

Sika® AnchorFix-2

High performance, two component adhesive anchoring system

Description	Sika® AnchorFix-2 adhesive anchor system has been specifically formulated as a high performance, two component adhesive anchor system for threaded bars in uncracked concrete.
Where to Use	<ul style="list-style-type: none"> ■ Uncracked concrete ■ Hard natural stone ■ Solid rock ■ Solid masonry
Advantages	<ul style="list-style-type: none"> ■ Fixing close to free edges. ■ Versatile range of embedment depths. ■ Anchoring without expansion forces. ■ Component volume ratio of 10:1. ■ Extended working time.
Packaging	10.1 fl.oz. (300 ml) or 28.7 fl.oz. (850 ml) cartridge
Approvals	<ul style="list-style-type: none"> ■ EESR to AC308 by ICC-ES PENDING. ■ ESR to AC308 by IAPMO-UES Report #0327 for threaded bars only. ■ Certified to ANSI / NSF - 61 by UL.

Typical Data

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life When stored correctly, the shelf life will be 15 months from the date of manufacture.

Storage Conditions Cartridges should be stored in their original packaging, the correct way up, in cool conditions (+41°F to +77°F) out of direct sunlight.

Working & Loading Times

Cartridge Temperature	T Work (minutes)	Base Material Temperature	T Load (hours)
Minimum +41°F	12	+14°F to +32°F**	24 hours
	12	+32°F to +41°F	180 minutes
+41°F to +50°F	8	+41°F to +50°F	100 minutes
+50°F to +68°F	4	+50°F to +68°F	70 minutes
+68°F to +77°F	3	+68°F to +77°F	40 minutes
+77°F to +86°F	2	+77°F to +86°F	40 minutes
+86°F	1	+86°F	40 minutes

*T Work is the typical time to gel at the highest temperature in the range
T Load is the typical time to reach full capacity*

*The design professional on the job is ultimately responsible for the interpretation of the data provided above.

Construction



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Installation Specification								
Property	Symbol	Unit						
Threaded Rod Diameter	d_a	in	5/16	3/8	1/2	5/8	3/4	1
Drill Bit Diameter	d_o	in	3/8	1/2	9/16	11/16	13/16	1-1/16
Cleaning Brush Size	d_b	in	0.551		0.787		1.142	
Minimum Embedment Depth	$h_{ef,min}$	in	2-3/8	2-3/4	3-1/8	3-3/4	4	4
Maximum Embedment Depth	$h_{ef,max}$	in	6-1/4	7-1/2	10	12-1/2	15	20
Minimum Concrete Thickness	h_{min}	in	1.5 h_{ef}					
Critical Anchor Spacing	S_{cr}	in	2.0 c_{ac}					
Critical Edge Distance	c_{ac}	in	$c_{ac} = h_{ef} * (f_{k,uncr} / 1160)^{0.4} * \max[3.1 - 0.7(h/h_{ef}); 1.4]$					
Maximum Tightening Torque	T_{inst}	ft.lb	7.5	15	25	55	80	120

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Allowable Steel Strength for Threaded Rods									
		Carbon Steel ASTM F 1554 Grade 36 (A307 Gr.C)		Carbon Steel ASTM A 193 B7		Stainless Steel ASTM F 593 CW		Stainless Steel ASTM F 593 SH	
Anchor Diameter (in)		Allowable Tension, N_{all}	Allowable Shear, V_{all}	Allowable Tension, N_{all}	Allowable Shear, V_{all}	Allowable Tension, N_{all}	Allowable Shear, V_{all}	Allowable Tension, N_{all}	Allowable Shear, V_{all}
3/8"	lb	2,110	1,080	4,550	2,345	3,630	1,870	4,190	2,160
	kN	9.4	4.8	20.2	10.4	16.1	8.3	18.6	9.6
1/2"	lb	3,750	1,930	8,100	4,170	6,470	3,330	7,450	3,840
	kN	16.7	8.6	36.0	18.5	28.8	14.8	33.1	17.1
5/8"	lb	5,870	3,030	12,655	6,520	10,130	5,220	11,640	6,000
	kN	26.1	13.5	56.3	29.0	45.1	23.2	51.8	26.7
3/4"	lb	8,460	4,360	18,220	9,390	12,400	6,390	15,300	7,880
	kN	37.6	19.4	81.0	41.8	55.2	28.4	68.1	35.1
7/8"	lb	11,500	5,930	24,800	12,780	16,860	8,680	20,830	10,730
	kN	51.2	26.4	110.3	56.8	75.0	38.6	92.7	47.7
1"	lb	15,020	7,740	32,400	16,690	22,020	11,340	27,210	14,020
	kN	66.8	34.4	144.1	74.2	97.9	50.4	121.0	62.4
1 - 1/4"	lb	23,480	12,100	50,610	26,070	34,420	17,730	38,470	19,820
	kN	104.4	53.8	225.1	116.0	153.1	78.9	171.1	88.2

