

VGC *Vinylester Glass Capsule Anchoring Adhesive*

The VGC system is a two-component, high solids, vinylester-based adhesive contained within a glass capsule. The capsule is placed in the hole and the resin and initiator components are combined when the rod or rebar is driven to the bottom of the hole through the capsule.

- USES:**
- Anchoring threaded rod or rebar in solid base materials
 - Not for overhead installations

SPECIAL FEATURES:

- Fast cure
- No special tools required for use
- Hammer-in or spin-in (if desired)
- Pre-measured amounts for listed embedment and load - no waste
- Capsules are bi-directional — either end can be inserted into the hole first

APPLICATION: Holes to receive adhesive must be clean and free of concrete dust and/or dirt, oil or grease. For dependable results, adhesive should be applied in dry conditions. Do not install in or through standing water. The base material must be 25°F (-4°C) or above at the time of installation. ALWAYS WEAR EYE PROTECTION!

INSTALLATION: See pages 31–32

SHELF LIFE: 12 months from date of manufacture in original packaging.

STORAGE CONDITIONS: For maximum shelf life, keep cool (60°F - 90°F) and in closed packaging. Exposing capsules to UV light sources will shorten shelf life. Capsules are fragile. Do not use capsules if they change color, become cloudy or are cracked.

CLEAN UP: If broken — Allow material to cure
Cured material — Chip or grind off surface

TEST CRITERIA: Anchors installed with the VGC adhesive have been tested in accordance with ICC-ES's *Acceptance Criteria for Adhesive Anchors (AC508)* for the following:

- Long-term creep at elevated-temperature
- Critical and minimum edge distance and spacing

SUGGESTED SPECIFICATION: Anchoring adhesive shall be a two-component vinylester based adhesive capsule-within-a-capsule system supplied in manufacturer's standard packaging. Adhesive shall be the VGC adhesive system from Simpson Strong-Tie Company Inc., Pleasanton, CA. Anchors shall be installed per Simpson Strong-Tie instructions for the VGC adhesive system.



VGC50



VGC Product Data

Rod Dia. or Rebar Size	VGC Capsule	Act. Capsule Size in. (mm)	Package Quantity
3/8" or #3	VGC37	7/16 x 3 1/2 (11.1 x 88.9)	10
1/2" or #4	VGC50	1/2 x 3 7/8 (12.7 x 98.4)	10
5/8" or #5	VGC62	5/8 x 3 7/8 (15.9 x 98.4)	10
3/4" or #6	VGC75	5/8 x 7 (15.9 x 177.8)	5
7/8" or #7 1" or #8	VGC100	7/8 x 8 (22.2 x 203.2)	5

Cure Schedule

Base Material Temperature		Cure Time
°F	°C	
25	-4	5 hrs.
32	0	1 hr.
50	10	30 min.
68	20	20 min.

Tension Loads for Threaded Rod Anchors in Normal-Weight Concrete – One (1) VGC Capsule Per Hole

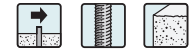


Rod Dia. in. (mm)	VGC Capsule	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength						Tension Load Based on Steel Strength
						f'c ≥ 2000 psi (13.8 MPa) Concrete			f'c ≥ 4000 psi (27.6 MPa) Concrete			Tension A307 (SAE 1018)
						Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
3/8 (9.5)	VGC37	7/16	3 1/2 (88.9)	5 1/4 (133)	14 (356)	5,585 (24.8)	504 (2.2)	1,395 (6.2)	6,875 (30.6)	692 (3.1)	1,720 (7.7)	2,105 (9.4)
1/2 (12.7)	VGC50	9/16	4 1/4 (108)	6 3/8 (162)	17 (432)	9,653 (42.9)	546 (2.4)	2,410 (10.7)	10,800 (48.0)	1,494 (6.6)	2,700 (12.0)	3,750 (16.7)
5/8 (15.9)	VGC62	1 1/16	5 (127)	7 1/2 (191)	20 (508)	•	•	4,265 (19.0)	17,048 (75.8)	1,345 (6.0)	4,265 (19.0)	5,875 (26.1)
3/4 (19.1)	VGC75	7/8	7 (178)	10 1/2 (267)	28 (711)	21,605 (96.1)	2,643 (11.8)	5,400 (24.0)	26,598 (118.3)	2,087 (9.3)	6,650 (29.6)	8,460 (37.6)
7/8 (22.2)	VGC100	1	8 (203)	11 5/8 (295)	32 (813)	•	•	7,310 (32.5)	30,837 (137.2)	1,174 (5.2)	7,709 (34.3)	11,500 (51.2)
1 (25.4)	VGC100	1 1/8	8 (203)	13 1/2 (343)	32 (813)	29,236 (130.0)	3,263 (14.5)	7,310 (32.5)	38,205 (169.9)	3,166 (14.1)	9,550 (42.5)	15,025 (66.8)

