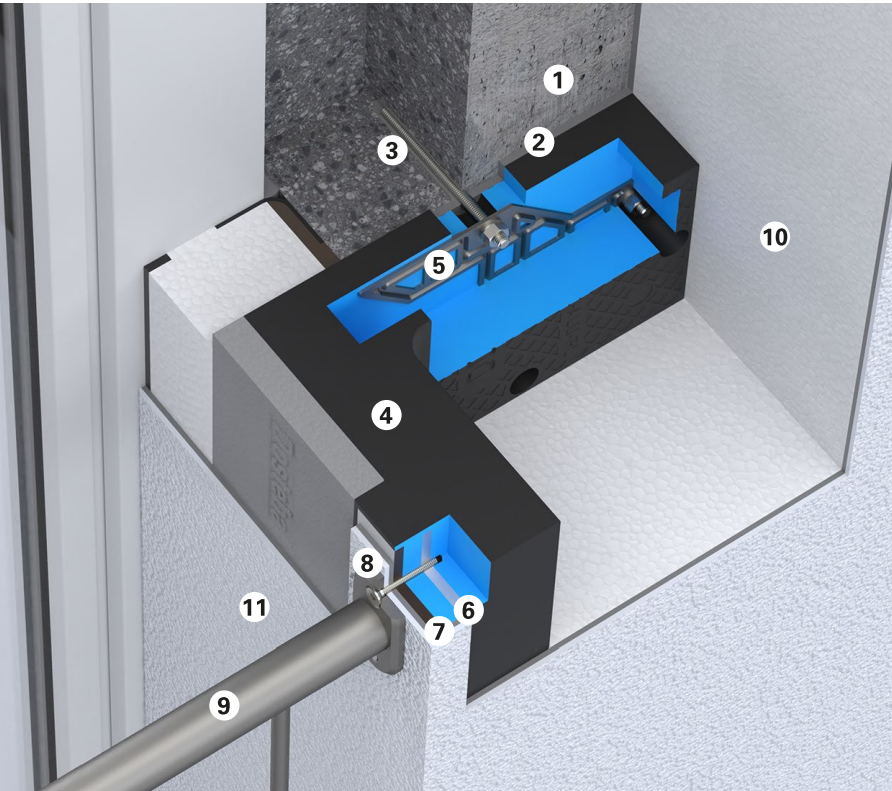
Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"	Annex A1
Product description Product and installed condition of "TRA-WIK-ALU-RF"	

Support bracket TRA-WIK-ALU-RL



Fastening of attachment part leg-side
Load application according to Annex B2 and B3

Installation situation using the example of a railing between window openings



- 1 Exterior wall
- 2 e.g. adhesive mortar of ETICS
- 3 Anchoring of support bracket in exterior wall using 3 anchors in accordance with Annex B1
- 4 Support bracket TRA-WIK-ALU-RL
- 5 Steel sheet insert of support bracket
- 6 Aluminium plate of the support bracket
- 7 Pressure distribution plate of support bracket
- 8 Fastening of attachment part to support bracket using one or two screws in accordance with Annexes B2 and B3
- 9 Attachment part
- 10 e.g. insulation layer of ETICS
- 11 e.g. render system of ETICS

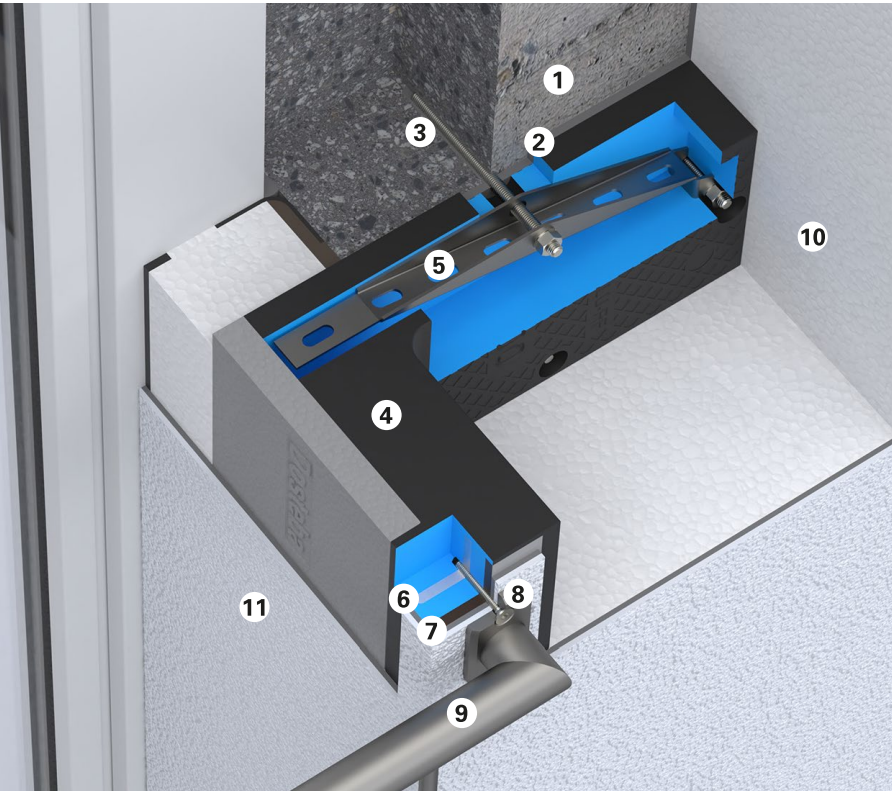
Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"	Annex A2
Product description Product and installed condition of "TRA-WIK-ALU-RL"	

Support bracket TWL-ALU-RF



Fastening of attachment part front-side
Load application according to Annex B2 and B3

Installation situation using the example of a railing on the fassade



- 1 Exterior wall
- 2 e.g. adhesive mortar of ETICS
- 3 Anchoring of support bracket in exterior wall using 3 anchors in accordance with Annex B1
- 4 Support bracket TWL-ALU-RF
- 5 Steel sheet insert of support bracket
- 6 Aluminium plate of the support bracket
- 7 Pressure distribution plate of support bracket
- 8 Fastening of attachment part to support bracket using one or two screws in accordance with Annexes B2 and B3
- 9 Attachment part
- 10 e.g. insulation layer of ETICS
- 11 e.g. render system of ETICS

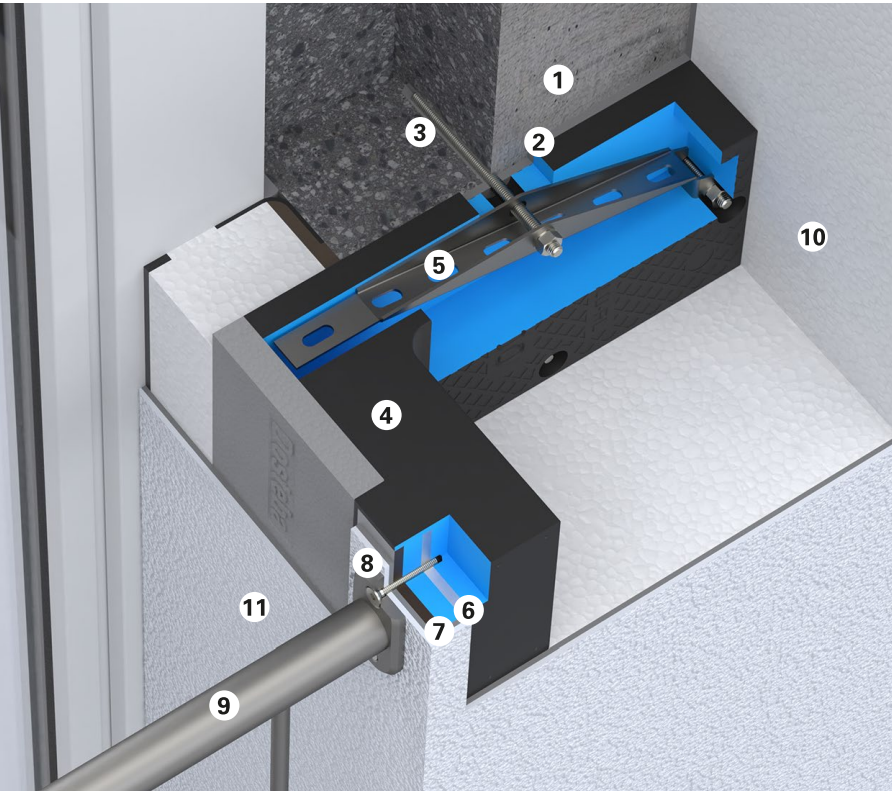
Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"	Annex A3
Product description Product and installed condition of "TWL-ALU-RF"	

Support bracket TWL-ALU-RL



Fastening of attachment part leg-side
Load application according to Annex B2 and B3

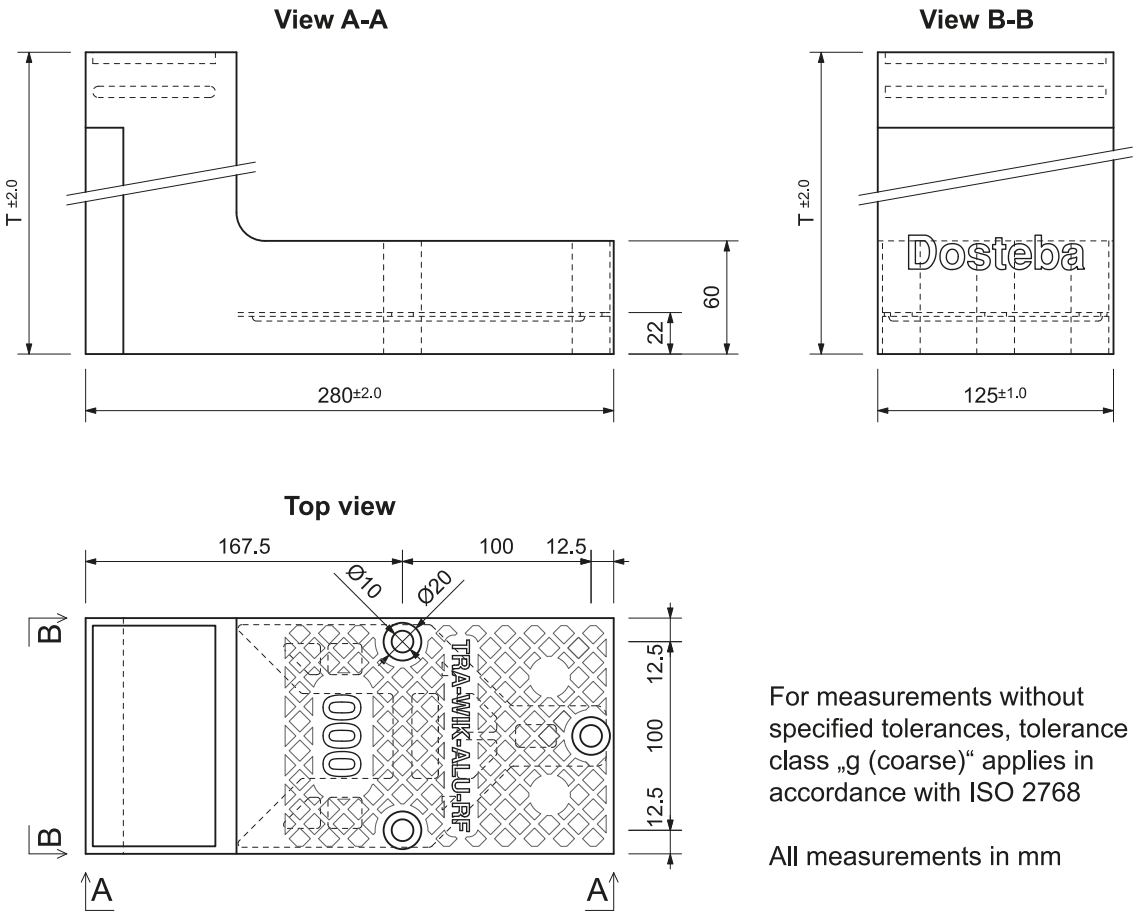
Installation situation using the example of a railing between window openings



- 1 Exterior wall
- 2 e.g. adhesive mortar of ETICS
- 3 Anchoring of support bracket in exterior wall using 3 anchors in accordance with Annex B1
- 4 Support bracket TWL-ALU-RL
- 5 Steel sheet insert of support bracket
- 6 Aluminium plate of the support bracket
- 7 Pressure distribution plate of support bracket
- 8 Fastening of attachment part to support bracket using one or two screws in accordance with Annexes B2 and B3
- 9 Attachment part
- 10 e.g. insulation layer of ETICS
- 11 e.g. render system of ETICS

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"	Annex A4
Product description Product and installed condition of "TWL-ALU-RL"	

Support bracket TRA-WIK-ALU-RF



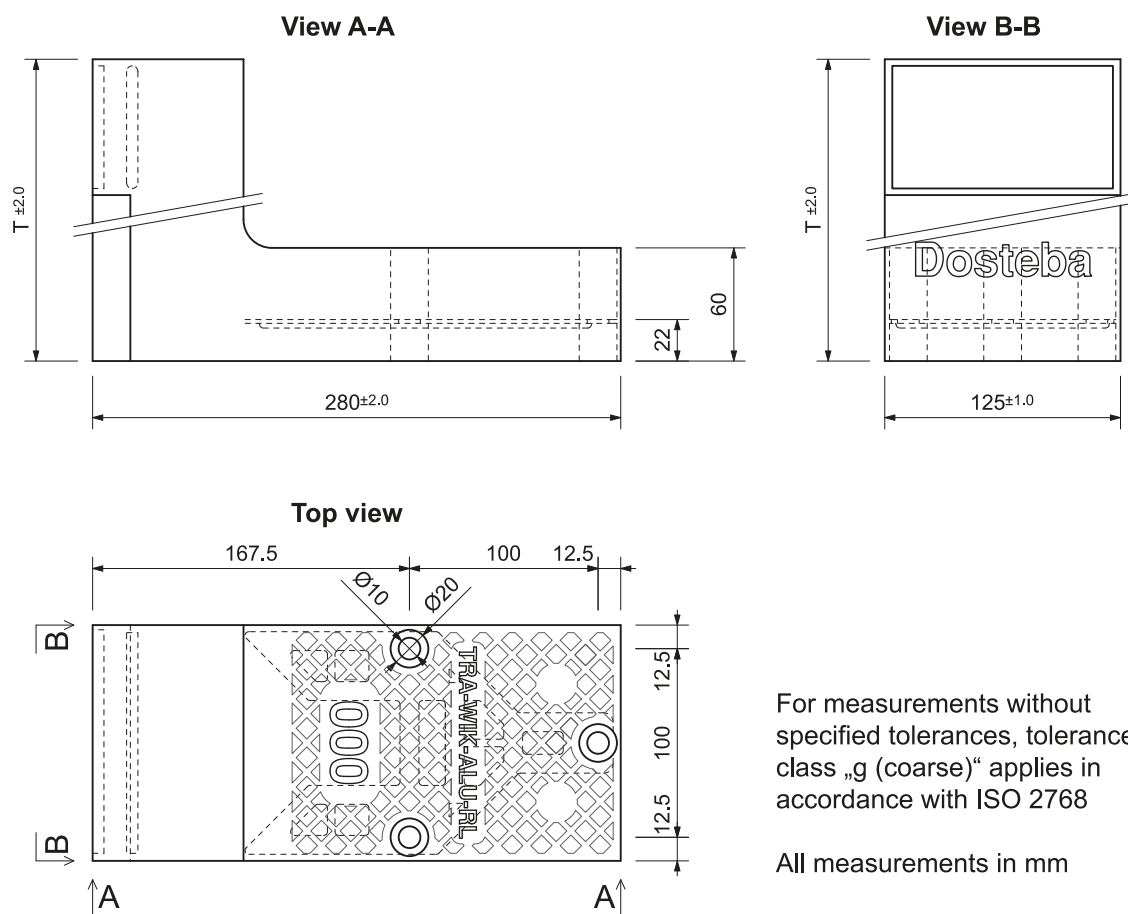
T [mm]	Weight [g]		
	-3%	Nominal value	+3%
80	1039	1071	1103
100	1091	1125	1159
120	1143	1179	1214
140	1196	1233	1270
160	1248	1287	1325
180	1301	1341	1381
200	1353	1395	1437
220	1405	1449	1492
240	1458	1503	1548
260	1510	1557	1603
280	1562	1611	1659
300	1615	1665	1715

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Product description
Dimensions and weight of "TRA-WIK-ALU-RF"

