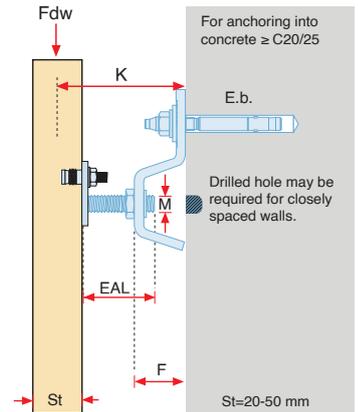


Adjustable Anchors - Technical Details

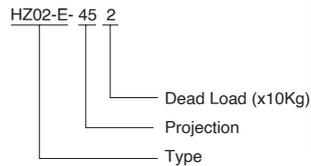
HZ02-E Z Anchor

- Load bearing & restraint .
- Projection sizes between 45 and 135 mm.
- Loads up to 800 N.
- Suitable for rear surface fixing.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Stone installation is made with undercut bolts attached at the rear surface of the stone panels.
- Special drilling required.



Product Code	Projection	Min. Projection	Max. Projection	Dead Load	Offset	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Adj. Arm Metric	Adj. Arm Thickness	Adj. Arm Length
	K (mm)	K - (mm)	K + (mm)	F _{dw} (mm)	F (mm)	F _{wp} (mm)	F _{ws} (mm)	E.b. (Nm)	Ø (mm)	M (mm)	T (mm)	L (mm)
HZ02-E-452	45	40	60	200	10	312	219	M8x80	5	M10	3,5	45
HZ02-E-552	55	50	70	200	20	312	219	M8x80	5	M10	3,5	50
HZ02-E-752	75	60	90	200	40	312	219	M8x80	5	M10	3,5	60
HZ02-E-952	95	80	110	200	60	312	219	M8x80	5	M10	3,5	70
HZ02-E-554	55	50	70	400	20	624	437	M8x80	5	M12	4	50
HZ02-E-754	75	60	90	400	40	624	437	M8x80	5	M12	4	60
HZ02-E-954	95	80	110	400	60	624	437	M8x80	5	M12	4	70
HZ02-E-1154	115	100	130	400	80	624	437	M8x80	5	M12	4	70
HZ02-E-756	75	60	90	600	20	936	655	M10x90	6	M14	5,5	60
HZ02-E-956	95	80	110	600	40	936	655	M10x90	6	M14	5,5	70
HZ02-E-1156	115	100	130	600	60	936	655	M10x90	6	M14	5,5	80
HZ02-E-1356	135	120	150	600	80	936	655	M10x90	6	M14	5,5	80

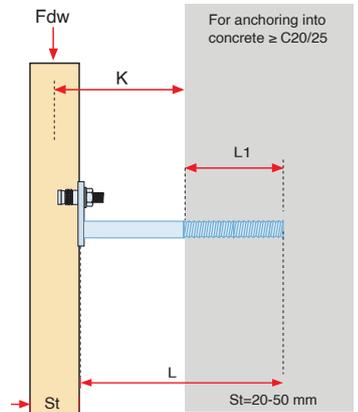
Product Code Description



• Material : Stainless Steel 1.4301 (A2) & 1.4401 (A4). • Table below is prepared according to DIN 18516 standard. • Loads stated are working resistance loads. • Other sizes are available for production upon request. • Structural calculations are available upon request.

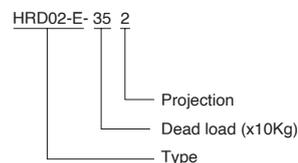
HRD02-E Mortar Anchor

- Load bearing & restraint.
- Projection sizes between 35 and 75 mm.
- Loads up to 400 N.
- Suitable for rear surface fixing.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Installation is made with undercut bolts attached at the rear surface of the stone panels.
- Special drilling required.



Product Code	Projection	Min. Projection	Max. Projection	Dead Load	Wind Pressure	Wind Suction	Anchor Length	Dowel Embed. Length	Pin Diameter	Bore Diameter	Flat Thickness
	K (mm)	K - (mm)	K + (mm)	F _{dw} (mm)	F _{wp} (mm)	F _{ws} (mm)	E.b. (Nm)	L1 (mm)	Ø (mm)	BØ (mm)	T (mm)
HRD02-E-352	35	20	50	200	312	219	135	90	4	14	3
HRD02-E-452	45	30	60	200	312	219	145	90	4	14	3
HRD02-E-552	55	40	70	200	312	219	155	90	4	16	3,5
HRD02-E-652	65	50	80	200	312	219	165	90	4	16	3,5
HRD02-E-354	35	20	50	400	624	437	135	90	5	18	4
HRD02-E-454	45	30	60	400	624	437	145	90	5	18	4
HRD02-E-554	55	40	70	400	624	437	155	90	5	18	4
HRD02-E-654	65	50	80	400	624	437	165	90	5	18	4
HRD02-E-754	75	60	90	400	624	437	175	90	5	18	4

