VANTAGE

FACADE MECHANICAL FIXING SYSTEMS

WWW.VANTAGEHARDWARE.COM

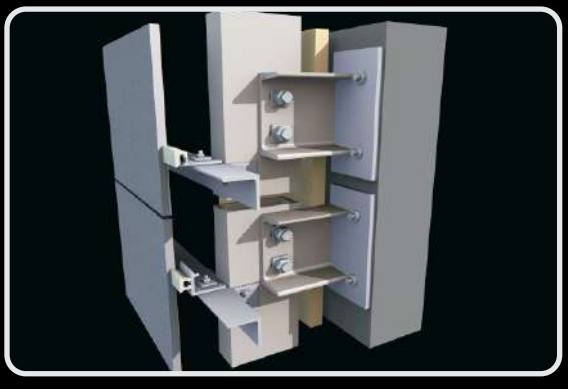
BE AN EXPERT IN BUILDING SYSTEM FIXATION

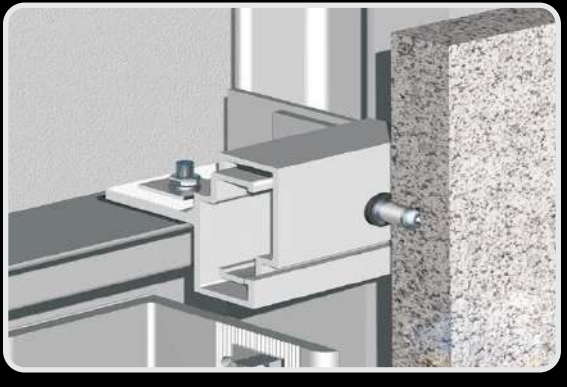
We combine functionality with attractive design Holding Tracks
Optimum holding tracks for every facade and every wall material:

. natural stone
.ceramics tiles
.aluminium wall panels
.composite panels
.fiber cement panels.
.aluminium wall panels
.bigger-size and small-size wall panels

For every kind of ventilated curtain wall system, Vantage has developed holding track systems. holding tracks are made from high-quality aluminium alloys suitable for all building heights.The requirements of DIN18516(outer wall claddings)are met.

DETAILS OF APPLICATION





Facades with natural stone

Facades with natural stone have shaped the appearance of our towns and cities for many centuries. Natural stone is deployed as a hard or a soft stone and in different forms and thick/nesses. The fastening also varies.In addition to the traditional pin bearing system， you find today undercut fastening as well as fastening with milled grooves.With our systems，we are able to fasten natural stone to meet the passive house standard and avoid a permanent penetration of the building structures even with small sizes formats.The implementation of fire protection requirements is also ensured.

L-Brackets Aluminium

WB0	40/40/3–85	40/40/3–160	40/40/3–250
WB1	40/60/3–85	40/60/3–160	40/60/3–250
WB2	40/80/3–85	40/80/3–160	40/80/3–250
WB3	40/100/3–85	40/100/3–160	40/100/3–250
WB4	40/120/3–85	40/120/3–160	40/120/3–250
WB5	40/140/3–85	40/140/3–160	40/140/3–250
WB6	40/160/3–85	40/160/3–160	40/160/3–250
WB7	40/180/4/3–85	40/180/4/3–160	40/180/4/3–250
WB8	40/200/4/3–85	40/200/4/3–160	40/200/4/3–250
WB9	40/220/4/3–85	40/220/4/3–160	40/220/4/3–250
WB9.5	40/230/4/3–85	40/230/4/3–160	40/230/4/3–250
WB10	43/240/4/3–85	43/240/4/3–160	44/240/4/3–250
WB11	43/260/4/3–85	43/260/4/3–160	44/260/4/3–250
WB12	43/280/4/3–85	43/280/4/3–160	44/280/4/3–250
WB13	43/300/4/3–85	43/300/4/3–160	44/300/4/3–250
WB14	43/320/4/3–85	43/320/4/3–160	44/320/4/3–250

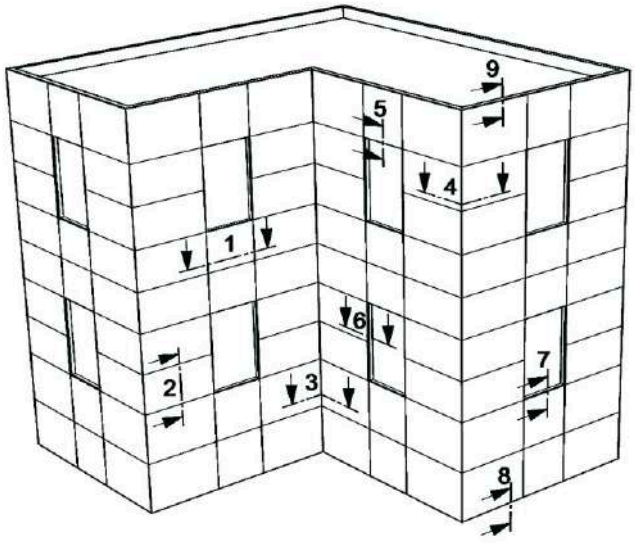
T–Profiles Aluminium

T 40/50
T 65/50
T 80/50
T 110/45
T 110/70

L–Profiles Aluminium

L 42/50
L 40/50
L 45/45
L 42/60
L 70/50

Facades with natural stone

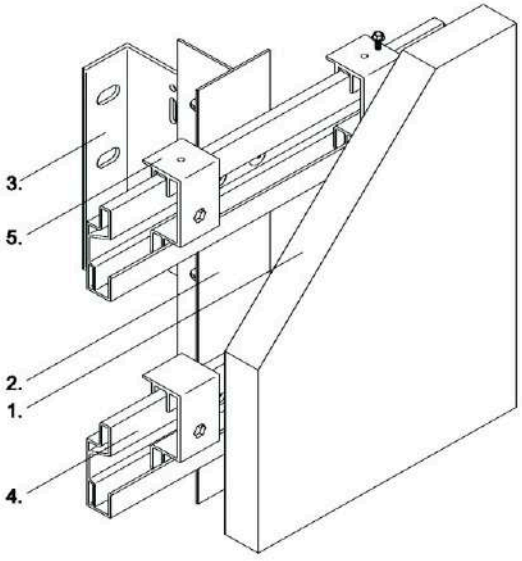


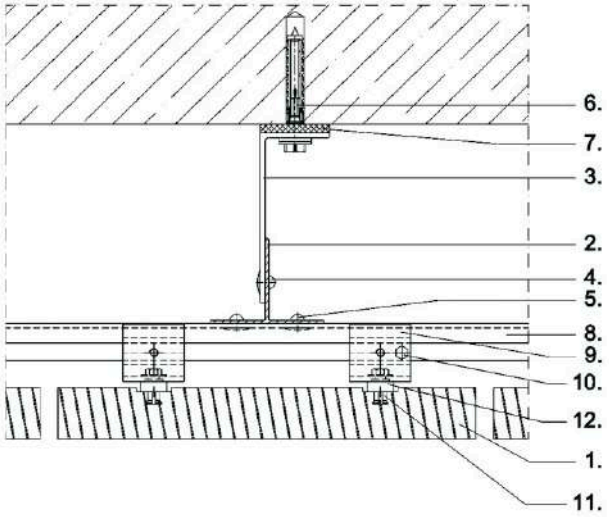
Summery of Section

section1: horizontal
section2: vertical
section3: internal corner
section4: external corner
section5: window lintel
section6: window recess
section7: window sill
section8: bottom closure
section9: parapet

holding tracks for nature stone

1.cladding panel
2.vertical holding track T or L profile
3.Alumium L-bracket
4.holding track "AZM01"
5.holding bracket "AZZ01"

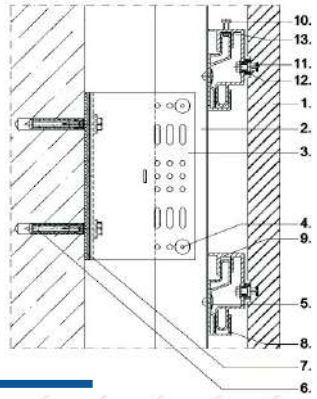




section1:horizontal

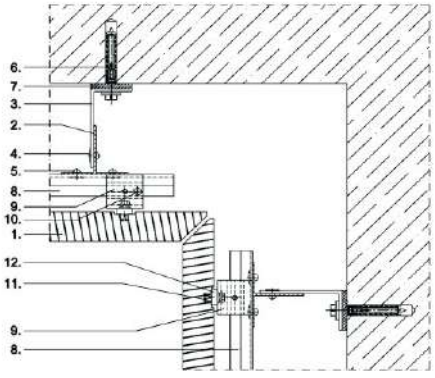
1.cladding panel
2.vertical holding track T or L porfile
3.AZ AL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing anchor
7.thermal isolation
8.holding track "AZM01"
9.holding bracket "AZZ01"
10.locking screw
11.undercut anchor
12.distance washer bolt

Facade of sections



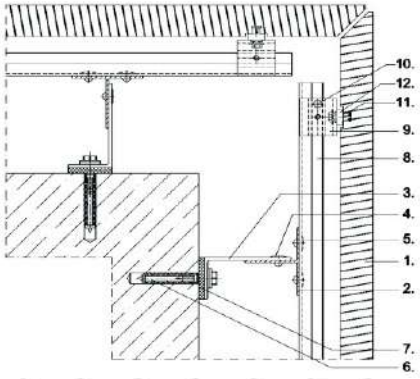
section2:vertical

1.cladding panel
2.vertical holding track
3.AZ L-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.anchor
7.thermal isolation
8.holding track "AZM01"
9.holding bracket "AZZ01"
10.locking screw
11.undercut achor
12.distance washer
13.adjustment plate bolt



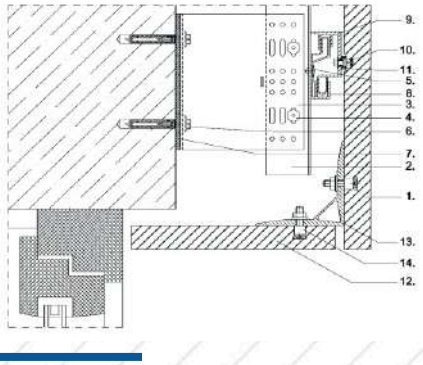
section3: internal corner

1.cladding panel
2.vertical holding track T or L profile
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.anchors
7.thermal isolation
8.holding track "AZM01"
9.holding bracket AZZ01
10.locking screw
11.undercut achor
12.distance washer bolt



section4: external corner

1.cladding panel
2.vertical holding track T or L profile
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.anchor
7.thermal isolation
8.holding track "AZM01"
9.holding bracket "AZZ01"
10.locking screw
11.undercut anchor
12.distance washer bolt



