



ABABOND WR-600

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

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.

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

FIELD OF APPLICATION

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

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.





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 22	Φ 25	Φ 28	Φ 30	Φ 32
Drill bit diameter (mm) (d_o)	12	14	16	18	20	22	25	28	30	34	36	40
Min embedment depth (mm) (h_{ef})	120	140	160	180	200	220	250	270	300	330	350	420
Min Base material thickness (mm) (h) ¹	150	170	190	210	230	250	280	300	330	350	400	450
Quantity of filled hole/cartridge	41	25	17	12	8.8	6.6	4.5	3.3	2.5	1.8	1.5	1

1. Min Concrete, fck, cube = 20 N/mm²

2. Yield strength of rebar fyk 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 (For water filled boreholes)

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32
Tensile NRk (kg)	2000	3200	4600	6200	8100	10200	12600	15200	19650	24600	28300	32000
Shear VRk (kg)	1000	1650	2400	3200	4100	5200	6400	7550	10000	12400	14300	16200

Cracked Concrete (For water filled boreholes)

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32
Tensile NRk (kg)	1600	2500	4000	5400	5700	6700	7560	9120	10000	12400	14150	16000
Shear VRk (kg)	1000	1600	2400	3200	4000	5100	6200	7400	9500	12000	14000	15000





Basic Setting Detail, Loading Data & Testing Load (For dry and water saturated hole)

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32	Φ 36	Φ 40
Drill bit diameter (mm) (d_o)	12	14	16	18	20	22	25	26	30	34	36	40	48	56
Min embedment depth (mm) (h_{ef})	90	100	120	140	160	180	200	220	250	280	300	360	400	440
Min Base material thickness (mm) (h) ¹	130	140	160	180	200	220	240	260	290	320	340	400	440	480
Quantity of filled hole/cartridge	83	55	34	23	17	12	8	7	4	3	2	1	0.7	0.5

Non-Cracked Concrete (For dry and water saturated hole)

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32	Φ 36	Φ 40
Tensile NRk (kg)	2500	4000	5700	7700	10200	12900	16000	19000	25000	31300	35000	41000	51800	64000
Shear VRk (kg)	1200	2300	3320	4900	5800	6200	9000	11000	14400	18000	20700	23600	29600	37000

Cracked Concrete (For dry and water saturated hole)

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32	Φ 36	Φ 40
Tensile NRk (kg)	2000	3200	5000	6600	7000	8300	9200	10000	11100	16200	18130	18130	-	-
Shear VRk (kg)	1200	2300	3320	4900	5800	6200	9000	11000	14400	18000	19700	23600	-	-





Rebar Spacing

Rebar diameter Φ (mm) (d_a) ²	Φ 8	Φ 10	Φ 12	Φ 14	Φ 16	Φ 18	Φ 20	Φ 22	Φ 25	Φ 28	Φ 30	Φ 32	Φ 36	Φ 40
Min Rebar distance (mm) (S_{min})	50	60	72	84	96	108	120	132	150	168	180	192	216	240
Min edge distance (mm) (C_{min})	50	60	72	84	96	108	120	132	150	168	180	192	216	240

* 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 (For water filled boreholes)

Anchor Size (mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Drill bit diameter (mm) (d_o)	12	14	16	18	20	22	25	26	30
Min embedment depth (mm) (h_{ef})	120	150	180	210	240	270	300	330	360
Min Base material thickness (mm) (h) ¹	150	180	210	240	270	300	330	360	390
Quantity of filled hole/cartridge	48	27	18	15	9	8	5	4	3

Embedment depth and base material thickness for the basic loading data (For dry and water saturated hole)

Anchor Size (mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Drill bit diameter (mm) (d_o)	12	14	16	18	20	22	25	26	30
Min embedment depth (mm) (h_{ef})	100	120	150	180	200	210	240	250	300
Min Base material thickness (mm) (h) ¹	130	150	180	210	230	240	270	280	330
Quantity of filled hole/cartridge	75	46	29	18	13	10	7	5	4



**Tensile Strength in Non-cracked concrete**

Anchor Size(mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Anchor grade 5/8 (kg)	2000	3140	4520	6150	8100	10200	12560	15200	18000
Anchor grade 8/8 (kg)	3000	4710	6800	9230	12100	15260	18840	22700	27200

Shear Strength in Non-cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Anchor grade 5/8 (kg)	970	1570	2250	3100	4050	5100	5500	6100	7300
Anchor grade 8/8 (kg)	1400	2355	3400	4600	6000	7000	7536	8100	8500

Tensile Strength in cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Anchor grade 5/8 (kg)	1774	2855	4480	5200	6800	8600	10790	12420	12420
Anchor grade 8/8 (kg)	2683	4925	6811	7840	10790	11000	12420	12420	12420

Shear Strength in cracked concrete

Anchor Size(mm) (d_a) ²	M8	M10	M12	M14	M16	M18	M20	M22	M24
Anchor grade 5/8 (kg)	970	1570	2250	3100	4050	5100	5500	6100	6500
Anchor grade 8/8 (kg)	1400	2355	3400	4600	6000	6500	6700	6700	6700



**TECHNICAL DATA**

Color	Gray
Mixing Ratio	1:3(by volume)
Density (A+B)	Approx. 1.40
Volume solid	100%
Compressive strength at 25°C (MPa) [after 1 days] (ASTM D695)	~80
Compressive strength at 25°C (MPa) [after 7 days] (ASTM D695)	~100
Slant shear at 25°C (MPa) [after 7 days]	~15
Substrate temperature (°C)	10 – 40
Ambient temperature (°C)	10 – 40

CURING 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	67	5	10
15	37	4	8
25	20	3	5
35	15	2	3
45	8	2	2

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 AND 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.





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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.