Product Code Description

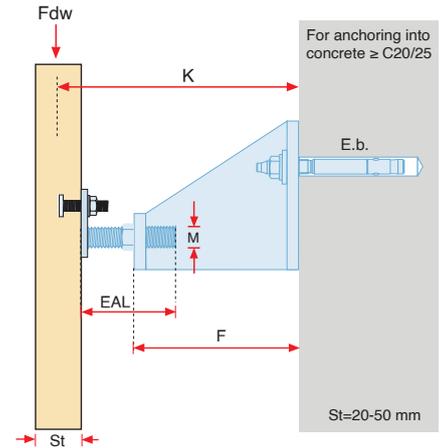


• Technical details are prepared according to DIN 18516 standard. • Loads stated are working characteristic loads. • Material: Stainless Steel 1.4301 (A2) & 1.4401 (A4). • Other sizes are available for production upon request.

Adjustable Anchors - Technical Details

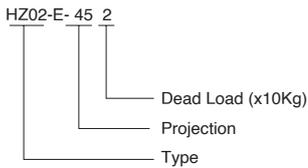
HZ08-E Z Anchor

- Load bearing & restraint.
- Projection sizes between 45 and 135 mm.
- Loads up to 800 N.
- Suitable for rear surface fixing.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Stone installation is made with undercut bolts attached at the rear surface of the stone panels.
- Special drilling required.



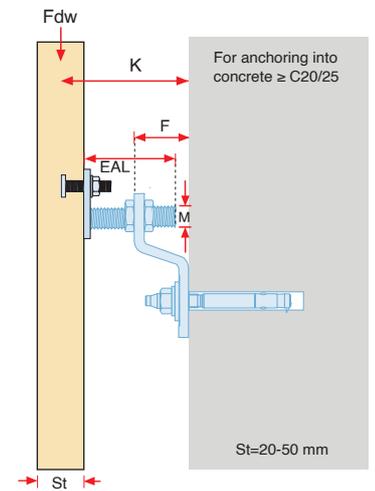
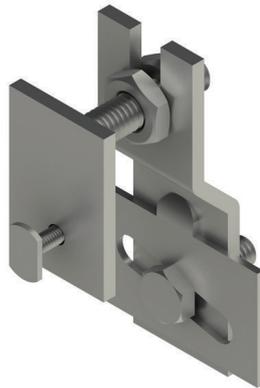
Product Code	Technical Details											
	Projection	Min. Projection	Max. Projection	Dead Load	Offset	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Adj. Arm Metric	Adj. Arm Thickness	Adj. Arm Length
	K (mm)	K - (mm)	K + (mm)	F _{dw} (mm)	F (mm)	F _{wp} (mm)	F _{ws} (mm)	E.b. (Nm)	Ø (mm)	M (mm)	T (mm)	L (mm)
HZ08-E-1552	155	150	170	200	10	312	219	M8x80	5	M10	3,5	45
HZ08-E-1752	175	170	190	200	20	312	219	M8x80	5	M10	3,5	50
HZ08-E-1952	195	180	210	200	40	312	219	M8x80	5	M10	3,5	60
HZ08-E-2052	205	190	220	200	60	312	219	M8x80	5	M10	3,5	70
HZ08-E-1554	155	150	170	400	20	624	437	M8x80	5	M12	4	50
HZ08-E-1754	175	160	190	400	40	624	437	M8x80	5	M12	4	60
HZ08-E-1954	195	180	210	400	60	624	437	M8x80	5	M12	4	70
HZ08-E-2054	205	190	220	400	80	624	437	M8x80	5	M12	4	70
HZ08-E-1556	155	140	170	600	20	936	655	M10x90	6	M14	5,5	60
HZ08-E-1756	175	160	190	600	40	936	655	M10x90	6	M14	5,5	70
HZ08-E-1956	195	180	210	600	60	936	655	M10x90	6	M14	5,5	80
HZ08-E-2056	205	190	220	600	80	936	655	M10x90	6	M14	5,5	80

Product code description



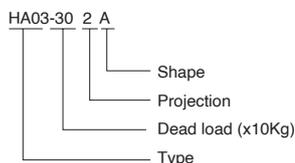
HZ20-E Z anchor

- Projection sizes between 45 and 135 mm.
- Loads up to 800 N.
- Suitable for rear surface fixing.
- Stone thicknesses above 20mm.
- Fastened on walls with expansion bolts.
- Stone installation is made with undercut bolts attached at the rear surface of the stone panels.
- Special drilling required.



