Epoxy Resins

QUANTOM
Structural Systems

QUANTOM® EPR 301

QUANTOM® EPR 301 is a 2-component, solvent free, moisture tolerant, and non sagging epoxy paste, QUANTOM® EPR 301 complies with ASTM C880.

WHERE TO USE

QUANTOM® EPR 301 is a general purpose epoxy paste and can be used in the following applications:

- Installing FRP strips (laminates) on concrete substrates in strengthening systems
- Installing FRP strips (laminates) on wood, Steel, Aluminium and other metalic substrates
- Installing steel strips on concrete substrates in strengthening systems
- Implantation of anchor bolts
- Anchoring Dowels and rebars
- Bondind precast concrete segments together
- As leveling and bedding layer on surfaces to be received external reinforcement
- Crack sealing and nipple installation for epoxy resin injections
- Bonding load bearing objects on steel, concrete, masonry, wood, stone, FCB, etc.

ADVANTAGES

QUANTOM® EPR 301 is an extremely strong adhesive that offers many advantages to the user:

- Excellent adhesion to concrete (in both cracked and uncracked concrete), natural stone, steel and most construction materials
- Excellent early and final mechanical strengths
- Seismic qualified in accordance with ICC-ES Acceptance Criteria AC308 and ACI 355.4
- Excellent chemical resistance (According to accelerated aging tests- ASTM D543)
- Impact, shock and acid resistant
- Colour coded components to ensure proper mixing control
- Good wetting properties, no need to primer or bonding agent on dry and moist substrates
- Easy to use and low odour
- Can be extented with quartz sand as an ultra hight strength repair mortar
- Non sagging and no flow material, even at high temperatures
- Hardens without shrinkage
- Can be drilled and grinded when cured
- Will not corrode reinforcement
- Suitable for use in vertical and horizontal applications

HOW TO USE

Surface preparation

substrate must be sound and free of loose particles. Remove dust, laitance, oil, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials, and other bond inhibiting materials from the surface. Surface can be prepared by blasting methods, grinding or chipping. Substrate must be dry with no standing water.

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TECHNICAL INFORMATION (EN 196)

Description	Value
Colour	Grey paste(mixed) Comp. "A": White Comp. "B" : Black
Mixing ratio	A : B = 3 : 1 by weight
Density (at 25 ºC)	1.6 kg/l (mixed)
Bonding Strength	> 1.8 MPa (Concrete failed)
Compressive Strength	Minimum 60MPa (7 days)
Tensile & Flexural Strength	> 25MPa
Shear Strength	15-18 MPa
Full Cured	After 7 days (at 25 ºC)
Working Time / Pot LIfe	60 min (25 ºC) / 35 min (40ºC)

Mixing

Mix each component separately. Add component "B" to Component "A" and mix them thoroughly using a low speed drill (max. 300 rpm) and suitable paddle for at least 3 minutes or until all striations have disappeared and a uniform colour is obtained. For partial mixing, proportion 1 part of component "B" to 3 parts of component "A" by weight or volume into a clean pail. Mix only that quantity which can be used within its pot life.

Priming

Dry and moist surfaces require no primer or bonding agent.

Material consumption

Approximately 0.5 to 0.8 Kg/ML for instalation of 10 Cm wide laminates.

Application limits

Description	Value
Minimum layer thickness:	0.5 mm
Maximum layer thickness:	10.0 mm

Do not apply QUANTOM® EPR 301 at temperatures bellow 5 ºC.
Do not thin QUANTOM® EPR 301 by solvent. Solvent will prevent proper cure.
Do not load the installed objects before curing time.

Storage / Shelf life

Store out of direct sunlight, and protected from extreme heat and cold. The shelf life for originally unopened package is 24 months from date of production.

Delivery

QUANTOM® EPR 301 is available in 4.00 kg and 10.00 kg pails.

Safety precautions

Product may cause skin irritation. Wear gloves and goggles. In contact with eyes or mucous membrane, flush immediately with plenty or warm water and seek medical attention without delay.

Specifications for rebar post-installed with QUANTOM EPR 301

Setting / Rebar size	Nominal bit diameter d_0	Effective embedement Min, $h_{ef,min}$	Effective embedement Max, $h_{ef,max}$	Minimum thickness of concrete member, h_{min}	Minimum edge distance c_{min}	Minimum anchor spacing s_{min}
6	10	40	140	$h_{ef} + 30$	40	40
8	12	50	170		40	40
10	14	60	200		50	50
12	16	70	240	$h_{ef} + 2d_0$	60	60
14	18	80	280		70	70
16	20	80	320		80	80
20	25	90	400		100	100
25	32	100	500		125	125
28	35	110	560		140	140
30	37	120	600		150	150
32	40	130	640		160	160

* Edge distance of 44mm is permitted provided the rebar remains un-torqued.

- Use provisions of ACI 318-14 Chapter 17 and ACI 318-14 Chapter 25 (formerly ACI 318-11 Chapter 12), refer to section 3.1.8.14 for the design method and table 20 in section 3.2.4.3.8.
- For seismic loads, reduce the cracked concrete strength values with $\alpha_{seis} = 0.68$, reduction factor. See ACI 318-14, section 3.1.8.7 for additional information on seismic applications

Schematic guide for tabular values