



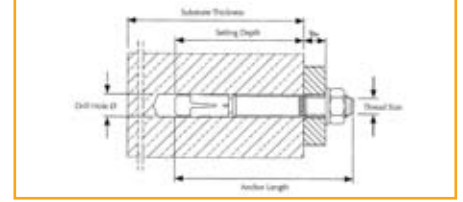
DIA-KRESS MECHANICAL ANCHORS
WEDGE ANCHOR
 (Non-Cracked Concrete)



DK-WA
 Dia-Kress Wedge Anchor



DRAWING OF ANCHOR BOLT



Description		Applications		Material Available		Features	
Dia-Kress Wedge Anchor is designed for medium to heavy duty fixing in hard base material such as concrete, solid brick and natural stone. With long threaded portion offer flexibility and ease of installation for varieties of fixing requirement.		Ideal for indoor and outdoor fixing application in non cracked concrete such as cladding systems, hand & safety railing, metal constructions, bracket fixings etc.		Carbon steel G5.8 (galvanized to 5 microns) Also available in Hot-Dipped galvanized. Stainless steel G304 (A2) & G316 (A4)		<ul style="list-style-type: none"> • Complete unit ready to be install • Thread diameter equal hole diameter • Long threaded portion offer flexibility in fixing • Anti-rotation lugs • Through fixing: no marking out for quick and easy fixing 	

SETTING DETAILS AND PERFORMANCE DATA TABLE

Code	Thread Size	Anchor Length (mm)	Drill Hole Ø x Depth (mm)	Setting Depth (mm)	Fixture Hole Ø (mm)	Fixture Thickness (mm)	Tight Torque (Nm)	Substrate Thickness (mm)	Anchor Spacing (mm)	Edge Distance (mm)	Working Load		Packaging Content (Pcs)	Carbon Steel Part No.	Stainless Steel Part No.
											Tension (kN)	Shear (kN)			
ALJ 0001-1	M8	65	8 x 50	40	10	10	15	80	90	45	3.2	4.9	100	DK-WA08065	DK-WA08065S
ALJ 0001-2		80	8 x 65	55		15		100	140	70	5.1	4.9	50	DK-WA08080	DK-WA08080S
ALJ 0001-3		115	8 x 65	55		50		100	140	70	5.1	4.9	50	DK-WA08115	DK-WA08115S
ALJ 0001-4	M10	75	10 x 60	50	12	10	30	90	120	60	4.2	7.0	50	DK-WA10075	DK-WA10075S
ALJ 0001-5		95	10 x 70	60		20		100	150	75	6.3	7.0	50	DK-WA10095	DK-WA10095S
ALJ 0001-6		120	10 x 70	60		45		100	150	75	6.3	7.0	25	DK-WA10120	DK-WA10120S
ALJ 0001-7	M12	80	12 x 65	55	14	10	50	100	140	70	5.1	11.5	25	DK-WA12080	DK-WA12080S
ALJ 0001-8		100	12 x 85	75		10		120	200	100	9.5	11.5	25	DK-WA12100	DK-WA12100S
ALJ 0001-9		130	12 x 90	80		35		130	210	105	10.6	11.5	25	DK-WA12130	DK-WA12130S
ALJ 0001-10	M16	115	16 x 95	85	18	10	100	150	225	115	10.8	19.0	10	DK-WA16115	DK-WA16115S
ALJ 0001-11		145	16 x 110	100		25		170	270	135	14.5	19.0	10	DK-WA16145	DK-WA16145S
ALJ 0001-12		175	16 x 110	100		55		170	270	135	14.5	19.0	10	DK-WA16175	DK-WA16175S
ALJ 0001-13	M20	130	20 x 110	100	22	10	200	170	270	135	14.5	28.9	5	DK-WA20130	DK-WA20130S
ALJ 0001-14		170	20 x 130	120		25		200	330	165	18.3	28.9	5	DK-WA20170	DK-WA20170S

Recommended Working Load for non-cracked concrete: $f_{cu} \geq 30\text{Mpa}$ with safety factor of 3.

10 Fasteners

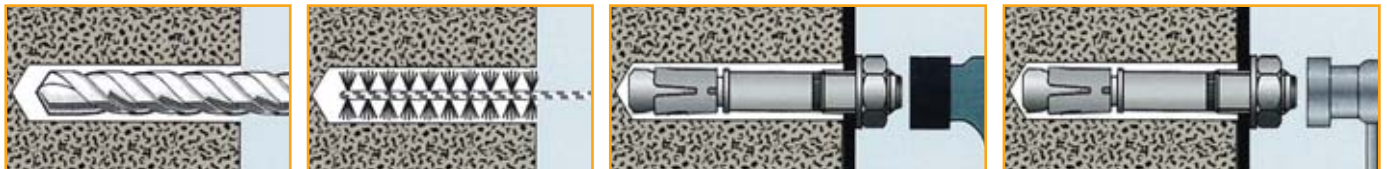
Tie Wire Anchor



Anchor Size (mm)	: 6
Drill Hole Ø x Depth (mm)	: 6 x 45
Eye Hole Ø (mm)	: 6.3
Working Load (kN)	: 0.8
Part No.	: DK-TW06060

Description
 Tie wire anchor is easily set and expanded using a claw hammer. It is mainly used for installation of suspended ceiling and hanging of lightweight objects such as overhead signboard.

