

ABABOND WR-600

HIGH PERFORMANCE TWO-COMPONENT EPOXY ADHESIVE ANCHORING SYSTEM FOR THREADED RODS AND REINFORCING BARS IN WATER FILLED CONCRETE HOLES

DESCRIPTION

ABABOND WR-600 is an injectable two-component, solvent-free and high performance epoxy adhesive with modified rheology, suitable anchor system horizontally, vertically and roofing inside for threaded rods and reinforcing bars in concrete. This epoxy-based adhesive with special compounds is capable for heavy loading in various structural operations and suitable for water saturated and water filled hole concrete applications. Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.

FIELD OF APPLICATION

- Adhesive anchoring into concrete substrates
- Anchoring of supports for ducting and equipment

ADVANTAGES

- Injection system for installation and use in dry, wet, water saturated and water filled hole concrete
- Injection system with high loading capacity
- high chemical resistance
- Large diameter applications
- Anchoring without expansion force
- Excellent bond performance
- Suitable working time even at elevated temperatures
- Styrene-free
- Odorless epoxy resin

Basic Setting Detail, Loading Data & Testing Load

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 25	Φ 28	Φ 30	Φ 32	Φ 36	Φ 40
Drill bit diameter (mm) (d_b)	12	14	16	18	20	22	25	30	32	35	40	48	56
Min embedment depth (mm) (h_{ef})	90	100	120	140	160	180	200	250	280	300	320	400	440
Min Base material thickness (mm) (h) ¹	120	140	160	180	200	210	250	300	330	350	380	430	470
Quantity of filled hole/cartridge	95	55	36	23	17	12	9	6	3	2	2	1	0.5

1. Min Concrete, $f_{ck, cube} = 20 \text{ N/mm}^2$



2. Yield strength of rebar f_{yk} is 500 N/mm²

* In the cases where the yield stress is higher than that of standard value, to get the right choice in appropriate depth and diameter of the hole in regards to the above mentioned tables, please contact the experts of Abadgaran Co.

Non-Cracked Concrete

Rebar diameter Φ (mm) $(d_a)^2$	$\Phi 8$	$\Phi 10$	$\Phi 12$	$\Phi 14$	$\Phi 16$	$\Phi 18$	$\Phi 20$	$\Phi 25$	$\Phi 28$	$\Phi 30$	$\Phi 32$	$\Phi 36$	$\Phi 40$
Tensile NRk (kg)	2500	4000	5700	7700	10200	12900	16000	25000	31300	35000	41000	51800	64000
Shear VRk (kg)	1200	2300	3320	4900	5800	6200	9000	14400	18000	20700	23600	29600	37000

Cracked Concrete

Rebar diameter Φ (mm) $(d_a)^2$	$\Phi 8$	$\Phi 10$	$\Phi 12$	$\Phi 14$	$\Phi 16$	$\Phi 18$	$\Phi 20$	$\Phi 25$	$\Phi 28$	$\Phi 30$	$\Phi 32$	$\Phi 36$	$\Phi 40$
Tensile NRk (kg)	2000	3200	5000	6600	7000	8300	9200	11100	16200	18130	18130	-	-
Shear VRk (kg)	1200	2300	3320	4900	5800	6200	9000	14400	18000	19700	23600	-	-

Rebar Spacing

Rebar diameter Φ (mm) $(d_a)^2$	$\Phi 8$	$\Phi 10$	$\Phi 12$	$\Phi 14$	$\Phi 16$	$\Phi 18$	$\Phi 20$	$\Phi 25$	$\Phi 28$	$\Phi 30$	$\Phi 32$	$\Phi 36$	$\Phi 40$
Min Rebar distance (mm) (S_{min})	50	60	75	85	100	110	120	150	170	180	195	216	240
Min edge distance (mm) (C_{min})	50	60	75	85	100	110	120	150	170	180	195	216	240
Safety distance (mm)	90	150	180	210	240	270	500	375	420	450	480	600	660

* The mentioned Safe distance criteria are set according to the standard, which can be changed based on project conditions and measures.