1. Allowable load must be the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 97–98.
5. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
6. Anchors are not permitted to resist tension forces in overhead or wall installations unless proper consideration is given to fire-exposure conditions.

*See page 10 for an explanation of the load table icons

**Shear Loads for Threaded Rod Anchors
in Normal-Weight Concrete – One (1) VGC Capsule Per Hole**



Rod Dia. in. (mm)	VGC Capsule	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Shear Load Based on Concrete Edge Distance			Shear Load Based on Steel Strength		
						f'c ≥ 2000 psi (13.8 MPa) Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
						Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
3/8 (9.5)	VGC37	7/16	3 1/2 (88.9)	5 1/4 (133)	5 1/4 (133)	5,581 (24.8)	311 (1.4)	1,395 (6.2)	1,085 (4.8)	2,340 (10.4)	1,870 (8.3)
1/2 (12.7)	VGC50	9/16	4 1/4 (108)	6 3/8 (162)	6 3/8 (162)	12,877 (57.3)	398 (1.8)	3,220 (14.3)	1,930 (8.6)	4,160 (18.5)	3,330 (14.8)
5/8 (15.9)	VGC62	1 1/16	5 (127)	7 1/2 (191)	7 1/2 (191)	18,702 (83.2)	675 (3.0)	4,675 (20.8)	3,025 (13.5)	6,520 (29.0)	5,220 (23.2)
3/4 (19.1)	VGC75	7/8	7 (178)	10 1/2 (267)	10 1/2 (267)	29,537 (131.4)	1,102 (4.9)	7,385 (32.9)	4,360 (19.4)	9,390 (41.8)	6,385 (28.4)
7/8 (22.2)	VGC100	1	8 (203)	11 5/8 (295)	11 5/8 (295)	33,676 (149.8)	1,274 (5.7)	8,420 (37.5)	5,925 (26.4)	12,770 (56.8)	8,685 (38.6)
1 (25.4)	VGC100	1 1/8	8 (203)	13 1/2 (343)	13 1/2 (343)	44,486 (197.9)	4,143 (18.4)	11,120 (49.5)	7,740 (34.4)	16,680 (74.2)	11,345 (50.5)

*See page 10 for an explanation of the load table icons

1. Allowable load must be the lesser of the load based on concrete edge distance or steel strength.
2. The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
3. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 97–98.
5. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