Installation



Drill to specified diameter and depth. Clean hole thoroughly with brush & blow clean. Using a hammer, tap the anchor through the fixture into the hole until the washer and nut is firmly seated against the fixture. Tighten the anchor to the specified torque.

DIA-KRESS MECHANICAL ANCHORS SLEEVE ANCHOR



DK-SA
Dia-Kress Sleeve Anchor

Description

Dia-Kress Sleeve Anchor is a fully assembled and ready to use anchor designed for through fixings in hard base material such as concrete, solid brick and natural stone.

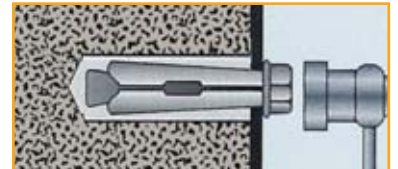
Applications

Ideal for Mechanical and Electrical fixtures such as piping, air duct, cable tray, trucking etc. Hand rails, wooden form structures, temporary safety netting are some common usage for sleeve anchor.

Material Available

Carbon steel (galvanized to 5 microns)
Stainless steel G304 (A2)

Installation



Drill to specified diameter and depth.

Clean hole thoroughly with brush & blow clean.

Using a hammer, tap the anchor through the fixture into the hole until the bolt head is firmly seated against the fixture.

Tighten the anchor to the specified torque.

SETTING DETAILS AND PERFORMANCE DATA TABLE

Code	Sleeve Diameter (mm)	Anchor Length (mm)	Drill Hole Ø x Depth (mm)	Setting Depth (mm)	Fixture Hole Ø (mm)	Fixture Thickness (mm)	Tight Torque (Nm)	Substrate Thickness (mm)	Anchor Spacing (mm)	Edge Distance (mm)	Working Load		Packaging Content (Pcs)	Carbon Steel Part No.	Stainless Steel Part No.			
											Tension (kN)	Shear (kN)						
ALJ 0003-1	6.5	25	6.5 x 25	20	7	5	6	70	60	30	1.1	0.8	500	DK-SA65025	DK-SA65025S			
ALJ 0003-2		55		30		25		70					90	45	1.5	200	DK-SA65055	DK-SA65055S
ALJ 0003-3	8	40	8 x 35	30	9	10	15	80	90	45	2.1	2.5	200	DK-SA08040	DK-SA08040S			
ALJ 0003-4		65		40		25		90					120	60	2.7	200	DK-SA08065	DK-SA08065S
ALJ 0003-5	10	40	10 x 45	35	11	5	25	90	105	55	3.0	3.0	100	DK-SA10040	DK-SA10040S			
ALJ 0003-6		50		40		10		100					120	60	3.7	100	DK-SA10050	DK-SA10050S
ALJ 0003-7		75		45		30		110					135	70	4.0	50	DK-SA10075	DK-SA10075S
ALJ 0003-8		100		45		55		110					135	70	4.0	50	DK-SA10100	DK-SA10100S
ALJ 0003-9	12	60	12 x 60	50	14	10	40	120	150	75	5.1	5.0	50	DK-SA12060	DK-SA12060S			
ALJ 0003-10		75		55		20		130					165	85	5.4	25	DK-SA12075	DK-SA12075S
ALJ 0003-11		100		55		45		130					165	85	5.4	25	DK-SA12100	DK-SA12100S
ALJ 0003-12	16	75	16 x 65	55	18	20	70	130	165	85	6.0	7.5	20	DK-SA16075	DK-SA16075S			
ALJ 0003-13		105		65		40		150					195	100	6.5	10	DK-SA16105	DK-SA16105S
ALJ 0003-14	20	75	20 x 75	65	22	10	100	170	200	100	8.2	12.6	10	DK-SA20075	DK-SA20075S			
ALJ 0003-15		105		65		40		170					200	100	8.2	10	DK-SA20105	DK-SA20105S

Recommended Working Load for non-cracked concrete: $f_{cu} \geq 30\text{Mpa}$ with safety factor of 3.

DROP-IN ANCHOR



DK-DA
Dia-Kress Drop-in Anchor

Description

Dia-Kress Drop-in Anchor is an internally threaded anchor designed for medium fixing in hard base material such as concrete, solid brick and natural stone.

Applications

Ideal for suspended Mechanical and Electrical fixtures such as piping, air duct, cable tray, threaded rod, trucking etc. Temporary work like wooden form structures, steel truss for platform, safety rings and netting.

Material Available

Carbon steel (galvanized to 5 microns)
Stainless steel G304 (A2)

DIA-KRESS MECHANICAL ANCHORS DROP-IN ANCHOR

Installation



Drill to recommended depth. Clean hole thoroughly with brush & blow clean. Insert anchor with hammer. Expand anchor using setting tool. Set anchor with bolt.