Annex A5

Support bracket TRA-WIK-ALU-RL



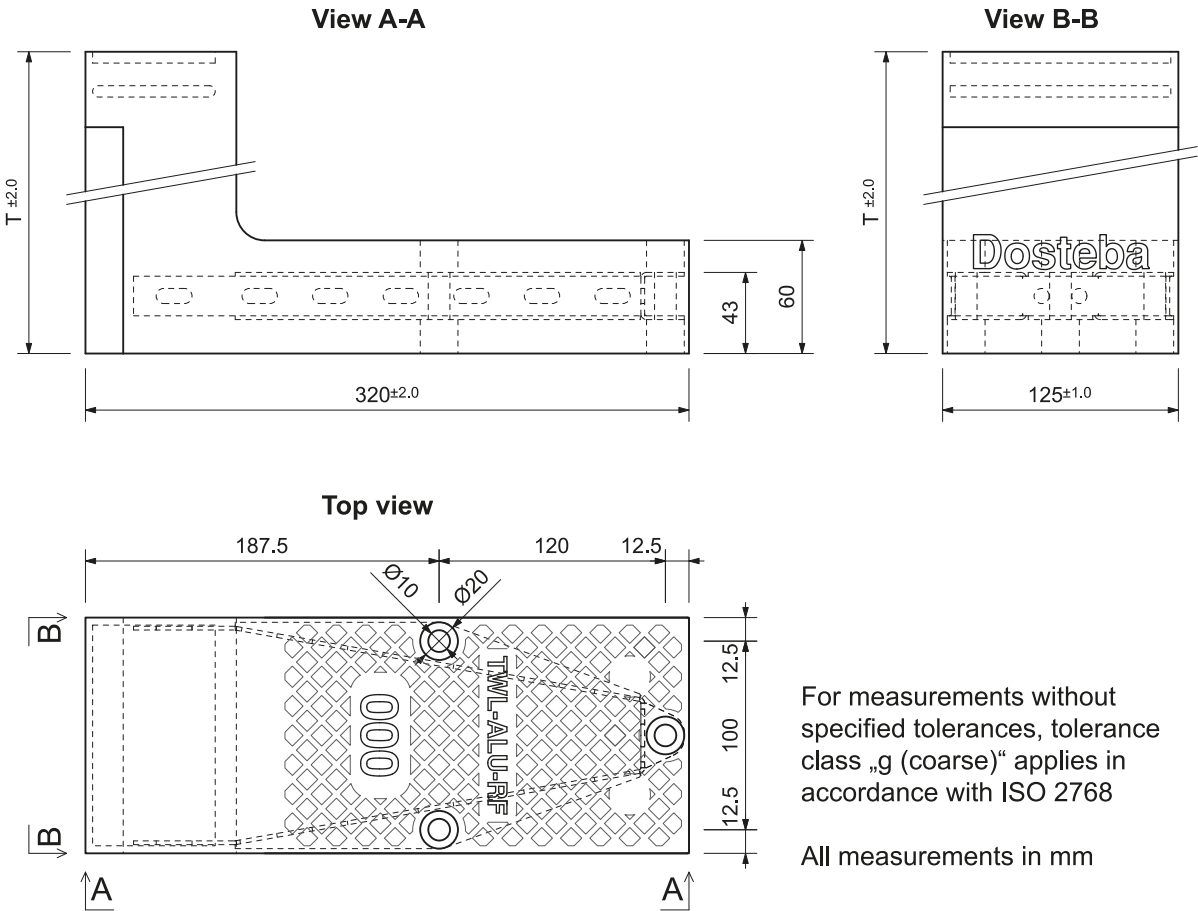
T [mm]	Weight [g]		
	-3%	Nominal value	+3%
80	1077	1111	1144
100	1124	1159	1194
120	1177	1213	1249
140	1229	1267	1305
160	1281	1321	1361
180	1334	1375	1416
200	1386	1429	1472
220	1438	1483	1527
240	1491	1537	1583
260	1543	1591	1639
280	1596	1645	1694
300	1648	1699	1750

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Product description
Dimensions and weight of "TRA-WIK-ALU-RL"

Annex A6

Support bracket TWL-ALU-RF



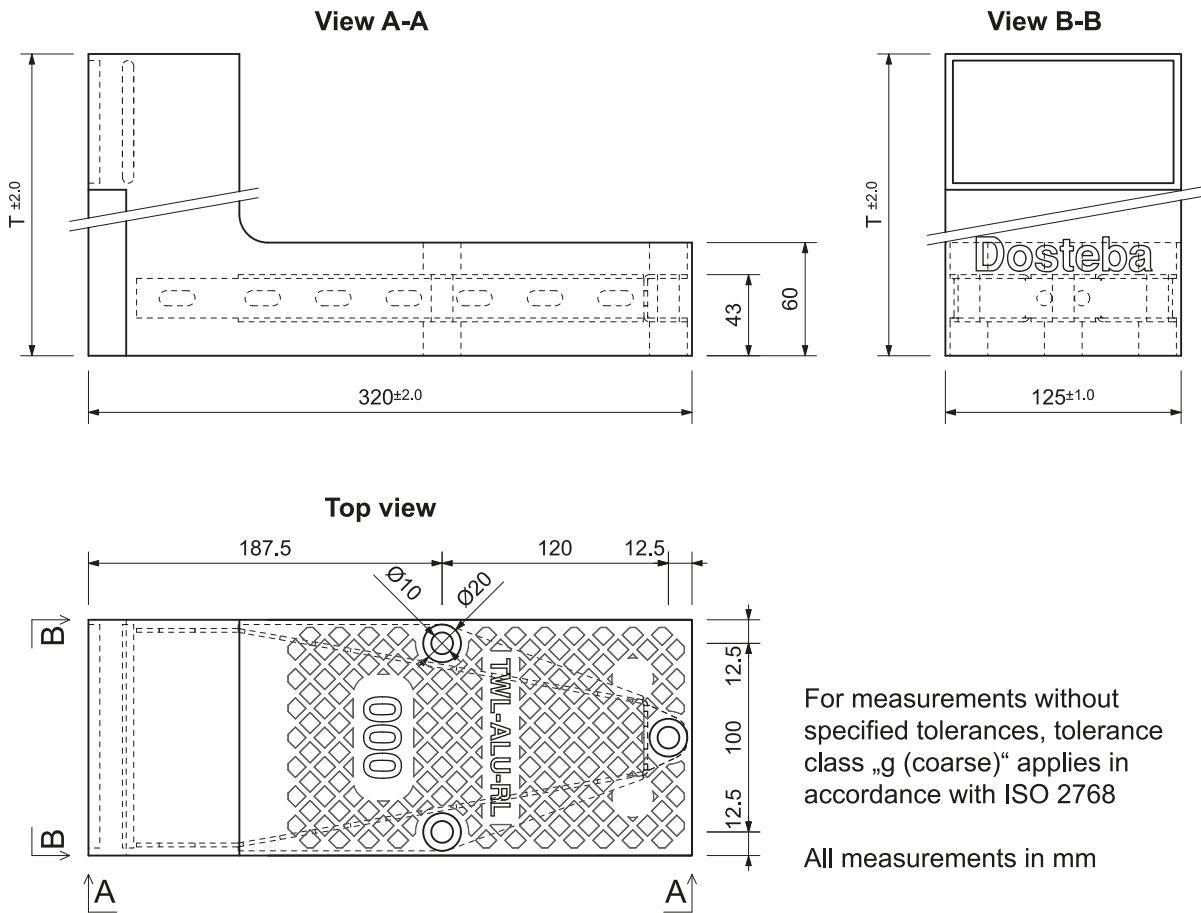
T [mm]	Weight [g]		
	-3%	Nominal value	+3%
80	1531	1578	1625
100	1598	1647	1696
120	1665	1716	1767
140	1731	1785	1839
160	1798	1854	1910
180	1865	1923	1981
200	1932	1992	2052
220	1999	2061	2123
240	2066	2130	2194
260	2132	2198	2264
280	2199	2267	2335
300	2266	2336	2406

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Product description
Dimensions and weight of "TWL-ALU-RF"

Annex A7

Support bracket TWL-ALU-RL



T [mm]	Weight [g]		
	-3%	Nominal value	+3%
80	1577	1626	1675
100	1636	1687	1738
120	1703	1756	1809
140	1770	1825	1880
160	1837	1894	1951
180	1904	1963	2022
200	1971	2032	2093
220	2038	2101	2164
240	2105	2170	2235
260	2172	2239	2306
280	2239	2308	2377
300	2306	2377	2448

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Product description
Dimensions and weight of "TWL-ALU-RL"

Annex A8

Field of application

Product family b) support bracket elements in accordance with EAD 090868-00-0404, May 2018

Loading of the support brackets

Static and quasi-static loads (primarily static loads) from attachment parts

Structural analysis

The verification of the support brackets as well as the anchoring and fastening shall take into account all loads which occur. For each application case, a structural analysis shall be carried out for the ultimate limit state (ULS) and for the serviceability limit state (SLS). Relevant national regulations shall be observed.

For table C1 in Annex C1:

The following loading durations shall be used:

- Dead load (attachment parts, items such as flower boxes may also have to be considered here): permanent
- Live loads: (traffic loads):
The actions specified in Clause 6.3.1, 6.3.4, and 6.4 of EN 1991-1-1:2010-12 are considered to be live loads. The actions listed in Clauses 6.3.2 and 6.3.3 of the standard shall be excluded.
Unless other values exist, the following loading durations shall be assumed:
 - Loads in accordance with Clause 6.3.1: 25 % permanent; 75 % short
 - Loads in accordance with Clause 6.3.4: short
 - Loads in accordance with Clauses 6.4 (1) and 6.4 (2): medium
 - Loads in accordance with Clauses 6.4 (NA.3)* to 6.4 (NA.6): permanent
- Wind loads: very short
- Snow loads: medium
- Extraordinary snow loads: short

The actions E_k shall be increased through multiplication by the influencing factors depending on the load scenario.

* acc. DIN EN 1991-1/NA:2010-12

Installation

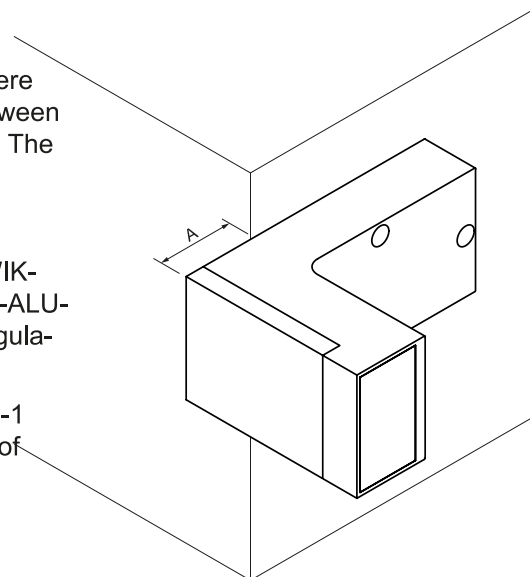
The support brackets are fixed with their entire surface to a flat, solid, load-bearing exterior wall (substrate) using three anchor elements. Where applicable, the adhesive mortar of the ETICS used, shall be placed between the support bracket and the exterior wall over the entire mounting area. The overlap (A) at the corner of the exterior wall must not exceed 80 mm.

Fastening in the substrate

The load is transferred at 22 mm for the TRA-WIK-ALU-RF and TRA-WIK-ALU-RL support brackets and at 43 mm for the TWL-ALU-RF and TWL-ALU-RL support brackets from the rear edge of the support bracket. Only regulated anchoring elements with the following properties may be used:

- Anchoring elements made of steel in accordance with EN ISO 898-1 with a yield strength $f_{y,min}$ of 600 N/mm² and a tensile strength $f_{u,min}$ of 800 N/mm²
- Diameter of 6–10 mm
- Anchorhead diameter of at least 18 mm

The load-bearing capacity of the anchoring elements in the substrate must be verified for each individual case. Failure due to bolt hole bearing capacity and screw head pull-through is not to be verified, taking into account the characteristic element resistance values.



Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

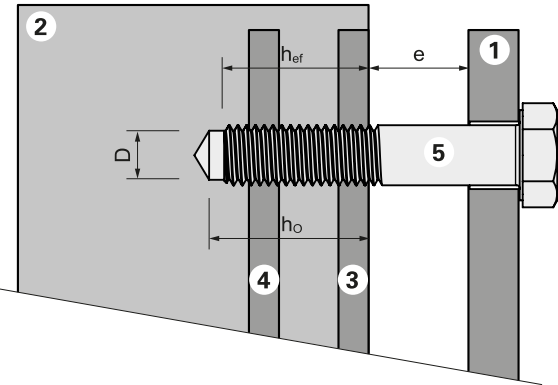
Intended use
Application and installation

Annex B1

Fastening of the attachment parts

The attachment parts are fastened to the support bracket using one or two M8, M10 or M12 screws, in each case symmetrically across the mounting surface. The screws are connected to the pressure distribution plate and the aluminium plate. When fastening the attachment parts, the following must be observed:

- The attachment part must be fastened in accordance with Annexes B2 and B3.
- Galvanised steel screws of strength class 8.8 in accordance with DIN ISO 898-1 or stainless steel screws A4-80 in accordance with DIN EN ISO 3506 must be used.
- The distance between the attachment part and the support bracket must not exceed 20 mm.
- The attachment part is secured to the mounting surface using blind hole connections with screws with a setting depth of at least 29 mm from the top edge of the pressure distribution plate.
- The drill hole must be positioned perpendicular to the pressure distribution plate and can be created on site or at the factory. Impact tools must not be used.
- The internal thread must be cut over the entire depth of the drill hole.



Drill hole diameter D	
for M8 screw:	6,8 mm
for M10 screw:	8,5 mm
for M12 screw:	10,2 mm
Drill hole depth h_0 :	min. 32 mm
Screw embedment depth h_{ef} :	min. 29 mm
Distance e to the attachment part:	≤ 20 mm

- 1 Attachment part
- 2 Support bracket (PU foam)
- 3 Pressure distribution plate
- 4 Aluminium plate
- 5 Screw with metric thread

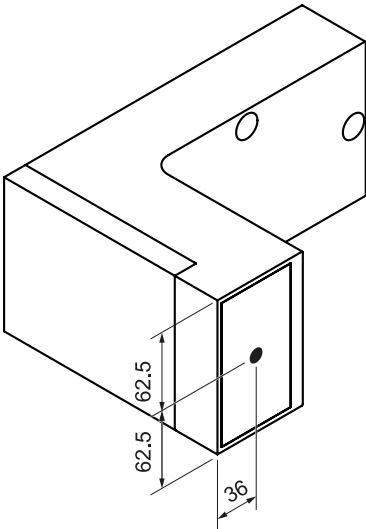
The verification of serviceability for the non-load-bearing layer in stand-off installations (plaster, etc.) is not part of this assessment. A separate assessment is required.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"	Annex B2
Intended use Fastening of attachments	

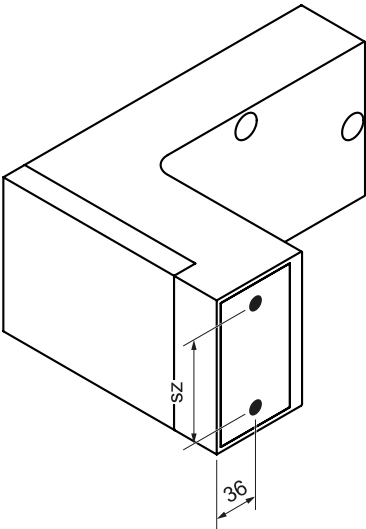
Fig. C1: Arrangement of fasteners for the attachment part

TRA-WIK-ALU-RF and TWL-ALU-RF

Fastening type 1



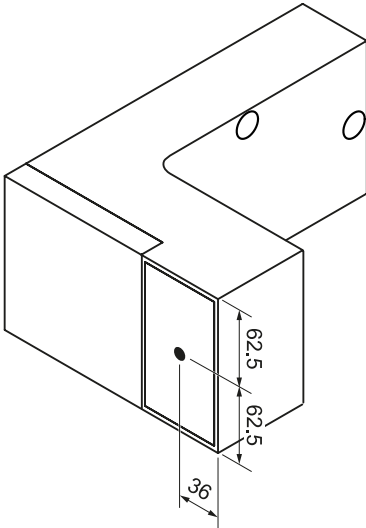
Fastening type 2



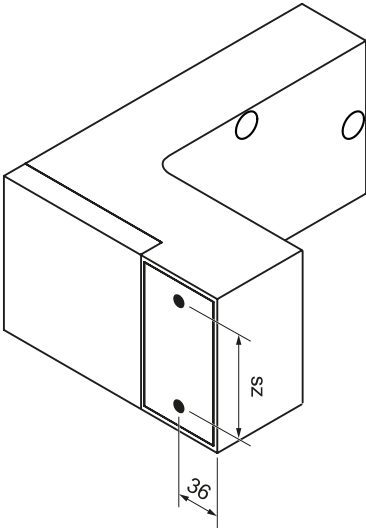
25 mm ≤ sz ≤ 85 mm

TRA-WIK-ALU-RL and TWL-ALU-RL

Fastening type 3



Fastening type 4



25 mm ≤ sz ≤ 85 mm

All measurements in mm

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Intended use
Fastening of attachments parts

Annex B3

Tab. C1: Influencing factors of duration of action

Duration of load action	TRA-WIK-ALU-RF TRA-WIK-ALU-RL		TWL-ALU-RF TWL-ALU-RL	
	A_1^f	A_1^E	A_1^f	A_1^E
very short	1,00		1,00	
short up to one week	1,30	1,05	1,20	1,10
medium up to three months	1,30	1,65	1,30	1,50
long to permanent	1,35	3,50	1,45	2,65