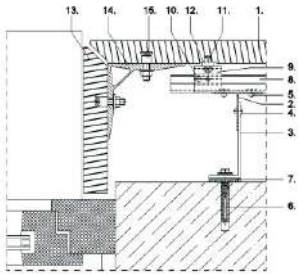
section5: window lintel

1.cladding panel
2.vertical holding track T or L profile
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing anchors
7.thermal isolation
8.holding track AZM01
9.holding bracket AZZ01
10.undercut anchor
11.distance washer
bolt
12.reveal plate
13.reveal angle
14.undercut anchor

Facade of sections

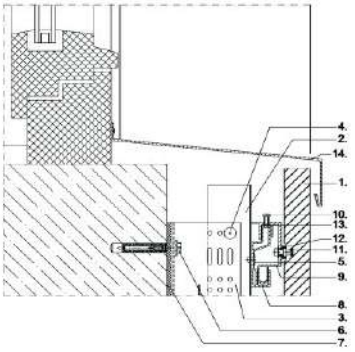
section6: window recess

1.cladding panel
2.vertical holding track T or L profile
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing anchor
7.thermal isolation
8.holding track AZM
9.holding bracket for AZM
10.locking screw
11.non-expanding anchor bolt
12.distance washer
13.reveal plate
14.reveal angle
15.undercut anchor



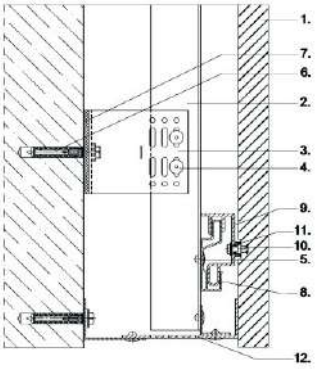
section7: window sill

1.cladding panel
2.vertical holding track T or L profile
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing anchor
7.thermal isolation
8.holding track AZM
9.holding bracket AZZ
10.locking screw
11.undercut anchor
12.distance washer
13.adjustment plate
14.AZ a windowsill bolt



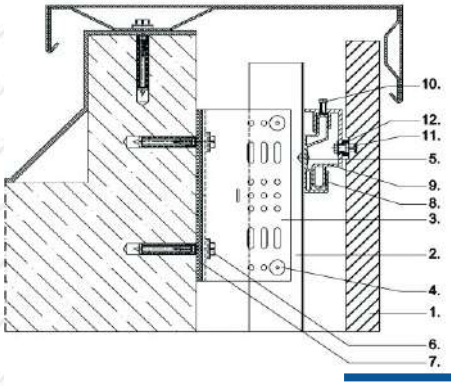
section8: bottom closure

1.cladding panel
2.vertical holding track
3.AZ aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing
7.thermal isolation
8.holding track
9.holding bracket
10.undercut anchor
11.distance washer
12.ventilated angle
bolt



section9: parapet

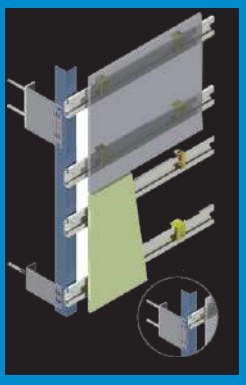
1.cladding panel
2.vertical holding track
3.Syste aL-bracket
4.connecting rivet/screw
5.fixing rivet/screw
6.fixing
7.thermal isolation
8.holding track U BE"NG 2"
9.holding bracket for
U BE"NG 2"
10.locking screw
11.non-expanding achor
bolt
12.distance washer

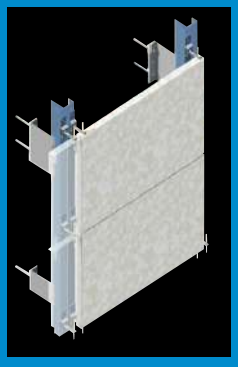


Holding tracks for facade wall

Substructure for natural stone panels with rear clasps

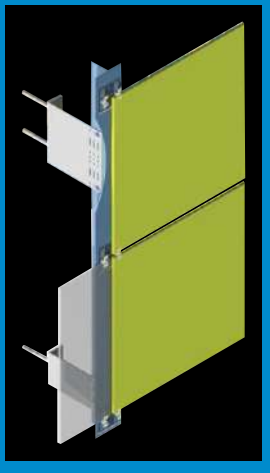
Aluminium/stainless steel substructure for the concealed fastening of facade panels, e.g.natural stone or carrier plates with rear clasps with a large travel and adjustment range as well as reinforced horizontal mounting rails. Projections up to 480mm. Depending on the wall brackets, fire protection requirements can be implemented and the passive house standard is possible.





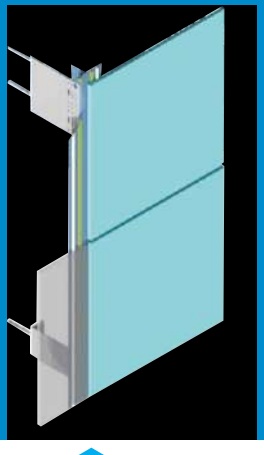
Substructures for natural stone panels with a pin bearing

Aluminium/stainless steel substructures for the fastening of natural stone in the panel joints with a pin bearing. In the systems, the traditional pin support is installed on a vertical profile. Through the combinationof the pin support with a substructure, youreduce the drilling effort in the building structure, and large loads in the the passive house standard with high insulation packagethicknesses can be implemented. Depending on the wall brackets, fire protection requirements can be implemented and the passive house standard is possible.



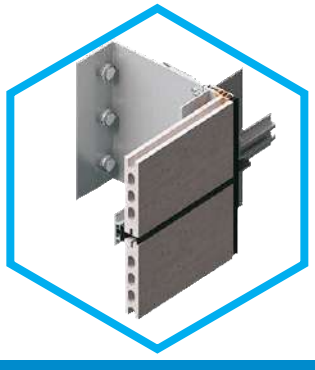
Holding tracks for ceramic wall panels (clip–on fixing)

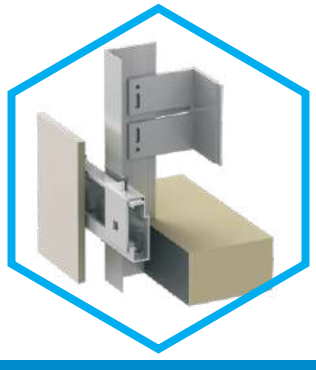
Aluminium/stainless steel holding tracks for visible clip-on fixing of small-size and large-size ceramic wall panels. The holding tracks consistof vertical T-profiles with dimensions as per statical requirements placed in each vertical panel joint. Protrusions of up to 480mm.



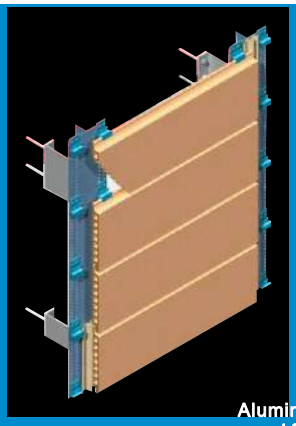
Holding tracks for glued–on wall panels

Aluminium/stainless steel holding tracks for invisible fixing of profiled aluminium wall panels and flat wall panels.The subconstruction consist of vertical angled profiles and T-profiles with dimensions as per statical requirements and brackets with standard protrusions of up to 480mm.



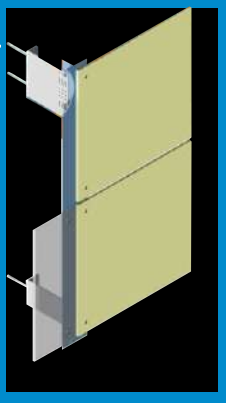


Holding tracks for facade wall



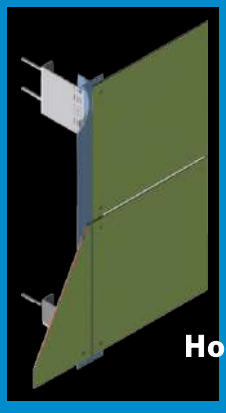
Holding tracks for ceramic panels

Aluminium/stainless steel subconstruction for invisible clip fixing of terracotta panels.The construction consists of brackets and vertical holding tracks. The holding tracks are either used for mounting different holding clips or different system rails including their specific holders. The brackets are used to form sliding points and fixed points. The sliding points only bear horizontal loads, the fixed points bear horizontal and vertical loads with standard protrusions of up to 480mm.



Subconstructions for ventilated facades

Aluminium/stainless steel holding tracks for visible fixing of profiled aluminium wall panels and flat wall panels.The subconstruction consist of vertical angled profiles and T-profiles with dimensions as per statical requirements and bracketswith standard protrusions of up to 480mm.

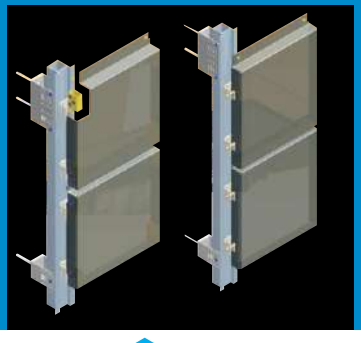


Holding tracks for wall panels of composite material

Aluminium/stainless steel holding tracks for visible fixing of facade panels made of composite material.The sub construction consists of vertical angled profiles and T-profiles with dimensions as per statical requirements and brackets with standard protrusions of up to 480mm.

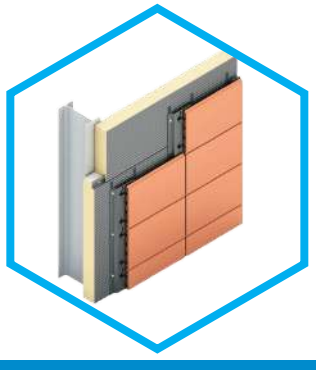
Holding tracks for profiled aluminium sheets and flat wall panels (up to floor height)

Aluminium holding tracks for visible fixing of profiled aluminium wall panels and flat wall panels.The subconstructions consist of U-brackets and vertical hollow box profiles allowing for fixing in the floor slabs at floor height. Protrusions of Up to 180mm.



Holding tracks for cassettes of composite

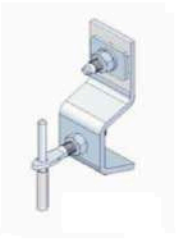
material Aluminium/stainless steel holding tracks for concealed fixing of composite panels with vertical grid hung with bolts or for concealed fixing with adjustable slides.Protrusions L-Brackets of up to 480mm, Protrusions U-Brackets of up to 180mm.