SETTING DETAILS AND PERFORMANCE DATA TABLE

Code	Thread Size	Anchor Length (mm)	Internal Threaded Lt (mm)	Drill Hole Ø x Depth (mm)	Fixture Hole Ø (mm)	Tight Torque (Nm)	Substrate Thickness (mm)	Anchor Spacing (mm)	Edge Distance (mm)	Working Load		Packaging Content (Pcs)	Carbon Steel Part No.	Stainless Steel Part No.
										Tension (kN)	Shear (kN)			
ALJ 0004-1	M6	25	10	8 x 30	8	5	60	75	40	2.3	1.5	100	DK-DA-M6	DK-DA-M6S
ALJ 0004-2	M8	30	12	10 x 35	10	10	70	90	45	3.5	2.8	100	DK-DA-M8	DK-DA-M8S
ALJ 0004-3	M10	40	15	12 x 45	12	20	80	120	60	5.4	4.5	50	DK-DA-M10	DK-DA-M10S
ALJ 0004-4	M12	50	18	16 x 55	14	40	100	150	75	7.5	6.5	50	DK-DA-M12	DK-DA-M12S
ALJ 0004-5	M16	65	22	20 x 70	18	95	130	195	100	11.1	12.1	25	DK-DA-M16	DK-DA-M16S
ALJ 0004-6	M20	80	30	24 x 85	22	175	160	240	120	15.1	18.8	25	DK-DA-M20	DK-DA-M20S
ALJ 0004-7	1/4"	25	10	8 x 30	8	5	60	75	40	2.3	1.5	100	DK-DA-1/4	DK-DA-1/4S
ALJ 0004-8	5/16"	30	12	10 x 35	10	10	70	90	45	3.5	2.8	100	DK-DA-5/16	DK-DA-5/16S
ALJ 0004-9	3/8" x 30	30	12	12 x 35	12	15	70	90	45	3.5	4.5	50	DK-DA-3/8F	DK-DA-3/8FS
ALJ 0004-10	3/8"	40	15	12 x 45	12	20	80	120	60	5.4	4.5	50	DK-DA-3/8	DK-DA-3/8S
ALJ 0004-11	1/2"	50	18	16 x 55	14	40	100	150	75	7.5	6.5	50	DK-DA-1/2	DK-DA-1/2S
ALJ 0004-12	5/8"	65	22	20 x 70	18	95	130	195	100	11.1	12.1	25	DK-DA-5/8	DK-DA-5/8S
ALJ 0004-13	3/4"	80	30	24 x 85	22	175	160	240	120	15.1	18.8	25	DK-DA-3/4	DK-DA-3/4S

Recommended Working Load for non-cracked concrete: $f_{cu} \geq 30\text{Mpa}$ with safety factor of 3.

NYLON ANCHOR



DK-NA
Dia-Kress Nylon Anchor

Description

Dia-Kress Nylon Anchor is made of Polyamide material that has higher resistant to weathering, ageing and rotting. It is a fully assembled light weight anchor designed for through fixings in hard base material such as concrete, solid brick and natural stone.

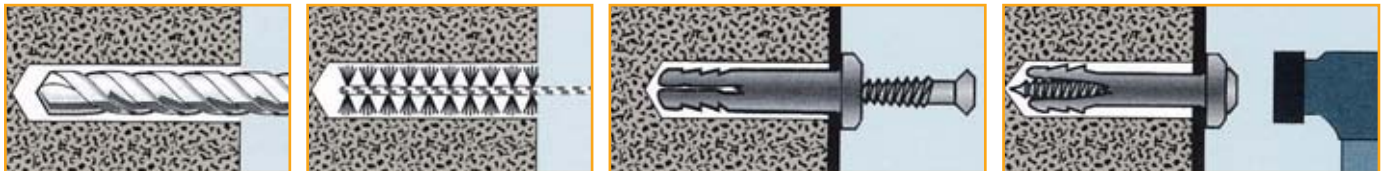
Applications

Timber battens, Electrical fittings, drywall track and bracket, signboard, trucking etc.

Material Available

Polyamide Body with:-
Carbon steel screw (galvanized to 5 microns)
Or Stainless steel G304 (A2)

Installation



Drill to specified diameter and depth. Clean hole thoroughly with brush & blow clean. Push anchor into the base material with fixture. Hammer anchor into position.