**Tension Loads for Threaded Rod Anchors
in Normal-Weight Concrete – Two (2) VGC Capsules Per Hole**



Rod Dia. in. (mm)	VGC Capsule Two (2) Per Hole	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength			Tension Load Based on Steel Strength		
						f'c ≥ 2000 psi (13.8 MPa) Concrete			A307 (SAE 1018)	A193 GR B7 (SAE 4140)	F593 (A304SS)
						Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
3/8 (9.5)	VGC37	7/16	7 (178)	10 1/2 (267)	28 (711)	10,298 (45.8)	333 (1.5)	2,575 (11.5)	2,105 (9.4)	4,535 (20.2)	3,630 (16.1)
1/2 (12.7)	VGC50	9/16	8 1/2 (216)	12 3/4 (324)	34 (864)	18,530 (82.4)	134 (0.6)	4,635 (20.6)	3,750 (16.7)	8,080 (35.9)	6,470 (28.8)
5/8 (15.9)	VGC62	1 1/16	10 (254)	15 (381)	40 (1016)	26,931 (119.8)	1,696 (7.5)	6,735 (30.0)	5,875 (26.1)	12,660 (56.3)	10,120 (45.0)
3/4 (19.1)	VGC75	7/8	14 (356)	21 (533)	56 (1422)	47,469 (211.2)	1,731 (7.7)	11,865 (52.8)	8,460 (37.6)	18,230 (81.1)	12,400 (55.2)
7/8 (22.2)	VGC100	1	16 (406)	24 (610)	64 (1626)	50,728 (225.6)	1,565 (7.0)	12,680 (56.4)	11,500 (51.2)	24,785 (110.2)	16,860 (75.0)
1 (25.4)	VGC100	1 1/8	16 (406)	24 (610)	64 (1626)	72,128 (320.8)	3,089 (13.7)	18,030 (80.2)	15,025 (66.8)	32,380 (144.0)	22,020 (97.9)

*See page 10 for an explanation of the load table icons

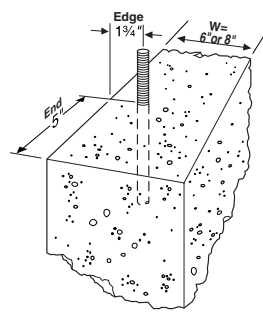
1. Allowable load must be the lesser of the bond or steel strength.
2. The allowable loads listed under allowable bond are based on a safety factor of 4.0.
3. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
4. Refer to allowable load-adjustment factors for spacing and edge distance on pages 97–98.
5. Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
6. Anchors are not permitted to resist tension forces in wall installations unless proper consideration is given to fire-exposure conditions.

VGC Vinylster Glass Capsule Anchoring Adhesive

Tension Loads for Threaded Rod Anchors in Normal-Weight Concrete Stemwall
See Footnotes for Number of Capsules Per Hole



Rod Dia. in. (mm)	VGC Capsule	Drill Bit Dia. in.	Embed. Depth in. (mm)	Stemwall Width in. (mm)	Min. Edge Dist. in. (mm)	Min. End Dist. in. (mm)	Tension Load Based on Bond Strength			Tension Load Based on Steel Strength
							f'c ≥ 2000 psi (13.8 MPa) Concrete			A307 (SAE 1018)
							Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
5/8 (15.9)	VGC62 ¹	1 1/16	12 (305)	6 (152)	1 3/4 (44)	5 (127)	13,250 (58.9)	1,590 (7.1)	3,310 (14.7)	5,875 (26.1)
7/8 (22.2)	VGC100 ²	1	15 (381)	8 (203)	1 3/4 (44)	5 (127)	20,843 (92.7)	1,883 (8.4)	5,210 (23.2)	11,500 (51.2)



Edge and end distances for threaded rod in concrete foundation stemwall corner installation

- Requires 3 capsules per hole.
- Requires 2 capsules per hole.
- Allowable load must be the lesser of the bond or steel strength.
- The allowable loads listed under allowable bond are based on a safety factor of 4.0.
- Allowable loads may not be increased for short-term loading due to wind or seismic forces.
- Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

Vinylster Adhesive

Tension Loads for Rebar Dowels in Normal-Weight Concrete
One (1) VGC Capsule Per Hole



Rebar Size No. (mm)	VGC Capsule	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Tension Load Based on Bond Strength			Tension Load Based on Steel Strength
						f'c ≥ 2000 psi (13.8 MPa) Concrete			ASTM A615 Grade 60 Rebar
						Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
#3 (9.5)	VGC37	7/16	3 1/2 (89)	5 1/4 (133)	14 (356)	6,211 (27.6)	480 (1.8)	1,555 (6.9)	2,640 (11.7)
#4 (12.7)	VGC50	5/8	4 1/4 (108)	6 3/8 (162)	17 (432)	14,579 (64.9)	1,365 (6.1)	3,645 (16.2)	4,800 (21.4)
#5 (15.9)	VGC62	3/4	5 (127)	7 1/2 (191)	20 (508)	12,066 (53.7)	3,904 (17.4)	3,015 (13.4)	7,440 (33.1)
#6 (19.1)	VGC75	7/8	7 (178)	10 1/2 (267)	28 (711)	18,692 (83.1)	2,225 (9.9)	4,675 (20.8)	10,560 (47.0)
#7 (22.2)	VGC100	1	8 (203)	11 5/8 (295)	32 (813)	33,182 (147.6)	548 (2.4)	8,295 (36.9)	14,400 (64.1)
#8 (25.4)	VGC100	1 1/8	8 (203)	13 1/2 (343)	32 (813)	34,517 (153.5)	5,163 (23.0)	8,630 (38.4)	18,960 (84.3)