A_1^f = Influencing factor on failure behaviour (ULS)

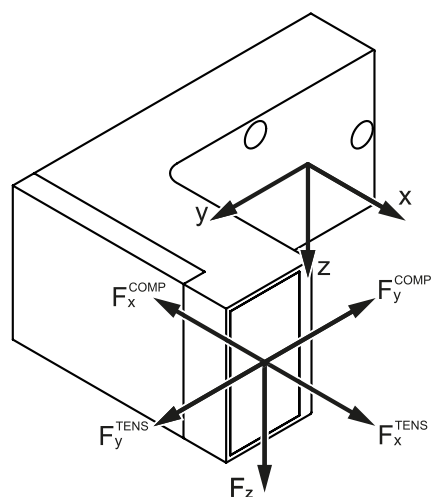
A_1^E = Influencing factor on deformation behaviour (SLS)

Tab. C2: Influencing factors for media, temperature and cyclic loading

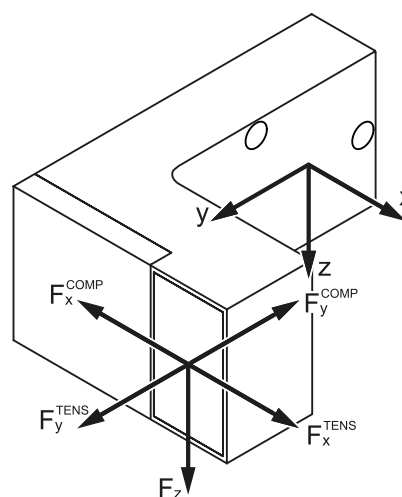
	TRA-WIK-ALU-RF TRA-WIK-ALU-RL		TWL-ALU-RF TWL-ALU-RL	
	Failure behaviour (ULS)	Deformation behaviour (SLS)	Failure behaviour (ULS)	Deformation behaviour (SLS)
Influencing factor for media effects A_2	1,05	1,25	1,12	1,40
Influencing factor for temperature effects A_3				
- in summer, 80 °C	1,25	1,30	1,19	1,07
- in winter, -20 °C	1,05		1,07	1,03
Influencing factor for cyclic loads A_4	1,10		1,00	1,30

Fig. C2: Representation of internal forces for structural resistances F_x , F_y , F_z , at the support bracket

TRA-WIK-ALU-RF and TWL-ALU-RF



TRA-WIK-ALU-RL and TWL-ALU-RL



Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Influencing factors and representation of internal forces (structural resistances)

Annex C1

Characteristic structural resistances for the TRA-WIK-ALU-RF support bracket

Direct mounting of the attachment part, fastening type 1, M12 screw.....	Annex C3
Direct mounting of the attachment part, fastening type 1, M10 screw.....	Annex C4
Direct mounting of the attachment part, fastening type 1, M8 screw.....	Annex C5
Direct mounting of the attachment part, fastening type 2, M10 screw.....	Annex C6
Direct mounting of the attachment part, fastening type 2, M8 screw.....	Annex C7
Stand-off mounting of the attachment part, fastening type 1, M12 screw	Annex C8
Stand-off mounting of the attachment part, fastening type 1, M10 screw	Annex C9
Stand-off mounting of the attachment part, fastening type 1, M8 screw	Annex C10
Stand-off mounting of the attachment part, fastening type 2, M10 screw	Annex C11
Stand-off mounting of the attachment part, fastening type 2, M8 screw	Annex C12

Characteristic structural resistances for the TRA-WIK-ALU-RL support bracket

Direct mounting of the attachment part, fastening type 3, M12 screw.....	Annex C13
Direct mounting of the attachment part, fastening type 3, M10 screw.....	Annex C14
Direct mounting of the attachment part, fastening type 3, M8 screw.....	Annex C15
Direct mounting of the attachment part, fastening type 4, M10 screw.....	Annex C16
Direct mounting of the attachment part, fastening type 4, M8 screw.....	Annex C17
Stand-off mounting of the attachment part, fastening type 3, M12 screw	Annex C18
Stand-off mounting of the attachment part, fastening type 3, M10 screw	Annex C19
Stand-off mounting of the attachment part, fastening type 3, M8 screw	Annex C20
Stand-off mounting of the attachment part, fastening type 4, M10 screw	Annex C21
Stand-off mounting of the attachment part, fastening type 4, M8 screw	Annex C22

Characteristic structural resistances for the TWL-ALU-RF support bracket

Direct mounting of the attachment part, fastening type 1, M12 screw.....	Annex C23
Direct mounting of the attachment part, fastening type 1, M10 screw.....	Annex C24
Direct mounting of the attachment part, fastening type 1, M8 screw.....	Annex C25
Direct mounting of the attachment part, fastening type 2 M10 screw.....	Annex C26
Direct mounting of the attachment part, fastening type 2 M8 screw.....	Annex C27
Stand-off mounting of the attachment part, fastening type 1, M12 screw	Annex C28
Stand-off mounting of the attachment part, fastening type 1, M10 screw	Annex C29
Stand-off mounting of the attachment part, fastening type 1, M8 screw	Annex C30
Stand-off mounting of the attachment part, fastening type 2, M10 screw	Annex C31
Stand-off mounting of the attachment part, fastening type 2, M8 screw	Annex C32

Characteristic structural resistances for the TWL-ALU-RL support bracket

Direct mounting of the attachment part, fastening type 3, M12 screw.....	Annex C33
Direct mounting of the attachment part, fastening type 3, M10 screw.....	Annex C34
Direct mounting of the attachment part, fastening type 3, M8 screw.....	Annex C35
Direct mounting of the attachment part, fastening type 4, M10 screw.....	Annex C36
Direct mounting of the attachment part, fastening type 4, M8 screw.....	Annex C37
Stand-off mounting of the attachment part, fastening type 3, M12 screw	Annex C38
Stand-off mounting of the attachment part, fastening type 3, M10 screw	Annex C39
Stand-off mounting of the attachment part, fastening type 3, M8 screw	Annex C40
Stand-off mounting of the attachment part, fastening type 4, M10 screw	Annex C41
Stand-off mounting of the attachment part, fastening type 4, M8 screw	Annex C42

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

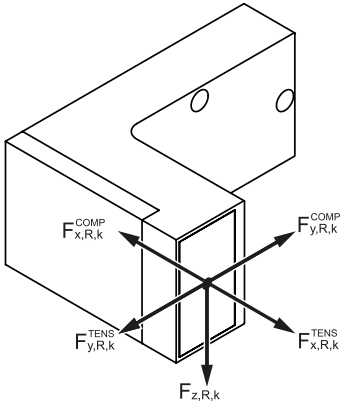
Characteristic structural resistances – Table index

Annex C2

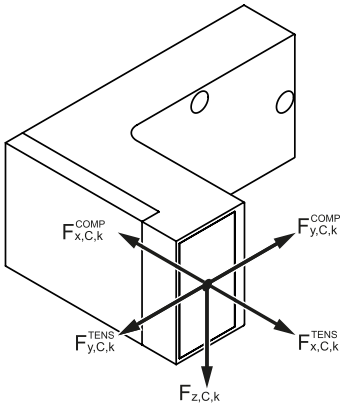
Direct mounting of the attachment part

Fastening type 1, M12 screw (Annex B3)

Tab. C3: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	7,7	6,5	4,8
	100	4,4	11,1	7,7	6,5	4,8
	120	4,4	10,7	6,1	5,5	4,2
	140	4,5	10,3	4,5	4,6	3,7
	160	4,6	9,9	4,1	3,8	3,3
	180	4,6	9,4	3,8	3,1	2,9
	200	4,8	9,0	3,4	2,6	2,5
	220	4,9	8,6	2,9	2,2	2,2
	240	5,0	8,2	2,5	2,0	2,0
	260	5,2	7,7	2,2	1,9	1,8
	280	5,3	7,3	2,0	1,9	1,6
	300	5,5	6,8	1,9	2,0	1,6

Tab. C4: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,4	11,1	7,7	4,9	4,0
	100	3,5	11,1	7,7	4,9	4,0
	120	3,5	10,7	6,6	4,2	3,5
	140	3,6	10,3	5,7	3,6	3,0
	160	3,7	9,9	4,8	3,0	2,7
	180	3,7	9,4	4,1	2,6	2,3
	200	3,8	9,0	3,4	2,2	2,0
	220	3,9	8,3	2,9	1,9	1,7
	240	4,0	7,7	2,5	1,7	1,6
	260	4,1	7,1	2,2	1,6	1,4
	280	4,2	6,5	2,0	1,6	1,2
	300	4,4	6,0	1,9	1,7	1,2

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

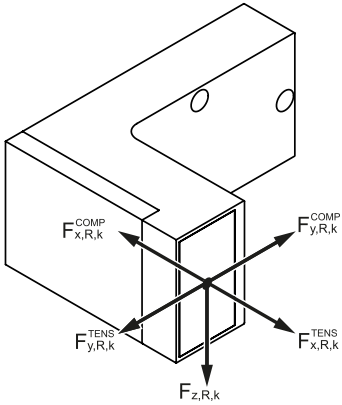
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M12

Annex C3

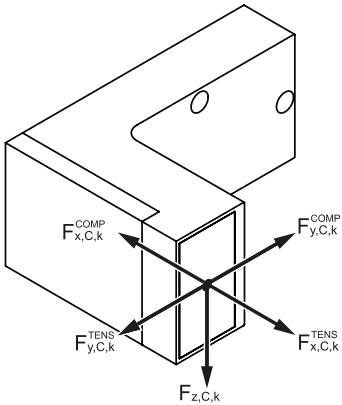
Direct mounting of the attachment part

Fastening type 1, M10 screw (Annex B3)

Tab. C5: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,0	11,1	7,5	6,2	4,5
	100	4,1	11,1	7,5	6,2	4,5
	120	4,1	10,7	5,9	5,2	3,9
	140	4,2	10,3	4,4	4,4	3,4
	160	4,3	9,9	4,0	3,6	3,1
	180	4,3	9,4	3,7	2,9	2,7
	200	4,5	9,0	3,3	2,5	2,3
	220	4,6	8,6	2,8	2,1	2,0
	240	4,7	8,2	2,4	1,9	1,9
	260	4,9	7,7	2,1	1,8	1,7
	280	5,0	7,3	1,9	1,8	1,5
	300	5,2	6,8	1,8	1,9	1,5

Tab. C6: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	2,6	8,7	5,7	3,9	3,0
	100	2,7	8,7	5,7	3,9	3,0
	120	2,7	8,3	4,9	3,4	2,7
	140	2,8	8,0	4,2	2,9	2,3
	160	2,8	7,7	3,6	2,4	2,1
	180	2,8	7,3	3,0	2,1	1,7
	200	2,9	7,0	2,5	1,8	1,5
	220	3,0	6,5	2,1	1,5	1,3
	240	3,1	6,0	1,9	1,4	1,2
	260	3,2	5,5	1,6	1,3	1,1
	280	3,2	5,1	1,5	1,3	0,9
	300	3,4	4,7	1,4	1,4	0,9

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing$ 6 mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

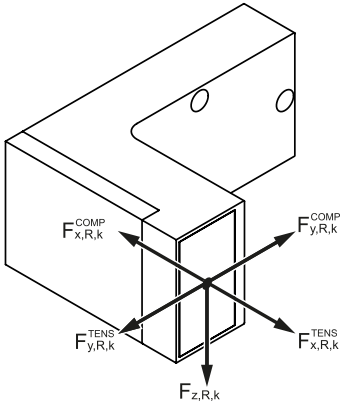
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M10

Annex C4

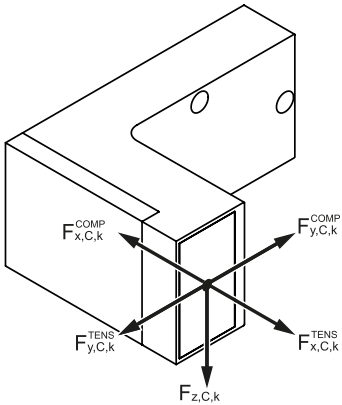
Direct mounting of the attachment part

Fastening type 1, M8 screw (Annex B3)

Tab. C7: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,8	11,1	7,3	5,9	4,1
	100	3,9	11,1	7,3	5,9	4,1
	120	3,9	10,7	5,8	5,0	3,6
	140	4,0	10,3	4,3	4,2	3,2
	160	4,0	9,9	3,9	3,5	2,8
	180	4,0	9,4	3,6	2,8	2,5
	200	4,2	9,0	3,2	2,4	2,2
	220	4,3	8,6	2,8	2,0	1,9
	240	4,4	8,2	2,4	1,8	1,7
	260	4,6	7,7	2,1	1,7	1,5
	280	4,7	7,3	1,9	1,7	1,4
	300	4,8	6,8	1,8	1,8	1,4

Tab. C8: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,9	6,1	3,6	2,9	2,1
	100	1,9	6,1	3,6	2,9	2,1
	120	1,9	5,9	3,1	2,5	1,8
	140	2,0	5,7	2,7	2,2	1,6
	160	2,0	5,4	2,3	1,8	1,4
	180	2,0	5,2	1,9	1,6	1,2
	200	2,1	5,0	1,6	1,3	1,0
	220	2,1	4,6	1,4	1,1	0,9
	240	2,2	4,2	1,2	1,0	0,8
	260	2,3	3,9	1,0	1,0	0,7
	280	2,3	3,6	0,9	1,0	0,6
	300	2,4	3,3	0,9	1,0	0,6

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

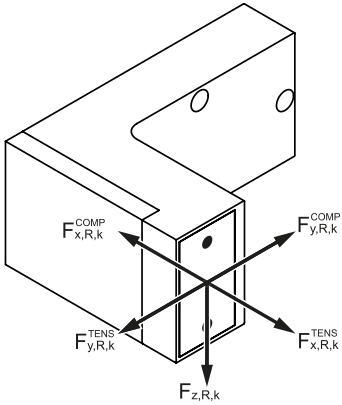
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M8

Annex C5

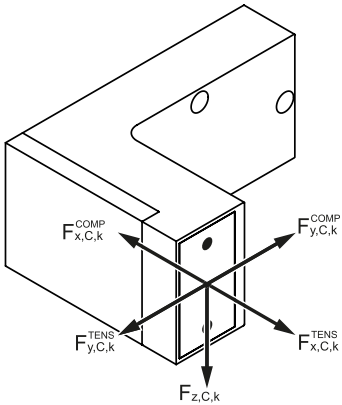
Direct mounting of the attachment part

Fastening type 2, M10 screw (Annex B3)

Tab. C9: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,9	11,1	7,7	6,5	4,8
	100	4,0	11,1	7,7	6,5	4,8
	120	4,0	10,7	6,1	5,5	4,2
	140	4,1	10,3	4,5	4,6	3,7
	160	4,2	9,9	4,1	3,8	3,3
	180	4,2	9,4	3,8	3,1	2,9
	200	4,4	9,0	3,4	2,6	2,5
	220	4,5	8,6	2,9	2,2	2,2
	240	4,6	8,2	2,5	2,0	2,0
	260	4,7	7,7	2,2	1,9	1,8
	280	4,8	7,3	2,0	1,9	1,6
	300	5,0	6,8	1,9	2,0	1,6

Tab. C10: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	2,6	8,7	6,0	4,2	3,3
	100	2,7	8,7	6,0	4,2	3,3
	120	2,7	8,3	5,1	3,6	2,9
	140	2,7	8,0	4,4	3,1	2,5
	160	2,8	7,7	3,7	2,6	2,2
	180	2,8	7,3	3,2	2,2	1,9
	200	2,9	7,0	2,7	1,9	1,6
	220	3,0	6,5	2,3	1,6	1,4
	240	3,0	6,0	2,0	1,4	1,3
	260	3,1	5,5	1,7	1,4	1,1
	280	3,2	5,1	1,6	1,4	1,0
	300	3,3	4,7	1,5	1,4	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

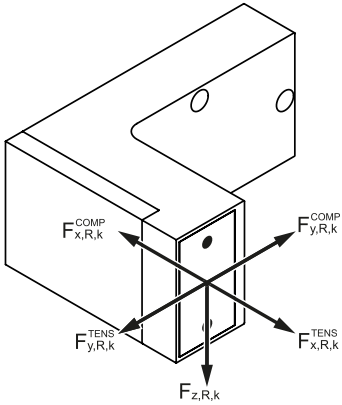
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Direct mounting of the attachment part / Fastening type 2 with screw M10

Annex C6

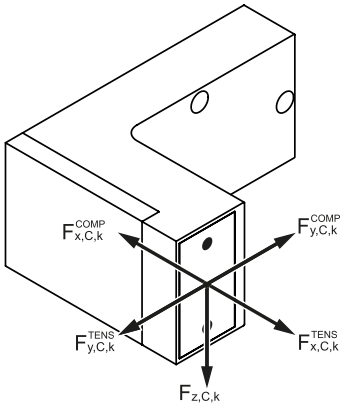
Direct mounting of the attachment part

Fastening type 2, M8 screw (Annex B3)

