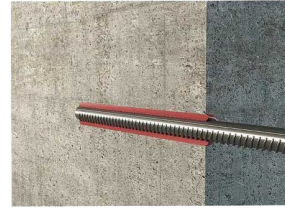




HORSE PHILIPPINES CHEMICAL ANCHOR EPOXY

Horse HM-500 injectable epoxy mortar adhesive is a super strong fixing and reinforcing solutions for rebar and threaded rod connections

- ✓ High Strength / Seismic Resistance / Moisture Resistance and etc.
- ✓ Performance equivalent to top leading brand for injectable epoxy
- ✓ Can be used in cracked and uncracked concrete
- ✓ Quality Assurance - Certified by multiple International Standards
- ✓ Excellent thixotrophy - Can be used for side and overhead fixings
- ✓ Suitable for project with designed period of over 50 years and above
- ✓ Passed 12 months resistance testing period under GB50728-2011



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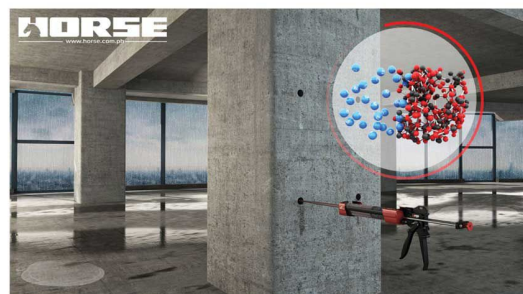
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HORSE HM-500 EPOXY ANCHORING

Horse HM-500 is a two-components modified chemical epoxy resin adhesive that is vacuum sealed inside a very high grade plastic tube. HM-500 has a double cartridge package (part A=Epoxy Resin and part B=Solidifying Agent 3:1 Ratio) that can be used by injecting the chemicals into hole using a dispenser or caulking gun



Advantages and Benefits

- ✓ Quality Assurance - Certified by multiple International Standards
 - ✓ Performance equivalent to top leading brand for injectable epoxy
 - ✓ High Performance / High strength / Strong Cohesion / Good Toughness
 - ✓ Excellent thixotrophy - Can be used for side and overhead fixings
 - ✓ Pure modified epoxy resin, no styrene
 - ✓ Aging resistance / Thermal and Heat resistance / Moisture resistance
 - ✓ Acid & alkali resistance / Seismic resistance, no expansion forces
 - ✓ Stable in humid and damp environment
 - ✓ Can be used for cracked and uncracked concrete
 - ✓ Vacuum sealed packaging, No bubble, Accurate mix ratio
 - ✓ Suitable for project with designed period of over 50 years and above
 - ✓ Passed 12 months resistance testing period under GB50728-2011 standards
- Resistance testing : Humidity, Freeze-Thaw, Fatigue Strees, Long Term Stress and etc.

Application Range



- ✓ Installation and fixing of steel bars and bolts in concrete structure
- ✓ Fix load using threaded rod to serve as anchor bolt
- ✓ Reinforcement for curtain wall & bracket fixings
- ✓ Building structure reinforcement & framework anchoring
- ✓ Anchoring structural connections for steel, columns, beams, slab and etc.
- ✓ Retrofitting solution for structural buildings and etc.
- ✓ Fastening solution for various machine equipment
- ✓ Reinforcement solution for highway, bridges, water conservancy projects rebuilding and etc.





Working & 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

Mixture Ratio (weight ratio)	Density After Curing	Mixture Viscosity	Part A (Epoxy)	Part B (Solidifying Agent)
3:1	1.5±0.1 g/cm³	18-22 pa·s	White paste	Red paste

Performance Indexes

Colloidal Performance	Tensile strength (ASTM D638)	≥55Mpa
	Tensile modulus (ASTM D638)	≥3500Mpa
	Elongation at break (ASTMD638)	≥1.7%
	Flexural strength (ASTM D790)	≥70Mpa
	Compressive strength (ASTMD695)	≥82Mpa
	Thixotropy index	≥4.0
	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
	Bonding 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, -Decrease rate of shear strength: ≤12%	Resistance to Corrosion Medium	Resistance to salt	Strength decrease rate is only ≤5% No concrete damage, No cracks and still intact
	Heat aging resistance	Compared with the short-term results at same temperature 10min, -Decrease rate of shear strength: ≤5%		Alkaline medium	Strength does not decrease No concrete damage, No cracks and still intact
	Freezing and thawing	Compared with room temperature, short-term results, -Shear strength decrease rate is not greater than 5%		Acid medium	Strength does not decrease No concrete damage, No cracks and still intact
	Fatigue stress	After 2×10 ⁶ times continuous wave of fatigue loads, -Specimen still does not have sign of destruction			
	Resistance to stress	Steel tensile shear specimens - not destroyed creep deformation value less than 0.4 mm			

Storage Conditions

Cartridges should be stored in their original packaging, Correct position is standing up and in cool environment (+50°F to +77°F) out of direct sunlight.





Detailed Installation Guide for HM-500 Anchor Epoxy Adhesive

Step 1 - Hole Drilling

Drill the hole based on the correct diameter and anchoring depth stated on technical data sheet to ensure and meet the expected pull-out strength.

