

# Epoxy Resin Anchoring



Epoxy resin anchoring HM-500 is a two-component modified epoxy resin adhesive, supplied in high quality double cartridge plastic tube package. It is injected into holes using dispenser gun, which ensures mixing part A and part B uniformly before discharging the adhesive. The primary application of HM-500 epoxy resin anchoring is planting reinforcing bars and other starter bars.



## ▲▲Product Advantage

- The modification of epoxy resin not only keeps the synthetic superiority of colloid, but also shortens the curing time at low temperature.
- The colloid is full of elastic reactive spherical body, which improves the strength, toughness, tearing resistance and impact resistance of the adhesive.
- Successful grafting of hydrophilic groups and hydrophobic groups on molecular structure to maintain superior performance in dry or moist environment.
- Advanced high-speed dual-planetary power mixing equipment, materials dispersed mixed uniformly, and has vacuum treatment to avoid introducing bubbles. The adhesive has more stable performance, longer storage life-time, has denser colloid curing, and more superior mechanical properties.
- The use of nano-materials technology, multi-dimensional network structure to achieve good thixotropic effect. Whether vertical-side application or ceiling overhead application, the glue has no flow hanging phenomenon.
- Low viscosity, easy extrusion mixing, faster injection speed, higher construction efficiency.
- With the HM special electric glue gun, the construction efficiency increases 100%, the labor-time reduced by 50%.
- The product has passed the safety appraisal test, the environmental protection non-toxic detection, the horizontal combustion detection, the two amine detection inspection, the acute mouth toxicity test, the welding resistance test (embedding bond test), the anchorage system anti-fatigue test, and the acute through mouth toxicity test.

## ▲▲ Technical Parameters

### Mechanical Properties

Item	HM-500 Epoxy Resin Anchoring				
Appearance	Part A: White paste				
	Part B: Red paste				
Density (g/cm <sup>3</sup> )	1.50±0.10				
Mix Ratio	A:B=3:1				
Temperature (°C)	-5	0	10	20	≥30
Time of Operate (min)	60	45	30	25	20
Cure Time (h)	72	48	24	12	6
Shelf Life (month)	18				

### Performance Parameter

Description	Test Item	Test Conditions	Test Result
Adhesive Performance	Tensile Strength (MPa)	ASTM D638	55
	Tensile Modulus (MPa)		3500
	Elongation at Break (%)		1.7
	Flexural Strength (MPa)	ASTM D790	70
	Compressive Strength (MPa)	ASTM D695	82
	Shear Strength (MPa)	ASTM D732	45
	Deformation Temperature (°C)	B method using 0.45MPa bending stress	≥65
	Nonvolatile matter Content (%)	(105±2) °C, (180±5) min	≥99

Test Item		Test Conditions	Qualified Standard (GB50728-2011)
Conditions Resistance	Wet and Heat Ageing Resistance	Under 50°C、95% RH conditions, ageing 90 days, testing at ambient temperature by steel-steel tensile shear strength	Compared with the short-term results at roomtemperature, shear strength loss: ≤12%
	Heat Aging Resistance	Under (80±2) °C conditions, ageing 30 days, testing as the same temperature by steel-steel tensile shear strength	Compared with the short-term results at same temperature 10min, shear strength loss: ≤5%
	Freezing and Thawing Resistance	Under-25°C-35°C freezing circulating temperature, circulate 8h every time, after 50 times, testing at ambient temperature by steel-steel tensile shear strength	Compared with room temperature, short-term results, shear strength loss is not greater than 5%
Stress Resistance	Performance Under Sustained Load	Under (23±2) °C, (50±5) % RH conditions, undertake 4.0MPa shear strength continuous to 210d	Steel - steel tensile shear specimens does not fail, and creep deformation value is less than 0.4 mm
	Fatigue Performance	Under ambient temperature, as frequency 5Hz, stress ratio 5:1.5, max stress 4.0MPa fatigue load testing by steel-steel tensile shear strength	After 2×10 <sup>6</sup> times continuous sine wave fatigue loads, specimen does not fail