SETTING DETAILS AND PERFORMANCE DATA TABLE

Code	Thread Size	Anchor Length (mm)	Drill Hole Ø x Depth (mm)	Setting Depth (mm)	Fixture Hole Ø (mm)	Fixture Thickness (mm)	Working Load		Packaging Content (Pcs)	Carbon Steel Part No.	Stainless Steel Part No.
							Tension (kN)	Shear (kN)			
ALJ 0005-1	5	30	5 x 30	20	6	10	0.11	0.2	100	DK-NA-530	DK-NA-530S
ALJ 0005-2	6	40	6 x 40	30	7	10	0.22	0.36	100	DK-NA-640	DK-NA-640S
ALJ 0005-3		60	6 x 40	30		30	0.22	0.36	100	DK-NA-660	DK-NA-660S
ALJ 0005-4		80	6 x 40	30		50	0.22	0.36	50	DK-NA-680	DK-NA-680S
ALJ 0005-5	8	60	8 x 50	40	9	20	0.42	0.4	100	DK-NA-860	DK-NA-860S
ALJ 0005-6		80	8 x 50	40		40	0.42	0.4	50	DK-NA-880	DK-NA-880S
ALJ 0005-7		100	8 x 50	40		60	0.42	0.4	50	DK-NA-8100	DK-NA-8100S

Recommended Working Load for non-cracked concrete: $f_{cu} \geq 30\text{Mpa}$.

Working Load = Safety factor of 5 is applied to the average ultimate load.

DIA-KRESS EPOXY ACRYLATE DK-EASF



DK-EASF
310ml Epoxy Acrylate Styrene Free



Installation of threaded stud for railing application.

Description

DK EASF is a fast curing Epoxy Acrylate Styrene Free Chemical Injection System. The resin can be easily injected through the mixer nozzle into the drilled hole using a silicon dispenser. The two parts chemical are evenly mixed through the nozzle providing you with a reliable and hassle free chemical anchoring system.

Applications

Used for fixing of threaded studs in concrete, stone, solid & hollow brick for fastening of cladding and granite on interior/ external walls, safety railing, machinery etc.

For Fixing of missing reinforcement bars, construction of bridge parapets, reinforcement of columns, connection of walls etc.

Benefits

- Ideal for wide range of base material
- Easy injection using a **silicon dispenser**
- Safe, styrene free, non-flammable and odorless
- Suitable for both dry and damp conditions
- Suitable for close edge and close anchor spacing applications.
- Fast loading time increases productivity

BASIC LOADING DATA FOR SINGLE ANCHOR (Non-crack Concrete)

Recommended Load for Threaded stud G5.8, $f_{ck,cube} = 25N/mm^2$

Anchor Size	Drill Hole Ø (mm)	Effective Depth (mm)	Base Material Thickness	Tightening Torque (Nm)	Edge Distance (mm)	Anchor Spacing (mm)	Recommended Load (KN)	
							Tension	Shear
M8	10	80	110	10	80	160	8.1	5.4
M10	12	90	120	20	90	180	11.5	8.6
M12	14	110	140	40	110	220	18.3	12.5
M16	18	125	160	80	125	250	23.8	23.3
M20	24	170	220	150	170	340	31.7	36.4
M24	28	210	270	200	210	420	49.6	52.4
M30	35	280	340	400	280	560	77.4	83.4

Shear loading based on steel grade 5.8
For safety factor refer to technical data

Curing Time

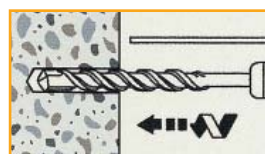
Base Material Temperature °C	Gel Time (minutes)	Loading Time (minutes)	Full Cure Time (hours)
0-5	10-20	180	24
10-20	5-10	70	24
25-30	3-5	60	24

Shelf Life

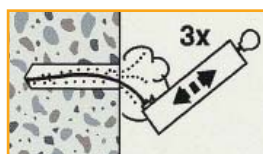
Cartridges should be stored in their original packaging in cool conditions (5°C - 25°C) out of direct sunlight.

When stored this way the shelf life will be 12 months from date of manufacture.

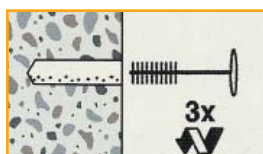
Installation Procedure



1. Drill hole.



2. Clean the hole as shown using stiff wire or nylon brush and compressed air or dust blower.



3. Unscrew the cap.



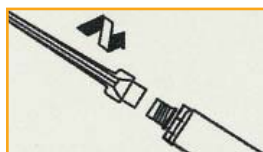
4. Cut the film.



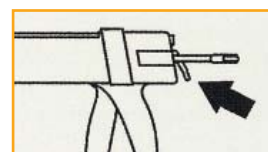
5. Screw on mixer.



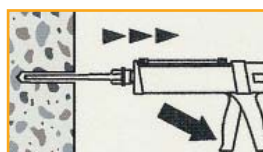
6. Put cartridge into dispenser.



7. Dispense initial part to waste until an even colour is achieved.



8. Release dispenser.



9. Inject adhesive.



10. Insert anchor.



11. Wait for curing time.

**DIA-KRESS EPOXY ACRYLATE
DK-EASF**

Accessories



Silicon Dispenser



Wire Brush



Nylon Sleeve



Mixing Nozzle



Dust Blower

DK-EASF WITH DK-TS THREADED STUD



DK-EASF
with DK-TS Threaded Stud



Installation of threaded studs for Cantilever.