Tab. C11: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,5	11,1	7,7	6,5	4,8
	100	3,6	11,1	7,7	6,5	4,8
	120	3,6	10,7	6,1	5,5	4,2
	140	3,7	10,3	4,5	4,6	3,7
	160	3,8	9,9	4,1	3,8	3,3
	180	3,8	9,4	3,8	3,1	2,9
	200	3,9	9,0	3,4	2,6	2,5
	220	4,0	8,6	2,9	2,2	2,2
	240	4,1	8,2	2,5	2,0	2,0
	260	4,3	7,7	2,2	1,9	1,8
	280	4,3	7,3	2,0	1,9	1,6
	300	4,5	6,8	1,9	2,0	1,6

Tab. C12: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,7	6,2	4,3	3,4	2,6
	100	1,8	6,2	4,3	3,4	2,6
	120	1,8	6,0	3,7	2,9	2,2
	140	1,8	5,8	3,2	2,5	1,9
	160	1,9	5,5	2,7	2,1	1,7
	180	1,9	5,3	2,3	1,8	1,5
	200	1,9	5,0	1,9	1,5	1,3
	220	2,0	4,6	1,6	1,3	1,1
	240	2,0	4,3	1,4	1,2	1,0
	260	2,1	4,0	1,2	1,1	0,9
	280	2,1	3,6	1,1	1,1	0,8
	300	2,2	3,4	1,1	1,2	0,8

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

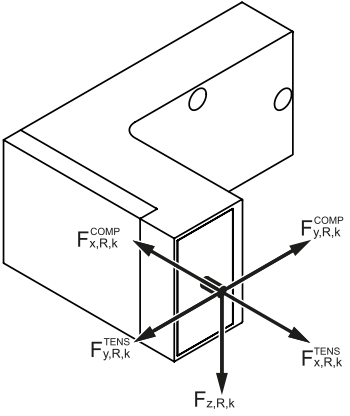
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Direct mounting of the attachment part / Fastening type 2 with screw M8

Annex C7

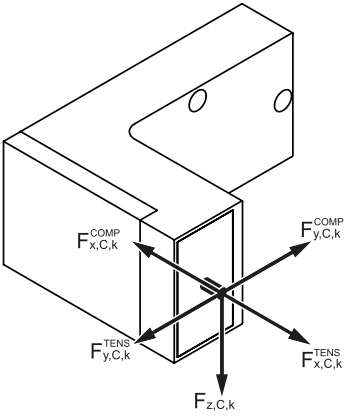
Stand-off mounting of the attachment part

Fastening type 1, M12 screw (Annex B3)

Tab. C13: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	6,7	5,7	4,1
	100	4,4	11,1	6,7	5,7	4,1
	120	4,4	10,7	5,3	4,8	3,6
	140	4,5	10,3	3,9	4,0	3,1
	160	4,6	9,9	3,6	3,3	2,8
	180	4,6	9,4	3,3	2,7	2,5
	200	4,8	9,0	3,0	2,3	2,1
	220	4,9	8,6	2,5	1,9	1,9
	240	5,0	8,2	2,2	1,7	1,7
	260	5,2	7,7	1,9	1,7	1,5
	280	5,3	7,3	1,7	1,7	1,4
	300	5,5	6,8	1,7	1,7	1,4

Tab. C14: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	9,7	7,7	4,9	3,4
	100	3,0	9,7	7,7	4,9	3,4
	120	3,0	9,3	6,6	4,2	3,0
	140	3,1	9,0	5,7	3,6	2,6
	160	3,2	8,6	4,8	3,0	2,3
	180	3,2	8,2	4,1	2,6	2,0
	200	3,3	7,8	3,4	2,2	1,7
	220	3,4	7,2	2,9	1,9	1,4
	240	3,5	6,7	2,5	1,7	1,4
	260	3,6	6,2	2,2	1,6	1,2
	280	3,7	5,7	2,0	1,6	1,0
	300	3,8	5,2	1,9	1,7	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

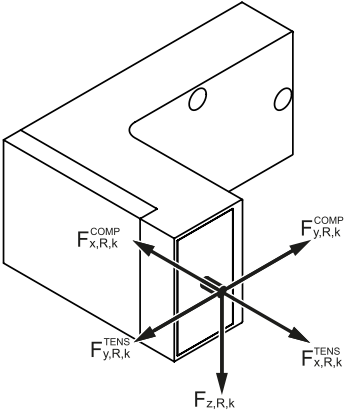
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M12

Annex C8

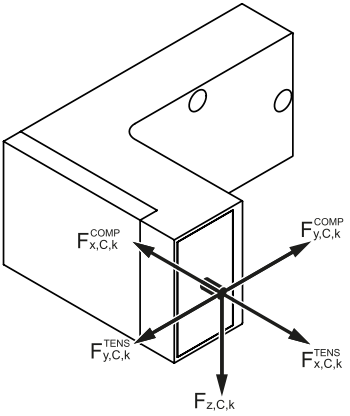
Stand-off mounting of the attachment part

Fastening type 1, M10 screw (Annex B3)

Tab. C15: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	6,7	5,7	4,1
	100	4,4	11,1	6,7	5,7	4,1
	120	4,4	10,7	5,3	4,8	3,6
	140	4,5	10,3	3,9	4,0	3,1
	160	4,6	9,9	3,6	3,3	2,8
	180	4,6	9,4	3,3	2,7	2,5
	200	4,8	9,0	3,0	2,3	2,1
	220	4,9	8,6	2,5	1,9	1,9
	240	5,0	8,2	2,2	1,7	1,7
	260	5,2	7,7	1,9	1,7	1,5
	280	5,3	7,3	1,7	1,7	1,4
	300	5,5	6,8	1,7	1,7	1,4

Tab. C16: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	9,7	6,1	3,9	3,3
	100	3,0	9,7	6,1	3,9	3,3
	120	3,0	9,3	5,2	3,3	2,9
	140	3,1	9,0	4,5	2,8	2,5
	160	3,2	8,6	3,8	2,4	2,2
	180	3,2	8,2	3,2	2,1	1,9
	200	3,3	7,8	2,7	1,7	1,6
	220	3,4	7,2	2,3	1,5	1,4
	240	3,5	6,7	2,0	1,3	1,3
	260	3,6	6,2	1,7	1,3	1,2
	280	3,7	5,7	1,6	1,3	1,0
	300	3,8	5,2	1,5	1,3	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

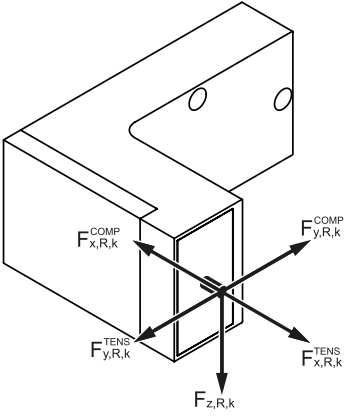
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M10

Annex C9

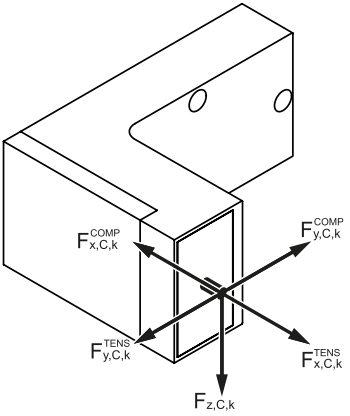
Stand-off mounting of the attachment part

Fastening type 1, M8 screw (Annex B3)

Tab. C17: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	6,7	5,7	4,1
	100	4,4	11,1	6,7	5,7	4,1
	120	4,4	10,7	5,3	4,8	3,6
	140	4,5	10,3	3,9	4,0	3,1
	160	4,6	9,9	3,6	3,3	2,8
	180	4,6	9,4	3,3	2,7	2,5
	200	4,8	9,0	3,0	2,3	2,1
	220	4,9	8,6	2,5	1,9	1,9
	240	5,0	8,2	2,2	1,7	1,7
	260	5,2	7,7	1,9	1,7	1,5
	280	5,3	7,3	1,7	1,7	1,4
	300	5,5	6,8	1,7	1,7	1,4

Tab. C18: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	9,7	4,5	2,8	3,2
	100	3,0	9,7	4,5	2,8	3,2
	120	3,0	9,3	3,9	2,4	2,8
	140	3,1	9,0	3,4	2,1	2,4
	160	3,2	8,6	2,8	1,7	2,2
	180	3,2	8,2	2,4	1,5	1,8
	200	3,3	7,8	2,0	1,3	1,6
	220	3,4	7,2	1,7	1,1	1,4
	240	3,5	6,7	1,5	1,0	1,3
	260	3,6	6,2	1,3	0,9	1,1
	280	3,7	5,7	1,2	0,9	1,0
	300	3,8	5,2	1,1	1,0	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

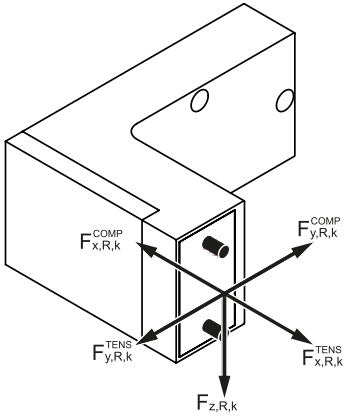
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M8

Annex C10

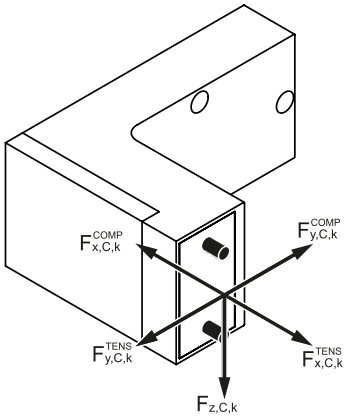
Stand-off mounting of the attachment part

Fastening type 2, M10 screw (Annex B3)

Tab. C19: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	6,7	5,7	4,0
	100	4,4	11,1	6,7	5,7	4,0
	120	4,4	10,7	5,3	4,8	3,5
	140	4,5	10,3	3,9	4,0	3,1
	160	4,6	9,9	3,6	3,3	2,7
	180	4,6	9,4	3,3	2,7	2,4
	200	4,8	9,0	3,0	2,3	2,1
	220	4,9	8,6	2,5	1,9	1,8
	240	5,0	8,2	2,2	1,7	1,6
	260	5,2	7,7	1,9	1,7	1,5
	280	5,3	7,3	1,7	1,7	1,3
	300	5,5	6,8	1,7	1,7	1,3

Tab. C20: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	9,7	7,7	4,9	3,3
	100	3,0	9,7	7,7	4,9	3,3
	120	3,0	9,3	6,6	4,2	2,9
	140	3,1	9,0	5,7	3,6	2,5
	160	3,2	8,6	4,8	3,0	2,2
	180	3,2	8,2	4,1	2,6	1,9
	200	3,3	7,8	3,4	2,2	1,6
	220	3,4	7,2	2,9	1,9	1,4
	240	3,5	6,7	2,5	1,7	1,3
	260	3,6	6,2	2,2	1,6	1,2
	280	3,7	5,7	2,0	1,6	1,0
	300	3,8	5,2	1,9	1,7	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

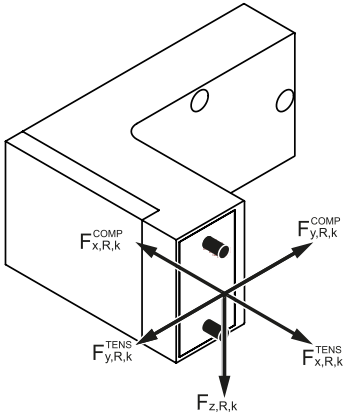
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 2 with screw M10

Annex C11

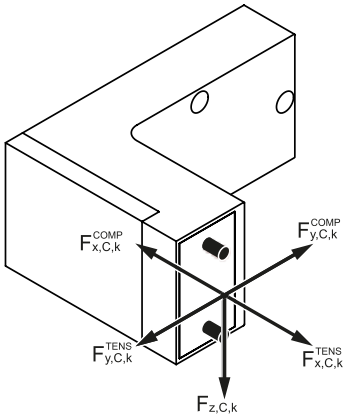
Stand-off mounting of the attachment part

Fastening type 2, M8 screw (Annex B3)

Tab. C21: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,3	11,1	6,7	5,7	3,8
	100	4,4	11,1	6,7	5,7	3,8
	120	4,4	10,7	5,3	4,8	3,4
	140	4,5	10,3	3,9	4,0	3,0
	160	4,6	9,9	3,6	3,3	2,6
	180	4,6	9,4	3,3	2,7	2,3
	200	4,8	9,0	3,0	2,3	2,0
	220	4,9	8,6	2,5	1,9	1,8
	240	5,0	8,2	2,2	1,7	1,6
	260	5,2	7,7	1,9	1,7	1,4
	280	5,3	7,3	1,7	1,7	1,3
	300	5,5	6,8	1,7	1,7	1,3

Tab. C22: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RF

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	9,7	7,7	4,9	3,2
	100	3,0	9,7	7,7	4,9	3,2
	120	3,0	9,3	6,6	4,2	2,8
	140	3,1	9,0	5,7	3,6	2,4
	160	3,2	8,6	4,8	3,0	2,2
	180	3,2	8,2	4,1	2,6	1,8
	200	3,3	7,8	3,4	2,2	1,6
	220	3,4	7,2	2,9	1,9	1,4
	240	3,5	6,7	2,5	1,7	1,3
	260	3,6	6,2	2,2	1,6	1,1
	280	3,7	5,7	2,0	1,6	1,0
	300	3,8	5,2	1,9	1,7	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

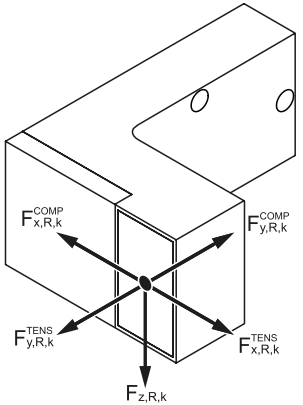
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 2 with screw M8

Annex C12

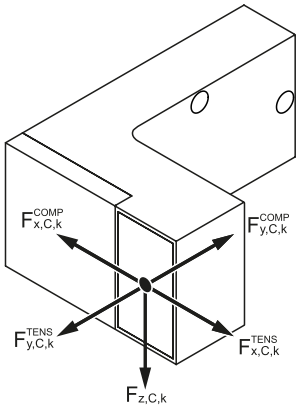
Direct mounting of the attachment part

Fastening type 3, M12 screw (Annex B3)

Tab. C23: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,1	6,8	12,9	8,4	7,3
	100	3,2	6,8	12,9	8,4	7,3
	120	3,3	6,8	10,1	7,1	6,1
	140	3,4	6,8	7,3	5,9	5,1
	160	3,5	6,8	6,3	4,8	4,3
	180	3,6	6,8	5,3	4,0	3,5
	200	3,7	6,7	4,3	3,2	2,9
	220	3,7	6,6	3,4	2,7	2,4
	240	3,7	6,4	2,8	2,3	2,1
	260	3,7	6,2	2,4	2,0	1,9
	280	3,6	5,9	2,3	1,9	1,8
	300	3,6	5,6	2,5	2,0	1,8

Tab. C24: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,9	6,8	12,9	8,0	6,0
	100	2,1	6,8	12,9	8,0	6,0
	120	2,2	6,8	10,6	6,4	4,9
	140	2,4	6,8	8,6	5,0	4,0
	160	2,6	6,8	6,9	3,9	3,3
	180	2,7	6,8	5,5	3,2	2,7
	200	2,9	6,7	4,3	2,5	2,3
	220	3,0	6,6	3,4	2,1	1,9
	240	3,0	6,4	2,8	1,8	1,6
	260	3,1	6,2	2,4	1,5	1,5
	280	3,1	5,9	2,3	1,4	1,4
	300	3,1	5,6	2,5	1,5	1,4

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

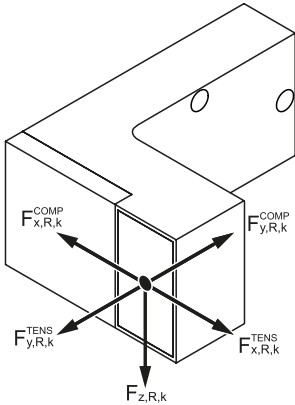
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M12

Annex C13

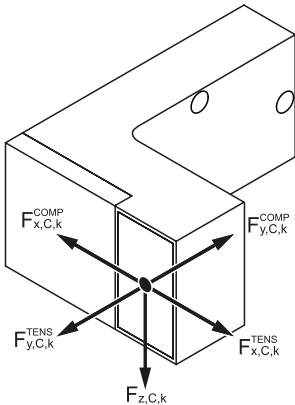
Direct mounting of the attachment part

Fastening type 3, M10 screw (Annex B3)

