

## 1. Product Name

**Ultrabond 365** Low Temperature Cure Acrylic Adhesive

## 2. Supplier

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## 3. Product Description

### GENERAL DESCRIPTION

**Ultrabond 365** Low Temperature Cure Adhesive is a two component, 10:1 ratio, methyl methacrylate adhesive. It is a high strength, moisture insensitive, non-sag paste adhesive system. **Ultrabond 365** has exceptional strength, outstanding flow characteristics, maximum field reliability, along with a high heat deflection temperature of 140° F. which provides engineers and contractors with a choice for specifying and setting adhesive anchors in extreme environments for both elevated and low temperature applications. **Ultrabond 365** can be applied at temperatures ranging from 0° F. to 100° F. In addition, **Ultrabond 365** has a minimum loading time of 30 minutes at 80° F. which is great for applications that require minimum down times.

Quick Selection Guide	
Tension Load (1/2")	17,162 lbs. *
Working Time (80°)	5-1/2 minutes
Full Cure Time (80°)	30 minutes
Temperature Range	0°F - 100°F

1/2" threaded rod at \*9D in 4,000 psi concrete.

\*9D is the embedment depth of the anchor (9 x 1/2"); in this example, a 1/2" threaded rod embedded 4-1/2" in 4,000 psi concrete.

### BASIC USE

**Ultrabond 365** Acrylic Adhesive is a low temperature cure product that is formulated for anchoring threaded rods, bolts, and fasteners into concrete, grout filled block, hollow block, and unreinforced masonry as well as anchoring rebar dowels and smooth dowels into pavement/concrete. **Ultrabond 365** has been tested in accordance with AC-58 for creep, seismic, freeze-thaw, in-service temperature, and damp/wet-hole applications. **Ultrabond 365** has not been tested and therefore, is not recommended for vibratory loads such as those encountered by supports for reciprocating engines, crane loads and moving loads due to vehicles. Typical applications for **Ultrabond 365** include:

- Seismic anchoring and bracing
- Grouting dowel bars and tie bars for full-depth concrete pavement repairs
- Anchoring/Fastening into solid-base materials: Stadium seating, Pallet racking & Airport runway/taxi-way expansion
- Anchoring/Fastening into hollow-base materials (with screen)

### COLOR

Component A (resin)	Component B (hardener)	Mixed
Beige	Gray	Gray

SHELF LIFE: 18 months

### SIZE/PACKAGING

Cartridge Sizes: **Ultrabond 365** is available in:

- 9 oz. cartridges; part number A9-365
- 28 oz. cartridges; part number A28-365

The resin and hardener are uniformly dispensed from a dual cartridge system and mixed simultaneously through a mixing nozzle, providing contractors with a self mix delivery system.

Bulk Sizes: **Ultrabond 365** is not available in bulk sizes.

## 4. Technical Data

### APPLICABLE STANDARDS / APPROVALS

American Society for Testing Materials (ASTM)

Meets ASTM C881-02, Type IV, Grade 3, Class A, B & C (except gel-time & epoxy content).

NSF Standard 61 Certified for Drinking Water Components





Certified to  
ANSI/NSF 61

Independent ASTM C881-99 Technical Data		
Properties	ASTM	Results
Compressive Yield Strength – 73° F	D695	11,500 psi
Compressive Modulus – 73° F	D695	200,000 psi
Tensile Strength – 73° F	D638	9,700 psi
Elongation – 73° F	D638	12 %
Bond Strength – psi (2 day)	C882	1,400
Bond Strength – psi (14 day)	C882	2,100
Consistency	C881	Non-Sag Gel
Heat Deflection Temperature	D648	140° F
Water Absorption - %	D570	0.21 (24 hrs)
Linear Coefficient of Shrinkage	D2566	0.002

WORKING TIME / CURE TIME SCHEDULE			
Temperature		Working Time	Full Cure Time
°F	°C		
0°	-18°	4 hours	24 hours
20°	-7°	35 minutes	6 hours
40°	4°	15 minutes	75 minutes
60°	16°	7 minutes	35 minutes
80°	27°	5-1/2 minutes	30 minutes
100°	38°	5 minutes	25 minutes

**Sample Specification** – Anchor adhesive shall be a two component, 10:1 ratio system supplied in a two-component side by side or single cartridge and dispensed through a static mixer nozzle supplied by the manufacturer. Adhesive must have a minimum heat deflection temperature of 140°F (60°C), per ASTM D648. Adhesive shall have a minimum ultimate tension load value of 17,162 lbs. when tested using 1/2" diameter threaded rod in a 9/16" diameter hole in a minimum embedment depth of 4-1/2" in 4,000 psi normal weight concrete when tested in accordance with ASTM E488.

