

TechnoFix[®] ResiCon P

High Performance styrene-free Polyester Resin cartridge system for anchoring reinforcement & Lightweight fixings into a variety of substrates.

Description:

TechnoFix[®] ResiConP is a high performance, rapid curing two part Styrene Free Low Odour Polyester Resin anchoring material supplied in single component cartridges with a static mixer nozzle. When applied it sets and cures rapidly to firmly secure a variety of steel fixings into concrete and masonry substrates. The cartridges are extruded using a standard dispenser or a silicone gun type tool.

Application Includes:

TechnoFix[®] ResiConP is ideally designed is designed as a fast curing high strength resin to anchor threaded rods and rebar in concrete and masonry blocks. It can be used in dry and wet conditions. TechnoFix[®] ResiConP is also suitable for use in the following applications:

Cost effective alternative for the anchoring of threaded rods, reinforcing bars, profiled rod, steel section with undercuts and internal threaded rod sleeves.

- Safe application in hollow bricks using a Hollow Block Sleeve.
- For horizontal, vertical and overhead application.
- Bonding and surface crack sealing applications.
- Suitable for dry, wet and flooded concrete.
- Permanent installation of reinforcement starter bars and dowel bars.
- Permanent installation of hand rails, safety fence, wall ties, railway tracks and ground anchors.

Features:

- Good bond strength with high load resistance.
- Medium and Heavy-duty load applications.
- Fast gelling and curing, Low VOC content
- Economical fixing resin.
- Good durability.
- Styrene free with low odour.
- Ideal for indoor and outdoor usage.
- Chemical resistant.

TechnoFix[®] ResiConP Gel & *Dry Curing Times

Substrate Temp.	Gel Time (mins)	*Dry Curing Time (mins)	Substrate Temp.	Gel Time (mins)	**Dry Curing Time (mins)
-5°C	90	360	+15°C	15	80
-0°C	45	180	+20°C	6	45
+5°C	25	120	+30°C	4	25
+10°C	20	100	+30-35°C	2	20

Note for **TechnoFix[®] ResiConP** grades the cartridge temperature should be between +15 to +30°C for optimal use.

Appearance when mixed	Grey or Red
Flexural Strength (EN ISO 178 / ASTM 790)	15.90 N/mm ²
Compressive Strength (EN ISO 604 / ASTM 695)	43.50 N/mm ²
Flexural modulus (EN ISO 178 / ASTM 790)	2,803.00 N/mm ²
Tensile strength (EN ISO 527 / ASTM 638)	9.30 N/mm ²
E modulus (EN ISO 527 / ASTM 638)	4,874.50 N/mm ²
Mixture ratio (weight ratio)	3:1

The substrate temperature can vary significantly from the ambient temperature.

*The tables are for dry conditions.

If the substrate is wet double the curing time e.g. for 120 mins dry then 240 mins wet.

Properties & Performance Indexes

Typical Performance at Standard Embedment Depth in Hollow Wall					
Size	Recommend d Load (kN)	Spacing (mm)	Hole Diameter Drill (mm)	Hole Diameter Drill (mm)	Embedment Depth (mm)
	Tension (Nrk)				
M6	3	80	12	9	50
M8	6	160	16	11	85
M10	6	160	16	13	85
M12	8	240	20	17	85

*Values based on 20.5 N/mm² strength blockwork

Typical Performance at Standard Embedment Depth in Solid Substrate							
Size	Characteristic Resistance (kN)*		Recommended Load (kN)*		Spacing (mm)	Hole Diameter Drill (mm)	Embedment Depth (mm)
	Tension (Nrk)	Shear (Vrk)	Tension (Nrec)	Shear (Vrec)			
M8	19.0	9.0	9.1	5.1	160	10	80
M10	26.3	15.0	8.7	8.6	200	12	90
M12	36.3	21.0	12.0	12.0	240	14	110
M16	52.2	39.0	17.3	22.3	320	18	125
M20	82.4	61.0	27.2	34.9	400	24	170
M24	102.9	88.0	34.0	50.3	480	28	210

*All tests were performed using grade 5.8 grade studding and C20/25 dry concrete with temperature range maximum long term / short term temperature +24/40°C. All data is based on correct installation – see instructions.

Limitations

Load calculations should always be undertaken by a qualified engineer. For designing under conditions where seismic forces or fire is a consideration, please consult the relevant certification to make suitable adjustments for loading. TechnoFix® ResiConP may stain natural or decorative stone, please check suitability before using for such applications.