- Allowable load must be the lesser of the bond or steel strength.
- The allowable loads listed under allowable bond are based on a safety factor of 4.0.
- Allowable loads may not be increased for short-term loading due to wind or seismic forces.
- Refer to allowable load-adjustment factors for spacing and edge distance on pages 97-98.
- Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.
- Anchors are not permitted to resist tension forces in overhead or wall installations unless proper consideration is given to fire-exposure conditions.

Shear Loads for Rebar Dowels in Normal-Weight Concrete
One (1) VGC Capsule Per Hole



Rebar Size No. (mm)	VGC Capsule	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing Dist. in. (mm)	Shear Load Based on Concrete Edge Distance			Shear Load Based on Steel Strength
						f'c ≥ 2000 psi (13.8 MPa) Concrete			ASTM A615 Grade 60 Rebar
						Ultimate lbs. (kN)	Std. Dev. lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
#3 (9.5)	VGC37	7/16	3 1/2 (89)	6 (152)	5 1/4 (133)	8,294 (36.9)	515 (2.3)	2,075 (9.2)	1,680 (7.5)
#4 (12.7)	VGC50	5/8	4 1/4 (108)	8 (203)	6 3/8 (162)	11,012 (49.0)	383 (1.7)	2,755 (12.3)	3,060 (13.6)
#5 (15.9)	VGC62	3/4	5 (127)	10 (254)	7 1/2 (191)	15,758 (70.1)	1,154 (5.1)	3,940 (17.5)	4,740 (21.1)
#6 (19.1)	VGC75	7/8	7 (178)	12 (305)	10 1/2 (267)	23,314 (103.7)	1,494 (6.6)	5,830 (25.9)	6,730 (29.9)
#7 (22.2)	VGC100	1	8 (203)	14 (356)	11 5/8 (295)	32,662 (145.3)	5,588 (24.9)	8,165 (36.3)	9,180 (40.8)
#8 (25.4)	VGC100	1 1/8	8 (203)	16 (406)	13 1/2 (343)	•	•	8,165 (36.3)	12,085 (53.8)

*See page 10 for an explanation of the load table icons

- Allowable load must be the lesser of the load based on concrete edge distance or steel strength.
- The allowable loads based on concrete edge distance are based on a safety factor of 4.0.
- Allowable loads may not be increased for short-term loading due to wind or seismic forces.
- Refer to allowable load-adjustment factors for spacing and edge distance on pages 97-98.
- Anchors are permitted to be used within fire-resistive construction, provided the anchors resist wind or seismic loads only. For use in fire-resistive construction, the anchors can also be permitted to be used to resist gravity loads, provided special consideration has been given to fire-exposure conditions.

**Load-Adjustment Factors for VGC Glass Capsule Adhesive in Normal-Weight Concrete:
Edge Distance, Tension and Shear Loads**

How to use these charts:

1. The following tables are for reduced edge distance.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the edge distance (C_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_c) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple edges are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension Load Based on Bond Strength values or allowable Shear Load Based on Concrete Edge Distance values only.