→→ Application guider of HM-500 for rebar planting

The steel bar diameter (mm)	Pore size (mm)	Pore depth (mm)	The injecting glue volume ml(2/3v)	Theoretic number piece	HRB335 (kN)	Depth
8	12	80	6.03	64	15.08	10d
8	12	120	9.04	43		15d
8	12	160	12.06	32		20d
10	14	100	10.26	38	23.56	10d
10	14	150	15.08	25		15d
10	14	200	20.52	19		20d
12	16	120	16.09	24	33.93	10d
12	16	180	24.12	16		15d
12	16	240	32.18	12		20d
14	18	140	23.73	16	46.18	10d
14	18	210	35.61	10		15d
14	18	280	47.46	8		20d
16	22	160	40.52	11	60.32	10d
16	22	240	60.79	7		15d
16	22	320	81.04	5		20d
18	25	180	58.87	8	76.34	10d
18	25	270	88.31	5		15d
18	25	360	117.74	4		20d
20	28	200	82.06	5	94.25	10d
20	28	300	123.09	3		15d
20	28	400	164.12	2		20d
22	30	220	103.62	4	114.04	10d
22	30	330	155.43	2		15d
22	30	440	207.24	2		20d
25	32	250	133.97	2	147.26	10d
25	32	375	200.96	1		15d
25	32	500	267.95	1		20d