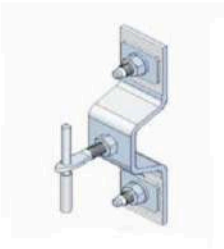
AZZ Anchor Fixing Systems-Technical Details

- Direct fixing into concrete walls with expansion bolts. Indirect fixing into sub channel system with hex bolts.
- Three dimensional adjustability - Quick and easy fixing.
- Installation at horizontal and vertical joints.
- Recommended projection sizes up to 135 mm & loads up to 800 N.

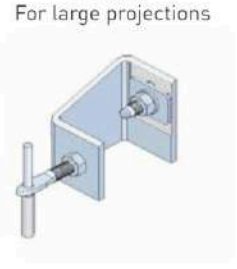
AZZ01
Z Anchor



AZZ02
Soffit Anchor

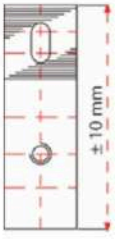


AZZO3
Z Anchor
For large projections

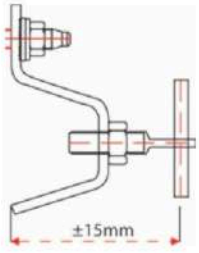


AZZ04
Restraint Anchor

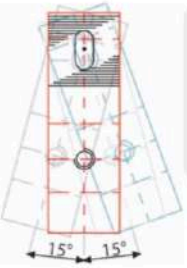
Three dimensional adjustability



1) Vertical adjustment is provided by the slotted hole. The anchor is fixed on to the bolt with the serrated washer at the desired level.

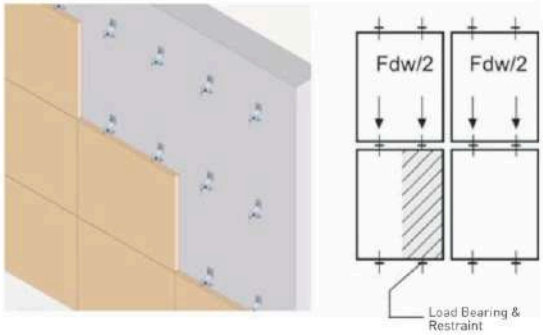


2) Adjustment of the projection size is provided by rotating the adjustable arm. The adjustable arm is locked with the hexagon nut.

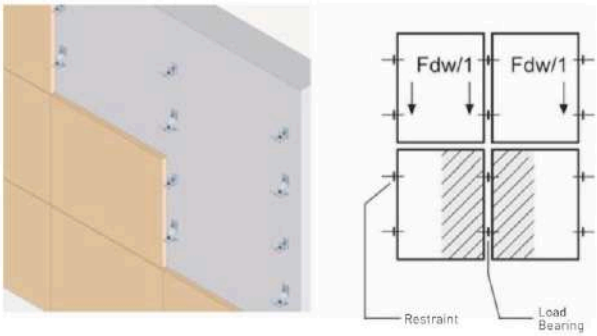


3) Adjustment of the anchor left and right is provided by sliding the body up to 15 degrees side ways.

Installation at horizontal joints



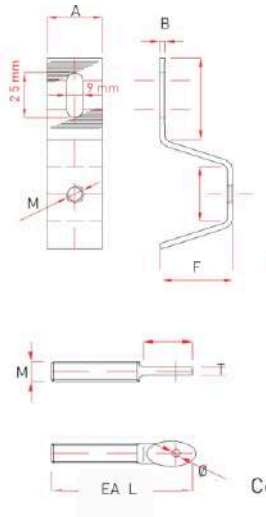
Installation at vertical joints

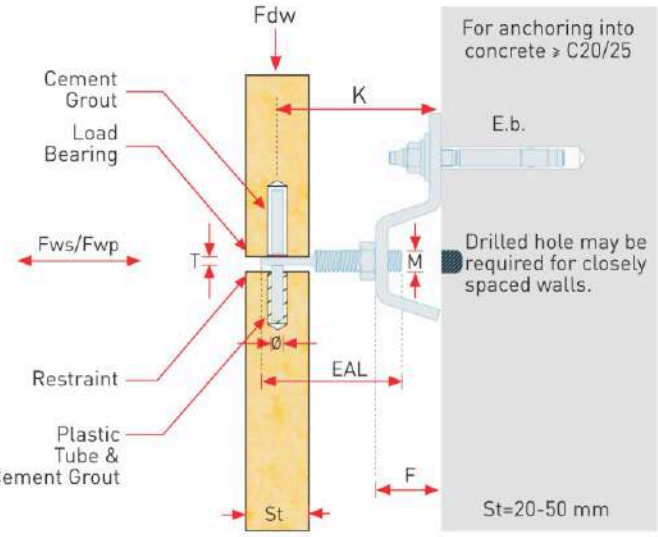


- Suitable for concrete walls. Anchors are fixed directly on to concrete walls with expansion bolts.
- Recommended projection size between 45 mm to 135 mm and loads up to 800 N.
- In horizontal joint installation, slabs are pinned on the bottom and upper sides. Anchors act as load bearing carrying half the weight of the slabs above. Anchors also act as restraints, holding the slabs below and restraining against wind suction and pressure.
- In vertical joint installation slabs are pinned on the left and right sides. Anchors on the bottom are load-bearing anchors carrying the whole weight of the slab. Half the weight of the slab on the left and half the weight of the slab on the right. Anchors on the top are restraint anchors holding the slabs and restraining against wind suction and pressure.
- Three - dimensional adjustability allows quick and easy installation.

- The design and structural calculations of these anchors are made in our technical department. Special design and manufacturing can be made for the requirements of each project.

Z Anchor -Technical Details





Product Code	Technical Details											
	Projec-tion	Min. Projec-tion	Max. Projec-tion	Dead Load	Offset	Wind-Pressure	Wind-Suction	Bolt Size	Pin Diameter	Adj. Arm Metric Size	Adj. Arm Flat Thickness	Adj. Arm Length
	K (mm)	K - (mm)	K + (mm)	Fdw (N)	F (mm)	Fwp (N)	Fws (N)	E.b. (mm)	Ø (mm)	M (mm)	T (mm)	EAL (mm)
AZZ01-33010/10	45	40	60	500	10	312	219	M8x80	ø 5x70	M10	3.5	45
AZZ01-33015/10	50	45	65	500	15							50
AZZ01-33020/10	55	50	70	500	20							50
AZZ01-33025/10	60	50	75	400	25							50
AZZ01-33030/10	65	55	80	400	30							60
AZZ01-33040/10	75	60	90	400	40							60
AZZ01-33050/10	85	70	100	400	50							70
AZZ01-33060/10	95	80	110	300	60							70
AZZ01-33080/10	115	100	130	300	80							70
AZZ01-330100/10	135	120	150	300	100							70
AZZ01-330120/10	155	140	170	250	120							70
AZZ01-43020/12	75	60	90	500	20	468	328			M12	4.5	60
AZZ01-43040/12	95	80	110	500	40							60
AZZ01-43060/12	115	100	130	400	60							80
AZZ01-43080/12	135	120	150	300	80							80
AZZ01-430100/12	155	140	170	300	100							80
AZZ01-430100/13	175	160	190	300	100							80

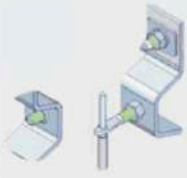
- Material : Stainless Steel 1.4301 (A2) & 1.4401 (A4).
- Table above is prepared according to LGA test results.
- Loads stated are characteristic resistance loads.
- Bolts are provided separately.
- Max Wind pressure: 350 N
- Test results are available upon order.

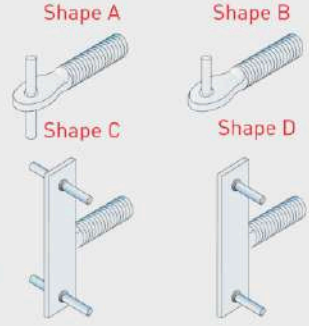
AZZ01 type Z anchors with standard sizes. Different types available according to desired method of fixation.

AZZ01 Type without serration and with plain washer.

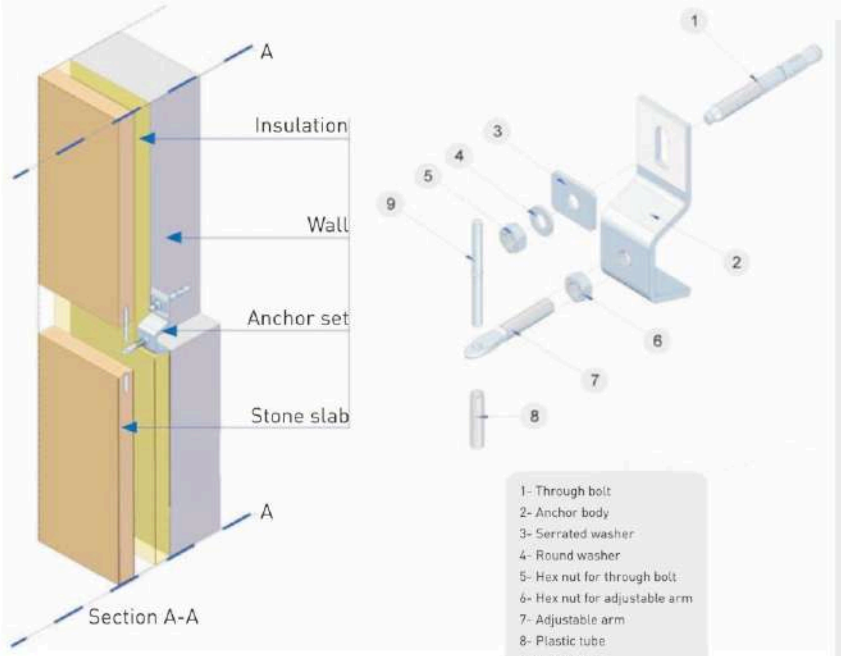
Product code description

AZZ01 - 330 / 10 A
- A — Shape
- 10 — Adj. arm M size (mm)
- 330 — Anchor body size (mm)
- AZZ01 — Anchor type



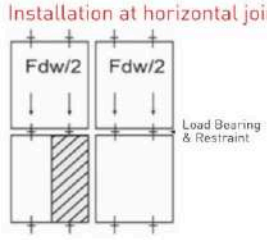


Z Anchor Fixing Systems-Installation Details



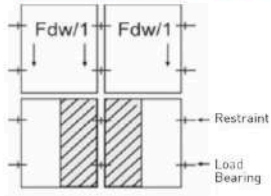
1- Through bolt
2- Anchor body
3- Serrated washer
4- Round washer
5- Hex nut for through bolt
6- Hex nut for adjustable arm
7- Adjustable arm
8- Plastic tube
9- Flanged pin

Installation at horizontal joints



In this instance the dead load of the slab is divided by two, as half the weight of the slab is transferred to the load bearing anchors.