Edge Distance Tension (f_c)

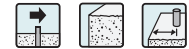


Edge Dist. C_{act} (in.)	Dia.	3/8		1/2		5/8		3/4		7/8		1	
	Rebar	#3	#4	#5	#6	#7	#8	#8	#8	#8	#8	#8	#8
	E	3 1/2	7	4 1/4	8 1/2	5	10	7	14	8	16	8	16
	C_{cr}	5 1/4	10 1/2	6 3/8	12 3/4	7 1/2	15	10 1/2	21	11 3/8	24	13 1/2	24
	C_{min}	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
f_{cmin}	0.65	0.65	0.65	0.65	0.57	0.61	0.54	0.56	0.54	0.52	0.54	0.39	
1 3/4		0.65	0.65	0.65	0.65	0.57	0.61	0.54	0.56	0.54	0.52	0.54	0.39
2		0.68	0.66	0.67	0.66	0.59	0.62	0.55	0.57	0.55	0.53	0.55	0.40
3		0.78	0.70	0.74	0.69	0.66	0.65	0.61	0.59	0.60	0.55	0.59	0.42
4		0.88	0.74	0.82	0.72	0.74	0.68	0.66	0.61	0.64	0.57	0.63	0.45
5		0.98	0.78	0.90	0.75	0.81	0.71	0.71	0.63	0.69	0.59	0.67	0.48
6		1.00	0.82	0.97	0.79	0.89	0.74	0.76	0.66	0.74	0.61	0.71	0.51
7			0.86	1.00	0.82	0.96	0.76	0.82	0.68	0.78	0.63	0.75	0.53
8			0.90		0.85	1.00	0.79	0.87	0.70	0.83	0.65	0.78	0.56
9			0.94		0.88		0.82	0.92	0.73	0.88	0.68	0.82	0.59
10			0.98		0.91		0.85	0.97	0.75	0.92	0.70	0.86	0.62
12			1.00		0.98		0.91	1.00	0.79	1.00	0.74	0.94	0.67
14					1.00		0.97		0.84		0.78	1.00	0.73
16							1.00		0.89		0.83		0.78
18									0.93		0.87		0.84
20									0.98		0.91		0.89
22									1.00		0.96		0.95
24											1.00		1.00

*See page 10 for an explanation of the load table icons

See Notes Below

Edge Distance Shear (f_c)



Edge Dist. C_{act} (in.)	Dia.	3/8		1/2		5/8		3/4		7/8		1	
	Rebar	#3	#4	#5	#6	#7	#8	#8	#8	#8	#8	#8	#8
	E	3 1/2	3 1/2	4 1/4	4 1/4	5	5	7	7	8	8	8	8
	C_{cr}	5 1/4	6	6 3/8	8	7 1/2	10	10 1/2	12	11 3/8	14	13 1/2	16
	C_{min}	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
f_{cmin}	0.35	0.19	0.15	0.16	0.11	0.10	0.11	0.10	0.08	0.09	0.08	0.08	
1 3/4		0.35	0.19	0.15	0.16	0.11	0.10	0.11	0.10	0.08	0.09	0.08	0.08
2		0.40	0.24	0.20	0.19	0.15	0.13	0.14	0.12	0.10	0.11	0.10	0.10
3		0.58	0.43	0.38	0.33	0.30	0.24	0.24	0.21	0.20	0.18	0.18	0.16
4		0.77	0.62	0.56	0.46	0.46	0.35	0.34	0.30	0.29	0.26	0.26	0.23
5		0.95	0.81	0.75	0.60	0.61	0.45	0.44	0.39	0.38	0.33	0.33	0.29
6		1.00	1.00	0.93	0.73	0.77	0.56	0.54	0.47	0.48	0.41	0.41	0.35
7				1.00	0.87	0.92	0.67	0.64	0.56	0.57	0.48	0.49	0.42
8					1.00	1.00	0.78	0.75	0.65	0.66	0.55	0.57	0.48
9							0.89	0.85	0.74	0.76	0.63	0.65	0.55
10							1.00	0.95	0.82	0.85	0.70	0.73	0.61
12								1.00	1.00	1.00	0.85	0.88	0.74
14											1.00	1.00	0.87
16													1.00

*See page 10 for an explanation of the load table icons

1. E = Embedment depth (inches).
2. C_{act} = actual edge distance at which anchor is installed (inches).
3. C_{cr} = critical edge distance for 100% load (inches).
4. C_{min} = minimum edge distance for reduced load (inches).
5. f_c = adjustment factor for allowable load at actual edge distance.
6. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
7. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
8. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