Step 2 & Step 3 - Hole Cleaning

Make sure to clean the hole before Injecting the chemical adhesive to prevent affecting the strength of bond. Use steel brush and air pump to clean debris, repeat cleaning process at least 4 to 5 times.

Step 4 - Injecting Chemical Adhesive

Horse HM-500 is equipped with a special static mixer and dispenser. Recommended volume of injected adhesive is 2/3 the hole depth.

Step 5 - Installation

Insert the steel bar or threaded rod bolt slowly in one single direction until it reaches the bottom part of the drilled hole.

Note:

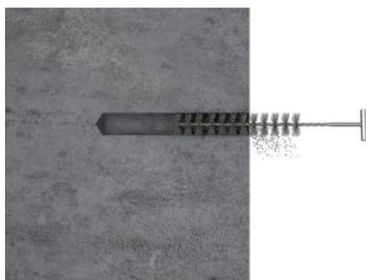
1. For RUSTED Steel Bar or Bolt, Make sure to polish first before application since this may affect the bonding strength.
2. Horse hm-500 is compatible with screw, threaded rod, round steel bar, lead screw, anti-crack anchor and etc.

Step 6 - Curing Time

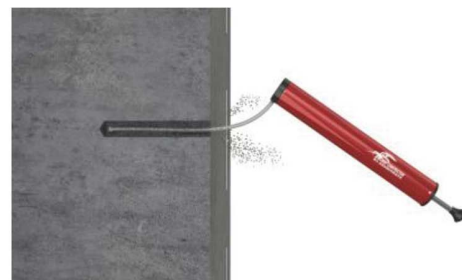
Avoid moving the steel bar / bolt or applying load during curing time.



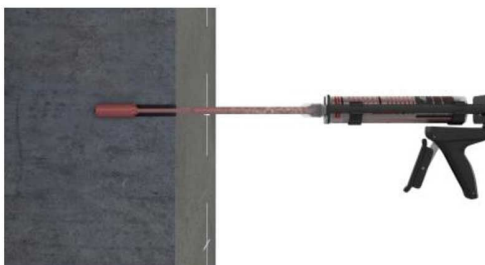
Step1 - Hole Drilling



Step2 - Brush



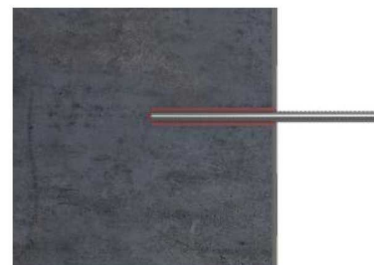
Step3 - Blow



Step4 - Inject



Step5 - Installation



Step6 - Curing Time





Bonding Force Reference Sheet

Reference table for HM-500 anchor adhesive installation and anchoring binding force

Anchoring Adhesion Reference for Steel Bar Installation

Steel Bar Diameter Φ(mm)	Hole Diameter Φ(mm)	Steel Bar Yield (kN)	Characteristic Value of Anchoring Adhesion RK(kN)																	Steel Bar Installation Yield 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	126.8	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
Anchoring Depth			80	90	100	110	120	135	150	160	180	200	220	240	250	270	305	350	400	440	

Notes:

- Concrete strength is C30, grade II steel yield strength is 335 N/mm².
- Please follow the recommended settings parameter for diameter and anchoring depth under the Anchoring Adhesion Reference Table.

Steel Bar Diameter Φ(mm)	Hole Diameter Φ(mm)	Steel Bar Yield (kN)	Characteristic Value of Anchoring Adhesion RK(kN)																	Steel Bar Installation Yield 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
Anchoring Depth			80	90	100	110	120	135	150	160	180	200	220	240	250	270	305	350	400	440	

Notes:

- Concrete strength is C30, grade II steel yield strength is 310 N/mm²
- Designed safety coefficient of steel bar $\gamma_s=1.15$
- Designed safety coefficient of concrete $\gamma_c=1.5$



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Pull-Out Strength Summary

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

Fixings Per Cartridge

Diameter Φ(mm)	Hole Diameter Φ(mm)	Anchoring Depth dia Φ x 10,15,20 (mm)	Volume (ml 2/3v)	Number of Fixings
8	12	80	6.03	64.5
8	12	120	9.04	43
8	12	160	12.06	32
10	14	100	10.26	38
10	14	150	15.08	26
10	14	200	20.52	19
12	16	120	16.09	24
12	16	180	24.12	16
12	16	240	32.18	12
14	18	140	23.73	16.5
14	18	210	35.61	11
14	18	280	47.46	8
16	22	160	40.52	9.5
16	22	240	60.79	6.5
16	22	320	81.04	5
18	25	180	58.87	6.5
18	25	270	88.31	4.5
18	25	360	117.74	3
20	28	200	82.06	5
20	28	300	123.09	3
20	28	400	164.12	2
22	30	220	103.62	3.5
22	30	330	155.43	2.5
22	30	440	207.24	2
25	32	250	133.97	3
25	32	375	200.96	2
25	32	500	267.95	1.5