Tab. C25: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,1	6,4	12,9	8,4	7,2
	100	3,2	6,4	12,9	8,4	7,2
	120	3,3	6,4	10,1	7,1	6,0
	140	3,4	6,4	7,3	5,9	5,0
	160	3,5	6,4	6,3	4,8	4,2
	180	3,6	6,4	5,3	4,0	3,4
	200	3,7	6,3	4,3	3,2	2,8
	220	3,7	6,2	3,4	2,7	2,4
	240	3,7	6,0	2,8	2,3	2,1
	260	3,7	5,8	2,4	2,0	1,9
	280	3,6	5,5	2,3	1,9	1,8
	300	3,6	5,3	2,5	2,0	1,8

Tab. C26: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,6	4,9	10,2	6,2	4,7
	100	1,8	4,9	10,2	6,2	4,7
	120	1,8	4,9	8,4	5,0	3,9
	140	2,0	4,9	6,8	3,9	3,2
	160	2,2	4,9	5,5	3,0	2,6
	180	2,3	4,9	4,3	2,5	2,1
	200	2,4	4,8	3,4	2,0	1,8
	220	2,5	4,8	2,7	1,6	1,5
	240	2,5	4,6	2,2	1,4	1,3
	260	2,6	4,5	1,9	1,2	1,2
	280	2,6	4,2	1,8	1,1	1,1
	300	2,6	4,0	2,0	1,2	1,1

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

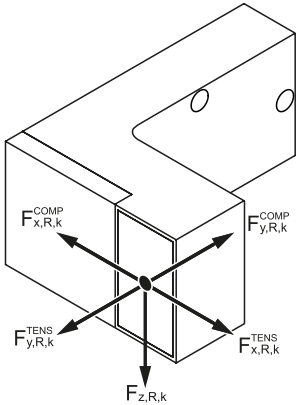
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M10

Annex C14

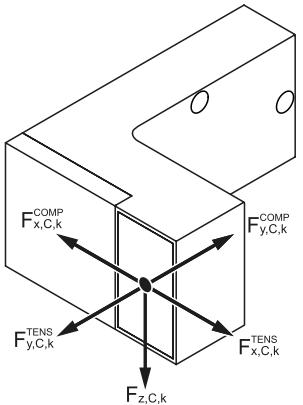
Direct mounting of the attachment part

Fastening type 3, M8 screw (Annex B3)

Tab. C27: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,1	5,9	12,9	8,4	7,0
	100	3,2	5,9	12,9	8,4	7,0
	120	3,3	5,9	10,1	7,1	5,9
	140	3,4	5,9	7,3	5,9	4,9
	160	3,5	5,9	6,3	4,8	4,1
	180	3,6	5,9	5,3	4,0	3,4
	200	3,7	5,8	4,3	3,2	2,8
	220	3,7	5,7	3,4	2,7	2,3
	240	3,7	5,6	2,8	2,3	2,0
	260	3,7	5,4	2,4	2,0	1,8
	280	3,6	5,1	2,3	1,9	1,7
	300	3,6	4,9	2,5	2,0	1,7

Tab. C28: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,3	3,0	7,5	4,5	3,5
	100	1,4	3,0	7,5	4,5	3,5
	120	1,5	3,0	6,1	3,6	2,8
	140	1,6	3,0	5,0	2,8	2,3
	160	1,7	3,0	4,0	2,2	1,9
	180	1,8	3,0	3,2	1,8	1,6
	200	1,9	2,9	2,5	1,4	1,3
	220	2,0	2,9	2,0	1,2	1,1
	240	2,0	2,8	1,6	1,0	0,9
	260	2,1	2,7	1,4	0,8	0,9
	280	2,1	2,6	1,3	0,8	0,8
	300	2,1	2,5	1,5	0,8	0,8

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

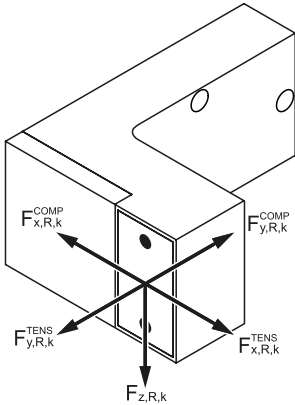
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M8

Annex C15

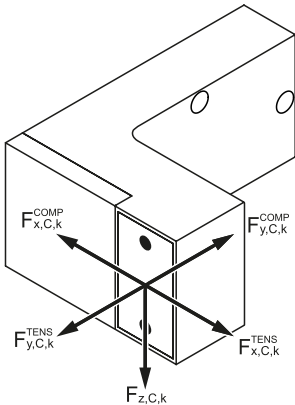
Direct mounting of the attachment part

Fastening type 4, M10 screw (Annex B3)

Tab. C29: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,1	6,2	12,6	7,8	6,6
	100	3,2	6,2	12,6	7,8	6,6
	120	3,3	6,2	9,9	6,6	5,5
	140	3,4	6,2	7,2	5,5	4,6
	160	3,5	6,2	6,2	4,5	3,9
	180	3,6	6,2	5,2	3,7	3,2
	200	3,7	6,1	4,2	3,0	2,6
	220	3,7	6,0	3,3	2,5	2,2
	240	3,7	5,8	2,7	2,1	1,9
	260	3,7	5,6	2,4	1,9	1,7
	280	3,6	5,4	2,3	1,8	1,6
	300	3,6	5,1	2,5	1,9	1,6

Tab. C30: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,5	4,8	9,5	5,8	4,4
	100	1,7	4,8	9,5	5,8	4,4
	120	1,8	4,8	7,8	4,6	3,6
	140	1,9	4,8	6,4	3,6	3,0
	160	2,1	4,8	5,1	2,8	2,4
	180	2,2	4,8	4,1	2,3	2,0
	200	2,3	4,8	3,2	1,8	1,7
	220	2,4	4,7	2,5	1,5	1,4
	240	2,4	4,5	2,1	1,3	1,2
	260	2,5	4,4	1,8	1,1	1,1
	280	2,5	4,2	1,7	1,0	1,0
	300	2,5	4,0	1,9	1,1	1,0

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

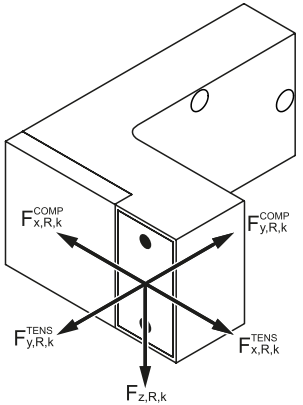
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Direct mounting of the attachment part / Fastening type 4 with screw M10

Annex C16

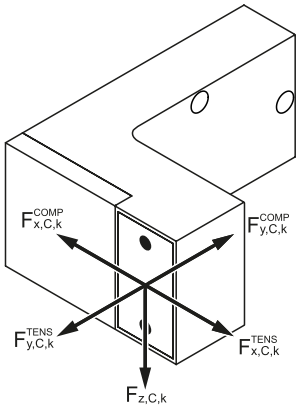
Direct mounting of the attachment part

Fastening type 4, M8 screw (Annex B3)

Tab. C31: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,0	5,6	12,5	7,1	5,8
	100	3,1	5,6	12,5	7,1	5,8
	120	3,2	5,6	9,8	6,0	4,9
	140	3,3	5,6	7,1	5,0	4,1
	160	3,4	5,6	6,1	4,1	3,4
	180	3,5	5,6	5,1	3,4	2,8
	200	3,6	5,6	4,2	2,7	2,3
	220	3,6	5,5	3,3	2,3	1,9
	240	3,6	5,3	2,7	2,0	1,7
	260	3,6	5,1	2,3	1,7	1,5
	280	3,5	4,9	2,2	1,6	1,4
	300	3,5	4,6	2,4	1,7	1,4

Tab. C32: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,2	2,8	6,2	3,6	2,9
	100	1,3	2,8	6,2	3,6	2,9
	120	1,4	2,8	5,1	2,9	2,4
	140	1,5	2,8	4,1	2,3	1,9
	160	1,6	2,8	3,3	1,8	1,6
	180	1,7	2,8	2,6	1,4	1,3
	200	1,8	2,7	2,1	1,1	1,1
	220	1,9	2,7	1,6	0,9	0,9
	240	1,9	2,6	1,3	0,8	0,8
	260	2,0	2,5	1,2	0,7	0,7
	280	2,0	2,4	1,1	0,6	0,7
	300	2,0	2,3	1,2	0,7	0,7

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

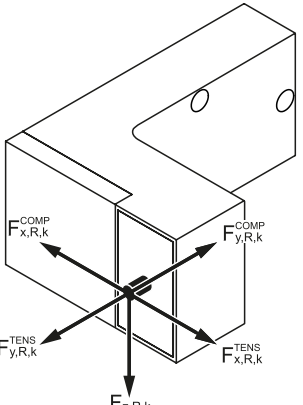
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Direct mounting of the attachment part / Fastening type 4 with screw M8

Annex C17

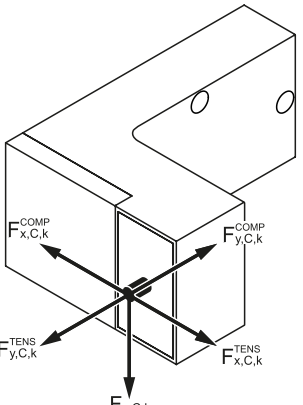
Stand-off mounting of the attachment part

Fastening type 3, M12 screw (Annex B3)

Tab. C33: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	2,6	6,0	12,9	8,4	6,6
	100	2,7	6,0	12,9	8,4	6,6
	120	2,7	6,0	10,1	7,1	5,6
	140	2,8	6,0	7,3	5,9	4,6
	160	2,9	6,0	6,3	4,8	3,9
	180	3,0	6,0	5,3	4,0	3,2
	200	3,1	5,9	4,3	3,2	2,6
	220	3,1	5,8	3,4	2,7	2,2
	240	3,1	5,6	2,8	2,3	1,9
	260	3,1	5,5	2,4	2,0	1,7
	280	3,0	5,2	2,3	1,9	1,6
	300	3,0	4,9	2,5	2,0	1,6

Tab. C34: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,6	6,0	12,9	8,0	5,5
	100	1,7	6,0	12,9	8,0	5,5
	120	1,8	6,0	10,6	6,4	4,5
	140	2,0	6,0	8,6	5,0	3,6
	160	2,2	6,0	6,9	3,9	3,0
	180	2,2	6,0	5,5	3,2	2,5
	200	2,4	5,9	4,3	2,5	2,1
	220	2,5	5,8	3,4	2,1	1,7
	240	2,5	5,6	2,8	1,8	1,5
	260	2,6	5,5	2,4	1,5	1,4
	280	2,6	5,2	2,3	1,4	1,3
	300	2,6	4,9	2,5	1,5	1,3

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

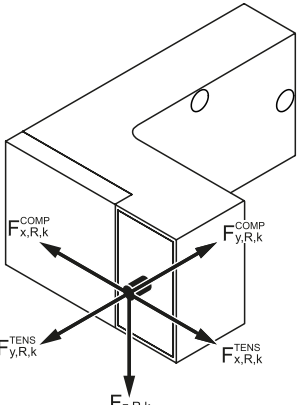
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M12

Annex C18

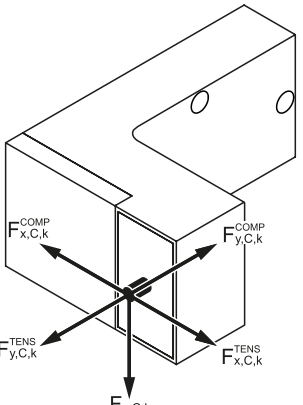
Stand-off mounting of the attachment part

Fastening type 3, M10 screw (Annex B3)

Tab. C35: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	2,6	6,0	12,9	8,4	6,4
	100	2,7	6,0	12,9	8,4	6,4
	120	2,7	6,0	10,1	7,1	5,4
	140	2,8	6,0	7,3	5,9	4,5
	160	2,9	6,0	6,3	4,8	3,8
	180	3,0	6,0	5,3	4,0	3,1
	200	3,1	5,9	4,3	3,2	2,6
	220	3,1	5,8	3,4	2,7	2,1
	240	3,1	5,6	2,8	2,3	1,9
	260	3,1	5,5	2,4	2,0	1,7
	280	3,0	5,2	2,3	1,9	1,6
	300	3,0	4,9	2,5	2,0	1,6

Tab. C36: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,4	4,8	12,9	8,0	4,0
	100	1,6	4,8	12,9	8,0	4,0
	120	1,6	4,8	10,6	6,4	3,3
	140	1,8	4,8	8,6	5,0	2,7
	160	1,9	4,8	6,9	3,9	2,2
	180	2,0	4,8	5,5	3,2	1,8
	200	2,1	4,7	4,3	2,5	1,5
	220	2,2	4,6	3,4	2,1	1,3
	240	2,2	4,5	2,8	1,8	1,1
	260	2,3	4,4	2,4	1,5	1,0
	280	2,3	4,2	2,3	1,4	0,9
	300	2,3	3,9	2,5	1,5	0,9

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

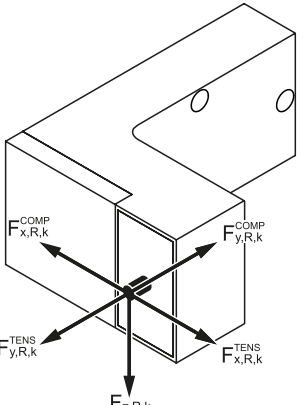
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M10

Annex C19

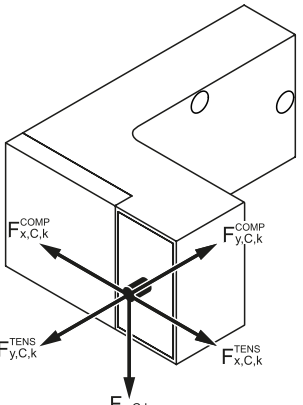
Stand-off mounting of the attachment part

Fastening type 3, M8 screw (Annex B3)

Tab. C37: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	2,6	6,0	12,9	8,4	6,2
	100	2,7	6,0	12,9	8,4	6,2
	120	2,7	6,0	10,1	7,1	5,2
	140	2,8	6,0	7,3	5,9	4,4
	160	2,9	6,0	6,3	4,8	3,7
	180	3,0	6,0	5,3	4,0	3,0
	200	3,1	5,9	4,3	3,2	2,5
	220	3,1	5,8	3,4	2,7	2,1
	240	3,1	5,6	2,8	2,3	1,8
	260	3,1	5,5	2,4	2,0	1,6
	280	3,0	5,2	2,3	1,9	1,5
	300	3,0	4,9	2,5	2,0	1,5

Tab. C38: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,2	3,7	12,9	8,0	2,7
	100	1,3	3,7	12,9	8,0	2,7
	120	1,4	3,7	10,6	6,4	2,2
	140	1,5	3,7	8,6	5,0	1,8
	160	1,7	3,7	6,9	3,9	1,5
	180	1,7	3,7	5,5	3,2	1,2
	200	1,9	3,6	4,3	2,5	1,0
	220	1,9	3,5	3,4	2,1	0,8
	240	1,9	3,4	2,8	1,8	0,7
	260	2,0	3,3	2,4	1,5	0,7
	280	2,0	3,2	2,3	1,4	0,6
	300	2,0	3,0	2,5	1,5	0,6

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

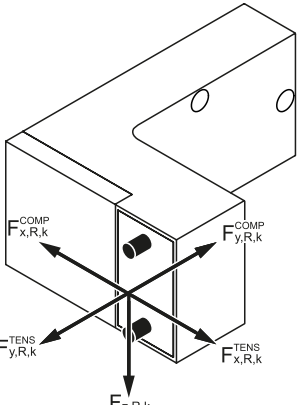
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M8

Annex C20

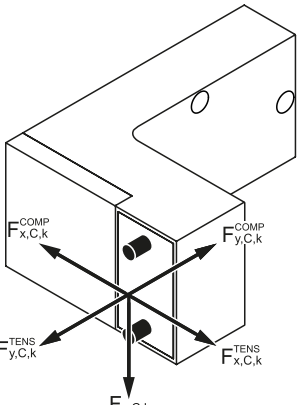
Stand-off mounting of the attachment part

Fastening type 4, M10 screw (Annex B3)

Tab. C39: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	2,6	5,9	12,9	8,4	6,1
	100	2,7	5,9	12,9	8,4	6,1
	120	2,7	5,9	10,1	7,1	5,1
	140	2,8	5,9	7,3	5,9	4,3
	160	2,9	5,9	6,3	4,8	3,6
	180	3,0	5,9	5,3	4,0	2,9
	200	3,1	5,8	4,3	3,2	2,4
	220	3,1	5,7	3,4	2,7	2,0
	240	3,1	5,5	2,8	2,3	1,8
	260	3,1	5,3	2,4	2,0	1,6
	280	3,0	5,1	2,3	1,9	1,5
	300	3,0	4,8	2,5	2,0	1,5