Product Code	Technical Details											
	Projection	Min. Projection	Max. Projection	Dead Load	Offset	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Adj. Arm Metric	Adj. Arm Thickness	Adj. Arm Length
	K (mm)	K - (mm)	K + (mm)	F _{dw} (mm)	F (mm)	F _{wp} (mm)	F _{ws} (mm)	E.b. (Nm)	Ø (mm)	M (mm)	T (mm)	L (mm)
HZ20-E-452	45	40	60	200	10	312	219	M8x80	5	M10	3,5	45
HZ20-E-552	55	50	70	200	20	312	219	M8x80	5	M10	3,5	50
HZ20-E-752	75	60	90	200	40	312	219	M8x80	5	M10	3,5	60
HZ20-E-952	95	80	110	200	60	312	219	M8x80	5	M10	3,5	70
HZ20-E-755	75	60	90	500	20	780	546	M8x80	5	M12	4	60
HZ20-E-955	95	80	110	500	40	780	546	M8x80	5	M12	4	70
HZ20-E-1155	115	100	130	500	60	780	546	M8x80	5	M12	4	80
HZ20-E-1355	135	120	150	500	80	780	546	M8x80	5	M12	4	80

Product Code Description



• Material : Stainless Steel 1.4301 (A2) & 1.4401 (A4). • Table below is prepared according to DIN 18516 standard. • Loads stated are working resistance loads. • Other sizes are available for production upon request. • Structural calculations are available upon request.

HB Undercut Bolts Application Pictures

Stone installation made on to stainless steel channel system. T31 undercut bolt is used with specially designed anchors. T31 bolt is fastened on to the anchor using contra nuts.



Sub channel support system designed to bear heavy loads at projection sizes exceeding 40 cm. Stone panels are installed using T31 undercut bolts.

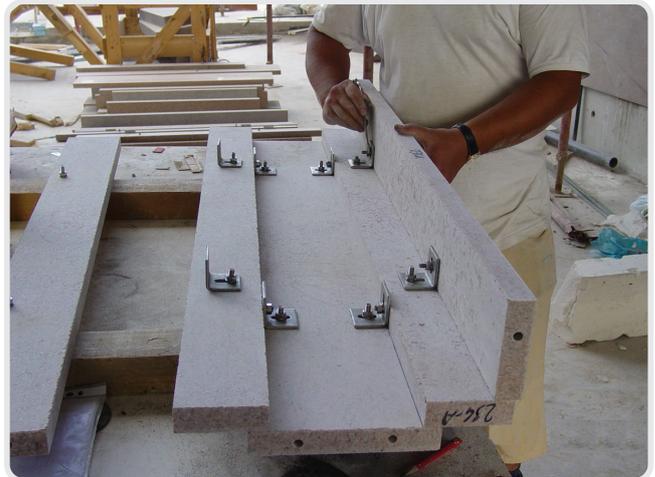
A flexible and rigid sub channel system suitable to take the variation in projection sizes and turn in corners. T31 and suitable anchors accommodate this system to enable secure installation.



Sub channel support system provides adjustable in lateral direction. This enables quick positioning of the anchors along the horizontal channels to meet the T31 bolts fixed on the back of the stone panels.

HB Undercut Bolts Application Pictures

HB09 HAZ Super bolts are used for the assembly of a stone column. HCA corner anchors are available with slot holes enabling adjustability and easy fixing.



HB09 HAZ Super bolts and HCA corner anchors used to fix a reveal panel on to a stone panel.

Irregular patterned reveal panels fixed on to a stone panel at different positions. Firm and secure connections are made using HB09 Haz Super bolts.

