

REC DUR 102

High Performance Injectable Epoxy Anchor Adhesive

DESCRIPTION

REC DUR 102 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 un cracked concrete.

APPLICATION

- Installing/ Anchoring steel bars and bolts in concrete structure.
- Curtain wall & stone dry hanging brackets' reinforcement.
- Building structure reinforcement & framework anchoring.
- Various equipment's 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.

FEATURES/ BENEFITS

- 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 thixotropic, suitable for side and top anchoring
- Dual Cartridge packaging with a pre set mixing ratio, with special electric caulking gun and static mixer

PACKAGING

REC DUR 102 is supplied in various packaging.

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 sunlight

OPERABLE TIME AND 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 INFORMATION

Performance Parameters:

Appearance Part A (Epoxy)	White Paste
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Appearance Part B (Hardener)	Red or Black Paste
Viscosity of Mixture	18 - 22 Pa.s
Density after Curing	1.5 ± 0.1 gcm ⁻³
Mixing Ratio	1:1

Performance Indexes

Category	Property	Value
Colloidal performance	Tensile strength (ASTM D638)	≥55 MPa
	Tensile modulus (ASTM D638)	≥3500 MPa
	Elongation at break (ASTM D638)	≥1.7%
	Flexural strength (ASTM D790)	≥70 MPa
	Compressive strength (ASTM D695)	≥82 MPa
	Thixotropy index	≥4.0
	Sagging mobility (25°C)	≤2.0 mm
	Distortion temperature	≥65°C
Adhesion performance	Steel-steel tensile anti-shear strength	≥16 MPa
	Under constrained drawing condition, ribbed steel bars and C30, Φ25, L=150 mm tensile strength	≥11 MPa
	Bonding strength with concrete C60, Φ25, L=125 mm	≥17 MPa
	Steel-steel T impact stripping length	≤25 mm
Solid Content	Non-volatile matter content	≥99%
Long Term Performance	Wet and heat aging	Shear strength decrease ≤12%
	Heat aging resistance	Shear strength decrease ≤5%
	Freezing and thawing	Shear strength decrease ≤5%
	Fatigue stress	No failure after 2×10 ⁶ cycles
	Resistance to stress	No failure; creep deformation <0.4 mm
Resistance to corrosion medium	Resistance to salt	Strength decrease ≤5%; no cracks
	Alkaline medium	No strength decrease; no cracks
	Acid medium	No cracks or de gumming

FLOW CHART OF CONSTRUCTION PROCESS



1. Drilling Hole



2. Brushing



3. Blowing



4. Injecting



5. Steel Installing



6. Curing

The Detailed Construction Process of REC DUR 102 Structure Anchor Adhesive

1. Mark Up Hole Position and Drill Hole:

Drill holes in designed position. The depth and diameter 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 at least three times is recommended.

3. Glue Preparation:

REC DUR 102 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 to 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 till the bottom of the hole.

7. Standing and Curing:

Keep stand for maintenance before curing. Note: **REC DUR 102** Anchoring Adhesive can be equipped with the

following materials: screw thread steel, round steel, lead screw, threaded rod, anti-crack anchor.

ATTENTION

Proactive measures such as wearing masks, gloves, goggles etc., is necessary. Do not expose outside for long time. If it is swallowed or come in contact to eyes, please seek medical service immediately.

BONDING FORCE REFERENCE SHEET

THE REFERENCE TABLE OF REC DUR 102 ANCHOR ADHESIVE PLANTING AND ANCHORING BINDING FORCE

*THE ANCHORING ADHESION WHEN INSTALLING 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 Value R_k (kN)															The steel bar yield planting depth (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												150
16	20	67.4					60.3	67.4	67.4	67.4	67.4	67.4								175
18	22	85.2						74.6	85.2	85.2	85.2	85.2								200
20	25	105.2							94.2	105.2	105.2	105.2	105.2							220
22	28	127.3								112.5	127.3	127.3	127.3	127.3						240
25	32	164.4									144.8	164.4	164.4	164.4	164.4	164.4				270
28	35	206.3										175.9	206.3	206.3	206.3	206.3	206.3			305
32	40	269.4												241.3	269.4	269.4	269.4	269.4		350
40	50	421.0														339.3	421.0	421.0	421.0	440
The steel bar buried depth (mm)			80	90	100	110	120	130	140	150	160	180	200	220	240	250	270	300	350	400

Notes:

- Concrete strength is C30, II grade steel yield strength is 335 N/mm².
- The diameter of drilling holes in the table is the best recommended value, the nearest bit can be selected according to the situation.

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

The anchoring adhesion when installing 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 Value R_k (kN)																The steel bar yield planting depth (mm)
			17.4	19.6	21.8	22.9													
10	13	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	44.8											150
16	20	58.5					40.2	50.1	53.5	58.5									175
18	22	74.1						55.3	59	66.4	74.1								200
20	25	91.5						62.8	67	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				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	204.4	234.2		350
40	50	365.9													226.2	255.5	293.1	334.9	440
The steel bar buried depth (mm)			80	90	100	110	120	150	160	180	200	220	240	250	270	305	350	400	

Notes:

- Concrete strength is C30, the designed strength of grade II steel bar is 310 N/mm^2 .
- The designed safety coefficient of steel bar $\gamma_s = 1.15$, the designed safety coefficient of concrete $\gamma_c = 1.5$.

*The anchoring adhesion when installing steel bars.

The Screw and Hole Diameter		The buried depth (mm)	Characteristic value		Designed Value	
			Tensile Resistance (kN)	Shearing Resistance (kN)	Tensile Resistance (kN)	Shearing Resistance (kN)
M8	10 mm	80	15.8	8.5	7.5	5
M10	12 mm	90	22.9	13.7	17.5	8
M12	14 mm	110	46.9	20	19	11.8
M16	18 mm	125	65.6	37.8	29	22.2
M20	25 mm	170	85.3	59	42.5	34.7
M24	28 mm	210	170	85	59.7	50
M30	35 mm	280	206	135.9	89	79.4

THE TABLE OF GLUE USE AMOUNT OF REC DUR 102 EPOXY ANCHOR ADHESIVE.

Steel bar diameter (mm)	Pore size (mm)	Pore depth (mm)	Injecting glue volume (ml)	Theoretic number (piece)	Note
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	8.321	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

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