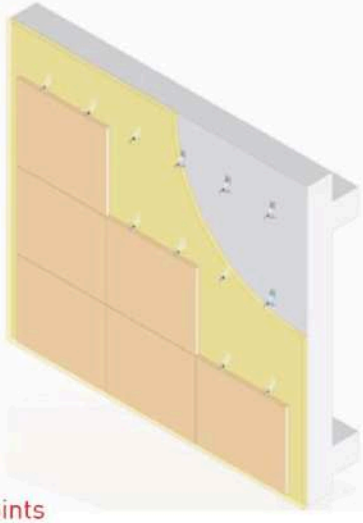
Installation at vertical joints

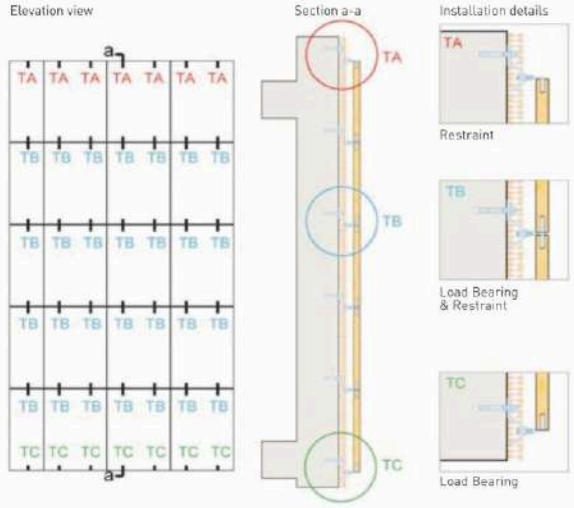


In this instance the dead load of the slab is divided by one, as the whole weight of the slab is transferred to the load bearing anchors.

Installation at horizontal joints

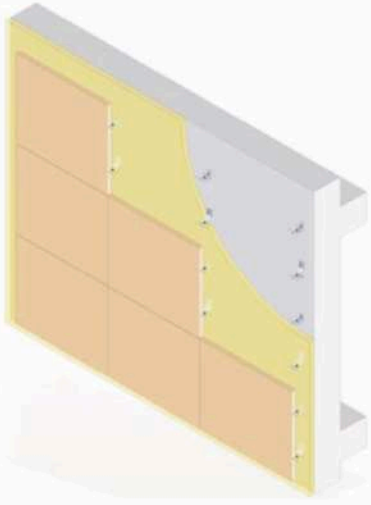
AZZ01 Z Anchor

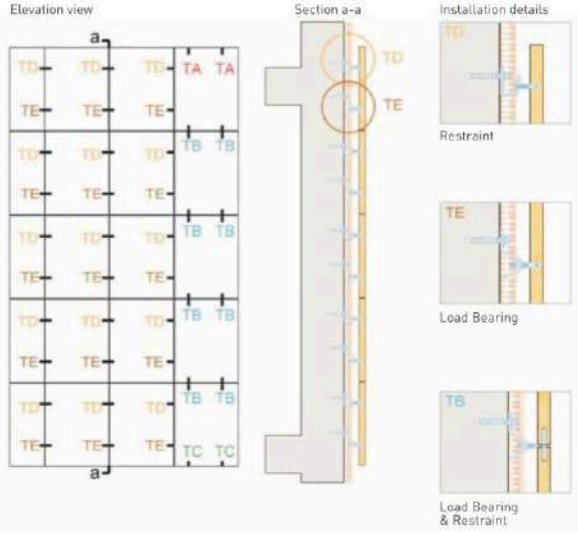




Installation at vertical joints

AZZ01 Z Anchor

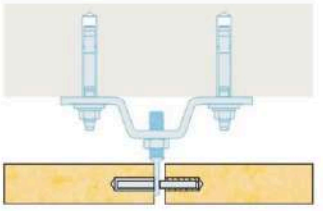


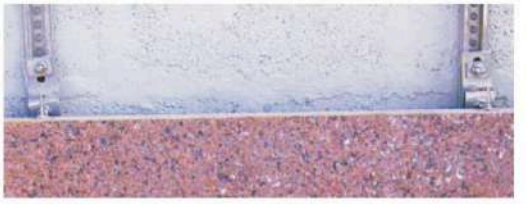


AZ Z Anchor -Special Applications Details

AZZ02 Soffit Anchor

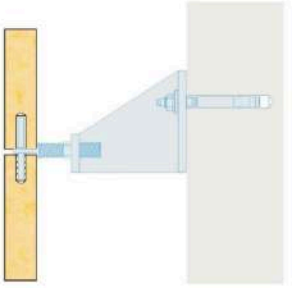
Required for installing soffit slabs.





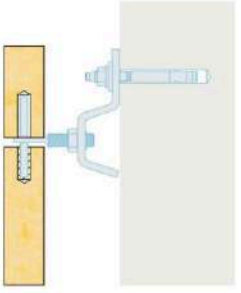
AZZ03 Z Anchor - for large projection sizes.

Required for projections over 150 mm.



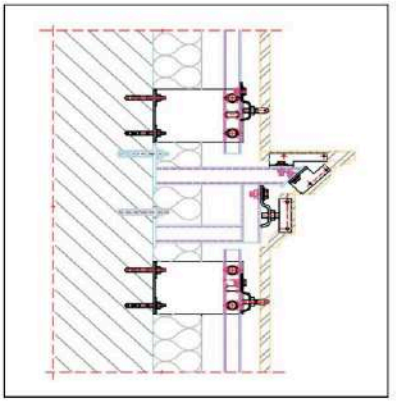
AZZ01S Z Anchor - with wedge washer.

Required where loads are over 800 N where serrated washers may not be strong enough for no slip feature.

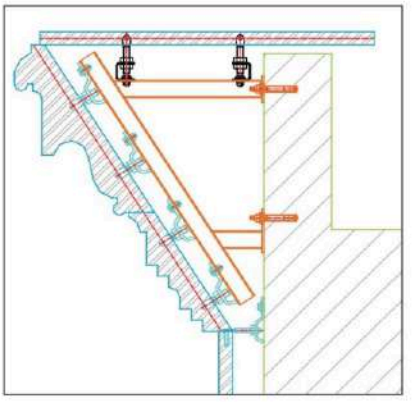


Special Designs

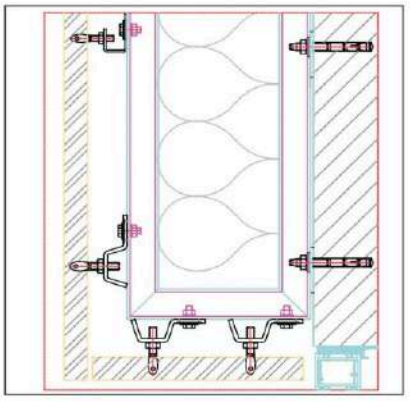
Z Anchors are fixed on sub frame to install cornice lining.



Z Anchors are fixed on to special steel structure for cornice parapet installation.



Z Anchors are fixed on to special steel structure for special area installation.

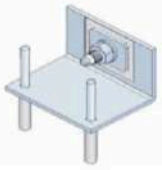


AL Anchor Fixing Systems-Technical

- Direct fixing into concrete walls with expansion bolts. Indirect fixing onto sub channel system with hex bolts.
- Economical & easy fixing.
- Installation at horizontal joints.
- Adjustability provided through adjustable plates and slot pin holes.

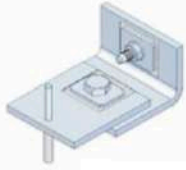
AZ01 L Anchor

AZ02 L Anchor
Double pin

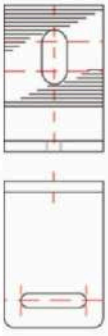


AZ03 L Anchor
With Kerf

AZ04 L Anchor
With Adjustable plate

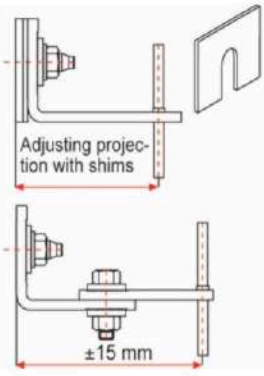


Adjustability



1. Vertical adjustment is made through the slot hole. The anchor is fixed on to the bolt with the serrated washer and nut.

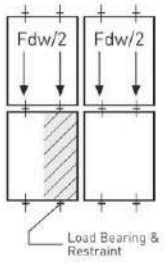
2. A slot pin hole can be provided to enable lateral adjustment of the pin.

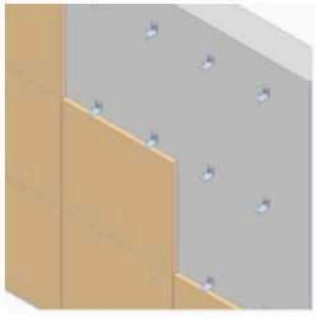


3. Greater projection sizes can be achieved by using shims. Shims are placed at the back of the anchor.

4. An adjustment plate is available in HA04 & HA05 type L anchors where adjustment of the projection size can be made.

Installation at horizontal joints





AZ01 Anchors

- Suitable for concrete walls. Recommended projection sizes up to 55 mm.
- Slabs are pinned at the bottom and upper sides.
- Adjustability for projection size can be done by inserting shims between the anchor and the wall.
- Anchors act as load bearing and restraint, carrying the slabs above and restraining the slabs below.

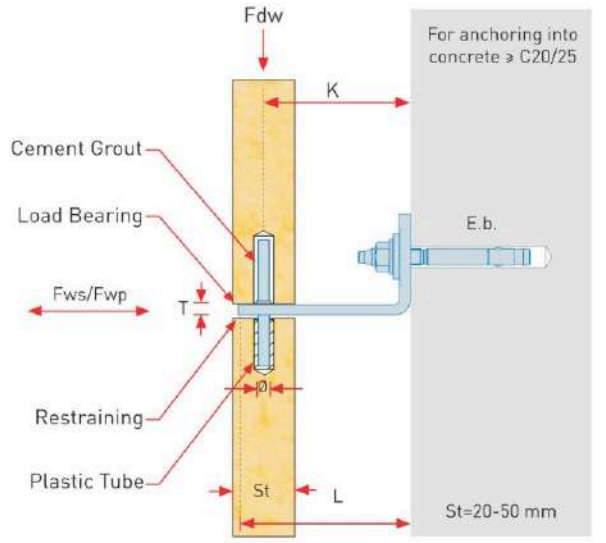
AZ03 L Anchors

- Suitable for concrete walls. Recommended projection sizes up to 55 mm.
- Slabs have slits and the kerf parts of the anchors are inserted in to the slit edgesof the slabs.
- Adjustability for projection size can be done by inserting shims between the anchor and the wall.
- Anchors act as load bearing and restraint, carrying the slabs above and restraining the slabs below.