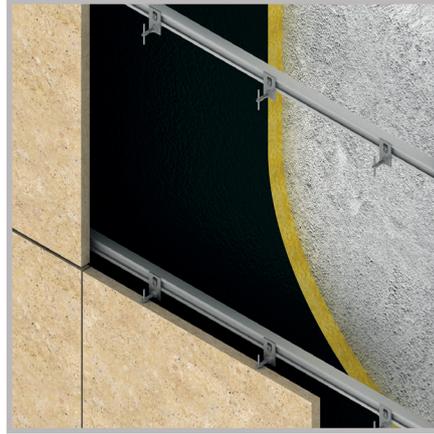
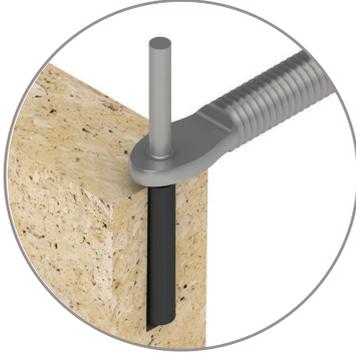


HB09 Haz Super bolts and specially designed fixing elements are used as restraints in fixing slanted coping stone panels.

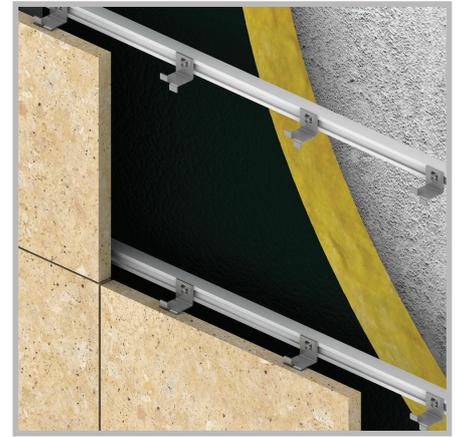
Pin & Kerf Systems - Introduction

The pin & kerf attachment system is the conventional method for attachments made to stone. A pin hole or a kerf groove is opened at the edge of stone panels. Plastic sleeves are used along with suitable resin to securely attach the pin or kerf in place. The use of this system is applicable for stone thickness of 3 cm and above, depending on the strength of the stone. A breaking load test at pin or kerf areas may be necessary to determine the correct thickness of stone panels that may differ for different natural stone types.

HFP Pin Attachment To Stone



Kerf Attachment To Stone



Advantages:

- More freedom in facade design and anchor positioning
- No need for expansive drilling equipment
- Fine adjustment is possible
- Fast & easy installation

Special processing needs to be made on the edges of the panels where attachments are to be made. This process must be made using suitable drilling machines and drill bits. High precision is required with very tight tolerances. Failure to conduct proper processing to stones will result in breakage and will jeopardize the security of the stone panel installation.



Drilling for Pin holes

Drilling is made with no core drill bits using wet system drilling machines. No tolerance drilled hole is essential for proper fixing.



Opening Grooves

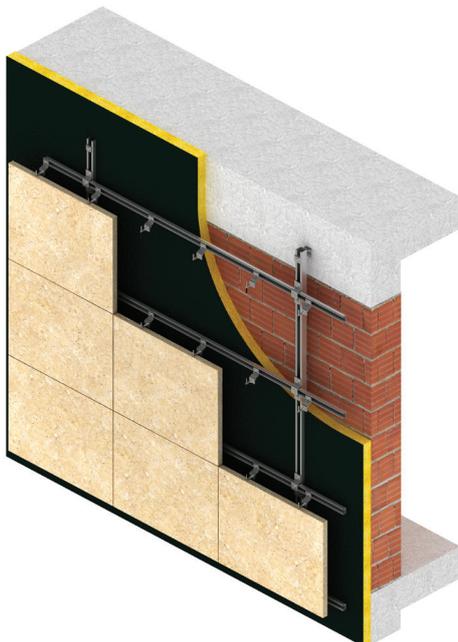
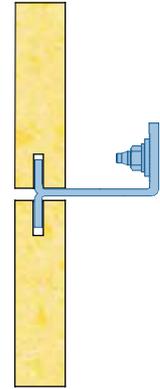
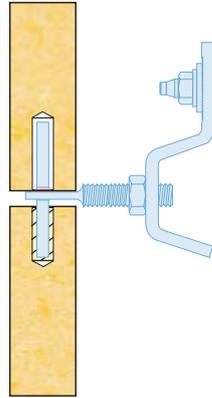
Drilling is made with a customized designed machine using electroplated special made bits to drill the hole required.