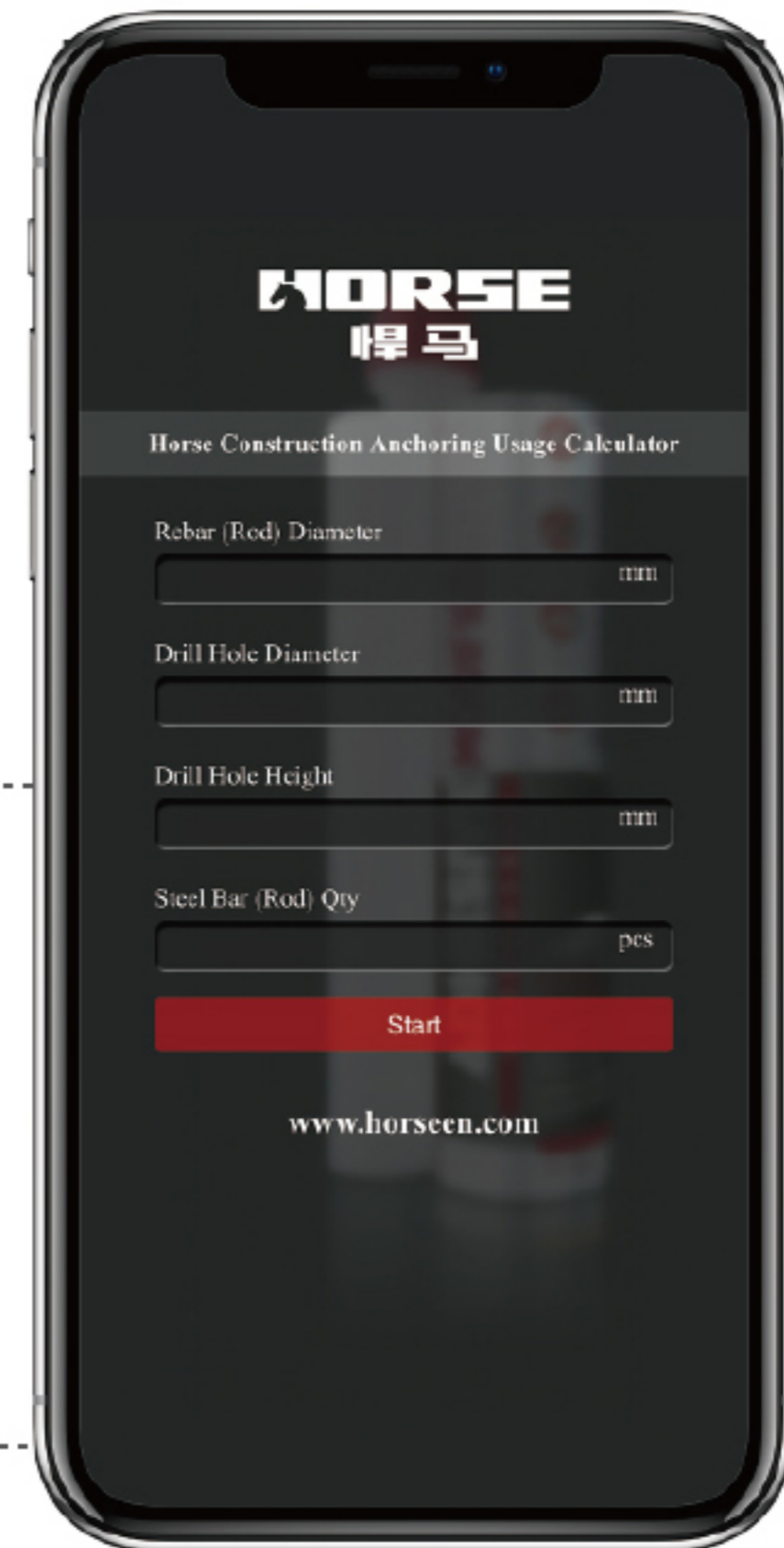


▲▲ Operation Process

Please scan QR code to view a 3D video



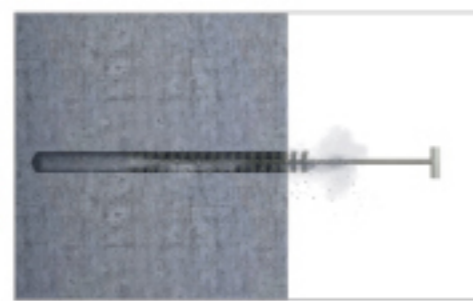
Glue Dosage Calculator



▲▲ Operation Process



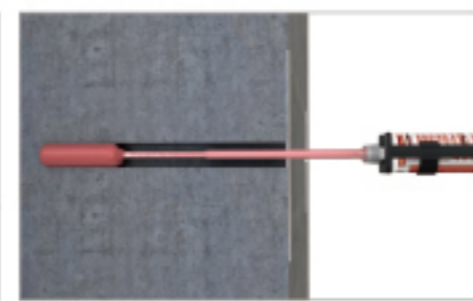
drill hole



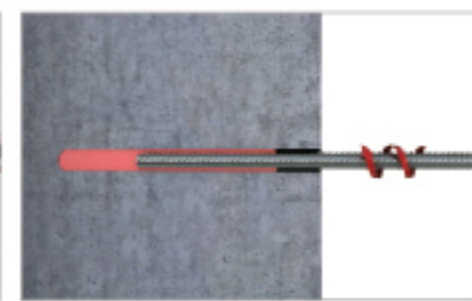
clean hole



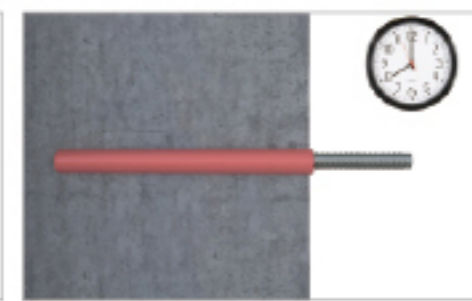
blow hole



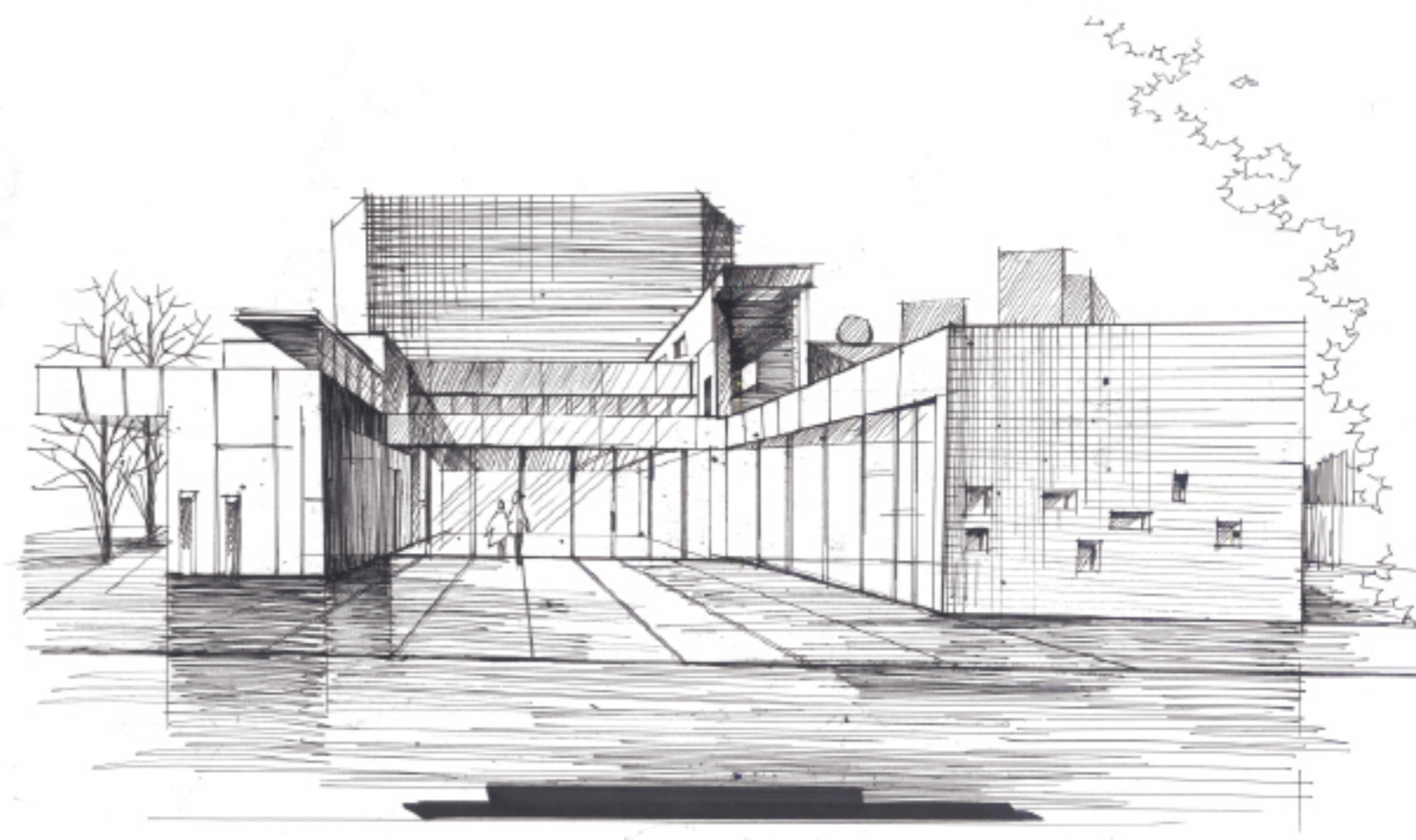
inject glue



plant rebar



curing



### ▲▲Product Characteristics

- Modified epoxy resin, styrene-free, safe and non-toxic.
- High strength, strong bond strength, good toughness, the effect is equivalent to rebar embedded in new concrete.
- Durable, good heat resistance, no creep at room temperature.
- Low sensitivity to humidity, long-term load stability in humid environment.
- Anti-acid-base, good seismic performance, no expansion.
- The thixotropic properties are good, especially suitable for the vertical-side or ceiling overhead surface bar planting applications.
- Dual-barrel straight mixing package, with special glue gun for mixing and dispensing, no need for manual dispensing.
- Short curing time, could cure at low temperature.

### ▲▲Application Range

- Planting of steel bars and bolts in concrete' s frame member.
- Fixation of drying hanging brackets of curtain walls and stone materials.
- Reinforcement of building structures and the anchorage for framework.
- Planting anchor-bolts for all types of equipment.
- Anchoring connection of steel structures and concrete structures.
- Engineering reinforcement of railways, public roads, bridges, water conservancy facilities' reconstruction and extension, etc..
- Fixation of advertisement boards, tunnel pipe lines, elevated road noise barriers and barricades.

### ▲▲Storage transport

- Should be stored in a cool, dry well-ventilated space. Storage time period is limited to 18 months.
- According to General Chemical Building Materials Transport, this product is non-toxic, and non-hazardous product.

### ▲▲Package

Supplied in hard plastic tube cartridges, 390ml/cartridge, 30cartridges/box.

### ▲▲Safety Measures

- Users of this product should take safety protection measures (e.g. wearing masks, gloves, goggles, etc.).  
Fire prevention measures should also be taken, and the work space should be well-ventilated.
- If accidentally swallowed or splashed into the eye, please seek immediate medical attention.

# Epoxy Resin Anchoring Adhesive



HM-500 Epoxy Resin Anchoring Adhesive is a two-component modified epoxy resin adhesive. It is recommended for chemical planting of bar, bolt anchorage, crack repair, all kinds of concrete structure reinforcement, and widely used in construction, highway repair, repair engineering, and seismic retrofit.