AZ04 L Anchors

- Suitable for concrete walls. Recommended projection sizes up to180 mm.
- Slabs are pinned from the bottom and upper sides.
- Adjustability of the projection size is enabled with the adjustable plate, which is fixed to the body with hex bolts.
- Anchors act as load bearing and restraint, carrying the slabs above and restraining the slabs below.

AZ 01 L Anchor -Technical Details



Product Code	Technical Details							
	Projection	Dead Load	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Anchor Length	Anchor Thickness
	K (mm)	Fdw (N)	Fwp (N)	Fws (N)	E.b. (mm)	Ø (mm)	L (mm)	T (mm)
AZ01-301	30	100	156	110	M8X80	4	36	2
AZ01-351	35						41	
AZ01-401	40						46	
AZ01-451	45						51	2.5
AZ01-501	50						56	
AZ01-551	55						61	
AZ01-302	30	200	312	219	M8X80	4	38	3
AZ01-352	35						43	
AZ01-402	40						48	
AZ01-452	45						53	
AZ01-502	50						58	4
AZ01-552	55						63	
AZ01-303	30	300	468	328	M8X80	5	38	3
AZ01-353	35						43	
AZ01-403	40						48	4
AZ01-453	45						53	
AZ01-503	50						58	
AZ01-553	55						63	
AZ01-304	30	400	624	437	M8X80	5	38	3
AZ01-354	35						43	4
AZ01-404	40						48	
AZ01-454	45						53	
AZ01-504	50						58	
AZ01-554	55						63	

- Material: Stainless Steel 1.4301 (A2) & 1.4401 (A4).
- Table above is prepared according to DIN 18516 standard.
- Loads stated are working resistance loads.
- Other sizes are available for production upon request.
- Bolts are provided separately.
- Structural calculation reports are available upon order.

HRS3 Restraint Anchor

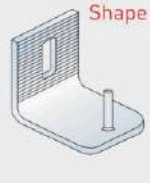
- Load bearing & restraint
- Limited adjustability
- Fastened on to load bearing walls with expansion bolts and on to channels with set screws
- Projection sizes between 30 and 35 mm
- Suitable for horizontal
- Loads up to 400 N
- Stone thicknesses above 20 mm

Product code description

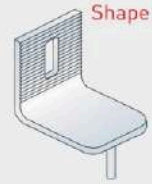
AO1 - 30 1 A
- A — Shape
- 1 — Dead Load (x10 Kg)
- 30 — Projection (K mm)
- AO1 — Type

Shape A

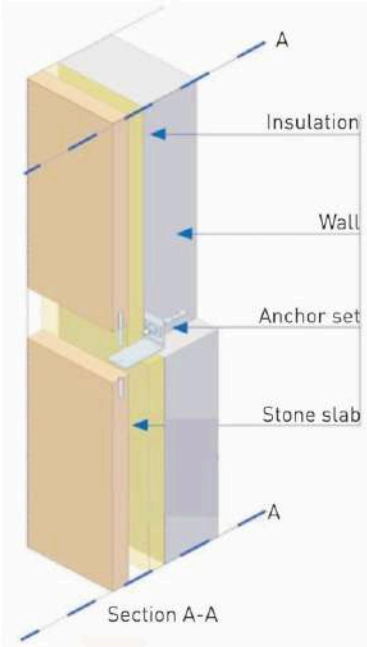
Shape B

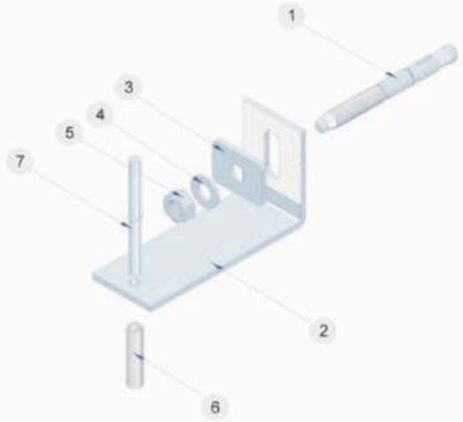


Shape C



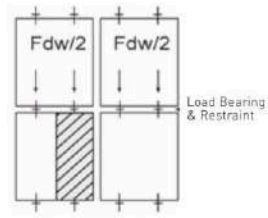
L Anchor Fixing Systems-Installation Details





1- Through bolt
2- Anchor body
3- Serrated washer
4- Round washer for through bolt
5- Hex nut for through bolt
6- Plastic tube
7- Flanged pin

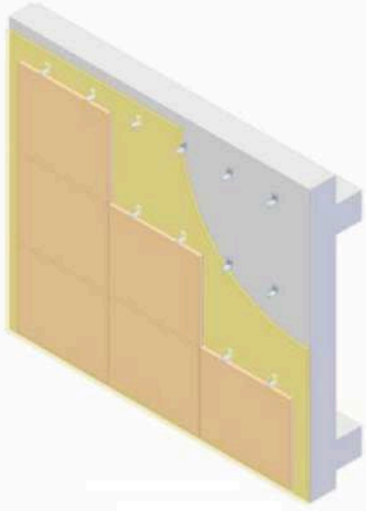
Installation at horizontal joints

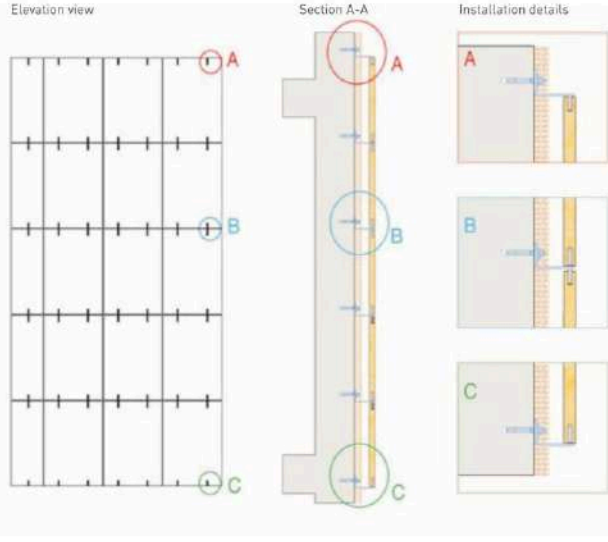


In this instance the dead load of the slab is divided by two, as half the weight of the slab is transferred to the load bearing anchors.

Installation at horizontal joints

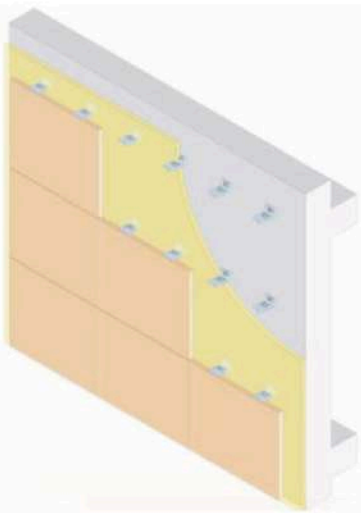
AZ01
L Anchor

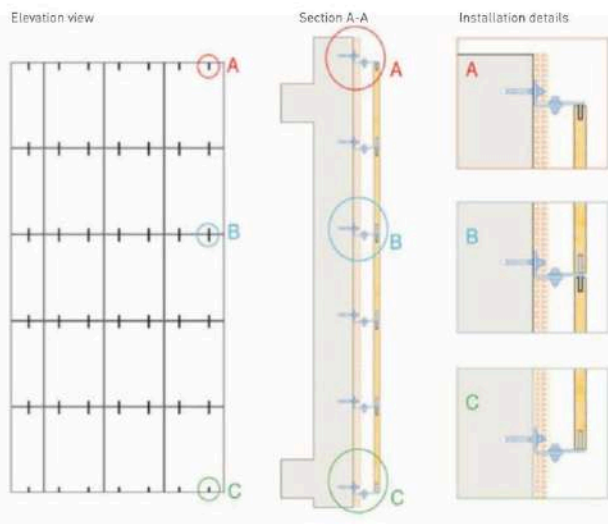




Installation at vertical joints

AZ04
L Anchor





AZ02&AZ03 L Anchor -Technical Details

AZ02 L Anchor

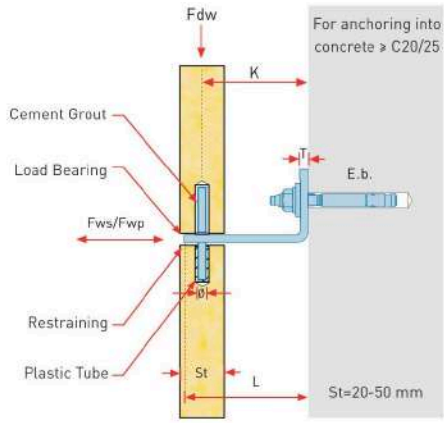
- Load bearing & restraint.
- Projection sizes between 30 and 55 mm.
- Loads up to 400 N.
- Suitable for horizontal joints.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Stone installation is made with a single anchor on each side.

Shape A

Shape B

Shape C

AO2 - 30 2 A
- A — Shape
- 2 — Dead Load (x10 Kg)
- 30 — Projection (K mm)
- AO2 — Type

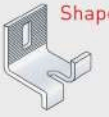


Product Code	Technical Details							
	Projection	Dead Load	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Anchor Length	Anchor Thickness
	K (mm)	Fdw (N)	Fwp (N)	Fws (N)	E.b. (mm)	ø (mm)	L (mm)	T (mm)
AZ02-302	30	200	312	219	M8X80	4	38	3
AZ02-352	35						43	
AZ02-402	40						48	
AZ02-452	45						53	
AZ02-502	50						58	
AZ02-552	55						63	
AZ02-304	30	400	624	437	M8X80	6	38	4
AZ02-354	35						43	
AZ02-404	40						48	
AZ02-454	45						53	
AZ02-504	50						58	
AZ02-554	55						63	

AZ03 L Anchor

- Load bearing & restraint.
- Projection sizes between 30 and 55 mm.
- Loads up to 400 N.
- Suitable for horizontal joints.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Installation is made with kerf system where there are slit edges in the slabs.