Setting Details and Mechanical Properties

Code	ALJ 0012-1	ALJ 0012-2	ALJ 0012-3	ALJ 0012-4	ALJ 0012-5	ALJ 0012-6	ALJ 0012-7
Setting Details for DK-EASF with Threaded Studs							
Anchor Size	M8	M10	M12	M16	M20	M24	M30
Anchor Length (mm), l	110	130	160	190	260	300	380
Drill Hole Diameter (mm), d _o	10	12	14	18	24	28	35
Basic Depth (mm), h _{ef}	80	90	110	125	170	210	280
Minimum Base Material Thickness, (mm), h _{min}	110	120	140	160	220	270	340
Fixture Hole (mm)	9-11	11-13	14-15	18-19	22-26	26-29	33-36
Tightening Torque (Nm)	10	20	40	80	150	200	400
Minimum Anchor Spacing (mm) S _{min} = 0.5 h _{ef}	40	45	55	65	90	110	140
Characteristic Anchor Spacing (mm) S _{cr} = 2 h _{ef}	160	180	220	250	340	420	560
Minimum Edge Distance (mm) C _{min} = S _{min}	40	45	55	65	90	110	140
Characteristic Edge Distance (mm) C _{cr} = 0.5xS _{cr}	80	90	110	125	170	210	280
Threaded Stud Mechanical Properties							
Code	ALJ 0012-1	ALJ 0012-2	ALJ 0012-3	ALJ 0012-4	ALJ 0012-5	ALJ 0012-6	ALJ 0012-7
Anchor Size	M8	M10	M12	M16	M20	M24	M30
Anchor Length (mm), l	110	130	160	190	260	300	380
Stress Cross-Section (mm ²), A _S	36.6	58	84.3	157	245	353	561
Tensile Strength (N/mm ²) Steel Grade 5.8, (f _{tk})				520			
Tensile Strength (N/mm ²) Steel Grade 8.8, (f _{tk})				800			
Tensile Strength (N/mm ²) S/S Grade A4-70, (f _{tk})				700			
Yield Strength (N/mm ²) Steel Grade 5.8, (f _{yk})				420			
Yield Strength (N/mm ²) Steel Grade 8.8, (f _{yk})				640			
Yield Strength (N/mm ²) S/S Grade A4-70, (f _{yk})				450			

DIA-KRESS EPOXY ACRYLATE DK-EASF WITH DK-TS THREADED STUD

fBN : Influence of concrete strength (Tensile)

Concrete Strength	Cylinder Compressive Strength $f_{ck, cyl}$ (N/mm ²)	Cube Compressive Strength $f_{ck, cube}$ (N/mm ²)	f_{BN}
C20/25	20	25	1.0
C25/30	25	30	1.02
C30/37	30	37	1.04
C40/50	40	50	1.07
C50/60	50	60	1.09

Technical Data (Tensile & Shear Resistance of Single Anchor)

Setting Details for DK-EASF with Threaded Studs							
Anchor Size	M8	M10	M12	M16	M20	M24	M30
Tensile ($N_{Rk,p}$) [KN]	20.5	29.0	46.0	60.0	80.0	125.0	195.0
Shear ($V_{Rk,s}$) [KN] G5.8 ($0.5 \cdot A_S \cdot f_{tk}$)	9.5	15.1	21.9	40.8	63.7	91.8	145.9
h_{ef} (mm)	80	90	110	125	170	210	280
Design Resistance F_{Rd} [KN] : Concrete = C20/25							
Anchor Size	M8	M10	M12	M16	M20	M24	M30
Tensile ($N_{Rd,p}$) [KN]	11.4	16.1	25.6	33.3	44.4	69.4	108.3
Shear ($V_{Rd,s}$) [KN] G5.8 ($V_{Rk,s} / \gamma_{MS}$)	7.6	12.1	17.5	32.6	51.0	73.4	116.7
h_{ef} (mm)	80	90	110	125	170	210	280
Recommended Load F_{Rec} [kN] : Concrete = C20/25							
Anchor Size	M8	M10	M12	M16	M20	M24	M30
Tensile (N_{Rec}) [KN] ($N_{Rd,p} / \gamma_F$)	8.1	11.5	18.3	23.8	31.7	49.6	77.4
Shear (V_{Rec}) [KN] G5.8 ($V_{Rd,s} / \gamma_F$)	5.4	8.6	12.5	23.3	36.4	52.4	83.4
h_{ef} (mm)	80	90	110	125	170	210	280

Shear loading based on steel grade 5.8

The value of ($N_{Rd,p}$) has applied γ_{MC} 1.8 to the characteristic Resistance loads - $\gamma_{MC} = \gamma_C \cdot \gamma_2$ ($\gamma_C = 1.5$, $\gamma_2 = 1.2$ for systems with normal installation safety)

The value of ($N_{Rd,s}$) has applied γ_{MS} 1.5 for G5.8, & G8.8, γ_{MS} 1.87 for A4-70, to the characteristic Resistance loads

The value of ($V_{Rd,s}$) has applied γ_{MS} 1.25 for G5.8, & G8.8, γ_{MS} 1.56 for A4-70, to the characteristic Resistance loads