### ULTRABOND 365 ORDERING INFORMATION

Part #	Size	Yield	Case Qty	Pallet Qty	Dispensing Tool		Nozzle	
					Manual	Pneumatic		
<b>A9-365</b>		9 oz	9.3 fl. oz. (16.78 in <sup>3</sup> )	25	36 cases 900 units	TM9HD	N/A	T9-365
<b>A28-365</b>		28 oz	28 fl. oz. (50.53 in <sup>3</sup> )	10	24 cases 240 units	TM28HD	TA28HD-N	T5814C

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## ESTIMATING GUIDES - ANCHORS PER CARTRIDGE

REBAR		Ultrabond 365 Usage Estimate Guide – 9 oz. Cartridge System				
Rod Dia (in.)	Hole Dia (in.)	Embedment Depth (in.)				
		2	4	6	8	10
#3	7/16	110	55	37	27	22
#4	5/8	63	31	20	14	12
#5	3/4	48	24	16	12	9.6
#6	7/8	39	18	13	9	7.8
#7	1	35	18	11	9	7
#8	1-1/8	29	14	9	7	5.5

These estimating guides are based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste. These are to be used as guides only. Job-site conditions / user techniques may effect actual usage quantity.

THREADED ROD		Ultrabond 365 Usage Estimate Guide – 9 oz. Cartridge System				
Rod Dia (in.)	Hole Dia (in.)	Embedment Depth (in.)				
		2	4	6	8	10
3/8	7/16	88	44	28	22	18
1/2	9/16	65	31	22	16	13
5/8	11/16	46	22	14	11	9
	3/4	33	16	11	7	6
3/4	13/16	33	16	11	7	6
	7/8	26	13	9	6	5
7/8	15/16	31	14	11	7	5
	1	22	11	7	5	4
1	1-1/16	26	13	9	7	4
	1-1/8	18	9	5	4	3

Rod Dia (in.)	Hole Dia (in.)	Ultrabond 365 Usage Estimate Guide – 28 oz. Cartridge System – Threaded Rod															
		Embedment Depth (in.)															
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3/8	7/16	265.0	176.7	132.5	106.0	88.3	75.7	66.3	58.9	53.0	48.2	44.2	40.8	37.9	35.3	33.6	31.6
1/2	9/16	190.7	127.1	95.4	76.3	63.6	54.5	47.7	42.4	38.1	34.7	31.8	29.3	27.2	25.4	23.9	23.0
5/8	11/16	136.8	91.2	68.4	54.7	45.6	39.1	34.2	30.4	27.4	24.9	22.8	21.0	19.5	18.2	17.1	16.2
	3/4	97.8	65.1	48.8	39.0	32.5	27.9	24.4	21.7	19.5	17.7	16.3	15.0	13.9	13.0	12.2	11.5
3/4	13/16	96.5	64.3	48.2	38.6	32.2	27.6	24.1	21.4	19.3	17.5	16.1	14.8	13.8	12.9	12.1	11.6
	7/8	77.2	51.5	38.6	30.9	25.7	22.1	19.3	17.2	15.4	14.0	12.9	11.9	11.0	10.3	9.7	9.2
7/8	15/16	92.6	61.7	46.3	37.0	30.9	26.8	23.1	20.6	18.5	16.8	15.4	14.2	13.2	12.3	11.5	10.8
	1	64.0	42.8	32.0	25.6	21.4	18.3	16.0	14.2	12.8	11.6	10.7	9.9	9.2	8.5	7.9	7.4
1	1-1/16	79.2	52.8	39.6	31.7	26.4	22.6	19.8	17.6	15.8	14.4	13.2	12.2	11.3	10.6	9.9	9.3
	1-1/8	52.6	35.2	26.3	21.1	17.6	15.0	13.2	11.7	10.5	9.6	8.8	8.1	7.6	7.0	6.4	5.8
1-1/8	1-3/16	62.8	42.8	30.8	24.2	20.5	18.6	16.8	14.6	12.8	11.7	10.6	9.6	8.7	7.9	7.1	6.5
	1-1/4	46.3	31.3	23.3	17.3	14.7	12.6	11.3	10.0	8.8	7.9	8.2	7.5	6.9	6.3	5.7	5.1
1-1/4	1-5/16	50.7	33.8	25.3	20.3	16.9	14.5	12.7	11.3	10.1	9.2	8.4	7.8	7.2	6.8	6.4	6.0
	1-3/8	40.0	26.6	20.00	15.9	13.3	11.4	10.0	8.9	8.0	7.2	6.6	6.1	5.7	5.3	4.9	4.5