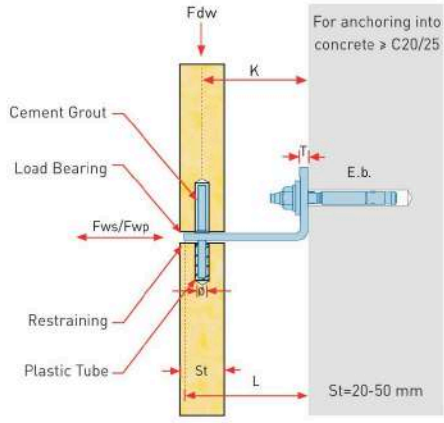
Shape A



Shape B

Shape C

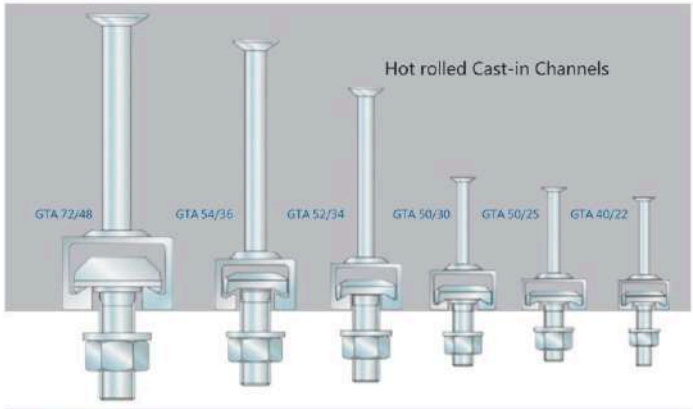
AO3 - 30 2 A
- A — Shape
- 2 — Dead Load (x10 Kg)
- 30 — Projection (K mm)
- AO3 — Type

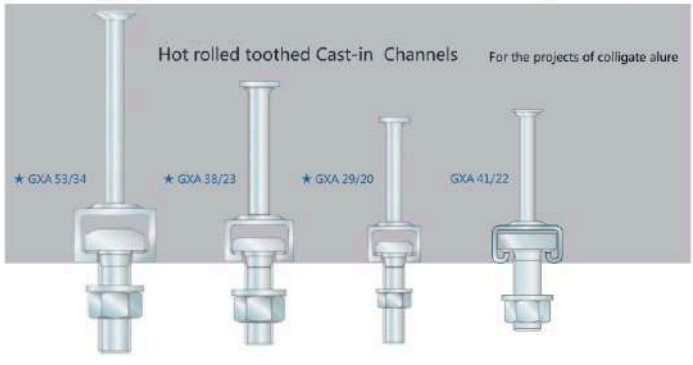


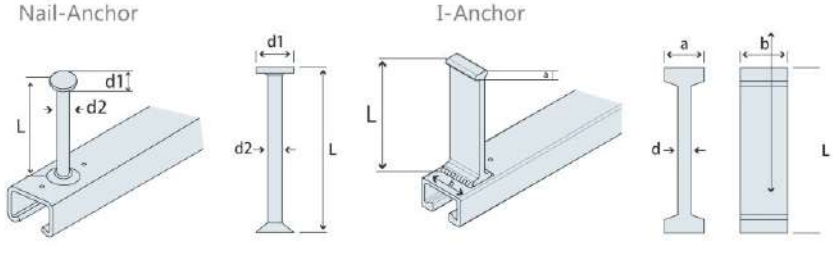
Product Code	Technical Details							
	Projection	Dead Load	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Anchor Length	Anchor Thickness
	K (mm)	Fdw (N)	Fwp (N)	Fws (N)	E.b. (mm)	ø (mm)	L (mm)	T (mm)
AZ03-302	30	200	312	219	M8X80	12	32	3
AZ03-352	35						37	
AZ03-402	40						42	
AZ03-452	45						47	
AZ03-502	50						52	4
AZ03-552	55						57	
AZ03-304	30	400	624	437	M8X80	15	32	3
AZ03-354	35						37	4
AZ03-404	40						42	
AZ03-454	45						47	
AZ03-504	50						52	
AZ03-554	55						57	

Cast-in-channel

Cast in Channels are suitable for various types of construction connections, for example; façades, precast concrete elements, stadium seating, in civil engineering(fixing of tunnel signals) lift guide rails, crane runway,pipe fixings under bridges



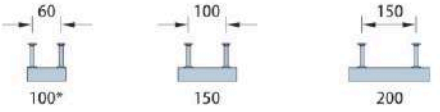




Channel-Details

Channel profile	Nail-Anchor[mm]			I-Anchor [mm]			
	L	d1	d2	L	a	b	d
28/15	30	12	6	-	-	-	-
38/17	60	16	8	-	-	-	-
40/25	55	16	8	-	-	-	-
40/22	55	16	8	-	-	-	-
49/30	65	20	10	-	-	-	-
50/25	65	20	10	-	-	-	-
50/30	65	20	10	-	-	-	-
52/34	122	24	11	125	20	40	5
54/33	122	24	11	125	20	40	5
54/36	122	24	11	125	20	40	5
72/48	-	-	-	125	20	50	6

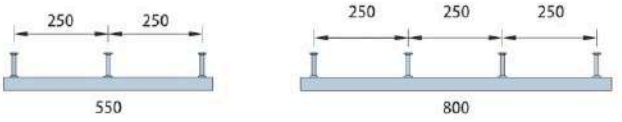
Positioning of anchors to standard short lengths



Anchor centres (mm)

Standard channel lengths (mm)

Anchor centres (mm)

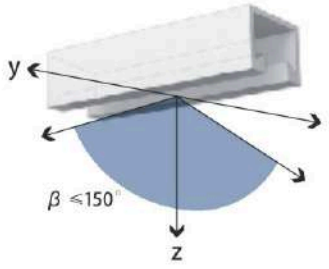
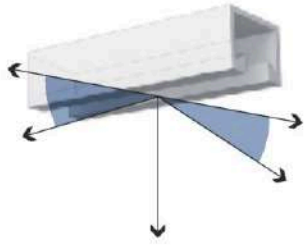


Cast in channel-Technical Details

Stress ranges of the PTA Anchor channels
at right angles to the channel longitudinal axis

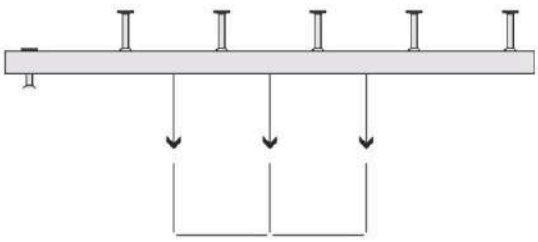
GTA series channels are able to absorb central pull, transverse shear and shear load in accordance with the stress ranges illustrated. In this case, the resultant load must not exceed the allowable loads according to the table shown below.

Allowable loads

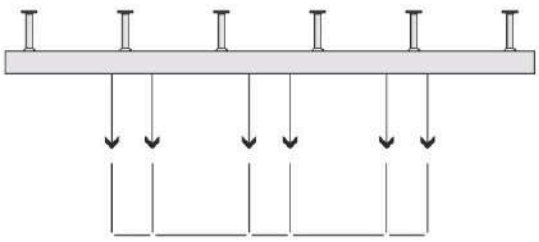
Profile	Allowable loads [kN]							
	Central pull and transverse shear					Shear load		
								
	Point loads			Load pairs		Point loads		Load pairs
	10 cm	15 – 25 cm	>25 cm	20 – 25 cm	≥25 cm	10 cm	≥15 cm	≥20 cm
28/15	3,5	3,5	3,0	3,0	2,0	3,5	3,5	3,0
38/17	7,0	7,0	4,5	4,5	3,0	8,0	8,0	4,5
40/25 40/22	-	8,0	6,0	6,0	4,0	-	10,0	6,0
49/30 50/30	-	12,0	10,0	7,0	5,0	-	12,0	7,0
52/34 54/33	-	22,0 (25,0)	22,0 (25,0)	11,0 (12,5)	11,0 (12,5)	-	22,0 (25,0)	11,0 (12,5)
72/48	-	27,0 (32,0)	27,0 (32,0)	13,5 (16,0)	13,5 (16,0)	-	27,0 (32,0)	13,5 (16,0)

Load arrangement

Single loads



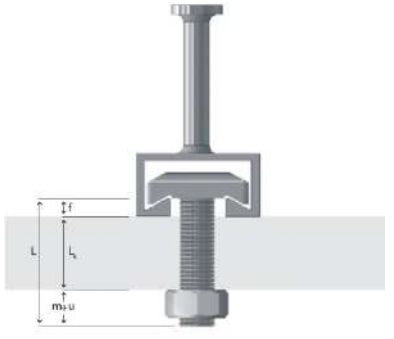
Load pairs



Cast in channel-Technical Details

Permissible loads on the anchor channels

Channel type	Associate dbolts[4]	perm. F [kN] F_{Rd} [kN]								
		Stress at right angles to the channel longitudinal axis							Stress at channel longitudinal axis	
		Central tension (z) and oblique tension $\alpha \leq 150°$					Shear load (y) $\leq 15°$		Longitudinal tension (x)	
		Single loads			Load pairs		Single loads	Load pairs	Single loads	Load pairs
Channel length [mm] ▶		100	150 - 250	>250	200 - 250	>250	100	≥150	≥200	≥100	≥200
GTA 28/15	GS M8-12	4.9	4.9	4.2	4.2	2.8	4.9	4.9	4.2	–	–
GTA 38/17	GS M12-16	9.8	9.8	6.3	6.3	4.2	11.2	11.2	6.3	–	–
GTA 40/22 GTA 40/25	GS M16	11.2	11.2	8.4	8.4	5.6	–	14.0	8.4	–	–
GTA 50/30 GTA 49/30	GS M16-20	16.8	16.8	14.0	9.8	7.0	–	16.8	9.8	–	–
GTA 52/34 GTA 54/33	GS M20	–	30.8 (35.0)	30.8 (35.0)	15.4 (17.5)	15.4 (17.5)	–	30.8 (35.0)	15.4 (17.5)	–	–
GTA 54/36	GS M24	–	37.8 (44.8)	37.8 (44.8)	18.9 (22.4)	18.9 (22.4)	–	37.8 (44.8)	18.9 (22.4)	–	–
GTA 74/48 GTA 72/49	GS M24-30	–	37.8 (44.8)	37.8 (44.8)	18.9 (22.4)	18.9 (22.4)	–	37.8 (44.8)	18.9 (22.4)	–	–
GXA 41/22	GS M12-16	7.0	7.0	7.0	4.9	4.9	7.0	7.0	4.9	7.0	4.9
GXA 29/20	GS M12	11.2	11.2	11.2	6.3 – 9.0		11.2	11.2	6.3 – 9.0	11.2	6.3 – 9.0
GXA 38/23	GS M12-16	–	16.8	16.8	9.4 – 12.0		–	16.8	9.4 – 12.0	16.8	9.4 – 12.0



Determination of necessary bolt length

L = Length of bolt
L_k = Thickness of connection part
f = Thickness of profile
m = Height of nut
u = Overlap of bolt

