

ACO Comparison sheet - Polycrete® Pits v. GRC pits [Cable pits]

Polycrete® Pits from the ACO Cablemate range are manufactured from polymer concrete. Polymer concrete is produced by mixing mineral aggregates with a resin binding agent.

Glass reinforced concrete (GRC), although mainly used in exterior building façade panels and as architectural precast concrete, is sometimes used in the manufacture of precast pits. GRC is a mixture of cement, fine aggregate, water, chemical admixtures, and glass fibres.

Both types of pits are lightweight ensuring cost effective installations. For vehicular load bearing applications, if a cover & frame system (access cover) is required above a pit; the frame needs to be adequately concrete encased (an example is shown, overleaf). Beware of manufacturers recommendations that state otherwise.

There are significant differences between **Polycrete® Pits** and GRC pits.

Onsite fabrications and handling

- **Polycrete® Pits** can be easily cut with masonry drills, holesaws and grinders. The smooth walls allow for easy fastening of brackets and other cable accessories. There are also standard pipe cable entry plastic inserts for ease of creating a conduit connection.
- In contrast GRC pits contain rough walls which are more difficult to work with. In addition to this, GRC will have abrasive edges and may have fibres protruding from the surface which could cause skin irritation or abrasions.

Strength

- **Polycrete® Pits** are purpose designed to be strong. They possess almost twice the compressive strength and more than twice the flexural strength of GRC pits. **Polycrete® Pits** also have almost 4 times the tensile strength of GRC pits.

Mechanical Properties	Cement Concrete	Polymer Concrete	GRC	HDPE
Compressive strength The trench body is subject to compressive loads in use and needs to withstand the specified load.	25MPa	96MPa C-579	50MPa	58MPa D-695
Flexural strength Affects site handling and when trench body is in areas where encasement and soils are suspect.	3MPa	27MPa C-580	12MPa	15MPa D-790
Tensile strength Not generally required in trench bodies, but relevant to grates. Used as material measurement.	2MPa	21MPa C-307	5.5MPa	14MPa D-638

Porosity & electrical resistivity

- Compared with GRC pits, **Polycrete® Pits** have an extremely low porosity (0.07% v. 12%-GRC). This is important in cable pits where water ingress needs to be addressed to keep the pit contents dry. GRC pits are also prone to moisture traps (large voids) which may reduce the pit's electrical insulation.

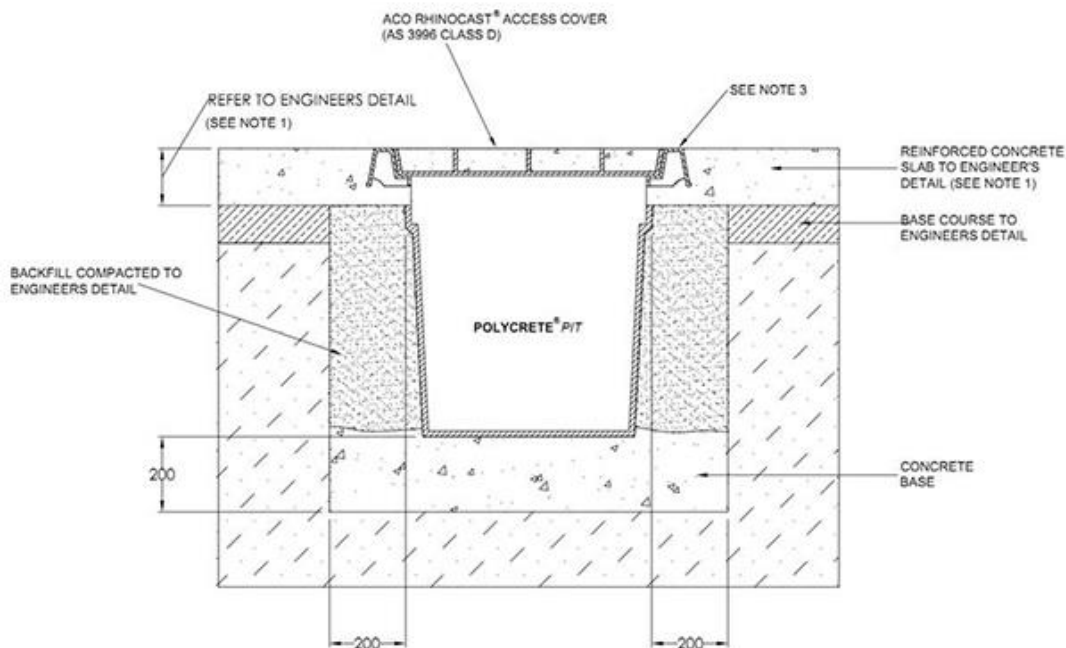
Chemical resistance

- Due to the resin binding agent used, **Polycrete® Pits** offer a higher resistance to chemical, weathering and biological attack than GRC, ensuring pits have a superior life cycle. In aggressive environments, GRC is prone to deterioration, particularly in alkaline soils. Therefore, GRC pits require regular maintenance and in some cases are susceptible to early failure.

Quality & maintenance

- **Polycrete® Pits** have smooth high quality walls. Modular components come from matched precision tooling for consistent quality. In contrast, GRC pits have rough walls of inconsistent quality.
- In the external environment **Polycrete® Pits** are unaffected by biological attack i.e. there is no need to continuously remove vegetation which may otherwise grow on concrete based products such as GRC.

TYPICAL INSTALLATION DETAIL OF A POLYCRETE® PIT WITH RHINOCAST® ACCESS COVER INSTALLED IN A REINFORCED CONCRETE SLAB FOR 8000kg NOMINAL WHEEL LOAD



NOTES:

1. Specific site conditions may require an increase in these dimensions or reinforcement. It is the customer's responsibility to ensure the detail is designed for the application and the pit structure is protected from undue load stress. *Engineering advice may be required on the slab design.*
2. A minimum concrete strength of 25MPa is recommended for the base. The concrete should be vibrated to eliminate air pockets.
3. The finished level of the concrete must be flush with the top of the frame.