## ▲▲ Product Advantages

- The modification of epoxy resin not only keeps the synthetic superiority of colloid, but also shortens the curing time at low temperature.
- The colloid is full of elastic reactive spherical body, which improves the strength, toughness, tearing resistance and impact resistance of the adhesive.
- Successful grafting of hydrophilic groups and hydrophobic groups on molecular structure to maintain superior performance in dry or moist environment.
- Advanced high-speed dual-planetary power mixing equipment, materials dispersed mixed evenly without dead ends, with vacuum treatment eliminates air bubbles, more stable performance, longer storage time. Cured colloid is denser, and its mechanical properties are more superior.
- The use of nano-material technology, its multidimensional network structure helps achieving good thixotropic effects, whether vertical side construction, overhead top construction, without sagging/dripping adhesive glue.
- The product has passed several standard tests, including but not limited to the Safety appraisal test, the environmental protection non-toxic detection, the horizontal combustion detection, the two-amine detection inspection, the acute mouth toxicity test, the welding resistance test (bar embedment bond test), and the acute through mouth toxicity test.

## ▲▲ Application Range

The reinforcement planting and anchor bolt anchoring in various building structures, strengthening of engineered buildings, anchorage of various equipment foundations, anchorage of roadway roof and wall panels, anchorage of railway and railroad rails, anchoring of rails, installation and anchorage of curtain wall, installation and anchorage of chemical equipment, pipelines, billboards, etc., water conservancy facilities, docks, highways, bridges and other works of various anchorage.

## ▲▲ Product Characteristics

- Modified epoxy resin, strong bond strength, acid and alkali corrosion resistance, very good durability.
- Cures at normal temperature, and easy to apply.
- Wide range of applications: It can be bonded concrete, stone, metal, etc..
- Volumetrically stable, no expansion after curing, no shrinkage, and does not cause any damage to substrate.
- Environmentally friendly, non-toxic, does not contain any volatile solvents.

## ▲▲ Technical Parameters

### Physical parameters

Model	HM-500 Epoxy Resin Anchoring Adhesive				
Appearance	Part A: Brown paste				
	Part B: Brown paste				
Density (g/cm <sup>3</sup> )	1.60±0.10				
Mix Ratio	A:B=2:1				
Temperature (°C)	-5	0	10	20	≥30
Time of Operate (min)	60	45	30	25	20
Cure Time (h)	72	48	24	12	6
Shelf Life (month)	12				

### Performance Parameters

Description	Test Item	Test Conditions		Qualified Standards (GB50728-2011)
Adhesive Performance	Splitting Tensile Strength (MPa)	In (23±2) °C, (50±5)% RH conditions, with the addition of 2mm/min speed to test		≥8.5
	Bending Strength (MPa)			≥50
	Compressive Strength (MPa)			≥60
Bonding Performance	Steel-steel Shear Bonding Strength (MPa)	(23±2) °C, (50±5) % RH		≥10
	Bonding Strength Between Deformed Bars and Concrete Under Restrained Pulling (MPa)	(23±2) °C, (50±5) % RH	C30 φ25l=150	≥11
			C60 φ25l=125	≥17
	Steel to Steel T Impact Stripping Length (mm)	(23±2) °C, (50±5) % RH		≤25
Deformation Temperature (°C)	B method using 0.45MPa bending stress		≥65	
Nonvolatile matter Content (%)	(105±2) °C, (180±5) min		≥99	



Test Item		Test Conditions	Qualified Standard (GB50728-2011)
Conditions Resistance	Wet and Heat Ageing Resistance	Under 50℃、95% RH conditions, ageing 90 days, testing at ambient temperature by steel-steel tensile shear strength	Compared with the short-term results at roomtemperature, shear strength loss: ≤ 12%
	Heat Aging Resistance	Under (80±2) ℃ conditions, ageing 30 days, testing as the same temperature by steel-steel tensile shear strength	Compared with the short-term results at same temperature 10min, shear strength loss: ≤ 5%
	Freezing and Thawing Resistance	Under-25℃-35℃ freezing circulating temperature, circulate 8h every time, after 50 times, testing at ambient temperature by steel-steel tensile shear strength	Compared with room temperature, short-term results, shear strength loss is not greater than 5%
Stress Resistance	Performance Under Sustained Load	Under (23±2) ℃, (50±5) % RH conditions, undertake 4.0MPa shear strength continuous to 210d	Steel - steel tensile shear specimens does not fail, and creep deformation value is less than 0.4 mm
	Fatigue Performance	Under ambient temperature, as frequency 5Hz, stress ratio 5:1.5, max stress 4.0MPa fatigue load testing by steel-steel tensile shear strength	After 2×10 <sup>6</sup> times continuous sine wave fatigue loads, specimen does not fail