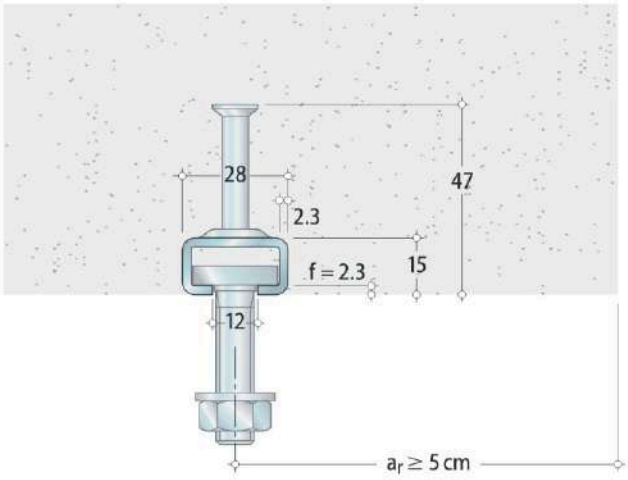
Necessary screw length in mm:
Nec. $L = L_k + f + (m + u)$

Bolt	m + u [mm]
M 6	8,8
M 8	11,3
M 10	13,9
M 12	17,3
M 16	21,8
M 20	27,0

Cast in channel-Technical Details

GTA Cast-in channel 28/15
Load capacity 3.0 + 3.5 kN*

GTA 28/15



Length [mm]	Anchors	Anchor distance [mm]
100	2	50
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	≤250
600 – 800	4	≤250
850 – 1050	5	≤250

Cut lengths

1050 – 6000	≤250

Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)

Length(mm) From(15-200mm)

Allowable loads,bending moments and tightening torque

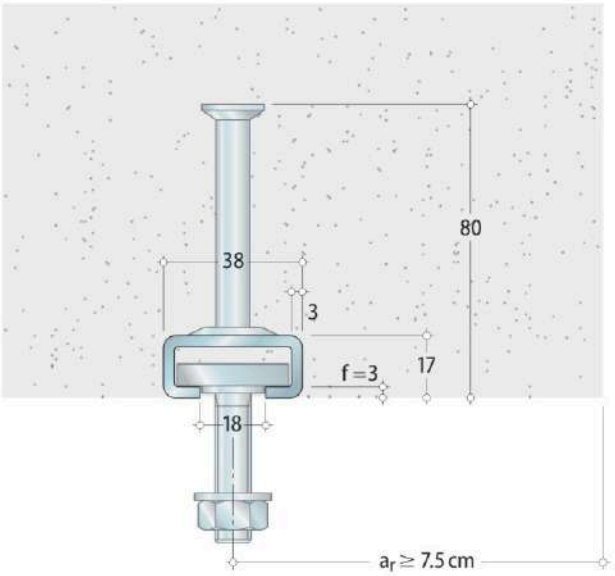
Thread	Allowable Loads				Allowable bending moments				Tightening torque	
	4.6 [kN]	8.8 [kN]	A4-50 [kN]	A4-70 [kN]	4.6 [Nm]	8.8 [Nm]	A4-50 [Nm]	A4-70 [Nm]	4.6 / A4 [Nm]	8.8 [Nm]
M 6	2,2	4,6	2,2	3,0	2,0	-	1,8	3,8	3,0	10,0
M 8	4,0	8,4	4,0	5,5	5,0	-	4,4	9,4	8,0	24,0
M 10	6,4	13,2	6,4	8,7	10,0	24,9	8,7	18,7	15,0	48,0
M 12	9,3	19,3	9,3	12,6	17,5	43,7	15,3	32,8	25,0	70,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

GTA Cast-in channel 38/17
Load capacity 4.5 + 7.0 kN*

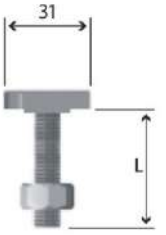
GTA 38/17



Length [mm]	Anchors	Anchor distance [mm]
100	2	50
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	≤250
600 – 800	4	≤250
850 – 1050	5	≤250

Cut lengths
1050 – 6000 ≤250

Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)



Length(mm) From(20-200mm)

Allowable loads,bending moments and tightening torque

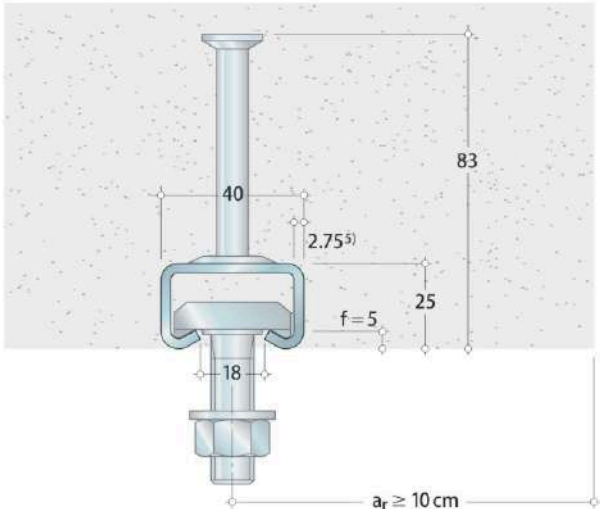
Thread	Allowable Loads				Allowable bending moments				Tightening torque	
	4.6 [kN]	8.8 [kN]	A4-50 [kN]	A4-70 [kN]	4.6 [Nm]	8.8 [Nm]	A4-50 [Nm]	A4-70 [Nm]	4.6 / A4 [Nm]	8.8 [Nm]
M 10	6,4	13,2	6,4	8,7	10,0	24,9	8,7	18,7	15,0	48,0
M 12	9,3	19,3	9,3	12,6	17,5	43,7	15,3	32,8	25,0	70,0
M 16	17,3	36,0	17,3	23,6	44,4	111,0	38,8	83,3	60,0	200,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

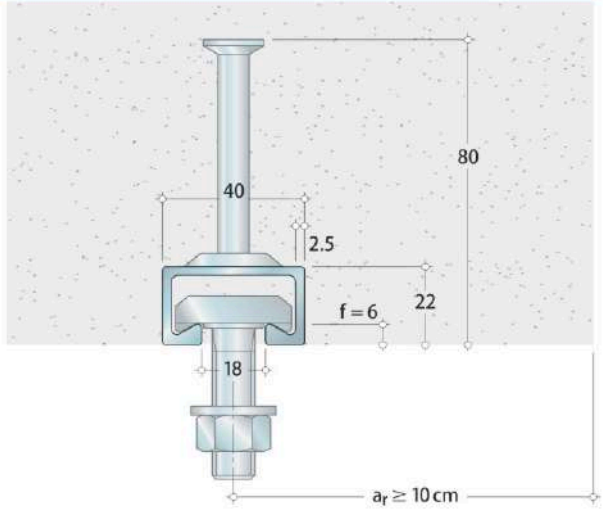
GTA Cast-in channel 40/25 + 40/22
Load capacity 6.0 + 8.0 kN*

GTA 40/25

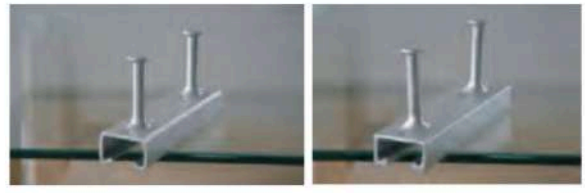


Length [mm]	Anchors	Anchor distance [mm]
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	≤250
600 – 800	4	≤250
850 – 1050	5	≤250
Cut lengths 1050 – 6000		≤250
6000 (-0/+50)	25	≤250

GTA 40/22



Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)



Length(mm) From(15-200mm)

Allowable loads,bending moments and tightening torque

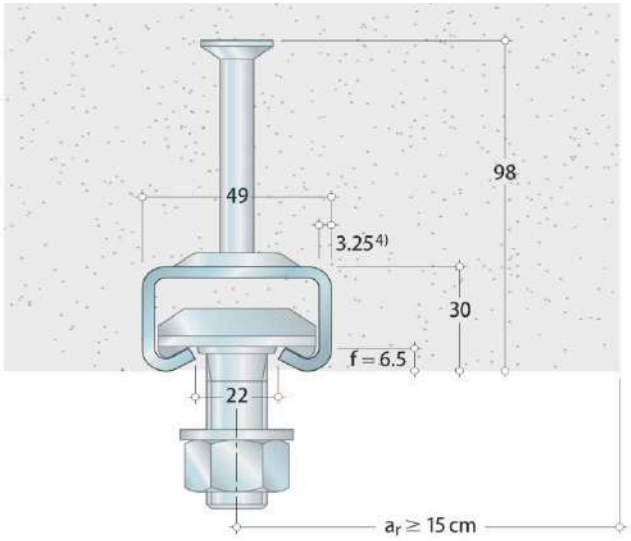
Thread	Allowable Loads				Allowable bending moments				Tightening torque	
	4.6 [kN]	8.8 [kN]	A4-50 [kN]	A4-70 [kN]	4.6 [Nm]	8.8 [Nm]	A4-50 [Nm]	A4-70 [Nm]	4.6 / A4 [Nm]	8.8 [Nm]
M 10	6,4	13,2	6,4	8,7	10,0	24,9	8,7	18,7	15,0	48,0
M 12	9,3	19,3	9,3	12,6	17,5	43,7	15,3	32,8	25,0	70,0
M 16	17,3	36,0	17,3	23,6	44,4	111,0	38,8	83,3	60,0	200,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

GTA Cast-in channel 49/30 + 50/30
Load capacity 10.0 + 12.0 kN*

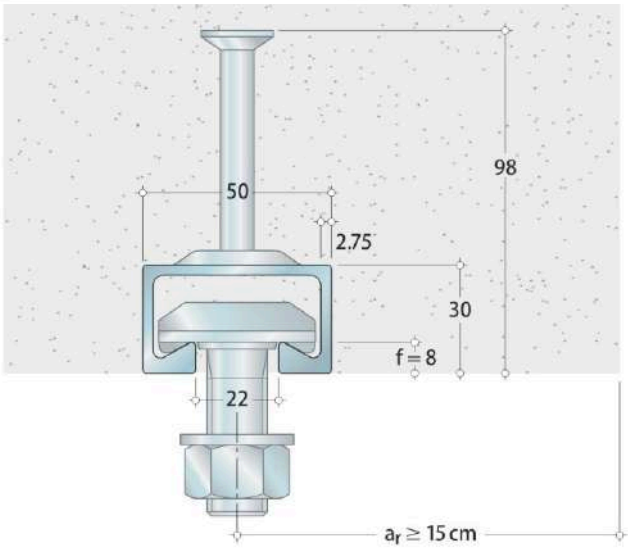
GTA 49/30



Length [mm]	Anchors	Anchor distance [mm]
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	≤250
600 – 800	4	≤250
850 – 1050	5	≤250

Cut lengths		
1050 – 6000		≤250
6000 (-0/+50)	25	≤250

GTA 50/30



Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)

Length(mm) From(15-200mm)