Embedment depth and base material thickness for the basic loading data

Anchor Size(mm) (d_a) ²	M8	M10	M12	M16	M20	M24
Drill bit diameter (mm) (d_o)	12	14	16	20	25	30
Min embedment depth (mm) (h_{ef})	80	100	110	125	170	210
Min Base material thickness (mm) (h) ¹	120	130	140	160	210	260
Quantity of filled hole/cartridge	100	60	40	23	10	6

Tensile Strength in Non-cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M16	M20	M24
Anchor grade 5/8 (kg)	1930	3060	4500	8460	13175	18956
Anchor grade 8/8 (kg)	2680	4930	7180	12420	13390	13390

Shear Strength in Non-cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M16	M20	M24
Anchor grade 5/8 (kg)	970	1600	2250	4180	6540	9420
Anchor grade 8/8 (kg)	1400	2470	3640	6750	6210	6210

Tensile Strength in cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M16	M20	M24
Anchor grade 5/8 (kg)	1774	2855	4480	6800	10790	14820
Anchor grade 8/8 (kg)	2683	4925	6811	10790	12420	12420

Shear Strength in cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M16	M20	M24
Anchor grade 5/8 (kg)	968	1611	2253	4180	6530	9422
Anchor grade 8/8 (kg)	1397	2467	3640	6210	6750	6750

The above tables are written based on the size and category of the profoundly used anchors. If necessary and in the case of complex matters, please contact the experts of Abadgaran Co.



SURFACE QUALITY

- The age of mortar and concrete must be at least 28 days.
 - Substrate strength (concrete, masonry, natural stone) must be verified.
 - The anchor hole must always be clean, free from oil, dust, and grease, etc.
 - Loose particles must be removed from the holes.
 - Threaded rods and rebars have to be cleaned thoroughly from any oil, ice, grease or any other substances and particles such as dirt, etc.
- Important!** Inadequate hole cleaning= poor load values

HOLE PREPARATION

- Drilling of hole with an electric drill to the diameter and depth required. Drill hole diameter must be in accordance with anchor size.
- The drill hole must be cleaned with a blow pump or by compressed air, starting from the bottom of the hole.
- Oil-free compressors shall be used.

For dry hole:

- The drill hole must be thoroughly cleaned with a brush for 2 time. The diameter of the brush must be larger than the diameter of the drill hole.
- The drill hole must then be cleaned again with a blow pump or by compressed air, starting from the bottom of the hole.

For water filled boreholes:

- Flush hole 2 times by inserting a water hose (water line pressure) to the back of the borehole until water runs clear.
- The drill hole must be thoroughly cleaned with a brush for 2 times. The diameter of the brush must be larger than the diameter of the drill hole.
- Flush again 2 times until water runs clear.

Attention: If there are any changes in conditions after cleaning the borehole (e.g. rain water filled in the borehole), repeat cleaning procedure again.

ADHESIVE INJECTION

- Remove the cap and replace it with the static mixer. Place it into the dual cartridge dispenser.
- Discard approximately 30-40 cc of the initial mixed until an even color has been achieved without streaking in the resin.
- Inject the adhesive into the hole, starting from the bottom, while slowly drawing back the static mixer. In any case avoid entrapping air. For deep holes extension tubing can be used. Fill hole approximately full.
- Insert the anchor with a clockwise rotary motion into the filled drill hole. Some adhesive must come out of the hole.



- The anchor must be placed within the open time. During the resin hardening time the anchor must not be moved or loaded.
- Wash hands and skin thoroughly with warm water and soap.

TECHNICAL DATA

Color	Gray
Mixing Ratio	3:1 (by volume)
Density (A+B)	Approx. 1.40 g/cm ³
Volume Solid	100%
Compressive Strength (ASTM C579)	~100 MPa
Substrate Temperature	10 – 45°C
Ambient Temperature	10 – 45°C

ABABOND WR-600 ADHESIVE CURE AND WORKING TIME

Average Temp (°C)	t _{work} (min) (dry condition)	t _{cure,ini} (h) (installing in water filled borehole)	t _{cure, full} (day) (installing in water filled borehole)
10	360	30	14
15	300	24	10
25	20	18	7
35	15	12	5
45	8	10	4

PACKAGING

600 ml dual cartridge.

STORAGE & SHELF LIFE

The shelf life is 12 months if unopened, stored free from frost, moisture and direct sunlight at temperatures between +10°C and +30°C.

HEALTH & SAFETY

Keep away from heat and open flame. Keep container closed. Use with adequate ventilation. Avoid prolonged and repeated contact with skin. MSDS is available at ABADGARAN website.

TECHNICAL SERVICE

The ABADGARAN INTERNATIONAL GROUP Technical Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

All data presented in this technical datasheet are based on our last researches in ABADGARAN CONSTRUCTION CHEMICALS laboratories and are just as a guide for choosing appropriate material. Therefore users should conduct a sufficient investigation to establish the suitability and conformity of any product for intended uses.