Both (N_{Rec}) & (V_{Rec}) has applied γ_F 1.4 to the Design Resistance loads

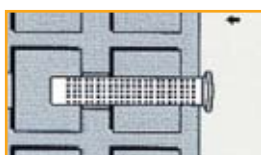
Recommended Load for Hollow Block & Brickwork

Recommended Load for Tensile (N_{Rec}) & Shear (V_{Rec}) [KN]						
Base Material	Hollow Block 10Mpa		Perforated Brick 20Mpa		Perforated Brick 20Mpa	
Anchor Size	M8		M10		M12	
Tensile (KN)	0.60	2.5	0.60	2.5	0.60	2.5
Shear (KN)	0.60	3.0	0.60	3.0	0.60	3.0
h_{ef} (mm)	80		80		80	

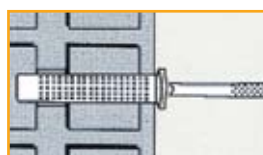
Installation Procedure



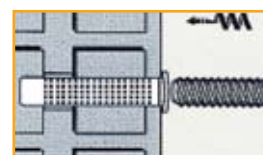
Drill hole to recommended depth.



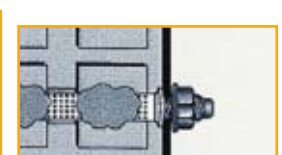
Insert perforated plastic sleeve.



Attached nozzle to the cartridge and dispense off initial chemical mixture until mix is of even colour, insert nozzle and inject mixture into plastic sleeve.



Insert stud into bottom of the plastic sleeve using slow twisting motion.



Allow resin to cure as per recommendation and attach fixture.

DIA-KRESS EPOXY ACRYLATE DK-EASF WITH REBAR



DK-EASF
with Rebar

Installation of rebar component lapping to existing structure.

Performance Data For Rebar

Rebar Size (mm)	Hole Dia. (mm)	Characteristic Rebar Yield Strength (460N/mm ²) [KN] F.S 1.15	Design Tensile Bond Resistance (KN) for Concrete C20/25																												Depth For Steel Design Resistance			
			20.1	22.6	25.1	30.2	31.4																											
10	13	31.4																														125		
13	16	53.1				32.7	39.2	40.8	42.5	49.0	52.3	53.9																				165		
16	20	80.4						50.3	52.3	60.3	64.3	66.4	72.4	76.4	80.4																	200		
20	25	125.7									77.1	79.5	86.7	91.5	96.4	106.0	115.6	120.4	127.7														265	
25	30	196.3													120.4	132.5	144.5	150.6	159.6	168.6	180.7	192.7	198.7										330	
28	35	246.3														129.0	140.8	146.6	155.4	164.2	176.0	187.7	193.5	246.3									420	
32	38	321.7																167.6	177.6	187.7	201.1	214.5	221.2	281.5	301.6	321.7								480
Embedment Depth (mm)			80	90	100	120	125	130	150	160	165	180	190	200	220	240	250	265	280	300	320	330	420	450	480							(mm)		

Safety Factors

Steel: γ_s 1.15 from steel yield strength

Bond: γ_b 1.5 from Characteristic bond resistance ($T_{RK} \cdot \pi \cdot d \cdot h_{ef}$) [N]

The Design Engineer shall determine and verify the actual load requirement and taken into consideration for the particular fixing

Setting Details and Mechanical Properties

Setting Details for DK-EASF with Rebar							
Rebar Size	T10	T13	T16	T20	T25	T28	T32
Drill Hole Diameter (mm), d_o	13	16	20	25	30	35	38
Basic Depth (mm), h_{ef}	90	110	125	170	210	270	300
Min. Base Material Thickness, (mm) h_{min}	120	150	170	220	270	340	380
Min. Anchor Spacing (mm) $S_{min} = 0.5 h_{ef}$	45	55	65	85	105	135	150
Characteristic Anchor Spacing (mm) $S_{cr} = 2 h_{ef}$	180	220	250	340	420	540	600
Min. Edge Distance (mm) $C_{min} = S_{min}$	45	55	65	85	105	135	150
Characteristic Edge Distance (mm) $C_{cr} = 0.5 \times S_{cr}$	90	110	125	170	210	270	300

Setting Details for DK-EASF with Rebar							
Rebar Size	T10	T13	T16	T20	T25	T28	T32
Stress Cross-Section (mm ²), A_s	78.6	132.7	201.1	314.2	490.9	615.8	804.4
Nominal Tensile Strength for 460 N/mm ² , (f_{uk})				529			
Nominal Tensile Strength for 500 N/mm ² , (f_{uk})				550			
Yield Strength for 460 N/mm ² , (f_{yk})				460			
Yield Strength for 500 N/mm ² , (f_{yk})				500			

f_{BN} : Influence of concrete strength (Tensile)

Concrete Strength	Cylinder Compressive Strength $f_{ck, cyl}$ (N/mm ²)	Cube Compressive Strength $f_{ck, cube}$ (N/mm ²)	f_{BN}
C20/25	20		1.0
C25/30	25		1.02
C30/37	30		1.04
C40/50	40		1.07
C50/60	50		1.09



Rebar for skin wall construction in tunnel

RAMSET™ CHEMICAL ANCHORING SYSTEM

Epcon A7

Fast Dispensing, Fast Curing Acrylic Adhesive

A7 is a cost effective solution to anchoring jobs close to edges where there is a need to avoid bursting stress on the surrounding substrate and is suitable for normal loads in benign environments.