Pin & Kerf Systems - Introduction

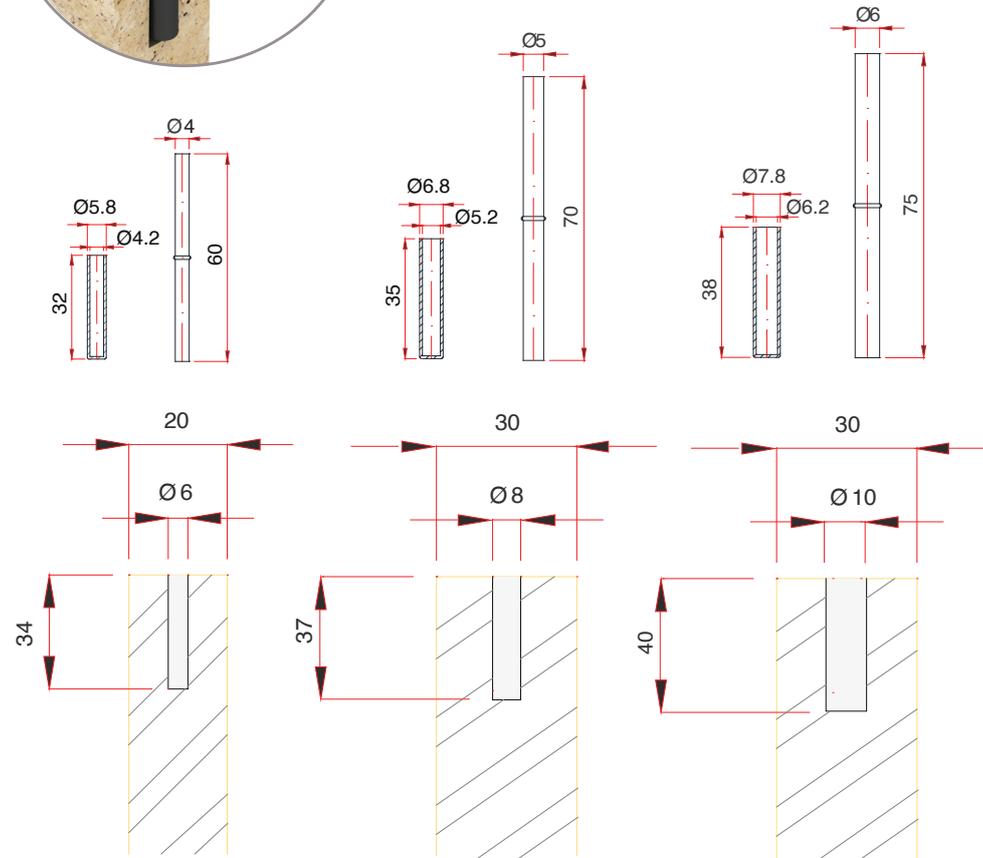
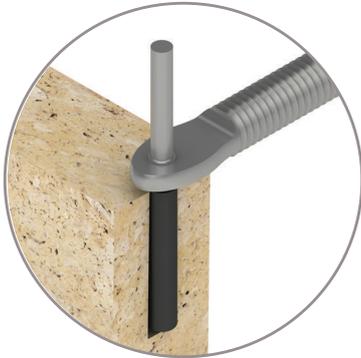
Pin & Kerf systems are the most conventional attachment systems made to stone. Pin holes for pins and grooves for kerf are opened on the edge of the stone at desired locations. Connections in to the openings are made using pins with adjustable arms or kerfs anchors.

Anchors are either fastened directly to load bearing walls using anchor bolts or they are fastened to sub channel systems with lock nuts or set screws. Careful analysis of the stone thicknesses and edge locations must be made in order to ensure the stability of the stone panels.

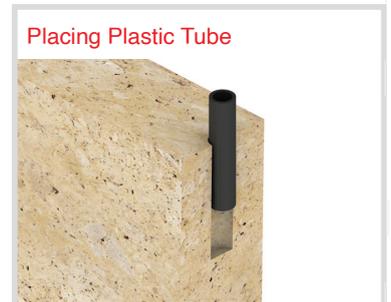
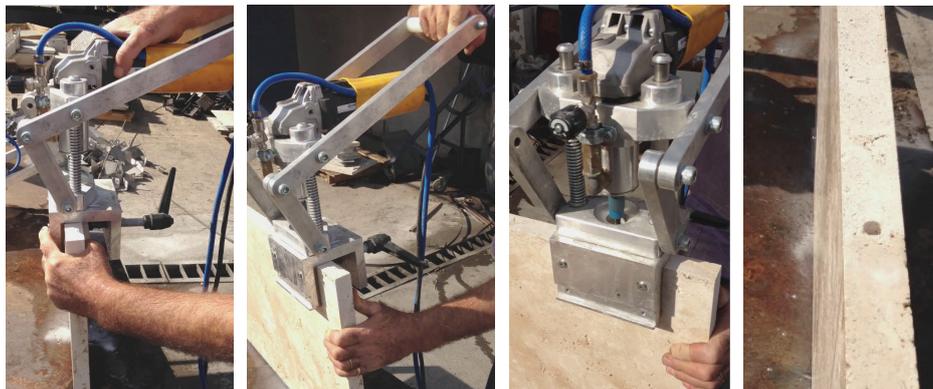