Tab. C40: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,6	5,9	12,9	8,0	5,4
	100	1,7	5,9	12,9	8,0	5,4
	120	1,8	5,9	10,6	6,4	4,4
	140	2,0	5,9	8,6	5,0	3,6
	160	2,2	5,9	6,9	3,9	2,9
	180	2,2	5,9	5,5	3,2	2,4
	200	2,4	5,8	4,3	2,5	2,1
	220	2,5	5,7	3,4	2,1	1,7
	240	2,5	5,5	2,8	1,8	1,4
	260	2,6	5,3	2,4	1,5	1,3
	280	2,6	5,1	2,3	1,4	1,2
	300	2,6	4,8	2,5	1,5	1,2

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

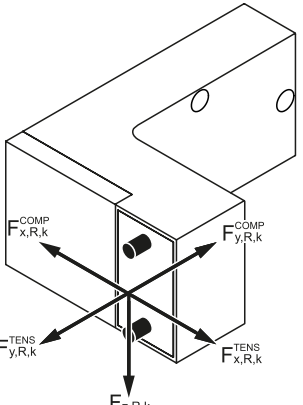
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 4 with screw M10

Annex C21

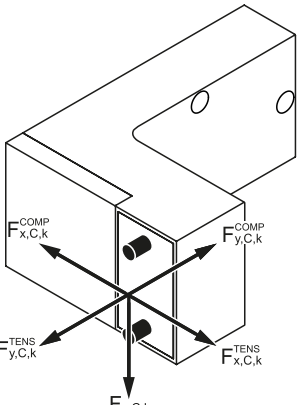
Stand-off mounting of the attachment part

Fastening type 4, M8 screw (Annex B3)

Tab. C41: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances R_k (ULS)						
TRA-WIK-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	2,6	5,7	12,9	8,4	5,6
	100	2,7	5,7	12,9	8,4	5,6
	120	2,7	5,7	10,1	7,1	4,7
	140	2,8	5,7	7,3	5,9	3,9
	160	2,9	5,7	6,3	4,8	3,3
	180	3,0	5,7	5,3	4,0	2,7
	200	3,1	5,7	4,3	3,2	2,2
	220	3,1	5,6	3,4	2,7	1,9
	240	3,1	5,4	2,8	2,3	1,6
	260	3,1	5,2	2,4	2,0	1,5
	280	3,0	5,0	2,3	1,9	1,4
	300	3,0	4,7	2,5	2,0	1,4

Tab. C42: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TRA-WIK-ALU-RL

Characteristic structural resistances C_k (SLS)						
TRA-WIK-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	1,6	5,7	12,9	8,0	5,2
	100	1,7	5,7	12,9	8,0	5,2
	120	1,8	5,7	10,6	6,4	4,3
	140	2,0	5,7	8,6	5,0	3,5
	160	2,2	5,7	6,9	3,9	2,9
	180	2,2	5,7	5,5	3,2	2,4
	200	2,4	5,6	4,3	2,5	2,0
	220	2,5	5,5	3,4	2,1	1,7
	240	2,5	5,4	2,8	1,8	1,4
	260	2,6	5,2	2,4	1,5	1,3
	280	2,6	4,9	2,3	1,4	1,2
	300	2,6	4,7	2,5	1,5	1,2

The characteristic structural resistances must be reduced by 10% when anchoring into the substrate using anchoring elements with a diameter of $\varnothing 6$ mm.

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

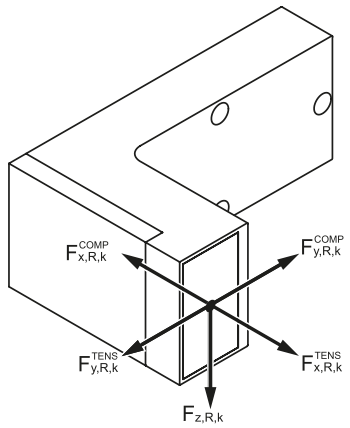
Characteristic structural resistances for the support bracket "TRA-WIK-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 4 with screw M8

Annex C22

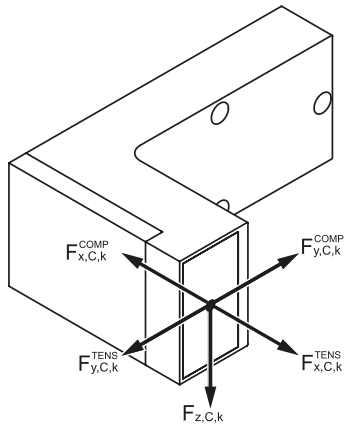
Direct mounting of the attachment part

Fastening type 1, M12 screw (Annex B3)

Tab. C43: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	10,5	13,4	8,8
	100	6,8	20,1	10,5	13,4	8,8
	120	6,8	19,7	9,1	11,6	7,9
	140	6,9	19,2	7,8	9,9	7,1
	160	7,0	18,6	6,8	8,5	6,3
	180	7,1	17,9	5,9	7,3	5,7
	200	7,3	17,2	5,1	6,2	5,1
	220	7,5	16,3	4,5	5,3	4,6
	240	7,8	15,4	4,0	4,6	4,2
	260	8,1	14,4	3,7	4,0	3,8
	280	8,5	13,3	3,6	3,7	3,6
	300	8,9	12,2	3,6	3,5	3,4

Tab. C44: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	10,5	12,8	8,0
	100	5,7	20,1	10,5	12,8	8,0
	120	5,7	19,7	8,9	11,1	7,2
	140	5,8	19,2	7,3	9,5	6,5
	160	5,9	18,6	6,1	8,2	5,7
	180	6,0	17,9	5,3	7,0	5,1
	200	6,1	17,2	4,5	6,0	4,5
	220	6,2	16,0	4,0	5,1	3,9
	240	6,2	14,8	3,6	4,5	3,4
	260	6,3	13,4	3,5	3,9	2,9
	280	6,6	12,1	3,5	3,7	2,6
	300	6,8	11,1	3,6	3,5	2,4

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

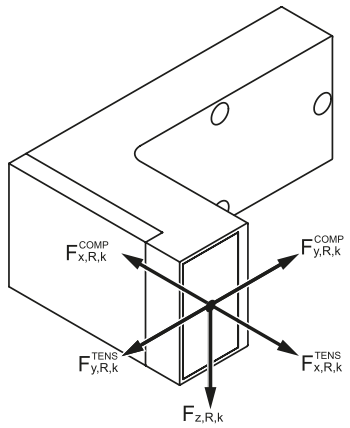
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M12

Annex C23

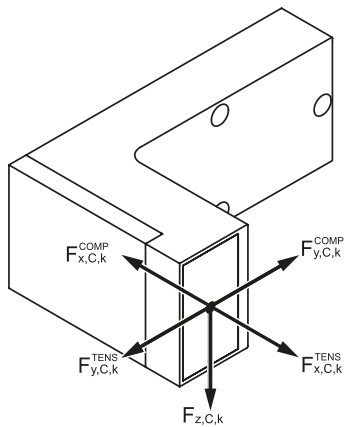
Direct mounting of the attachment part

Fastening type 1, M10 screw (Annex B3)

Tab. C45: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,1	20,1	10,5	12,7	8,5
	100	6,2	20,1	10,5	12,7	8,5
	120	6,2	19,7	9,1	11,0	7,7
	140	6,3	19,2	7,8	9,4	6,9
	160	6,4	18,6	6,8	8,1	6,1
	180	6,5	17,9	5,9	6,9	5,5
	200	6,6	17,2	5,1	5,9	4,9
	220	6,8	16,3	4,5	5,0	4,5
	240	7,1	15,4	4,0	4,4	4,1
	260	7,4	14,4	3,7	3,8	3,7
	280	7,7	13,3	3,6	3,5	3,5
	300	8,1	12,2	3,6	3,3	3,3

Tab. C46: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,3	15,7	8,2	9,5	6,1
	100	4,4	15,7	8,2	9,5	6,1
	120	4,4	15,4	6,9	8,2	5,5
	140	4,5	15,0	5,7	7,0	4,9
	160	4,5	14,5	4,8	6,1	4,3
	180	4,6	14,0	4,1	5,2	3,9
	200	4,7	13,4	3,5	4,4	3,4
	220	4,8	12,5	3,1	3,8	3,0
	240	4,8	11,5	2,8	3,3	2,6
	260	4,9	10,5	2,7	2,9	2,2
	280	5,1	9,4	2,7	2,7	2,0
	300	5,2	8,7	2,8	2,6	1,8

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

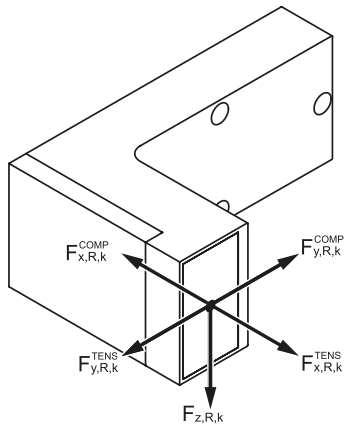
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M10

Annex C24

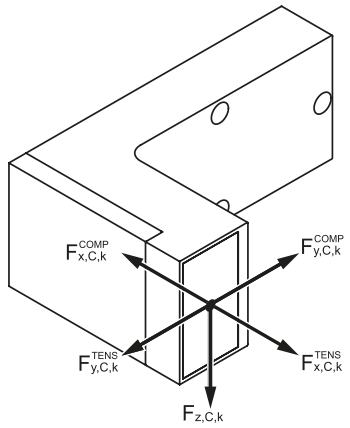
Direct mounting of the attachment part

Fastening type 1, M8 screw (Annex B3)

Tab. C47: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,6	20,1	10,5	12,1	8,4
	100	5,6	20,1	10,5	12,1	8,4
	120	5,6	19,7	9,1	10,4	7,5
	140	5,7	19,2	7,8	8,9	6,7
	160	5,8	18,6	6,8	7,7	6,0
	180	5,9	17,9	5,9	6,6	5,4
	200	6,1	17,2	5,1	5,6	4,8
	220	6,2	16,3	4,5	4,8	4,4
	240	6,5	15,4	4,0	4,1	4,0
	260	6,7	14,4	3,7	3,6	3,6
	280	7,1	13,3	3,6	3,3	3,4
	300	7,4	12,2	3,6	3,2	3,2

Tab. C48: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,0	11,1	5,9	6,0	4,2
	100	3,1	11,1	5,9	6,0	4,2
	120	3,1	10,8	5,0	5,2	3,7
	140	3,1	10,6	4,1	4,5	3,4
	160	3,2	10,2	3,4	3,9	3,0
	180	3,2	9,8	3,0	3,3	2,7
	200	3,3	9,5	2,5	2,8	2,3
	220	3,3	8,8	2,2	2,4	2,0
	240	3,3	8,1	2,0	2,1	1,8
	260	3,4	7,4	2,0	1,8	1,5
	280	3,6	6,7	2,0	1,7	1,4
	300	3,7	6,1	2,0	1,6	1,2

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

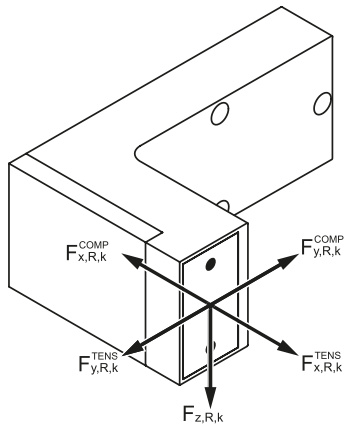
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Direct mounting of the attachment part / Fastening type 1 with screw M8

Annex C25

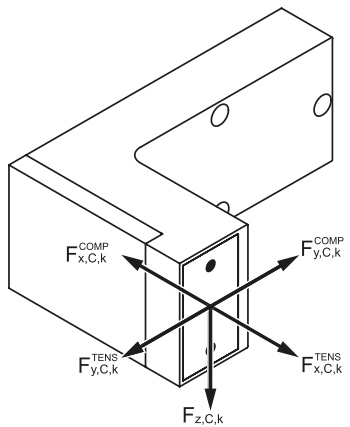
Direct mounting of the attachment part

Fastening type 2, M10 screw (Annex B3)

Tab. C49: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	19,5	10,5	12,2	8,5
	100	6,8	19,5	10,5	12,2	8,5
	120	6,8	19,1	9,1	10,6	7,7
	140	6,9	18,6	7,8	9,0	6,9
	160	7,0	18,0	6,8	7,7	6,1
	180	7,1	17,4	5,9	6,6	5,5
	200	7,3	16,7	5,1	5,6	4,9
	220	7,5	15,8	4,5	4,8	4,5
	240	7,8	14,9	4,0	4,2	4,1
	260	8,1	14,0	3,7	3,6	3,7
	280	8,5	12,9	3,6	3,4	3,5
	300	8,9	11,8	3,6	3,2	3,3

Tab. C50: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,8	14,7	8,5	9,1	6,2
	100	4,9	14,7	8,5	9,1	6,2
	120	4,9	14,4	7,2	7,9	5,6
	140	5,0	14,0	5,9	6,7	5,1
	160	5,1	13,6	4,9	5,8	4,4
	180	5,2	13,1	4,3	5,0	4,0
	200	5,2	12,6	3,6	4,3	3,5
	220	5,3	11,7	3,2	3,6	3,0
	240	5,3	10,8	2,9	3,2	2,7
	260	5,4	9,8	2,8	2,8	2,3
	280	5,7	8,8	2,8	2,6	2,0
	300	5,8	8,1	2,9	2,5	1,9

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

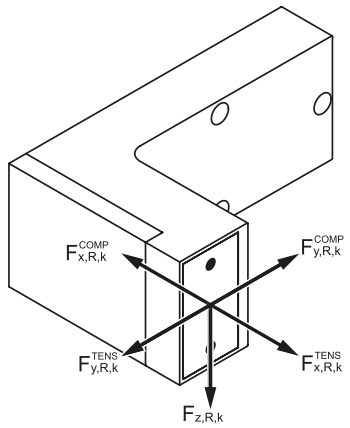
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Direct mounting of the attachment part / Fastening type 2 with screw M10

Annex C26

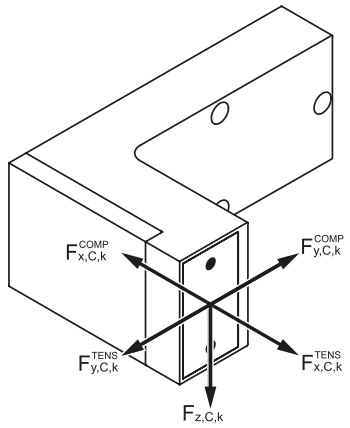
Direct mounting of the attachment part

Fastening type 2, M8 screw (Annex B3)

Tab. C51: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	18,7	10,5	11,0	8,4
	100	6,8	18,7	10,5	11,0	8,4
	120	6,8	18,3	9,1	9,5	7,5
	140	6,9	17,9	7,8	8,1	6,7
	160	7,0	17,3	6,8	7,0	6,0
	180	7,1	16,6	5,9	6,0	5,4
	200	7,3	16,0	5,1	5,1	4,8
	220	7,5	15,2	4,5	4,3	4,4
	240	7,8	14,3	4,0	3,8	4,0
	260	8,1	13,4	3,7	3,3	3,6
	280	8,5	12,4	3,6	3,0	3,4
	300	8,9	11,3	3,6	2,9	3,2

Tab. C52: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,0	9,4	6,5	5,5	4,5
	100	4,1	9,4	6,5	5,5	4,5
	120	4,1	9,3	5,5	4,8	4,0
	140	4,2	9,0	4,5	4,1	3,6
	160	4,2	8,7	3,8	3,5	3,2
	180	4,3	8,4	3,3	3,0	2,9
	200	4,4	8,1	2,8	2,6	2,5
	220	4,5	7,5	2,5	2,2	2,2
	240	4,5	7,0	2,2	1,9	1,9
	260	4,5	6,3	2,2	1,7	1,6
	280	4,8	5,7	2,2	1,6	1,5
	300	4,9	5,2	2,2	1,5	1,3

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

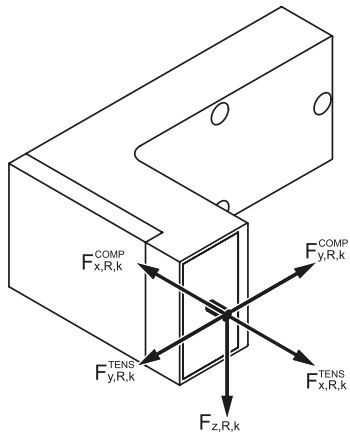
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Direct mounting of the attachment part / Fastening type 2 with screw M8

Annex C27

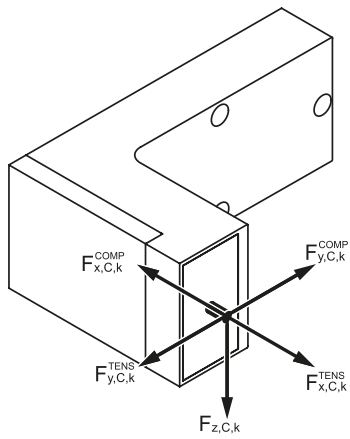
Stand-off mounting of the attachment part

