

ACO Comparison sheet – Polycrete® Pits v. GRC pits [Grated pits]

Polycrete® Pits from the ACO Drain 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.

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 accessories. There are also standard pipe entry plastic inserts for ease of creating a pipe 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

Maintenance

- Compared with GRC pits, **Polycrete**® Pits are easy to keep clean due to the smooth and void free walls. This is particularly important in hygienic applications. Additionally, in the external environment, they are unaffected by biological attack i.e. there is no need to continuously remove vegetation that may otherwise grow on concrete based products such as GRC.

Porosity

- Compared with GRC pits, **Polycrete**® Pits have an extremely low porosity (0.07% v. 12%-GRC). This is important when grated pits are used in sensitive areas i.e. protecting the environment from contamination from the liquid in the pit (oils, toxins and other contaminants)

Chemical resistance

- Due to the resin binding agent used, **Polycrete**® Pits offer a higher resistance to chemical and weathering 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

- **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.