The acrylic resin and hardening agent are completely mixed as they are simultaneously dispensed from the dual cartridge through a static mixing nozzle, directly into the anchor hole.

A7 can be used to fix starter bars, wall ties, threaded studs, bolts and large screws into concrete, brickwork, masonry and stone. Fixture can be installed into hollow block work using A7 in conjunction with the appropriate sleeve or sieve.

Suggested Specifications

Acrylic Chemical:

- Two component methyl methacrylate adhesive, non-sag paste, moisture insensitive when cured, dark gray in color
- Meets ASTM C881-90, Type IV, Grade 3, Class A, B and C with the exception of gel time and epoxy content
- Shrinkage during cure per ASTM D2566: .002in./in
- Heat deflection temperature, ASTM D648: 60°C minimum
- Shelf life: Best if used within 18 months (store below 27°C)
- Pumpable at negative 17°C without preheating

Packaging:

- Disposable, self-contained cartridge system capable of dispensing both components in the proper mixing ratio.
- Acrylic components dispensed through a static mixing nozzle that thoroughly mixes the material and places the material at the base of the pre-drilled hole.
- Cartridge markings: Include manufacturer's name, batch number and best-used-by date, mix ratio volume, ANSI hazard classification, and appropriate ANSI handling precautions.



Features

• Threaded stud (Carbon or Stainless Steel) supplied by contractor; Stud does not need to be chisel pointed.

• EPCON A7 chemical completely fills area between stud and hole creating a stress-free, high load anchorage.

• Pre-drilled hole in concrete; see performance tables for suggested hole sizes.

• Rebar (shown) supplied by contractor.

• EPCON A7 chemical completely fills area between stud and hole creating a stress-free, high load anchorage.

• Pre-drilled hole in concrete; see performance tables for suggested hole sizes.

Advantages

- **Cost Saving**
 - Incredibly fast dispensing and rod installation times.
 - Significantly faster curing times
 - Easy to use (no-heating) even at freezing cold temperatures
 - Requires less chemical - can be used in 1/16" oversized or 1/8" oversized holes
- **Water Insensitivity**
 - Works in damp holes and underwater applications
- **Easy Handling & Installation**
 - No drip, no sag, easy clean up
 - Fast & easy dispensing, even 825ml cartridge can be hand dispensed
 - Rods are easier to inset into the hole with A7 compared with other adhesives
 - Not mixed ratio sensitive
- **Not Formula**
 - For both hollow and solid base materials
- **NSF Approval for Portable Drinking Water**
- **Fast Curing Time**

Base Material Temperature (F°/C°)	Working Time	Full Cure Time
100° / 38°	5 minutes	25 minutes
80° / 27°	5.5 minutes	30 minutes
60° / 16°	7 minutes	35 minutes
40° / 4°	15 minutes	75 minutes
20° / -7°	35 minutes	6 hours
0° / -18°	4 hours	24 hours

RAMSET™ CHEMICAL ANCHORING SYSTEM

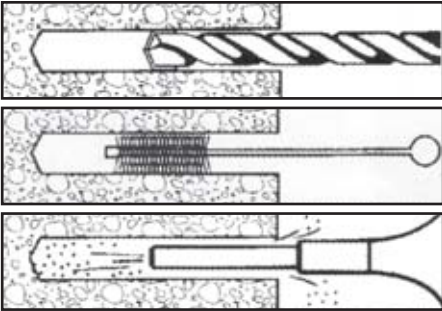
Epcon A7

Approvals / Listings

- ASTM C881, Type IV, Grade 3, Class 3, Class A, B, C (exceptions - A7 gels faster than ASTM requirements and does not contain any epoxy)
- ICC Evaluation Service, INC. - #ER-5560 (formerly ICBO)
- Metro-Dade County - #01-0501.01
- City of Los Angeles - RR#25379
- Dot Approvals
- Florida Building Code
- NSF Standard 61 Certified for Drinking Water Components
- HDB Prefabrication Technology Centre (ETAG)

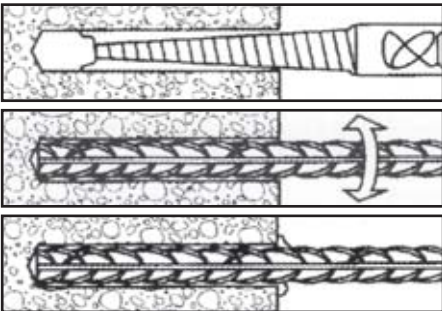
Installation Method - Solid Base Material