Rod Dia (in.)	Hole Dia (in.)	Ultrabond 365 Usage Estimating Guide – 28 oz. Cartridge System – Deformed Bar															
		Embedment Depth (in.)															
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
#3	7/16	331.3	220.8	165.6	132.5	110.4	94.6	82.8	73.6	66.3	60.2	55.2	51.0	47.3	44.2	42.0	39.5
#4	5/8	186.	124.3	93.2	74.6	62.2	53.3	46.6	41.4	37.3	33.9	31.1	28.7	26.6	24.9	23.6	22.4
#5	3/4	143.0	95.4	71.5	57.2	47.7	40.9	35.8	31.8	28.6	26.0	23.8	22.0	20.4	19.1	17.7	16.4
#6	7/8	115.5	77.0	57.7	46.2	38.5	33.3	28.8	25.7	23.1	21.0	19.2	17.8	16.5	15.4	14.3	13.5
#7	1	106.7	71.1	53.3	42.7	35.6	30.5	26.7	23.7	21.3	19.4	17.8	16.4	15.2	14.2	13.3	12.6
#8	1-1/8	88.6	59.1	44.3	35.5	29.5	25.3	22.2	19.7	17.7	16.1	14.8	13.6	12.7	11.8	11.0	10.3
#9	1-1/4	51.4	34.3	25.7	20.6	17.1	14.7	12.8	11.4	10.3	9.3	8.6	7.9	7.3	6.9	6.4	5.9
#10	1-1/2	42.0	28.0	21.0	16.8	14.0	12.0	10.5	9.3	8.4	7.6	7.0	6.5	6.0	5.6	5.2	4.9
#11	1-5/8	25.7	17.1	12.8	10.3	8.6	7.3	6.4	5.7	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9

## PERFORMANCE TABLES - TENSION LOADS (SOLID CONCRETE)

### TENSION LOADS<sup>1</sup> FOR THREADED RODS INSTALLED IN 2,000 PSI SOLID CONCRETE

Threaded Rod Diameter (in.)	Based on Bond Strength, 2000 psi Normal Weight Concrete					Allowable, Based on Steel Strength		
	Hole Diameter (in.)	Minimum Embedment Depth (in.)	Max Torque After cure (ft.-lbs.)	Ultimate Tension Load (lbs.)	Allowable Tension Load (lbs.)	ASTM A307 GRADE C (lbs.)	ASTM A193 GRADE B7 (lbs.)	304/316 SS (lbs.)
3/8	7/16	3-3/8 4-1/2	13	5,852 7,729	1,460 1,930	2,115	4,555	3,645
1/2	9/16	4-1/2 6	22	10,798 14,210	2,700 3,550	3,775	8,100	6,480
5/8	11/16 or 3/4	5-5/8 7-1/2	55	16,417 18,747	4,100 4,685	5,870	12,655	10,125
3/4	13/16 or 7/8	6-3/4 9	106	18,618 23,934	4,655 5,980	8,455	18,225	12,390
7/8	15/16 or 1	7-7/8 10-1/2	185	--- 36,881	--- 9,220	11,510	24,805	16,865
1	1-1/16 or 1-1/8	9 12	276	32,215 46,064	8,050 11,515	15,030	32,400	22,030
1-1/4	1-5/16 or 1-3/8	11-1/4 15	370	45,962 62,208	11,490 15,550	23,490	50,620	34,425

1. Use lower value of either allowable bond strength or steel strength for allowable tensile load.

### TENSION LOADS<sup>1</sup> FOR THREADED RODS INSTALLED IN 4,000 PSI SOLID CONCRETE

Threaded Rod Diameter (in.)	Based on Bond Strength, 4000 psi Normal Weight Concrete					Allowable, Based on Steel Strength		
	Hole Diameter (in.)	Minimum Embedment Depth (in.)	Max Torque After cure (ft.-lbs.)	Ultimate Tension Load (lbs.)	Allowable Tension Load (lbs.)	ASTM A307 GRADE C (lbs.)	ASTM A193 GRADE B7 (lbs.)	304/316 SS (lbs.)
3/8	7/16	1-1/2 3-3/8 4-1/2	18	3,734 10,977 11,661	934 2,740 2,915	2,115	4,555	3,645
1/2	9/16	2 4-1/2 6	25	6,022 17,162 17,372	1,505 4,290 4,340	3,775	8,100	6,480
5/8	11/16 or 3/4	2-1/2 5-5/8 7-1/2	80	7,330 26,504 29,381	1,832 6,625 7,345	5,870	12,655	10,125
3/4	13/16 or 7/8	3 6-3/4 9	160	8,634 29,727 37,728	2,158 7,430 9,430	8,455	18,225	12,390
7/8	15/16 or 1	3-1/2 7-7/8 10-1/2	250	13,650 44,915 48,321	3,413 11,230 12,080	11,510	24,805	16,865
1	1-1/16 or 1-1/8	4 9 12	330	16,266 48,209 63,950	4,067 12,050 15,985	15,030	32,400	22,030
1-1/4	1-5/16 or 1-3/8	5 11-1/4 15	660	21,838 56,715 84,385	5,460 14,175 21,095	23,490	50,620	34,425