Allowable loads,bending moments and tightening torque

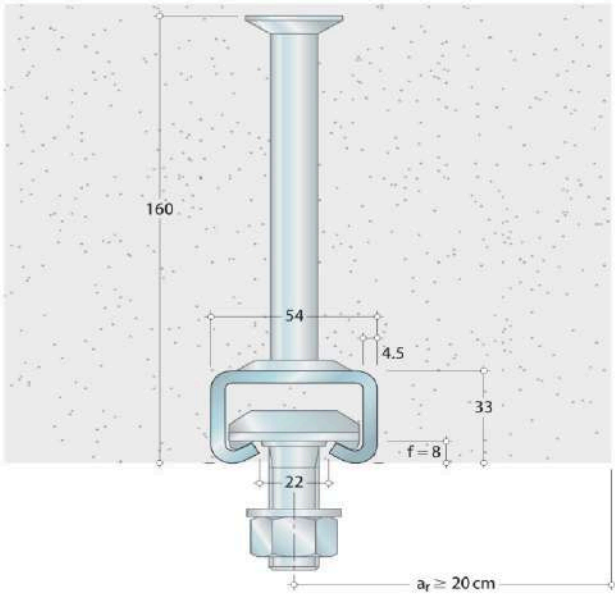
Thread	Allowable Loads				Allowable bending moments				Tightening torque	
	4.6 [kN]	8.8 [kN]	A4-50 [kN]	A4-70 [kN]	4.6 [Nm]	8.8 [Nm]	A4-50 [Nm]	A4-70 [Nm]	4.6 / A4 [Nm]	8.8 [Nm]
M 10	6,4	13,2	6,4	8,7	10,0	24,9	8,7	18,7	15,0	48,0
M 12	9,3	19,3	9,3	12,6	17,5	43,7	15,3	32,8	25,0	70,0
M 16	17,3	36,0	17,3	23,6	44,4	111,0	38,8	83,3	60,0	200,0
M 20	27,0	56,4	27,0	36,8	86,5	216,4	75,7	162,3	120,0	400,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

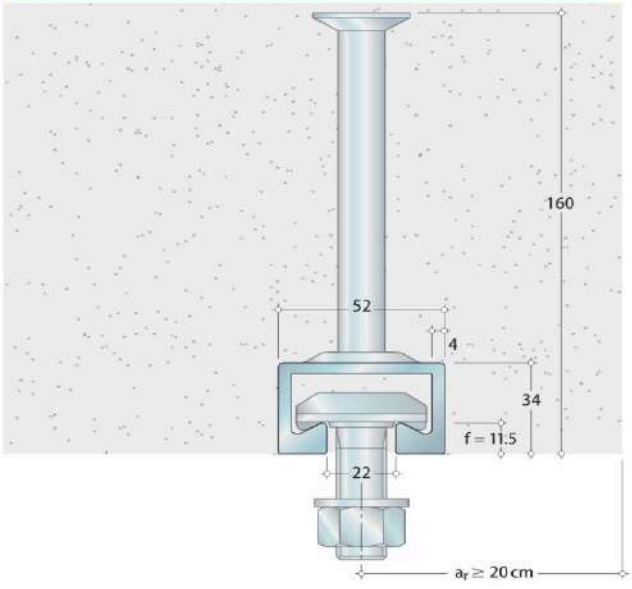
GTA Cast-in channel 52/34 + 54/33
Load capacity 22.0 kN*

GTA 54/33



Length [mm]	Anchors	Anchor distance [mm]
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	≤250
600 – 800	4	≤250
850 – 1050	5	≤250
Cut lengths		
1050 – 6000		≤250
6000 (-0/+50)	25	≤250

GTA 52/34



Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)

Length(mm) From(15-200mm)

Allowable loads,bending moments and tightening torque

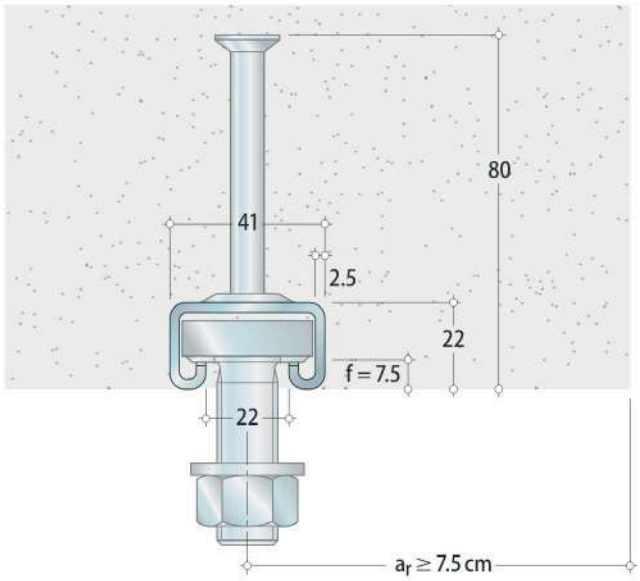
Thread	Allowable Loads				Allowable bending moments				Tightening torque	
	4.6 [kN]	8.8 [kN]	A4-50 [kN]	A4-70 [kN]	4.6 [Nm]	8.8 [Nm]	A4-50 [Nm]	A4-70 [Nm]	4.6 / A4 [Nm]	8.8 [Nm]
M 10	6,4	13,2	6,4	8,7	10,0	24,9	8,7	18,7	15,0	48,0
M 12	9,3	19,3	9,3	12,6	17,5	43,7	15,3	32,8	25,0	70,0
M 16	17,3	36,0	17,3	23,6	44,4	111,0	38,8	83,3	60,0	200,0
M 20	27,0	56,4	27,0	36,8	86,5	216,4	75,7	162,3	120,0	400,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

GXA Cast-in channel 41/22*
Load capacity 5.0 + 7.0 kN**

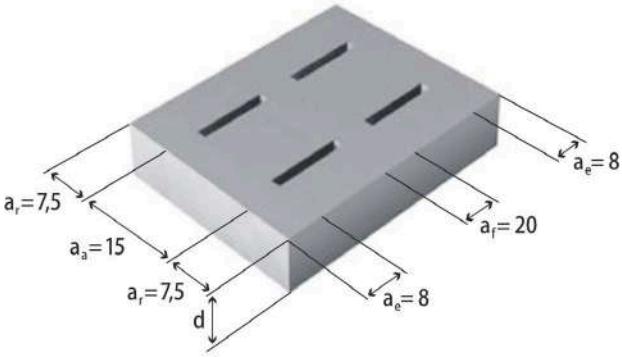
GXA 41/22



Length [mm]	Anchors	Anchor distance s [mm]
100	2	50
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	⩽250
600 – 800	4	⩽250
850 – 1050	5	⩽250
Cut lengths 1050 – 6000		⩽250
6000 (-0/+50)	25	⩽250

Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)

Minimum distances



Length(mm) From(15-200mm)

Allowable loads,bending moments and tightening torque

Thread	Allowable Loads		Allowable bending moments		Tightening torque [Nm]
	8.8 [kN]	A4-50 [kN]	8.8 [Nm]	A4-50 [Nm]	
M 12	19,4	9,3	43,7	15,3	50,0
M 16	36,1	17,3	111,0	38,8	90,0

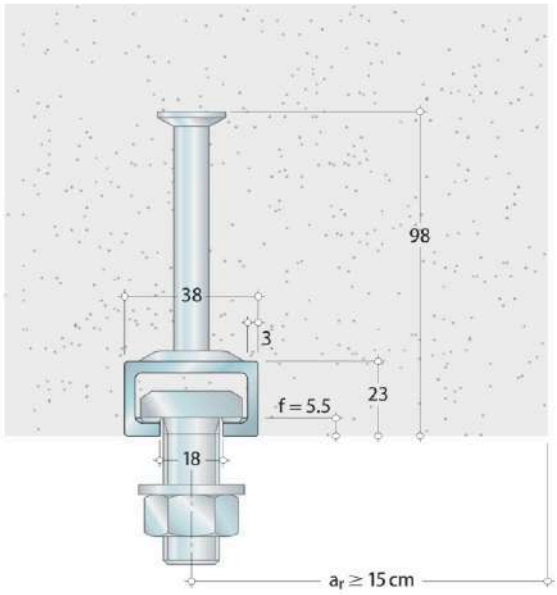
Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Cast in channel-Technical Details

Designed for the projects of underground pipeline colligate alure in city Utility tunnel

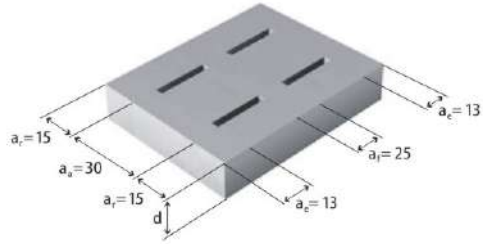
GTA Cast-inchannel 38/23*
Load capacity 12.0 + 16.8 kN**

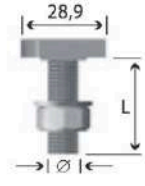
GTA 38/23



Length [mm]	Anchors	Anchor distance s [mm]
150	2	100
200	2	150
250	2	200
300	2	250
350 – 550	3	⩽250
600 – 800	4	⩽250
850 – 1050	5	⩽250
Cut lengths 1050 < L < 6000		⩽250
6000 (-0/+50)	25	⩽250

Material:
Hot dip galvanized (FV)
Stainless steel (grade 304 + 316)





Length(mm) From(35-150mm)

Allowable loads,bending moments and tightening torque

Thread	Allowable Loads		Allowable bending moments		Tightening torque [Nm]
	8.8 [kN]	A4-70 [kN]	8.8 [Nm]	A4-70 [Nm]	
M 12	19,4	12,6	43,7	32,8	80,0
M 16	36,1	23,6	111,0	83,3	120,0

Standard type: Electrogalvanized (GV), Strength class 4.6/8.8
Stainless steel (grade304 316), Strength class 50/70

Hot Production Show








APPLICATION EXAMPLES

USA WSECU

Lincoln 4S store

Denning House

Canada Private Villa

French Manor

Faena Aleph

China BUD office

Australia St James Church

APPLICATION EXAMPLES

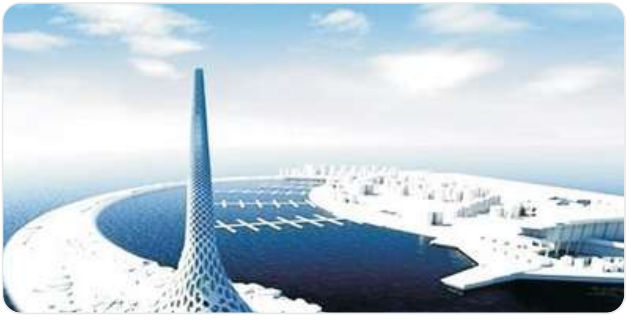
Spanish city medical center

The office of Thailand,PTT

Holland soild 11 building

Canadian Institute of Physics

The police station of mulberry forest, Australia



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