Horse HM-500

High Performance Injectable Epoxy Anchor Adhesive

Description

HM-500 injectable chemical anchor is a fast curing, multi-purpose, two components modified epoxy resin anchor system for threaded bars and reinforcing bars in both cracked and uncracked concrete.

Application Range

- Planting steel bars and bolts in concrete structure
- Curtain wall & stone dry hanging brackets' reinforcement
- Building structure reinforcement&framework anchoring
- Various equipments' basic fixation
- Steel structures and concrete structures anchoring connection
- Reinforcement for highway, bridges, water conservancy projects rebuilding
- Reinforcement for advertisement boards,the noise barriers&barricades

Advantages

- Modified epoxy resin, no styrene
- High strength & modulus, good toughness
- Aging resistance & thermal resistance
- Moisture tolerant, stable in a humid environment
- Acid & alkali resistance
- Seismic resistance, no expansion forces
- Excellent thixotropy, suitable for side and top anchoring
- Binocular straight mixed package, with special electric caulking gun and static mixer

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Package	13.32oz (390 ml) / piece, 30 pieces / carton
Shelf Life	When stored correctly, the shelf life will be at least 12 months from the date of manufacture.
Storage Conditions	Cartridges should be stored in their original packaging, the correct way up, in cool conditions (+50°F to +77°F) and out of direct runlight.

Operable time & curing time

Ambient temperature(°C)	-5	0	10	20	≥30
Operable time(min	60	45	30	15	20
Curing time(h)	72	48	24	12	6

Technical Parameters

Performance Parameters

Appearance A Part (Epoxy)	White paste
Appearance B Part (Hardener)	Red or black paste
Viscosity of mixture	18-22 pa·s
Density after curing	1.5±0.1 g/cm³
Mixture ratio (weight ratio)	3:1

Performance Indexes

Colloidal performance	**Tensile strength (ASTM D638)**	⩾55Mpa
	Tensile modulus (ASTM D638)	⩾3500Mpa
	Elongation at break (ASTM D638)	⩾1.7%
	Flexural strength (ASTM D790)	⩾70Mpa
	Compressive strength (ASTM D695)	⩾82Mpa
	Thixotropy index	≥4.0

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Colloidal performance	**Sagging mobility (25°C)**	≤2.0mm
	Distortion temperature	≥65°C
Adhesion performance	**Steel-steel tensile anti-shear strength**	≥16Mpa
	Under the constraint drawing condition, ribbed steel bars and C30, Φ25, L=150mm tensile strength	≥11Mpa
	Boding strength with concrete C60, Φ25, L=125mm	≥17Mpa
	Steel-steel T impact stripping length	≤25mm
Non-volatile matter content (solid content)		≥99%
Long-term performance	**Wet and heat ageing**	Compared with the short-term results at room temperature, the decrease rate of shear strength: ≤12%
	Heat aging resistance	Compared with the short-term results at same temperature 10min, the decrease rate of shear strength: ≤5%
	Freezing and thawing	Compared with room temperature, short-term results, the shear strength decrease rate is not greater than 5%
	Fatigue stress	After2×10^6 times continuous sine wave fatigue loads, specimen does not destroy
	Resistance to stress	Steel - steel tensile shear specimens does not destroy, and creep deformation value is less than 0.4 mm
Resistance to corrosion medium	**Resistance to salt**	Compared with the control group, the strength decrease rate: ≤5%, and shall not have cracks or come unglued
	Alkaline medium	Compared with the control group, the strength does not decrease, and as the concrete damage, and shall not have cracks or come unglued
	Acid medium	Concrete damage, and shall not have cracks or degumming

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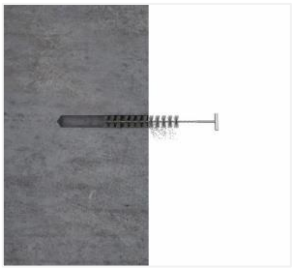
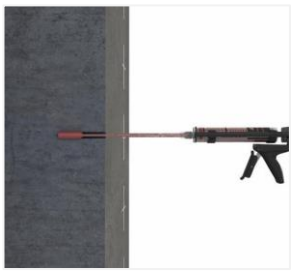
Construction Process

1.Drill Hole

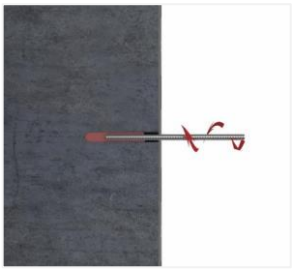


2.Brush

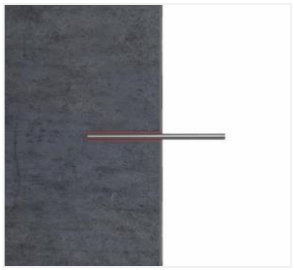
3.Blow



4.Inject



5.Plant



6.Curing

The Detailed Construction Process of HM-500 Structure Anchor Adhesive

1. Mark Up Hole Position and Drill Hole:
Drill holes in designed position. The depth and dismeter of the hole should meet the requirements in order to meet bonding area and ensure the pulling strength.

2. Clean Hole:
Clean and blow holes. Brush and blow for three times at least is recommended.

3.Glue Preparation:
HM-500 is equipped with a special static mixer and dispenser. Squeeze out the glue without fully mixed in the front part of the cartridge.

4.Injection:
Inject the glue from the bottom of the hole untill fill the two-third of the hole.

5.Rust Removal of Steel Rebar:
Polish the steel bar or anchor bolt before inserted through the hole.