1. Use lower value of either allowable bond strength or steel strength for allowable tensile load.

## TENSION LOADS<sup>1,2,3</sup> FOR REINFORCING BAR INSTALLED IN 2,000 and 4,000 PSI SOLID CONCRETE

Rebar Diameter (in.)	Hole Diameter (in.)	Minimum Embedment Depth (in.)	2,000 psi Concrete		4,000 psi Concrete		Ultimate Tensile and Yield Strength Grade 60 Rebar	
			Ultimate Tension Load (lbs.)	Allowable Tension Load (lbs.)	Ultimate Tension Load (lbs.)	Allowable Tension Load (lbs.)	Minimum Yield Strength	Minimum Ultimate Tensile Strength
#3	7/16	3-3/8	6,180	1,545	8,324	2,081	6,600	9,900
		4-1/2	7,560	1,890	11,418	2,855		
#4	5/8	4-1/2	9,949	2,487	16,657	4,164	12,000	18,000
		6	15,038	3,760	17,828	4,457		
#5	3/4	5-5/8	14,012	3,503	20,896	5,224	18,600	27,900
		7-1/2	16,718	4,180	26,072	6,518		
#6	7/8	6-3/4	21,247	5,312	26,691	6,673	26,400	39,600
		9	33,325	8,331	37,425	9,356		
#7	1	7-7/8	---	---	40,374	10,094	36,000	54,000
		10-1/2	38,975	9,744	46,050	11,513		
#8	1-1/8	9	35,600	8,900	47,311	11,828	47,400	71,000
		12	41,010	10,253	66,140	16,535		
#9	1-1/4	10-1/8	---	---	57,221	14,305	60,000	90,000
		13-1/2	---	---	79,966	19,992		
#10	1-1/2	11-1/4	49,045	12,261	73,091	18,273	76,200	114,300
		15	69,079	17,270	83,295	20,824		
#11	1-5/8	12-3/8	63,397	15,849	75,047	18,762	93,600	140,400
		16-1/2	81,707	20,427	91,989	22,997		

1. Use lower value of either bond strength or steel strength for allowable tensile load.
2. Ultimate load values in 2,000 and 4,000 psi stone aggregate concrete. Ultimate loads are indicated for the embedment shown in the Embedment in Concrete column. Performance values are based on the use of minimum Grade 60 reinforcing bar. The use of lower strength rods will result in lower ultimate tension loads.
3. SHEAR DATA: Provided the distance from the rebar to the edge of the concrete member exceeds 1.25 times the embedment depth of the rebar, calculate the ultimate shear load for the rebar anchorage as 60% of the ultimate tensile strength of the rebar.

### COMBINATION LOADS TENSION and SHEAR REDUCTION CALCULATIONS

Allowable loads for anchors under both tension and shear loading at the same time (combination loading) will be lower than the allowable loads for anchors subjected to 100% tension or 100% shear. Use the following equation to evaluate anchors in combination loading conditions.

$$\left(\frac{N_a}{N_s}\right)^{5/3} + \left(\frac{V_a}{V_s}\right)^{5/3} \leq 1$$

**$N_a$  = Applied Service Tension Load**       **$V_a$  = Applied Service Shear Load**  
 **$N_s$  = Allowable Tension Load**                       **$V_s$  = Allowable Shear Load**

### RECOMMENDED EDGE DISTANCE REQUIREMENTS FOR SHEAR LOADS INSTALLED IN CONCRETE

Anchor Diameter (In.)	Embedment Depth (In.)	Critical Edge Distance (In.) (100% Load Capacity)	Interpolated Edge Distance (In.) (80% Load Capacity)	Interpolated Edge Distance (In.) (50% Load Capacity)	Minimum Edge Distance (In.) (10% Load Capacity)
3/8	3-3/8	4-3/16	3-7/16	2-5/16	13/16
1/2	4-1/2	5-5/8	4-5/8	3-1/8	1-1/8
5/8	5-5/8	7	5-3/4	3-1/8	1-3/8
3/4	6-3/4	8-7/16	6-15/16	4-5/8	1-5/8
1	9	11-1/4	9-1/4	6-1/4	2-1/4
1-1/4	11-1/4	14-1/16	11-5/8	7-7/8	2-7/8