Allowable Tension, $N_{all} = 0.33 \times f_u \times \text{nominal cross sectional area}$

Allowable Shear, $V_{all} = 0.17 \times f_u \times \text{nominal cross section area}$

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Allowable Steel Strength for Rebar			
Carbon Steel ASTM A 615 Grade 60			
Rebar Size		Allowable Tension, N_{all}	Allowable Shear, V_{all}
#3	lb	3,280	1,690
	kN	14.6	7.5
#4	lb	5,831	3,004
	kN	25.9	13.4
#5	lb	9,111	4,693
	kN	40.5	20.9
#6	lb	13,121	6,759
	kN	58.4	30.1
#7	lb	17,859	9,200
	kN	79.4	40.9
#8	lb	23,326	12,016
	kN	103.8	53.4
#10	lb	37,623	19,381
	kN	167.4	86.2

Allowable Steel Strength for Rebar			
Carbon Steel CAN/CSA-G30.18 Gr.400			
Rebar Size		Allowable Tension, N_{all}	Allowable Shear, V_{all}
10M	lb	4,016	2,069
	kN	17.9	9.2
15M	lb	8,052	4,148
	kN	35.8	18.5
20M	lb	11,960	6,161
	kN	53.2	27.4
25M	lb	19,975	10,290
	kN	88.9	45.8
30M	lb	28,121	14,486
	kN	125.1	64.4
35M	lb	40,089	20,652
	kN	178.3	91.9

Tension = $0.33 \times f_u \times$ nominal cross sectional area
 Shear = $0.17 \times f_u \times$ nominal cross section area
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1. Above values for reinforcing steel assume the design method is the same as a post-installed adhesive anchor, under the principles of anchor design (failure modes will be concrete breakout, pryout, steel failure, or adhesive bond) and not under the principles of reinforcing steel design (failure modes are typically splitting failure, inadequate bar development etc.). CONSULT AN ENGINEERING DESIGN PROFESSIONAL PRIOR TO USE.

Allowable Load Data in Tension and Shear							
Anchor Diameter	Embedment Depth	Allowable Concrete Capacity / Bond Strength					
		Tension (lb)			Shear (lb)		
		$f'_c = 2,500$ psi	$f'_c = 4,000$	$f'_c = 8,000$	$f'_c = 2,500$	$f'_c = 4,000$	$f'_c = 8,000$
5/16"	2-3/8"	1,390	1,457	1,562	1,854	1,943	2,082
	3-1/16"	1,793	1,879	2,014	2,390	2,505	2,685
	3-3/4"	2,195	2,301	2,466	2,927	3,068	3,288
3/8"	2-3/8"	1,507	1,579	1,693	2,009	2,106	2,257
	3-7/16"	2,181	2,286	2,450	2,908	3,048	3,266
	4-1/2"	2,855	2,992	3,207	3,806	3,990	4,276
1/2"	2-3/4"	2,397	2,513	2,693	3,197	3,350	3,591
	4-3/8"	3,814	3,998	4,285	5,085	5,330	5,713
	6"	5,231	5,482	5,876	6,974	7,310	7,835
5/8"	3-1/8"	3,065	3,212	3,443	4,087	4,283	4,591
	5-5/16"	5,210	5,461	5,853	6,947	7,281	7,804
	7-1/2"	7,356	7,710	8,263	9,808	10,280	11,017
3/4"	3-1/2"	3,495	3,663	3,926	4,659	4,884	5,234
	6-1/4"	6,240	6,541	7,010	8,320	8,721	9,347
	9"	8,986	9,418	10,094	11,981	12,558	13,459
1"	4"	5,378	5,637	6,042	7,171	7,516	8,056
	8"	10,757	11,274	12,084	14,342	15,033	16,112
	12"	16,135	16,912	18,125	21,514	22,549	24,167