HFP Flanged Pin - Introduction

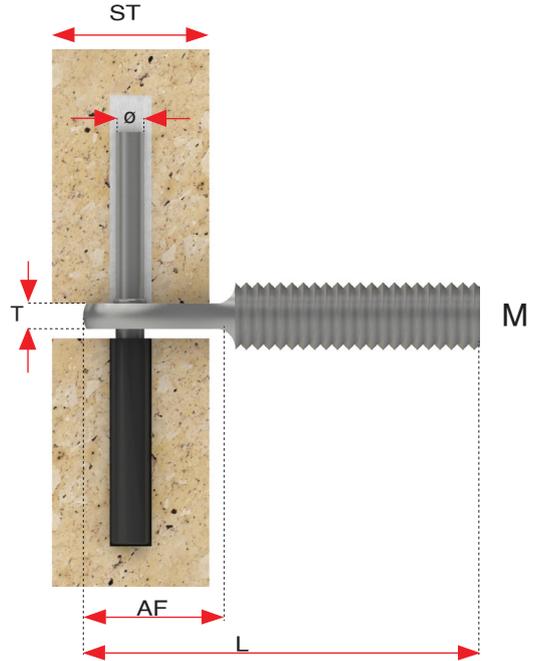
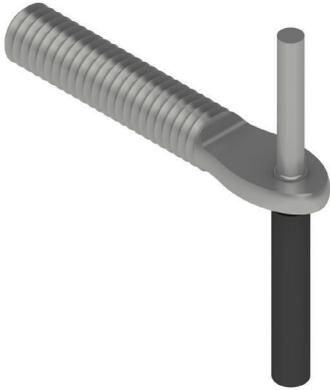
The HFP Flanged pin is an attachment element made to stone slabs which are used by placing the pin into a hole that is drilled on the edge of the stone. The pin is set in to a plastic sleeve which has a debouncing feature and absorbed lateral loads.



Drilling of the pin holes must be made with special machines that use no core drill bits with water in flow. The pin hole should be drilled according to the specification in order avoid damaging the stone.



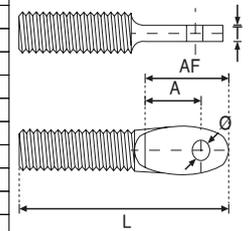
HFP Flanged Pin - Technical Details



HAA Adjustable Arm



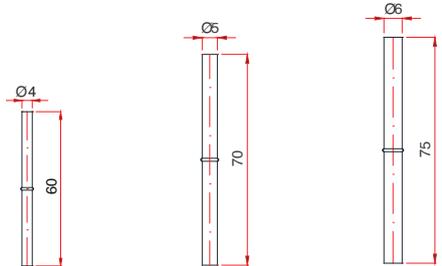
Product Code	Technical Details						
	Metric Size	Length	Flat Length Size	Flattening Thickness	Pin Diameter	Stone Thickness	Distance Between Edge & Hole
	M (mm)	L (mm)	AF (mm)	T (mm)	Ø (mm)	St (mm)	A (mm)
HAA-8/50	8	50	A+6	3	4	20	12-13
HAA-8/60	8	60	A+6	3	4	25	14-16
HAA-8/70	8	70	A+6	3	4	30	16-17
HAA-10/50	10	50	A+8	3.5	5	40	22-24
HAA-10/60	10	60	A+8	3.5	5	50	26-29
HAA-10/70	10	70	A+8	3.5	5		
HAA-10/80	10	80	A+8	3.5	5		
HAA-12/50	12	50	A+8	4.5	5		
HAA-12/60	12	60	A+8	4.5	5		
HAA-12/70	12	70	A+8	4.5	5		
HAA-12/80	12	80	A+8	4.5	5		
HAA-14/50	14	50	A+8	5.5	6		
HAA-14/60	14	60	A+8	5.5	6		
HAA-14/70	14	70	A+8	5.5	6		
HAA-14/80	14	80	A+8	5.5	6		
HAA-16/50	16	50	A+8	6	6		
HAA-16/60	16	60	A+8	6	6		
HAA-16/70	16	70	A+8	6	6		
HAA-16/80	16	80	A+8	6	6		