6.Anchoring:
Inserting in one single direction untill to the bottom of the hole.

7.Standing and Curing:
Keep stand for maintenance before curing.

Note:
HM-500 Anchoring Adhesive can be equiped with the following materials: screw thread steel, round steel, lead screw,threaded rod, anti-crack anchor.

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Attention	Proctive measures such as wearing masks, gloves, goggles etc., is necessary. Do not expose outside for long time.If it is swallowed or dipped into eyes, please seek medical service at once

Bonding Force Renference Sheet

The reference table of HM-500 anchor adhesive planting and anchoring binding force

*The anchoring adhesion when planting steel bars

The steel bar diameter ϕ (mm)	The diameter of drilled hole D(mm)	The yield characteristic value of steel bars (kN)	The anchoring adhesion (characteristic value) RK(kN)																		The steel bar yield planting depth lb(mm)
10	13	26.3	26.1	26.3	26.3	26.3															105
12	16	37.9		36.2	37.9	37.9	37.9														125
14	18	51.6			45.2	49.8	51.6	51.6	51.6												150
16	20	67.4					60.3	67.4	67.4	67.4	67.4										175
18	22	85.2						74.6	82.9	85.2	85.2	85.2									200
20	25	105.2							94.2	100.5	105.2	105.2	105.2								220
22	28	127.3								112.5	126.6	127.3	127.3	127.3							240
25	32	164.4									144.8	160.8	164.4	164.4	164.4	164.4					270
28	35	206.3										175.9	193.4	206.3	206.3	206.3	206.3				305
32	40	269.4												241.3	251.3	269.4	269.4	269.4			350
40	50	421.0														339.3	383.3	421.0	421.0	421.0	440
The steel bar buried depth(mm)			80	90	100	110	120	135	150	160	180	200	220	240	250	270	305	350	400	440	

Notes:

1.Contcrete strength is C30,II grade steel yield strength is 335 N/mm2.

2.The diameter of drilling holes in the table is the best recommended value,the nearest bit can be selected according to the situation.

3.The yield buried depth value of the steel bars should consider safety factors,and select the design values.

*The anchoring adhesion when planting steel bars

The steel bar diameter ϕ (mm)	The diameter of drilled hole D(mm)	The yield characteristic value of steel bars (kN)	The anchoring adhesion (designed value)Rd(kN)																		The steel bar yield planting depth lb(mm)
10	13	22.9	17.4	19.6	21.8	22.9															105
12	16	33.0		24.1	26.8	29.5	33.0														125
14	18	44.8			30.1	33.2	36.2	40.7	44.8												150
16	20	58.5					40.2	45.1	50.1	53.5	58.5										175
18	22	74.1						49.7	55.3	59.0	66.4	74.1									200
20	25	91.5							62.8	67.0	75.3	83.7	91.5								220
22	28	110.7								75.0	84.4	93.8	103.2	110.7							240
25	32	143.0									96.5	107.2	118.0	128.7	134.0	143.0					270
28	35	179.3										117.2	128.9	140.6	146.5	158.3	179.3				305
32	40	234.2												160.8	167.3	181.0	204.4	234.2			350
40	50	365.9														226.2	255.5	293.1	334.9	365.9	440
The steel bar buried depth(mm)			80	90	100	110	120	135	150	160	180	200	220	240	250	270	305	350	400	440	

Notes:

1.Concrete strength is C30,the designed strength of grade II steel bar is 310 N/mm2.

2.The designed safety coefficient of steel bar ys=1.15,the designed safety coefficient of concrete yc=1.5.

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***The anchoring adhesion when planting steel bars**

The screw & Hole diameter	The buried depth(mm)	Characteristic value		Designed value	
		Tensile resistance(kN)	Shearing resistance(kN)	Tensile resistance(kN)	Shearing resistance(kN)
M8 10mm	80	15.8	8.5	7.5	5
M10 12mm	90	22.9	13.7	12.5	8
M12 14mm	110	46.9	20	19	11.8
M16 18mm	125	65.6	37.8	29	22.2
M20 25mm	170	85.3	59	42.5	34.7
M24 28mm	210	170	85	59.7	50
M30 35mm	280	206	135.9	89	79.4

The table of gule use amount of HM-500 epoxy anchor adhesive

the steel bar diameter	pore size	pore depth	the injecting glue volume	theoretic number	note
mm	mm	mm	ml(2/3v)	piece	
8	12	80	6.03	64.67	10d
8	12	120	9.04	43.14	15d
8	12	160	12.06	32.33	20d
10	14	100	10.26	38.01	10d
10	14	150	15.08	25.86	15d
10	14	200	20.52	19.01	20d
12	16	120	16.09	24.23	10d
12	16	180	24.12	16.16	15d
12	16	240	32.18	12.11	20d
14	18	140	23.73	16.43	10d
14	18	210	35.61	10.95	15d
14	18	280	47.46	8321	20d
16	22	160	40.52	9.62	10d
16	22	240	60.79	6.41	15d
16	22	320	81.04	4.81	20d
18	25	180	58.87	6.62	10d
18	25	270	88.31	4.41	15d
18	25	360	117.74	3.31	20d
20	28	200	82.06	4.75	10d
20	28	300	123.09	3.16	15d
20	28	400	164.12	2.37	20d
22	30	220	103.62	3.76	10d
22	30	330	155.43	2.5	15d
22	30	440	207.24	1.88	20d
25	32	250	133.97	2.91	10d
25	32	375	200.96	1.94	15d
25	32	500	267.95	1.45	20d

For more information, please visit our website at www.horseen.com

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