Health and Safety instructions

If eye or skin contact, get immediate medical attention. Wash hands thoroughly after handling. Wear protective clothing, gloves, eye and face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Dispose of unused, contents, container and other contaminated wastes in accordance with local, state, federal and provincial regulations. Keep container closed when not in use.

Cleanup Information

Clean tools and equipment with industrial type solvents immediately after use. Dried material can only be removed mechanically.

Product Installation

The following methodology is for installation into solid substrates such as reinforced concrete. For other substrates or fixings please request a separate method statement.

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. If rebar is struck immediately stop drilling and seek the advice of the designing engineer.

2- Clean Hole

Clean holes immediately prior to installation of fixings to avoid them becoming re-contaminated. Brush and blow for three times at least is recommended.

3- Glue Preparation

TechnoFix® ResiCon PG 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 until fill the two-third of the hole.

5- Rust Removal of Steel Rebar

Remove the rust if any from the steel bar or anchor bolt before inserted through the hole.

6- Anchoring

Inserting in one single direction until to the bottom of the hole.

7- Standing and Curing

Keep stand for maintenance before curing.

Note: TechnoFix® ResiCon PG Anchoring Adhesive can be equipped with the following materials:

Screw thread steel, round steel, lead screw, threaded rod, anti-crack anchor.

Typical Coverage at Standard Embedment Depth in Solid Substrate

Size	Hole Diameter Drill	Embedment Depth	Material Consumption per anchorage*	Number of anchorage by 300 ml cartridge*
	(mm)			
M8	10	80	3	100
M10	12	90	5	60
M12	14	110	6	50
M16	18	125	13	23
M20	24	170	24	13
M24	28	210	55	6

*the indicated values do not include any wastage

Typical Coverage at Standard Embedment Depth in Hollow Block

Size	Hole Diameter Drill	Embedment Depth	Material Consumption per anchorage*	Number of anchorage by 300 ml cartridge*
	(mm)			
M6	10	80	5	60
M8	12	90	13.1	22
M10	14	110	21.6	13
M12	18	125	21.6	13

*the indicated values do not include any wastage

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Please note that this datasheet supersedes all previous versions.

Estimating

The required quantity of TechnoFix® ResiConP needed is dependent on hole diameter, bar diameter and hole depth. This can be estimated by using the following formula:

$$\text{Volume of grout (ml)} = 3.14 * \frac{(Dh^2 - Db^2) * H}{4}$$

Where: Dh is hole diameter in mm. Db is bar diameter in mm. H is hole depth in mm

Design Consideration

A) Minimum Hole Depth HD

As per BS8110, minimum Hole Depth **HD** (or length of embedment) is shown below, allowing for 40% factor of safety

$$HD = \frac{0.6 Fy}{FC \pi \Phi H} \cdot \frac{\pi}{4} \Phi B^2$$

$$HD = \frac{0.6}{4} \cdot \frac{Fy}{FC} \cdot \frac{\Phi B^2}{\Phi H}$$

Noting that:

FY: Yield strength of the steel (N/mm²), **FC:** Concrete bond stress (N/mm²), **ΦB:** Bar Diameter (mm)

ΦH: Hole Diameter (mm), **HD:** Minimum Hole Depth (length of Embedment mm), π: 3.14

B) Calculation of the Pullout Force (F) in tension using the minimum hole depth (HD) shown in A is as follows:

$$HD = \frac{0.6}{4} \cdot \frac{Fy}{Fc} \cdot \frac{Fy}{Fc} \cdot \frac{\Phi B^2}{\Phi H}$$

$$HD = \frac{0.6}{4} \cdot \frac{Fy}{FC} \cdot \frac{\Phi B^2}{\Phi H}$$

$$FC \pi \Phi H HD = 0.6 Fy \cdot \frac{\pi \Phi B^2}{4}$$

The Pullout Force (F) is equal to FY * Steel Bar Area. The Steel Bar Area is equal to:

$$\frac{\pi \Phi B^2}{4} \text{ Then: } FC \pi \Phi H HD = 0.6 F, F (N) = \frac{\pi}{4} \cdot FC \cdot \Phi H \cdot HD$$

$$F (KN) = (5.23 \cdot FC \cdot \Phi H \cdot HD) \div 1000$$