## RECOMMENDED EDGE DISTANCE REQUIREMENTS FOR TENSION LOADS INSTALLED IN CONCRETE

Anchor Diameter (In.)	Embedment Depth (In.)	Critical Edge Distance (In.) (100% Load Capacity)	Interpolated Edge Distance (In.) (90% Load Capacity)	Interpolated Edge Distance (In.) (80% Load Capacity)	Minimum Edge Distance (In.) (70% Load Capacity)
3/8	3-3/8	2-1/2	1-15/16	1-3/8	13/16
	4-1/2	3-3/8	2-5/8	1-7/8	1-1/8
1/2	4-1/2	3-3/8	2-5/8	1-7/8	1-1/8
	6	4-1/2	3-1/2	2-1/2	1-1/2
5/8	5-5/8	4-3/16	3-1/4	2-5/16	1-3/8
	7-1/2	5-5/8	4-3/8	3-1/8	1-7/8
3/4	6-3/4	5-1/16	3-15/16	2-13/16	1-5/8
	9	6-3/4	5-1/4	3-3/4	2-1/4
1	9	6-3/4	5-1/4	3-3/4	2-1/4
	12	9	7	5	3
1-1/4	11-1/4	8-7/16	6-9/16	4-3/4	2-7/8
	15	11-1/4	8-3/4	6-1/4	3-3/4

## RECOMMENDED SPACING REQUIREMENTS FOR TENSION LOADS INSTALLED IN CONCRETE, LIGHTWEIGHT CONCRETE & HOLLOW-BLOCK

Anchor Diameter (In.)	Embedment Depth (In.)	Critical Spacing (In.) (100% Load Capacity)	Interpolated Spacing (In.) (90% Load Capacity)	Minimum Spacing (In.) (80% Load Capacity)
3/8	3-3/8	4-3/16	2-1/2	13/16
	4-1/2	5-5/8	3-3/8	1-1/8
1/2	4-1/2	5-5/8	3-3/8	1-1/8
	6	7-1/2	4-1/2	1-1/2
5/8	5-5/8	7	4-3/16	1-3/8
	7-1/2	9-3/8	5-5/8	1-7/8
3/4	6-3/4	8-7/16	5	1-5/8
	9	11-1/4	6-3/4	2-1/4
1	9	11-1/4	6-3/4	2-1/4
	12	15	9	3
1-1/4	11-1/4	14-1/16	8-1/2	2-7/8
	15	18-3/4	11-1/4	3-3/4

### EDGE DISTANCE LOAD FACTORS SUMMARY<sup>1,2</sup>

Distance From Edge of Concrete	Load Factor
Critical Edge Distance – Tension 0.75 x Anchor Embedment	100% Tension Load
Minimum Edge Distance – Tension 0.25 x Anchor Embedment	70% Tension Load
Critical Edge Distance – Shear 1.25 x Anchor Embedment	100% Shear Load
Minimum Edge Distance – Shear 0.25 x Anchor Embedment	10% Shear Load

### SPACING DISTANCE LOAD FACTORS SUMMARY<sup>1,2</sup>

Distance From Another Anchor	Load Factor
Critical Spacing – Tension 1.25 x Anchor Embedment	100% Tension Load
Minimum Edge Spacing – Tension 0.25 x Anchor Embedment	80% Tension Load
Critical Spacing – Shear 1.25 x Anchor Embedment	100% Shear Load
Minimum Spacing – Shear 0.25 x Anchor Embedment	25% Shear Load

1. Use linear interpolation for load factors at edge distances or spacing distances between critical and minimum.

2. Anchors are affected by multiple combination of spacing and/or edge distance loading and direction of the loading. Use the product of tension and shear loading factors in design.