HFP Flanged Pin



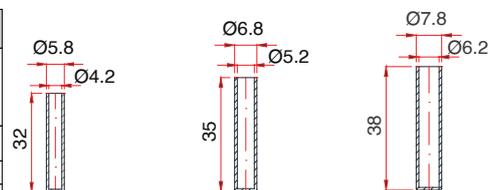
Product Code	Technical Details		
	Diameter	Length	Flange Diameter
	Ø (mm)	L (mm)	FØ (mm)
HFP-4/50	4	50	5
HFP-5/60	5	60	6
HFP-5/70	5	70	6
HFP-6/70	6	70	7



HPT Plastic Tube

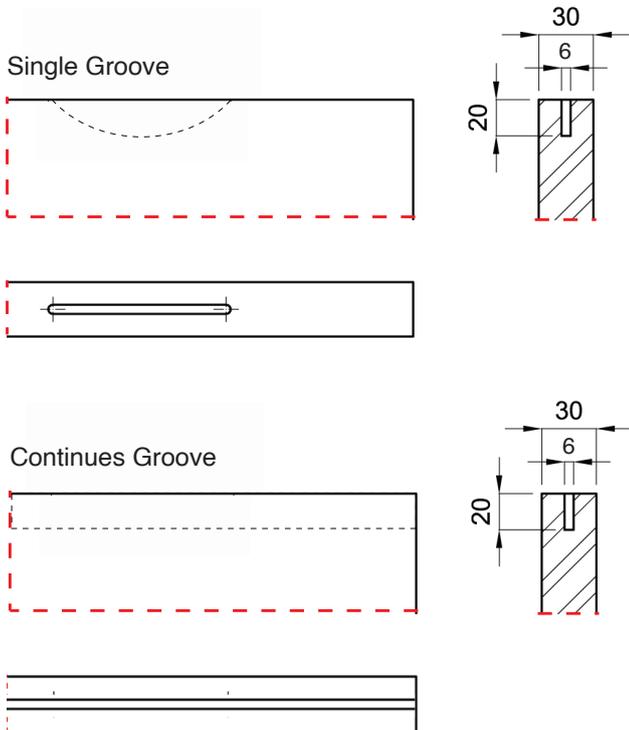


Product Code	Technical Details		
	Inner Diameter	Outer Diameter	Length
	In. Ø (mm)	Ou. Ø (mm)	L (mm)
HPT-4	4.2	5.8	32
HPT-5	5.2	6.8	35
HPT-6	6.2	7.8	38



HA03 Kerfed L Anchor - Introduction

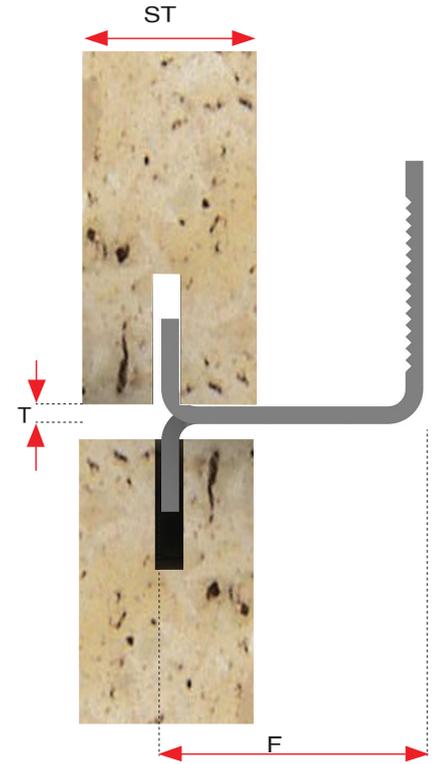
The HA03 Kerfed type anchor is an attachment method that is used to insert kerfed angles in to the grooves openings in the stone edges. A special diamond spiral is used to open a groove on the stone edge at specified dimensions. HA03 anchor with up and down bent kerfs are used to insert the kerf end of the anchor in to the stone edge.