### ▲▲ Operation Process

- Location: Mark the location of rebar-planting drilling holes as per specifications, and according to the design requirements. Avoid rebars inside concrete structures.
- Hole drilling: suitably use electric hammer or pneumatic drill to drill holes according to the designed diameter and depth.
- Hole cleaning: blow out or vacuum the dust in the holes with blower after completing drilling holes, brush the wall of the holes with brush or cotton cloth, this process should be repeated as many times as needed until there is no dust in the holes.
- Adhesive Preparation: anchor adhesive should be mixed adequately according to the ratio requirements strictly until component A and B are mixed completely and uniformly.
- Bar Planting: inject the anchor adhesive into the inner of the holes using adhesive gun-dispenser, avoid trapping air at the bottom of the hole, and then insert the steel bar whole the way into the end of the hole, in rotational way.
- Curing: Curing depends on the ambient temperature, loading installation can be implemented after complete curing.

### ▲▲ Transportation and Storage

- This product should be kept sealed and stored in a dry and clean storage space of ambient temperature between -5 °C and 40 °C. In order to prevent damage, do not store outdoor under direct sunlight or under direct rain.
- A & B components should be kept separately. Shelf life is 12 months at room temperature (25 °C). Product should be tested if exceeded the shelf life. If the physical and mechanical properties after 12 months meet the standard requirements, then it could be used.
- These products are not inflammable, explosive, toxic, or dangerous cargoes. They could be transported with general transportation cargo. The epoxy containers should not be damaged, exposed to direct sunlight or rain, and should not be tilted or stored upside-down during transportation.

### ▲▲ Package

The A and B components of this product are packed in separate containers. Group A is 20kg/container and Group B is 10kg/container.

### ▲▲ Points for Attention

- The mixed Components A & B adhesive shall not be used beyond its pot life (application period).
- Unused A & B components of the adhesive, please seal the containers well, don't expose to air for a long period of time.

### ▲▲ Safety Measures

- Construction personnel should take safety protection measures (such as wearing masks, gloves, goggles, etc.), on-site attention to fire prevention measures, and maintenance well-ventilated work space.
- If accidentally got in touch with skin or clothing, immediately wipe clean with acetone and rinse with a large amount of water.
- If accidentally swallowed or splashed onto eye, please seek immediate medical attention.

# Chemical Anchor Bolt

HM-200 Chemical Anchor Bolt is high-strength anchor bolt with vinyl resin as main bonding material.

It consists of selected quartz sands, curing agents and resins placed in sealed glass tubes, Along with threaded metal rods/bolts.

it is a new type of anchor material which can serve as a substitute to embedded parts, and expansion bolts.



## ▲▲ Application Range

- Attaching various types of curtain wall brackets, glasses panels, stones, aluminum curtain walls, and all kinds of composite material curtain wall steel brackets, bases and keels.
- Bolting of machines and equipment to foundations.
- Connecting steel structures and concrete structures.
- Attachments of utility pipes, e.g. chemical pipes, equipment pipelines, crane rails, and other building equipment.

## ▲▲ Curing Time Sheet

Temperature	-5℃	0℃	5℃	10℃	20℃	30℃	40℃
Operable Time	30 min	20 min	14 min	9 min	5 min	4 min	2 min
Curing Time	6 hour	3 hour	90 min	70 min	45 min	25 min	15 min

## ▲▲ Product Characteristics

- High fatigue resistance, very durable, corrosion resistance.
- Strong cohesion, high pulling force, the effect is the same as embedded rods.
- Application in wide temperature range, could be constructed at -5 ℃ ~ 40 ℃.
- Used for tight limited spaces, margins, narrow spaces.
- Applicable to various substrates, concrete, rock, masonry etc..
- Non-expansive chemical bonding adhesive, does not damage the substrate.
- Convenient and fast construction, safe and environmentally friendly.

### ▲▲ Operation Process

→→ Drill hole in the substrate: Drilling Tools - Impact Hammer.

→→ Clean hole

Blow out or vacuum the dust in the holes with compressed gases such as air pump or gas reservoir.