- The above values represent mean ultimate values and allowable working loads. The allowable working loads have been reduced using a safety factor of 4.0 for tension and 3.0 for shear, however, in some cases, such as life safety, safety factors of 10.0 or higher may be necessary.
 - Allowable loads must be checked against steel capacity. The lowest value controls.
 - Tabulated data is applicable to single anchors in normal weight concrete unaffected by edge or spacing reduction factors. Values are valid for anchors installed into dry concrete in holes drilled with a hammer drill and ANSI carbide drill bit.
 - Service temperatures should remain approximately constant. The maximum long term temperature being 122°F and the maximum short term temperature being 176°F. Short term temperatures are those that occur over brief intervals, for example, diurnal cycling.
 - Linear interpolation is allowed.
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Coverage

Anchor size:	(in.)	5/16	3/8	1/2	5/8	3/4	1	1 1/4	
Drill Hole Diameter:	(in.)	3/8	1/2	9/16	3/4	7/8	1 1/8	1 3/8	
Embedment Depth:	(in.)	2 3/8	2 3/8	2 3/4	3 1/8	3 3/4	4	5	
Estimated Number of Fixing *	Cartridge Volume	300 ml	83	47	32	15	9	5	2
		850 ml	254	143	97	48	29	16	8

*Number of fixings assumes 30ml wastage in initial extrusion and holes filled to 3/4 full

Anchor size:	(in.)	5/16	3/8	1/2	5/8	3/4	1	1 1/4	
Drill Hole Diameter:	(in.)	3/8	1/2	9/16	3/4	7/8	1 1/8	1 3/8	
Embedment Depth:	(in.)	3 1/8	3 3/4	5	6 1/4	7 1/2	10	12 1/2	
Estimated Number of Fixing *	Cartridge Volume	300 ml	63	29	17	7	4	2	1
		850 ml	193	90	53	24	14	6	3

*Number of fixings assumes 30ml wastage in initial extrusion and holes filled to 3/4 full

Anchor size:	(in.)	5/16	3/8	1/2	5/8	3/4	1	1 1/4	
Drill Hole Diameter:	(in.)	3/8	1/2	9/16	3/4	7/8	1 1/8	1 3/8	
Embedment Depth:	(in.)	3 3/4	4 1/2	6	7 1/2	9	12	15	
Estimated Number of Fixing *	Cartridge Volume	300 ml	53	24	14	6	4	1	0
		850 ml	161	75	44	20	12	5	2

*Number of fixings assumes 30ml wastage in initial extrusion and holes filled to 3/4 full

Application

Solid Substrate Installation Method

1. Drill the hole to the correct diameter and depth. This can be done with either a rotary percussion or rotary hammer drilling machine depending upon the substrate.

2. Thoroughly clean the hole in the following sequence using the 2K DF Brush with the required extensions and a source of clean compressed air. For holes of 15 3/4" (400mm) or less deep, a 2K Blow Pump may be used:

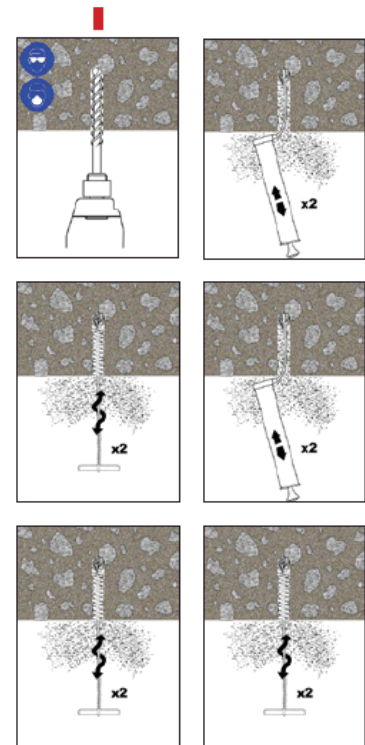
Blow Clean x2.
Brush Clean x2.
Blow Clean x2.
Brush Clean x2.
Blow Clean x2.