Preparation



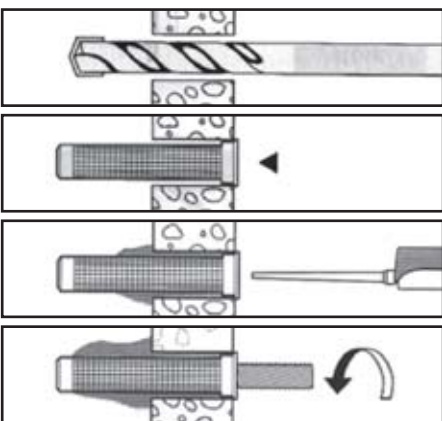
- Drill a hole according to the selected diameter (tables of dimensions of anchoring). The hole may be drilled with a diamond bit, but render location must be determined in order to avoid cutting them.
- **Carefully brush the surface of the hole with a metal brush.**
- **Blow the dust out of the hole.**
NB: The hole may also be cleaned with a jet of water.

Injection



- When starting new cartridge or new nozzle, dispense and discard enough chemical until uniform grey colour is achieved. Inject from the bottom of the hole, gradually filling in until 50% full.
- Insert the selected rod slowly by hand with a twisting motion until the end of the hole is reached. The rod must be clean and free from oil and grease. Check that the hole is well filled (no air bubbles). A slight excess should emerge.
- Wait for the resin to harden before applying the load / tighten fixture into place. See A7 Cure Time Chart for set-up times.

Installation Method - Hollow Block Material



- Drill a hole according to the selected diameter.
- Insert selected sleeve
- Insert mixer nozzle into sleeve and slowly inject A7 to form a solid body of mortar behind block.
- Push stud into sleeve with a twisting motion. Allow time to cure before applying the load. See A7 Cure Time Chart for set-up time.

Installation Method - Hollow Block Material

Preparation - same as solid base material

Injection



- Slowly inject resin, insert retaining collar and push stud bolt to bottom of hole. Allow resin to cure before applying load. See A7 Cure Time Chart for set-up time.

RAMSET™ CHEMICAL ANCHORING SYSTEM

Epcon A7

Estimated Consumption Tables

Epcon A7 Acrylic Chemical		Number of Anchoring per 825ml Cartridge for Rebar Fixings							
Rebar Size (mm)	Hole Diameter d_o (mm)	Embedment Depth h_{ef} (mm)							
		115	160	190	240	310	335	380	475
10	12	126.8	91.2	76.8	60.8	47.1	43.5	38.4	30.7
13	16	71.4	51.3	43.2	34.2	26.5	24.5	21.6	17.3
16	20	45.7	32.8	27.6	21.9	16.9	15.7	13.8	11.1
20	25	29.2	21.0	17.7	14.0	10.8	10.0	8.8	7.1
25	30	20.3	14.6	12.3	9.7	7.5	7.0	6.1	4.9
28	35	14.9	10.7	9.30	7.1	5.5	5.1	4.5	3.6
32	40	11.4	8.2	6.9	5.5	4.2	3.9	3.5	2.8
40	50	7.3	5.3	4.4	3.5	2.7	2.5	2.2	1.8

Epcon A7 Acrylic Chemical		Number of Anchoring per 825ml Cartridge for Threaded Stud Fixings						
Rebar Size (mm)	Hole Diameter d_o (mm)	Embedment Depth h_{ef} (mm)						
		80	90	110	125	170	210	280
M8	10	262.6	233.4	191.0	168.0	123.6	100.0	75.0
M10	12	182.3	162.1	132.6	116.7	85.8	69.5	52.1
M12	14	134.0	119.1	97.4	85.7	63.0	51.0	38.3
M16	18	81.0	72.0	58.9	51.9	38.0	30.9	23.2
M20	25	42.0	37.3	30.6	26.9	19.0	16.0	12.0
M24	28	33.5	29.8	24.4	21.4	15.8	12.8	9.6
M30	35	21.4	19.1	15.6	13.7	10.1	8.2	6.1

Note: The estimated number of fixings (for both rebar and threaded stud) is based on the calculation of hole volume and recommended injection volume per fixing (50% embedment depth). These estimates do not account for chemical wastage.

Applications



Starters bar anchored to slab prior to pour of adjoining floor slab, shallow depth and close to edge with A7 Injection.



Close anchor spacing for structural steel.



No expansion force - perfect for hollow block and brick.



Anchoring starter bars for attachment of reinforcing for shower hob.



Permanent anchoring of steel columns to concrete floor slab.



Anchoring starter bars to join vertical and horizontal elements.

Available Chemical Anchor Systems



Epcon G5
High strength epoxy with extended working time and fast curing time.
ALJ 0014



Epcon C6
Fast curing epoxy for all conditions
ALJ 0015



Epcon A7
Fast dispensing, fast curing acrylic adhesive.
ALJ 0016



Maxima 7
Spin-in acrylic glass capsule for easy handling.
ALJ 0017