Brush the dust attached to the hole walls with brushes.

Repeat step 1 and 2 several times, until the hole is completely free of loose materials and dust.

→→ Insert the adhesive capsule: confirm the fluidity of resin with hand or visual inspection, and then insert the capsule whole the way inside the hole.

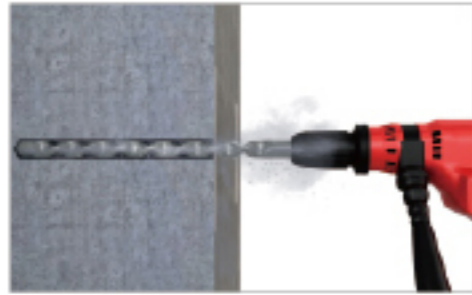
→→ Screw in the bolt (threaded rod): screw the bolt into the hole and capsule, using rotary power tool. 45° cut end of the threaded rod is on the front end, and the hexagonal nut is on the back end.

Seize driving the threaded rod when it reaches the end of the hole (as marked on the threaded rod, too).

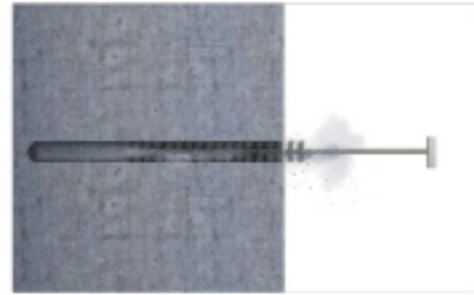
→→ Curing: curing time see the referenced gel time of the above curing time schedule.

→→ Fix objects: objects can be fixed after curing period.

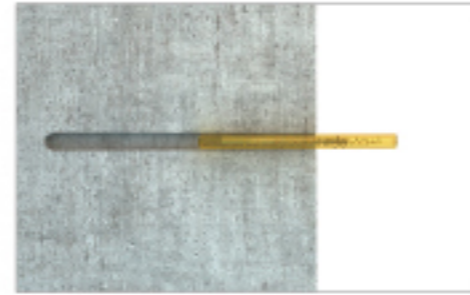
→→ Storage: store in a cool dry place away from light. Shelf life is 12 months.



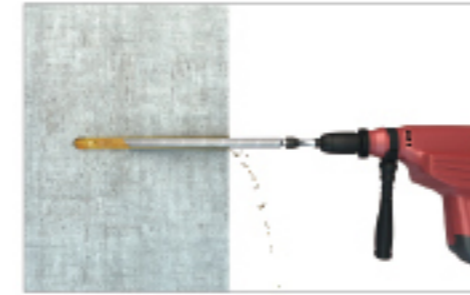
drilling holes



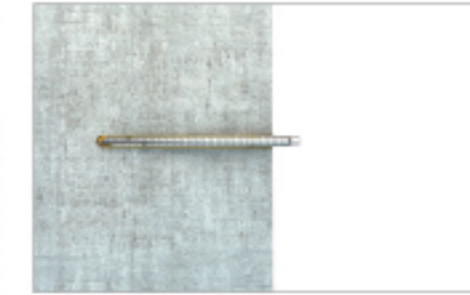
cleaning holes



placing chemical



placing bolts



curing

### ▲▲ Package

This product packed in boxes, 10pc/box.

### ▲▲ Transportation and Storage

→→ This product is not a dangerous material, transportation as a general chemical building materials.

→→ The product should not be exposed to direct sunlight and/or rain, and the package shall not be damaged in transportation.

→→ This product should be stored in a cool dark (5 °C- 40 °C), dry storage space, for no more than 12 months.

### ▲▲ Points for Attention

→→ Drill holes in accordance with the standard pore size and depth, as strictly recommended by the manufacturer.

→→ In order to prevent the fixation strength from decreasing, please make sure that the hole is thoroughly and the dust is completely removed.

→→ Because the blowing or vacuuming can only treat with the floating dust in the hole and is difficult to clean the dust attached to the inner wall of the hole, make sure to use the brush.

→→ When the bolt reaches the bottom of the hole, stop driving the bolt at once, do not over-drive the bolt.

→→ The bolt should not be shaken in the curing period.

→→ Keep away from fire, do not use open flame to burn glass tube.

→→ Not suitable for construction under water.

→→ If the glass tube is not used long-term, the fluidity of glue liquid should be checked, if it does not flowable, then it should not be used.