## SHEAR LOADS<sup>1</sup> FOR THREADED RODS – 2,000 PSI CONCRETE

Threaded Rod Diameter (in.)	Based on Bond Strength, 2000 psi Normal Weight Concrete				Allowable, Based on Steel Strength		
	Hole Diameter (in.)	Minimum Embedment Depth (in.)	Ultimate Shear Load (lbs.)	Allowable Shear Load (lbs.)	ASTM A307 GRADE C (lbs.)	ASTM A193 GRADE B7 (lbs.)	304/316 SS (lbs.)
3/8	7/16	3-3/8 4-1/2	5,220 5,220	1,305 1,305	1,090	2,345	1,870
1/2	9/16	4-1/2 6	8,029 8,029	2,005 2,005	1,935	4,170	3,330
5/8	11/16 or 3/4	5-5/8 7-1/2	15,967 15,967	3,990 3,990	3,025	6,520	5,210
3/4	13/16 or 7/8	6-3/4 9	20,126 20,126	5,030 5,030	4,355	9,390	6,390
7/8	15/16 or 1	7-7/8 10-1/2	29,866 29,866	7,465 7,465	5,930	12,780	8,680
1	1-1/16 or 1-1/8	9 12	37,538 37,538	9,385 9,385	7,745	16,690	11,340
1-1/4	1-5/16 or 1-3/8	11-1/4 15	58,412 58,412	14,600 14,600	12,100	26,075	17,730

1. Use lower value of either allowable bond or steel strength for allowable shear load.

## SHEAR LOADS<sup>1</sup> FOR THREADED RODS – 4,000 PSI CONCRETE

Threaded Rod Diameter (in.)	Based on Bond Strength, 4000 psi Normal Weight Concrete				Allowable, Based on Steel Strength		
	Hole Diameter (in.)	Minimum Embedment Depth (in.)	Ultimate Shear Load (lbs.)	Allowable Shear Load (lbs.)	ASTM A307 GRADE C (lbs.)	ASTM A193 GRADE B7 (lbs.)	304/316 SS (lbs.)
3/8	7/16	1-1/2 3-3/8 4-1/2	4,126 5,220 5,220	1,031 1,305 1,305	1,090	2,345	1,870
1/2	9/16	2 4-1/2 6	8,029 8,029 8,029	2,005 2,005 2,005	1,935	4,170	3,330
5/8	11/16 or 3/4	2-1/2 5-5/8 7-1/2	11,256 15,967 15,967	2,814 3,990 3,990	3,025	6,520	5,210
3/4	13/16 or 7/8	3 6-3/4 9	20,126 20,126 20,126	5,030 5,030 5,030	4,355	9,390	6,390
7/8	15/16 or 1	3-1/2 7-7/8 10-1/2	20,920 29,866 29,866	5,230 7,465 7,465	5,930	12,780	8,680
1	1-1/16 or 1-1/8	4 9 12	33,152 37,538 37,538	8,288 9,385 9,385	7,745	16,690	11,340
1-1/4	1-5/16 or 1-3/8	5 11-1/4 15	33,152 58,412 58,412	8,288 14,600 14,600	12,100	26,075	17,730

1. Use lower value of either concrete or steel strength for allowable shear load.

## TENSION & SHEAR LOADS<sup>1,2</sup> FOR THREADED ROD INSTALLED IN GROUTED BRICK MASONRY CONSTRUCTED OF SOLID RED BRICK UNITS

Threaded Rod Diameter (In.)	Drill Hole Diameter (In.)	Embedment Depth (In.)	Anchor Location	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)
1/4	3/8	3-1/2	CENTER OF BRICK FACE	2,130	1,165
		6		3,575	1,550
3/8	1/2	3-1/2	CENTER OF BRICK FACE	2,130	4,150
		6		8,875	6,950
1/2	5/8	3-1/2	CENTER OF BRICK FACE	2,130	3,090
		6		12,155	7,910

1. Allowable working loads for the single installations should not exceed 25% (an industry standard) capacity or the allowable load of the anchor rod. Loads based upon testing with ASTM A193, Grade B7 rods.

2. Void between brick wythes was grouted solid; therefore the use of screens was not necessary.

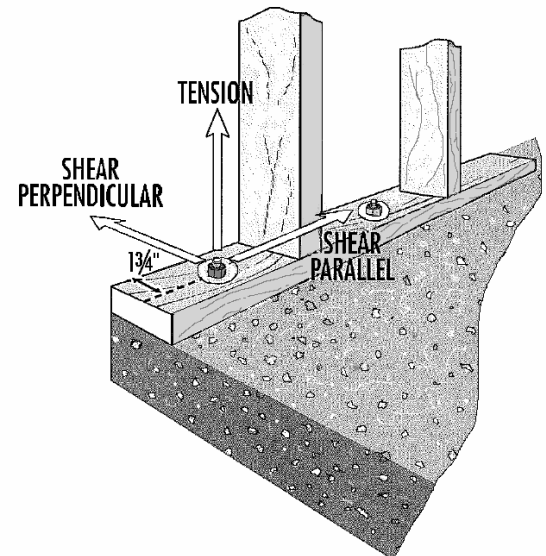
## TENSION & SHEAR LOADS<sup>1,2</sup> FOR THREADED ROD INSTALLED IN GROUT-FILLED CONCRETE BLOCK