Fastening type 1, M12 screw (Annex B3)

Tab. C53: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	9,7	10,7	7,7
	100	6,8	20,1	9,7	10,7	7,7
	120	6,8	19,7	8,4	9,3	7,0
	140	6,9	19,2	7,2	7,9	6,2
	160	7,0	18,6	6,3	6,8	5,5
	180	7,1	17,9	5,4	5,8	5,0
	200	7,3	17,2	4,7	5,0	4,5
	220	7,5	16,3	4,1	4,2	4,0
	240	7,8	15,4	3,7	3,7	3,7
	260	8,1	14,4	3,4	3,2	3,3
	280	8,5	13,3	3,3	3,0	3,2
	300	8,9	12,2	3,3	2,8	3,0

Tab. C54: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	9,7	10,2	7,0
	100	5,7	20,1	9,7	10,2	7,0
	120	5,7	19,7	8,2	8,9	6,3
	140	5,8	19,2	6,7	7,6	5,7
	160	5,9	18,6	5,6	6,6	5,0
	180	6,0	17,9	4,9	5,6	4,5
	200	6,1	17,2	4,1	4,8	4,0
	220	6,2	16,0	3,7	4,1	3,4
	240	6,2	14,8	3,3	3,6	3,0
	260	6,3	13,4	3,2	3,1	2,6
	280	6,6	12,1	3,2	3,0	2,3
	300	6,8	11,1	3,3	2,8	2,1

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

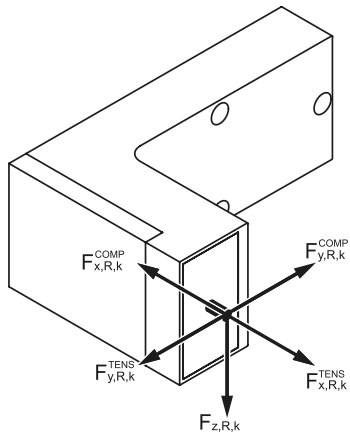
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M12

Annex C28

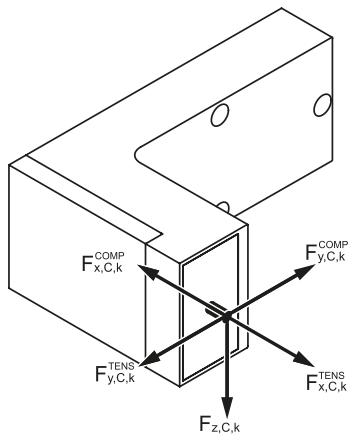
Stand-off mounting of the attachment part

Fastening type 1, M10 screw (Annex B3)

Tab. C55: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	9,7	10,7	7,3
	100	6,8	20,1	9,7	10,7	7,3
	120	6,8	19,7	8,4	9,3	6,5
	140	6,9	19,2	7,2	7,9	5,9
	160	7,0	18,6	6,3	6,8	5,2
	180	7,1	17,9	5,4	5,8	4,7
	200	7,3	17,2	4,7	5,0	4,2
	220	7,5	16,3	4,1	4,2	3,8
	240	7,8	15,4	3,7	3,7	3,5
	260	8,1	14,4	3,4	3,2	3,1
	280	8,5	13,3	3,3	3,0	3,0
	300	8,9	12,2	3,3	2,8	2,8

Tab. C56: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	7,6	7,3	5,1
	100	5,7	20,1	7,6	7,3	5,1
	120	5,7	19,7	6,5	6,3	4,6
	140	5,8	19,2	5,3	5,4	4,2
	160	5,9	18,6	4,4	4,7	3,7
	180	6,0	17,9	3,9	4,0	3,3
	200	6,1	17,2	3,3	3,4	2,9
	220	6,2	16,0	2,9	2,9	2,5
	240	6,2	14,8	2,6	2,6	2,2
	260	6,3	13,4	2,5	2,2	1,9
	280	6,6	12,1	2,5	2,1	1,7
	300	6,8	11,1	2,6	2,0	1,5

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

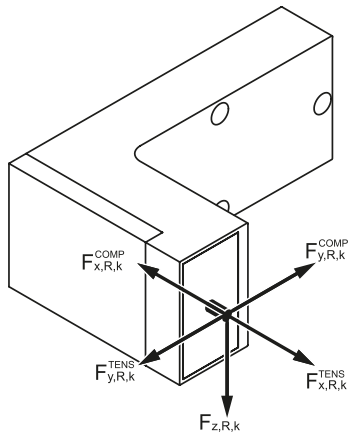
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M10

Annex C29

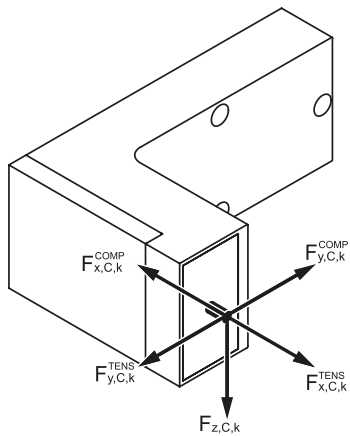
Stand-off mounting of the attachment part

Fastening type 1, M8 screw (Annex B3)

Tab. C57: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	9,7	10,6	6,8
	100	6,8	20,1	9,7	10,6	6,8
	120	6,8	19,7	8,4	9,2	6,1
	140	6,9	19,2	7,2	7,8	5,5
	160	7,0	18,6	6,3	6,7	4,9
	180	7,1	17,9	5,4	5,8	4,4
	200	7,3	17,2	4,7	4,9	3,9
	220	7,5	16,3	4,1	4,2	3,6
	240	7,8	15,4	3,7	3,6	3,3
	260	8,1	14,4	3,4	3,2	2,9
	280	8,5	13,3	3,3	2,9	2,8
	300	8,9	12,2	3,3	2,8	2,6

Tab. C58: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	5,5	4,4	3,3
	100	5,7	20,1	5,5	4,4	3,3
	120	5,7	19,7	4,7	3,8	3,0
	140	5,8	19,2	3,8	3,3	2,7
	160	5,9	18,6	3,2	2,8	2,4
	180	6,0	17,9	2,8	2,4	2,1
	200	6,1	17,2	2,4	2,1	1,9
	220	6,2	16,0	2,1	1,8	1,6
	240	6,2	14,8	1,9	1,5	1,4
	260	6,3	13,4	1,8	1,3	1,2
	280	6,6	12,1	1,8	1,3	1,1
	300	6,8	11,1	1,9	1,2	1,0

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

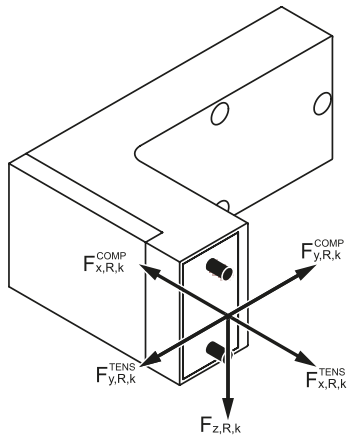
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 1 with screw M8

Annex C30

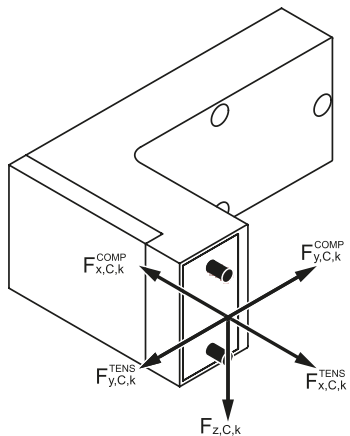
Stand-off mounting of the attachment part

Fastening type 2, M10 screw (Annex B3)

Tab. C59: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	9,4	9,6	7,7
	100	6,8	20,1	9,4	9,6	7,7
	120	6,8	19,7	8,1	8,4	7,0
	140	6,9	19,2	7,0	7,1	6,2
	160	7,0	18,6	6,1	6,1	5,5
	180	7,1	17,9	5,3	5,3	5,0
	200	7,3	17,2	4,6	4,5	4,5
	220	7,5	16,3	4,0	3,8	4,0
	240	7,8	15,4	3,6	3,3	3,7
	260	8,1	14,4	3,3	2,9	3,3
	280	8,5	13,3	3,2	2,7	3,2
	300	8,9	12,2	3,2	2,5	3,0

Tab. C60: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	9,4	9,3	7,0
	100	5,7	20,1	9,4	9,3	7,0
	120	5,7	19,7	7,9	8,1	6,3
	140	5,8	19,2	6,5	6,9	5,7
	160	5,9	18,6	5,4	6,0	5,0
	180	6,0	17,9	4,7	5,1	4,5
	200	6,1	17,2	4,0	4,4	4,0
	220	6,2	16,0	3,6	3,7	3,4
	240	6,2	14,8	3,2	3,3	3,0
	260	6,3	13,4	3,1	2,8	2,6
	280	6,6	12,1	3,1	2,7	2,3
	300	6,8	11,1	3,2	2,5	2,1

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

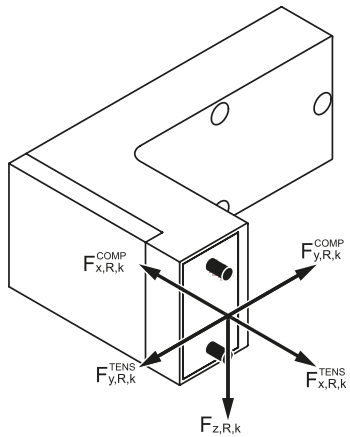
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 2 with screw M10

Annex C31

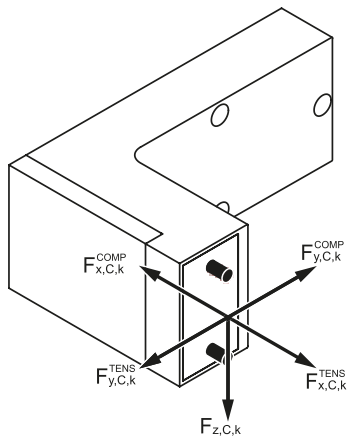
Stand-off mounting of the attachment part

Fastening type 2, M8 screw (Annex B3)

Tab. C61: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RF

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RF	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	6,7	20,1	9,1	8,7	7,7
	100	6,8	20,1	9,1	8,7	7,7
	120	6,8	19,7	7,9	7,5	7,0
	140	6,9	19,2	6,7	6,4	6,2
	160	7,0	18,6	5,9	5,5	5,5
	180	7,1	17,9	5,1	4,7	5,0
	200	7,3	17,2	4,4	4,0	4,5
	220	7,5	16,3	3,9	3,4	4,0
	240	7,8	15,4	3,5	3,0	3,7
	260	8,1	14,4	3,2	2,6	3,3
	280	8,5	13,3	3,1	2,4	3,2
	300	8,9	12,2	3,1	2,3	3,0

Tab. C62: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RF

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RF	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,6	20,1	9,1	8,3	7,0
	100	5,7	20,1	9,1	8,3	7,0
	120	5,7	19,7	7,7	7,2	6,3
	140	5,8	19,2	6,3	6,2	5,7
	160	5,9	18,6	5,3	5,3	5,0
	180	6,0	17,9	4,6	4,5	4,5
	200	6,1	17,2	3,9	3,9	4,0
	220	6,2	16,0	3,5	3,3	3,4
	240	6,2	14,8	3,1	2,9	3,0
	260	6,3	13,4	3,0	2,5	2,6
	280	6,6	12,1	3,0	2,4	2,3
	300	6,8	11,1	3,1	2,3	2,1

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

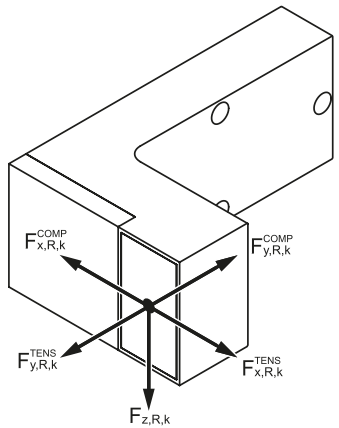
Characteristic structural resistances for the support bracket "TWL-ALU-RF"
Stand-off mounting of the attachment part / Fastening type 2 with screw M8

Annex C32

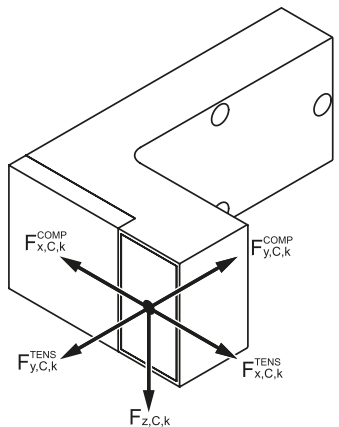
Direct mounting of the attachment part

Fastening type 3, M12 screw (Annex B3)

Tab. C63: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,9	12,6	15,1	18,0	9,9
	100	5,9	12,6	15,1	18,0	9,9
	120	5,9	12,2	13,4	15,1	8,8
	140	6,0	12,0	11,8	12,4	7,8
	160	6,0	11,7	10,4	10,2	7,0
	180	6,0	11,6	9,1	8,2	6,2
	200	6,0	11,4	8,0	6,7	5,5
	220	6,1	11,3	6,9	5,4	4,9
	240	6,1	11,2	6,1	4,5	4,5
	260	6,1	11,2	5,4	4,0	4,1
	280	6,2	11,2	4,8	3,8	3,8
	300	6,3	11,3	4,3	3,9	3,6

Tab. C64: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	5,1	12,6	15,1	17,7	7,2
	100	5,1	12,6	15,1	17,7	7,2
	120	4,9	12,2	13,4	14,2	6,4
	140	5,0	12,0	11,8	11,7	5,7
	160	5,0	11,7	10,4	9,6	5,1
	180	5,0	11,6	9,1	7,7	4,5
	200	5,0	11,4	8,0	6,3	4,0
	220	5,0	11,3	6,9	4,9	3,6
	240	5,1	11,2	6,1	3,8	3,3
	260	5,2	11,2	5,4	3,2	2,9
	280	5,3	11,2	4,8	2,9	2,6
	300	5,4	11,3	4,3	2,7	2,3

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

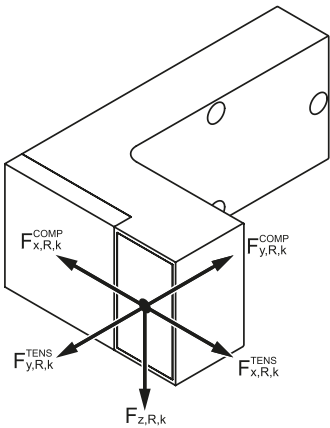
Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M12

Annex C33

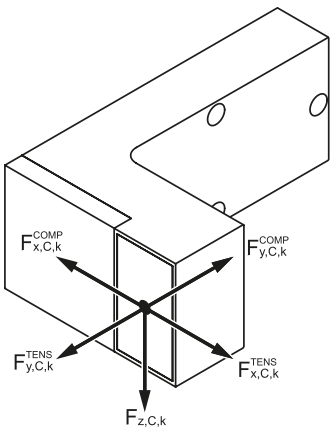
Direct mounting of the attachment part

Fastening type 3, M10 screw (Annex B3)

Tab. C65: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,9	12,6	13,9	16,9	9,1
	100	5,9	12,6	13,9	16,9	9,1
	120	5,9	12,2	12,3	14,2	8,1
	140	6,0	12,0	10,9	11,7	7,2
	160	6,0	11,7	9,6	9,6	6,4
	180	6,0	11,6	8,4	7,7	5,7
	200	6,0	11,4	7,4	6,3	5,1
	220	6,1	11,3	6,3	5,1	4,5
	240	6,1	11,2	5,6	4,2	4,1
	260	6,1	11,2	5,0	3,8	3,8
	280	6,2	11,2	4,4	3,6	3,5
	300	6,3	11,3	4,0	3,7	3,3

Tab. C66: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,1	9,7	10,7	12,7	5,8
	100	4,1	9,7	10,7	12,7	5,8
	120	4,0	9,4	9,5	10,2	5,1
	140	4,1	9,2	8,4	8,4	4,6
	160	4,1	9,0	7,4	6,9	4,1
	180	4,1	8,9	6,5	5,5	3,6
	200	4,1	8,8	5,7	4,5	3,2
	220	4,1	8,7	4,9	3,5	2,9
	240	4,1	8,6	4,3	2,7	2,6
	260	4,2	8,6	3,8	2,3	2,3
	280	4,3	8,6	3,4	2,1	2,1
	300	4,4	8,7	3,1	1,9	1,8

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

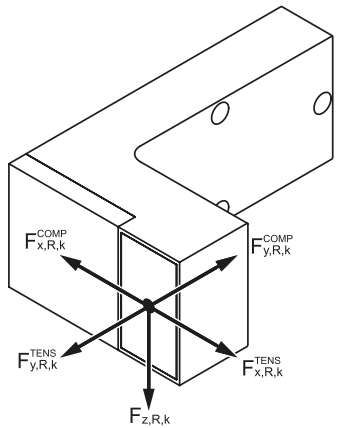
Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M10