**Load-Adjustment Factors for VGC Glass Capsule Adhesive in Normal-Weight Concrete:
Spacing, Tension and Shear Loads**

How to use these charts:

1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the embedment (E) at which the anchor is to be installed.
4. Locate the spacing (S_{act}) at which the anchor is to be installed.
5. The load-adjustment factor (f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load-adjustment factor.
7. Reduction factors for multiple spacings are multiplied together.
8. Adjustment factors do not apply to allowable steel strength values.
9. Adjustment factors are to be applied to allowable Tension Load Based on Bond Strength values or allowable Shear Load Based on Concrete Edge Distance values only.

Vinylester Adhesive

Spacing Tension (f_s)



S_{act} (in.)	Dia.	$\frac{3}{8}$		$\frac{1}{2}$		$\frac{5}{8}$		$\frac{3}{4}$		$\frac{7}{8}$		1	
	Rebar	#3	#4	#5	#6	#7	#8	#8	#8	#8	#8	#8	#8
E		3½	7	4¼	8½	5	10	7	14	8	16	8	16
S_{cr}		14	28	17	34	20	40	28	56	32	64	32	64
S_{int}		6⅝	12¼	7½	14⅞	8¾	17½	12¼	24½	14	28	14	28
S_{min}		1¾	3½	2⅝	4¼	2½	5	3½	7	4	8	4	8
f_{smin}		0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
1¾		0.58											
2		0.60											
3		0.68		0.64		0.61							
4		0.76	0.60	0.70		0.66		0.60		0.58		0.58	
6		0.92	0.68	0.83	0.64	0.78	0.61	0.68		0.65		0.65	
8		0.95	0.76	0.93	0.70	0.89	0.66	0.76	0.60	0.72	0.58	0.72	0.58
10		0.96	0.84	0.95	0.77	0.94	0.72	0.84	0.64	0.79	0.62	0.79	0.62
14		1.00	0.94	0.98	0.90	0.96	0.83	0.94	0.72	0.93	0.69	0.93	0.69
18			0.96	1.00	0.94	0.99	0.93	0.96	0.80	0.95	0.76	0.95	0.76
22			0.97		0.96	1.00	0.94	0.97	0.88	0.96	0.83	0.96	0.83
26			0.99		0.97		0.96	0.99	0.93	0.98	0.90	0.98	0.90
30			1.00		0.99		0.97	1.00	0.94	0.99	0.93	0.99	0.93
35					1.00		0.98		0.95	1.00	0.94	1.00	0.94
40							1.00		0.96		0.95		0.95
45									0.98		0.96		0.96
50									0.99		0.97		0.97
55									1.00		0.98		0.98
60											0.99		0.99
65											1.00		1.00

*See page 10 for an explanation of the load table icons

See Notes Below

Spacing Shear (f_s)

S_{act} (in.)	Dia.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
	Rebar	#3	#4	#5	#6	#7	#8
E		3½	4¼	5	7	8	8
S_{cr}		5¼	6⅝	7½	10½	11⅝	13½
S_{min}		1¾	2⅝	2½	3½	4	4
f_{smin}		0.83	0.83	0.83	0.83	0.83	0.83
1¾		0.83					
2		0.84					
3		0.89	0.87	0.85			
4		0.94	0.91	0.88	0.84	0.83	0.83
5		0.99	0.95	0.92	0.87	0.85	0.85
6		1.00	0.99	0.95	0.89	0.87	0.87
7			1.00	0.98	0.92	0.90	0.88
8				1.00	0.94	0.92	0.90
9					0.96	0.94	0.92
10					0.99	0.96	0.94
12					1.00	1.00	0.97
14							1.00

*See page 10 for an explanation of the load table icons

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. S_{int} = intermediate spacing distance at which anchors are installed (inches).
6. f_s = adjustment factor for allowable load at actual spacing distance.
7. f_{scr} = adjustment factor for allowable load at critical spacing distance.
 f_{scr} is always = 1.00.
8. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
9. $f_s = f_{smin} + [(1 - f_{smin}) (S_{act} - S_{min}) / (S_{cr} - S_{min})]$.