Threaded Rod Diameter (In.)	Drill Hole Diameter (In.)	Embedment Depth (Inches)	Anchor Location	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)
1/2	5/8	4-1/4	GROUTED CELL	5,170	8,500
5/8	3/4	5	GROUTED CELL	6,320	10,850
3/4	7/8	6-5/8	GROUTED CELL	10,910	17,075

## TENSION & SHEAR LOADS FOR THREADED RODS IN SOLID CONCRETE FLOORS AND STEMWALLS AT 1-3/4' EDGE DISTANCE

Anchor Diameter (In.)	Drill Hole Diameter (In.)	Embedment In Concrete (In.)	Shear Load Direction	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)
1/2	9/16	4-1/2	Perpendicular	9,180	1,760
			Parallel	9,180	7,240
5/8	11/16 or 3/4	5-5/8	Perpendicular	13,620	2,540
			Parallel	13,620	8,778
		10	Parallel	20,700	2,540
			Perpendicular	20,700	8,799
3/4	13/16 or 7/8	6-3/4	Perpendicular	15,080	2,080
			7/8	15/16 or 1	15
Parallel	29,940	7,101			

- Allowable working loads for the single installations under static loading should not exceed 25% capacity of the allowable load of the anchor rod.
- Ultimate load values in 2,000 and 4,000 psi stone aggregate concrete. Ultimate loads are indicated for the embedment shown in the Embedment in Concrete column. Performance values are based on the use of high strength threaded rod (ASTM A 193 Gr. B7). The use of lower strength rods will result in lower ultimate tension and shear loads.
- Linear interpolation may be used for intermediate spacing and edge distances (see pages 5 and 6).



## Ultrabond 365 used for Sill Plate Attachments

## ULTRABOND 365 CHEMICAL RESISTANCE CHART

Chemical Resistance	HIGH Anchors can be submerged in the materials.	MEDIUM Intermittent Exposure or temporary submersion due to splash or spill	LOW Exposure should be limited to splash and spill exposure followed by immediate clean up.
Fresh Water	X		
Salt Water	X		
Brine	X		
Urine	X		
Humus	X		
20% Caustic (NaOH)		X	
Gasoline		X	
10 % Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )		X	
3.5% Hydrochloric Acid (HCl)		X	
9% Phosphoric Acid (H <sub>3</sub> PO <sub>4</sub> )		X	
10% Nitric Acid		X	
8.5% Ammonium Hydroxide		X	
Bleach		X	
Ammonia		X	
Xylene			X
Toluene			X
Acetone			X
Glacial Acetic Acid			X
Methanol			X
Methylene Chloride			X

**Important Note:** This chemical resistance table above applies only when Ultrabond 365 adhesive is used for installing anchors into concrete in a conventional manner with recommended hole sizes. Installation of the anchor must always be done in a drilled hole which is completely cleaned of all concrete dust. Exposure to solvents and chemicals, as listed above should occur only after the Ultrabond 365 adhesive has fully cured.

## 5. Installation

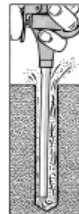
Job site preparation and work flow – to achieve the desired results, carefully follow these procedures!

- To achieve optimum work flow and productivity, complete the hole preparation and cartridge set up in advance, prior to dispensing any adhesive. This can be accomplished by having the holes already drilled and cleaned prior to dispensing the adhesive and having the cartridges pre-balanced and nozzles already attached.
- If at all possible, schedule dispensing to consume an entire cartridge at one time with no interruption of adhesive flow. This can be accomplished by having one worker continuously dispensing epoxy while another installs the anchor into the hole.

### Dual Cartridge Anchoring & Doweling – Hole Preparation and Cartridge Set up



- I. Drill hole to proper diameter and depth:**
- Drill 1/16" diameter larger for 3/8"-1/2" diameter threaded rod anchors and #3 rebar.
  - Drill 1/8" diameter larger for 5/8"-1-1/4" diameter threaded rods (#4 - #11 rebar).