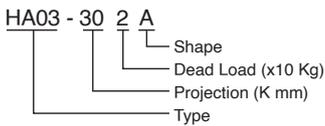
Grooves on the edge of the stone panels must be opened with suitable machines and diamond tools. Diamond discs using wet processing techniques are to be used in order achieve economic and cast results.



HA03 Kerfed L Anchor - Technical Details



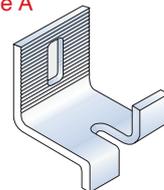
Product Code	Technical Details							
	Projection	Dead Load	Wind Pressure	Wind Suction	Bolt Size	Pin Diameter	Anchor Length	Anchor Thickness
	K (mm)	Fdw (mm)	Fwp (mm)	Fws (mm)	E.b. (mm)	Ø (mm)	L (mm)	T (Nm)
HA03-302	30	200	312	200	219	M8x80	12	3
HA03-352	35	200	312	200	219	M8x80	12	3
HA03-402	40	200	312	200	219	M8x80	12	3
HA03-452	45	200	312	200	219	M8x80	12	3
HA03-502	50	200	312	400	219	M8x80	12	4
HA03-552	55	200	312	400	219	M8x80	12	4
HA03-304	30	400	624	400	437	M8x80	15	3
HA03-354	35	400	624	400	437	M8x80	15	4
HA03-404	40	400	624	600	437	M8x80	15	4
HA03-454	45	400	624	600	437	M8x80	15	4
HA03-504	50	400	624	600	437	M8x80	15	4
HA03-554	55	400	624	600	437	M8x80	15	4



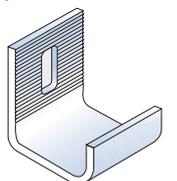
HA03 L Anchor

- 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.

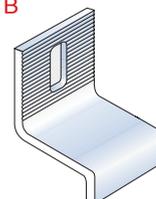
Shape A



Shape C

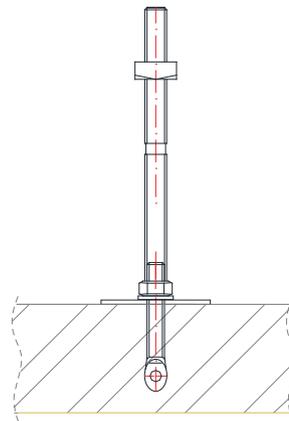
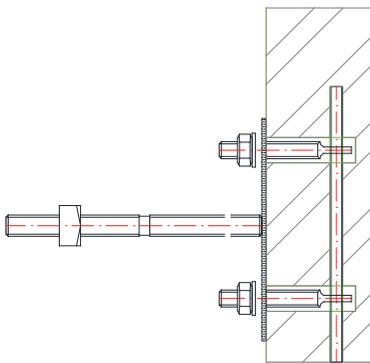


Shape B



Adjustable Arm Drop-in Pin System

The drop in pin system is another technique that is can be used for stone attachments when higher pullout loads are required. And Adjsutable arm and a pin are used to be placed in side of the specially drilled holes. The holes are drilled at the edge and the rear side of the stne panels where the pins and the adjustable arms intersect, forming a strong connection.



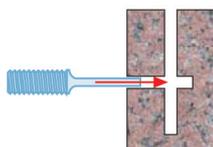
Special Drilling for Drop in pin connection

Special drilling is done to the slabs at the upper face and at the back. The drilling must be done precisely as shown on the illustration. The adjustable arm inserted from the back of the stone meets the pin which is inserted from the edge surface of the stone.

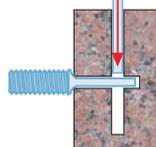
1. Drilling



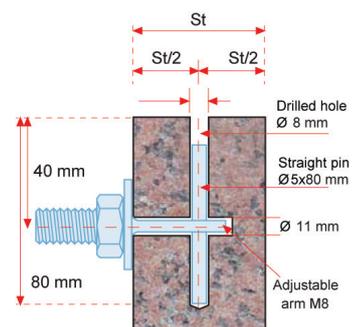
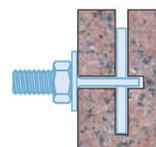
2. Placement of Adjustable arm



3. Placement of straight pin



4. Fixing of anchor



HCA Corner Anchors

- For fixing small slabs on to supported facade slabs.
- Used for reveal, column, soffit and sill slabs.
- Slabs can be assembled in the work shop for faster installation on site.
- Special drilling is required on the slabs, details of which are shown at the bottom of the page.



HCA02



HCA01



HCA01