3. Select the appropriate static mixer nozzle for the installation, open the cartridge/foil pack and screw nozzle onto the mouth of the cartridge. Insert the cartridge into a good quality applicator.

4. Extrude the first part of the cartridge (at least dispense three full strokes) to waste until an even color has been achieved without streaking in the resin before injecting the resin into the drilled hole.

5. If necessary, cut the extension tube to the depth of the hole and push onto the end of the mixer nozzle, and (for rebars 8" (16mm) dia. or more) fit the correct resin stopper to the other end. Attach extension tubing and resin stopper.

6. Insert the mixer nozzle (resin stopper/extension tube if applicable) to the bottom of the hole. Begin



hole collects water after the initial cleaning, this must be removed before injecting the resin.

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to extrude the resin and slowly withdraw the mixer nozzle from the hole ensuring that there are no air voids as the mixer nozzle is withdrawn. Fill the hole to approximately 1/2 to 3/4 full and withdraw the nozzle completely.

7. Insert the clean threaded bar, free from oil or other release agents, to the bottom of the hole using a back and forth twisting motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated working time (see table on page 1).

8. Any excess resin will be expelled from the hole evenly around the steel element showing that the hole is full. This excess resin should be removed from around the mouth of the hole before it sets.

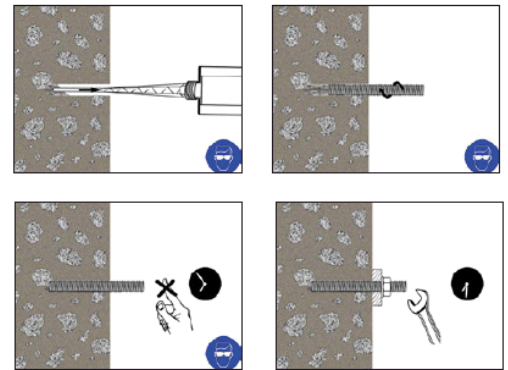
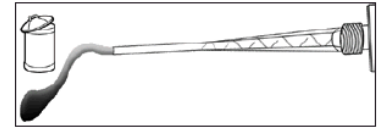
9. Leave the anchor to cure.

Do not disturb the anchor until the appropriate loading time, on page 1, has elapsed depending on the substrate conditions and ambient temperature.

10. Attach the fixture and tighten the nut to the recommended torque.

Do not overtighten as it could adversely affect product performance.

NOTE: Please refer to figure 5A & 5B of the IAPMO Report No. 0327 for detailed installation instructions.



Note for decreased installation temperature: When installing EASF at decreased installation temperature (+32°F < T < 50°F (0°C < T < +10°C)) the cartridge must be conditioned to +68°F (+20°C)

Note for use of RM nozzle:
The RM nozzle consists of two pieces: the component containing the mixer elements, and an extension piece. The extension piece must be snapped off the component containing the mixer elements before use. The two pieces are then pushed together until a positive engagement is felt.

Limitations

THE NTSB HAS STATED THAT THIS PRODUCT IS APPROVED FOR SHORT TERM LOADS ONLY AND SHOULD NOT BE USED IN SUSTAINED TENSILE LOAD ADHESIVE ANCHORING APPLICATIONS WHERE ADHESIVE FAILURE COULD RESULT IN A PUBLIC SAFETY RISK. CONSULT A DESIGN PROFESSIONAL PRIOR TO USE.

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- Not for use in overhead applications.
- Not for use in cracked concrete.
- Please refer to section 5.0 for conditions of use in the IAPMO Evaluation Report #0327. This report is available on Sika and IAPMO's websites.
- Minimum Application Temperature 14°F (-10°C)
- Maximum Application Temperature 86°F (30°C)

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KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at <http://usa.sika.com/> or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. SALE OF SIKA PRODUCTS ARE SUBJECT SIKA'S TERMS AND CONDITIONS OF SALE AVAILABLE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING 201-933-8800.

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