- II. Blow out dust from the bottom of the hole using oil-free compressed air.**

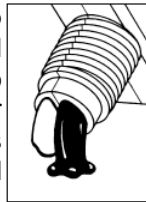


- III. Brush the hole with a steel brush. Blow out dust again. The hole should be clean of dust and debris.**

- IV. Insert cartridge into dispenser making sure it is properly positioned with shoulder of cartridge flush with front bracket of the dispenser and the length of the cartridge is parallel to the side rails of the tool.**

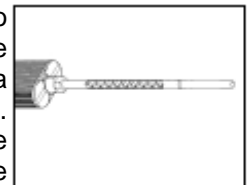


- V. Remove plastic cap and dispense a small amount of adhesive into a disposable container until you get continuous flow of both gray and beige material.**



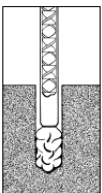
**PRODUCT FEATURE:** No heating or warming of cartridge is required to dispense material down to 0°F. Exceptional flow rate at low temperatures.

- VI. Place nozzle onto cartridge and secure by threading in a clockwise direction. Make sure that nozzle and cartridge assembly is secure.**

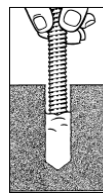


Dispense mixed adhesive into a disposable container until the color becomes a uniform gray with no streaks. These procedures must be repeated whenever starting a new cartridge or using a new nozzle.

### Anchoring Into Concrete

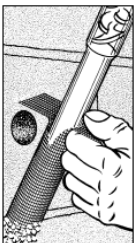


- VII. Dispense the material from the bottom of the hole. Fill approximately 1/2 – 5/8 of the hole depth while slowly withdrawing the nozzle.**

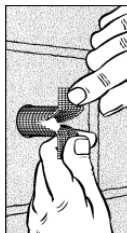


- VIII. Insert the threaded rod or rebar to the bottom of the hole while turning clockwise. The threaded rod or rebar should be free of dirt, grease, oil, or other foreign materials. Do not disturb or bolt-up until minimum bolt-up time has passed.**

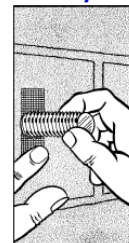
### Anchoring Into Hollow Block or Unreinforced Masonry (Repeat steps I through VI as shown above).



- VII. Insert the mixing nozzle into the bottom of the screen and completely fill while withdrawing the nozzle. Fill the screen completely all the way to the end to insure that the epoxy completely fills the screen from top to bottom when threaded rod is inserted.**



- VIII. Insert the filled screen into the hole.**



- IX. Insert the threaded rod or dowel to bottom of the screen while turning clockwise. The threaded rod or rebar should be free of dirt, grease, oil or other foreign material. Do not disturb or bolt-up until minimum bolt-up time has passed.**

## BUILDING CODES

Installation of **Ultrabond 365** must comply with applicable local, state and national code requirements.

## SITE CONDITIONS

Material shall be delivered in original unopened containers and stored in a dry environment at a temperature between 40° and 80°F. **DO NOT STORE ABOVE 105°F.**

## PRECAUTIONS

- Wear safety glasses
- Avoid prolonged contact with skin.
- Keep out of reach of children
- Do not take internally
- If Ingested and conscious, give large quantities of water or milk. Do not induce vomiting. Call a physician
- Eye contact. Flush with water for at least 15 minutes. Call a physician

## 6. Availability and Cost

### AVAILABILITY

**Ultrabond 365** is available through select distributors who can provide you with all of your construction needs. Please contact Adhesives Technology Corp. at (800) 892-1880 for a distributor near you.

## COST

Cost information is available from your local distributor.

## 7. Warranty

All warranties of the product listed herein, in the corresponding ATC catalog, and in any other current literature, expressed or implied, including warranties of merchantability and fitness for a particular purpose are specifically and expressly excluded, with the following exception: At its sole discretion, ATC will repair or replace any product which it considers to be defective in material or workmanship, excepting normal wear and tear within sixty (60) days from the date of purchase from ATC. ATC shall not be liable for any injury, loss or damage, direct, indirect, incidental or consequential or arising out of use of, misuse of, negligence, accident or inability to use any ATC product.

## 8. Technical Services

For technical support contact Adhesives Technology Corp. at (800) 892-1880.

## 9. Maintenance

None required.

## 10. Filing System

Additional product information and specifications are available either on line at [www.atc.ws](http://www.atc.ws) or contact Adhesives Technology Corp. at (800) 892-1880 to get copies mailed or faxed to you.

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Actual user performance and data may differ due to variations of base material, installation procedures and personnel, weather conditions and other factors. Adhesives Technology Corp. reserves the right to change specifications or information printed in this Tech Data Sheet without notice or liability for these changes. Adhesives Technology Corp. will not be liable for any claim based on the use of data or other information printed in this Tech Data Sheet.