Annex C34

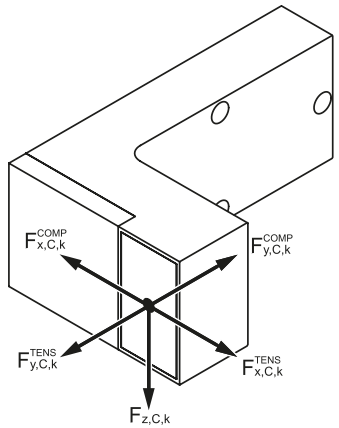
Direct mounting of the attachment part

Fastening type 3, M8 screw (Annex B3)

Tab. C67: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,9	12,6	12,8	15,8	8,2
	100	5,9	12,6	12,8	15,8	8,2
	120	5,9	12,2	11,4	13,3	7,3
	140	6,0	12,0	10,0	10,9	6,5
	160	6,0	11,7	8,8	9,0	5,8
	180	6,0	11,6	7,7	7,2	5,1
	200	6,0	11,4	6,8	5,9	4,6
	220	6,1	11,3	5,9	4,8	4,1
	240	6,1	11,2	5,2	4,0	3,7
	260	6,1	11,2	4,6	3,5	3,4
	280	6,2	11,2	4,1	3,3	3,2
	300	6,3	11,3	3,7	3,4	3,0

Tab. C68: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,1	6,8	6,3	8,0	4,2
	100	3,1	6,8	6,3	8,0	4,2
	120	3,0	6,6	5,6	6,4	3,8
	140	3,1	6,5	5,0	5,3	3,4
	160	3,1	6,3	4,4	4,3	3,0
	180	3,1	6,3	3,8	3,5	2,7
	200	3,1	6,2	3,4	2,8	2,4
	220	3,1	6,1	2,9	2,2	2,1
	240	3,1	6,0	2,6	1,7	1,9
	260	3,2	6,0	2,3	1,4	1,7
	280	3,2	6,0	2,0	1,3	1,5
	300	3,3	6,1	1,8	1,2	1,4

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

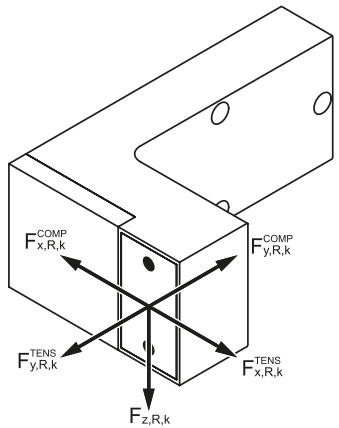
Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Direct mounting of the attachment part / Fastening type 3 with screw M8

Annex C35

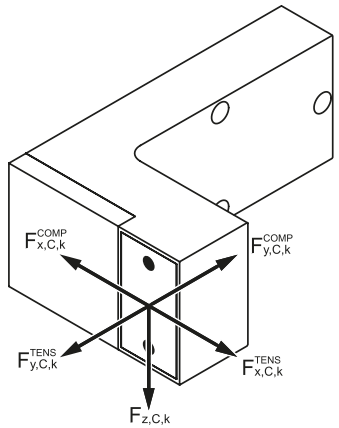
Direct mounting of the attachment part

Fastening type 4, M10 screw (Annex B3)

Tab. C69: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,9	11,8	15,1	17,3	8,8
	100	5,9	11,8	15,1	17,3	8,8
	120	5,9	11,5	13,4	14,5	7,8
	140	6,0	11,3	11,8	11,9	6,9
	160	6,0	11,0	10,4	9,8	6,2
	180	6,0	10,9	9,1	7,9	5,5
	200	6,0	10,7	8,0	6,4	4,9
	220	6,1	10,6	6,9	5,2	4,4
	240	6,1	10,5	6,1	4,3	4,0
	260	6,1	10,5	5,4	3,8	3,6
	280	6,2	10,5	4,8	3,6	3,4
	300	6,3	10,6	4,3	3,7	3,2

Tab. C70: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,6	9,2	12,1	12,9	5,5
	100	4,6	9,2	12,1	12,9	5,5
	120	4,4	8,9	10,7	10,4	4,9
	140	4,5	8,8	9,4	8,5	4,4
	160	4,5	8,5	8,3	7,0	3,9
	180	4,5	8,5	7,3	5,6	3,5
	200	4,5	8,3	6,4	4,6	3,1
	220	4,5	8,2	5,5	3,6	2,8
	240	4,6	8,2	4,9	2,8	2,5
	260	4,7	8,2	4,3	2,3	2,2
	280	4,8	8,2	3,8	2,1	2,0
	300	4,9	8,2	3,4	2,0	1,8

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

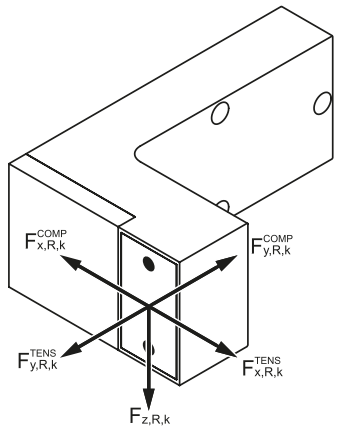
Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Direct mounting of the attachment part / Fastening type 4 with screw M10

Annex C36

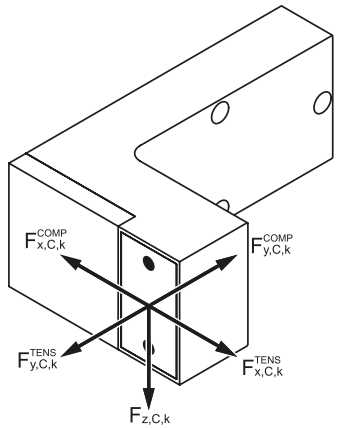
Direct mounting of the attachment part

Fastening type 4, M8 screw (Annex B3)

Tab. C71: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	5,9	11,1	15,1	16,6	7,8
	100	5,9	11,1	15,1	16,6	7,8
	120	5,9	10,7	13,4	13,9	7,0
	140	6,0	10,6	11,8	11,4	6,2
	160	6,0	10,3	10,4	9,4	5,5
	180	6,0	10,2	9,1	7,5	4,9
	200	6,0	10,0	8,0	6,2	4,3
	220	6,1	9,9	6,9	5,0	3,9
	240	6,1	9,9	6,1	4,1	3,6
	260	6,1	9,9	5,4	3,7	3,2
	280	6,2	9,9	4,8	3,5	3,0
	300	6,3	9,9	4,3	3,6	2,8

Tab. C72: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	4,1	5,7	9,1	8,3	3,9
	100	4,1	5,7	9,1	8,3	3,9
	120	4,0	5,5	8,0	6,7	3,5
	140	4,1	5,4	7,1	5,5	3,1
	160	4,1	5,3	6,2	4,5	2,8
	180	4,1	5,2	5,5	3,6	2,4
	200	4,1	5,1	4,8	3,0	2,2
	220	4,1	5,1	4,1	2,3	1,9
	240	4,1	5,0	3,7	1,8	1,8
	260	4,2	5,0	3,2	1,5	1,6
	280	4,3	5,0	2,9	1,4	1,4
	300	4,4	5,1	2,6	1,3	1,2

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

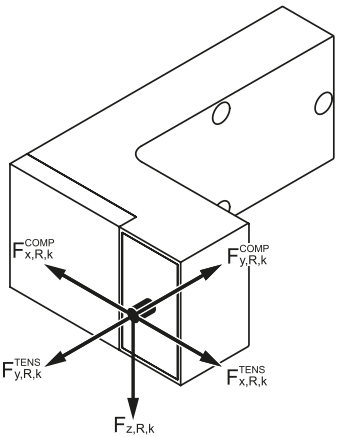
Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Direct mounting of the attachment part / Fastening type 4 with screw M8

Annex C37

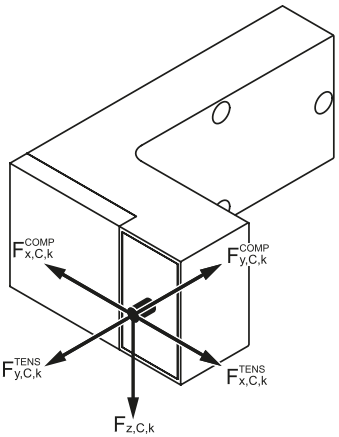
Stand-off mounting of the attachment part

Fastening type 3, M12 screw (Annex B3)

Tab. C73: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	4,1	5,9	15,1	18,0	9,1
	100	4,1	5,9	15,1	18,0	9,1
	120	4,1	5,7	13,4	15,1	8,1
	140	4,1	5,6	11,8	12,4	7,2
	160	4,1	5,5	10,4	10,2	6,4
	180	4,1	5,5	9,1	8,2	5,7
	200	4,1	5,4	8,0	6,7	5,1
	220	4,2	5,3	6,9	5,4	4,5
	240	4,2	5,3	6,1	4,5	4,1
	260	4,2	5,3	5,4	4,0	3,8
	280	4,3	5,3	4,8	3,8	3,5
	300	4,3	5,3	4,3	3,9	3,3

Tab. C74: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,5	5,9	15,1	17,7	6,6
	100	3,5	5,9	15,1	17,7	6,6
	120	3,4	5,7	13,4	14,2	5,9
	140	3,5	5,6	11,8	11,7	5,2
	160	3,5	5,5	10,4	9,6	4,7
	180	3,5	5,5	9,1	7,7	4,1
	200	3,5	5,4	8,0	6,3	3,7
	220	3,5	5,3	6,9	4,9	3,3
	240	3,5	5,3	6,1	3,8	3,0
	260	3,6	5,3	5,4	3,2	2,7
	280	3,7	5,3	4,8	2,9	2,4
	300	3,7	5,3	4,3	2,7	2,1

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M12

Annex C38

Stand-off mounting of the attachment part

Fastening type 3, M10 screw (Annex B3)

Tab. C75: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,9	5,4	15,1	18,0	8,8
	100	3,9	5,4	15,1	18,0	8,8
	120	3,9	5,2	13,4	15,1	7,9
	140	4,0	5,1	11,8	12,4	7,0
	160	4,0	5,0	10,4	10,2	6,2
	180	4,0	5,0	9,1	8,2	5,5
	200	4,0	4,9	8,0	6,7	4,9
	220	4,1	4,8	6,9	5,4	4,4
	240	4,1	4,8	6,1	4,5	4,0
	260	4,1	4,8	5,4	4,0	3,7
	280	4,1	4,8	4,8	3,8	3,4
	300	4,2	4,8	4,3	3,9	3,2

Tab. C76: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	2,8	4,2	15,1	17,7	4,6
	100	2,8	4,2	15,1	17,7	4,6
	120	2,7	4,1	13,4	14,2	4,1
	140	2,8	4,0	11,8	11,7	3,7
	160	2,8	3,9	10,4	9,6	3,3
	180	2,8	3,9	9,1	7,7	2,9
	200	2,8	3,8	8,0	6,3	2,6
	220	2,8	3,8	6,9	4,9	2,3
	240	2,8	3,7	6,1	3,8	2,1
	260	2,9	3,7	5,4	3,2	1,9
	280	2,9	3,7	4,8	2,9	1,7
	300	3,0	3,8	4,3	2,7	1,5

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M10

Annex C39

Stand-off mounting of the attachment part

Fastening type 3, M8 screw (Annex B3)

Tab. C77: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,8	4,9	15,1	18,0	8,6
	100	3,8	4,9	15,1	18,0	8,6
	120	3,8	4,7	13,4	15,1	7,6
	140	3,9	4,6	11,8	12,4	6,7
	160	3,9	4,5	10,4	10,2	6,1
	180	3,9	4,5	9,1	8,2	5,4
	200	3,9	4,4	8,0	6,7	4,8
	220	4,0	4,4	6,9	5,4	4,2
	240	4,0	4,3	6,1	4,5	3,9
	260	4,0	4,3	5,4	4,0	3,5
	280	4,0	4,3	4,8	3,8	3,3
	300	4,1	4,4	4,3	3,9	3,1

Tab. C78: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	2,1	2,5	15,1	17,7	2,6
	100	2,1	2,5	15,1	17,7	2,6
	120	2,0	2,4	13,4	14,2	2,3
	140	2,1	2,4	11,8	11,7	2,0
	160	2,1	2,3	10,4	9,6	1,8
	180	2,1	2,3	9,1	7,7	1,6
	200	2,1	2,3	8,0	6,3	1,4
	220	2,1	2,2	6,9	4,9	1,3
	240	2,1	2,2	6,1	3,8	1,2
	260	2,2	2,2	5,4	3,2	1,0
	280	2,2	2,2	4,8	2,9	0,9
	300	2,2	2,2	4,3	2,7	0,8

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 3 with screw M8

Annex C40

Stand-off mounting of the attachment part

Fastening type 4, M10 screw (Annex B3)

Tab. C79: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,9	4,8	15,1	18,0	8,6
	100	3,9	4,8	15,1	18,0	8,6
	120	3,9	4,6	13,4	15,1	7,6
	140	3,9	4,6	11,8	12,4	6,7
	160	3,9	4,5	10,4	10,2	6,1
	180	3,9	4,4	9,1	8,2	5,4
	200	3,9	4,3	8,0	6,7	4,8
	220	4,0	4,3	6,9	5,4	4,2
	240	4,0	4,3	6,1	4,5	3,9
	260	4,0	4,3	5,4	4,0	3,5
	280	4,1	4,3	4,8	3,8	3,3
	300	4,1	4,3	4,3	3,9	3,1

Tab. C80: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,3	5,2	15,1	17,7	6,2
	100	3,3	5,2	15,1	17,7	6,2
	120	3,2	5,0	13,4	14,2	5,5
	140	3,3	5,0	11,8	11,7	4,9
	160	3,3	4,8	10,4	9,6	4,4
	180	3,3	4,8	9,1	7,7	3,9
	200	3,3	4,7	8,0	6,3	3,5
	220	3,3	4,7	6,9	4,9	3,1
	240	3,3	4,6	6,1	3,8	2,9
	260	3,4	4,6	5,4	3,2	2,5
	280	3,5	4,6	4,8	2,9	2,2
	300	3,5	4,7	4,3	2,7	2,0

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 4 with screw M10

Annex C41

Stand-off mounting of the attachment part

Fastening type 4, M8 screw (Annex B3)

Tab. C81: Characteristic structural resistances R_k for the ultimate limit state (ULS) of the support bracket TWL-ALU-RL

Characteristic structural resistances R_k (ULS)						
TWL-ALU-RL	Typ	$F_{x,R,k}^{TENS}$ [kN]	$F_{x,R,k}^{COMP}$ [kN]	$F_{y,R,k}^{TENS}$ [kN]	$F_{y,R,k}^{COMP}$ [kN]	$F_{z,R,k}$
	80	3,7	3,7	15,1	18,0	8,0
	100	3,7	3,7	15,1	18,0	8,0
	120	3,7	3,6	13,4	15,1	7,1
	140	3,7	3,5	11,8	12,4	6,3
	160	3,7	3,4	10,4	10,2	5,7
	180	3,7	3,4	9,1	8,2	5,0
	200	3,7	3,3	8,0	6,7	4,5
	220	3,8	3,3	6,9	5,4	4,0
	240	3,8	3,3	6,1	4,5	3,6
	260	3,8	3,3	5,4	4,0	3,3
	280	3,9	3,3	4,8	3,8	3,1
	300	3,9	3,3	4,3	3,9	2,9

Tab. C82: Characteristic structural resistances C_k for the serviceability limit state (SLS) of the support bracket TWL-ALU-RL

Characteristic structural resistances C_k (SLS)						
TWL-ALU-RL	Typ	$F_{x,C,k}^{TENS}$ [kN]	$F_{x,C,k}^{COMP}$ [kN]	$F_{y,C,k}^{TENS}$ [kN]	$F_{y,C,k}^{COMP}$ [kN]	$F_{z,C,k}$
	80	3,2	4,5	15,1	17,7	5,8
	100	3,2	4,5	15,1	17,7	5,8
	120	3,0	4,4	13,4	14,2	5,1
	140	3,1	4,3	11,8	11,7	4,6
	160	3,1	4,2	10,4	9,6	4,1
	180	3,1	4,1	9,1	7,7	3,6
	200	3,1	4,1	8,0	6,3	3,2
	220	3,1	4,0	6,9	4,9	2,9
	240	3,2	4,0	6,1	3,8	2,6
	260	3,2	4,0	5,4	3,2	2,3
	280	3,3	4,0	4,8	2,9	2,1
	300	3,4	4,0	4,3	2,7	1,8

Supporting brackets "TRA-WIK-ALU-RF", "TRA-WIK-ALU-RL", "TWL-ALU-RF" and "TWL-ALU-RL"

Performance

Characteristic structural resistances for the support bracket "TWL-ALU-RL"
Stand-off mounting of the attachment part / Fastening type 4 with screw M8

Annex C42