

PERMAWELL

lining shallow wells • quick & easy

- ✓ Extremely strong 30 years' expected lifespan
- ✓ Quick and easy to assemble and install by an unskilled person
- ✓ Lightweight - made of 2 semi-circular parts and nestable
- ✓ Cost effective to transport and can be hand carried near site
- ✓ Well completed within days
- ✓ Suitable for most soil conditions
- ✓ Limited supervision required
- ✓ Re-usable if well dries up



Dig and build your own shallow well with PERMAWELL the best liner for shallow well and Secure Your Water Supply

In the dry arid region of the world, local communities have, since time immemorial, relied on shallow wells for their water needs. These are dug by hand, using only the simplest tools. Well liners (casing) are used to line walls of well to prevent their caving in.

Until recently, two types of liners have been used. The galvanized, corrugated iron sheets, bolted together at the site, to make a metal well casing. However, in the wet environment in wells, these iron sheets rust within a short time and the walls of the wells collapse.

The more involved and expensive alternative was to make concrete well casing on site. Although a permanent solution, it can take up to forty weeks to complete one well and pre-supposes availability of steel moulds, all building materials and water for mixing and curing and, service of at least one skilled mason per well to mix and, cure the concrete in the moulds, these moulds, materials, skills and water are not always readily available in many areas and, if available, their costs are prohibitive because of the hazards, remoteness of the locations and very high cost of transport. Additional problem, of course, is one of pilferage or inappropriate mixing of materials resulting in poor quality of the concrete well casings. If they are made of inadequate strength, they will crack while, or after, they are installed.

In 1995 a major UN Aid Agency active in hazardous, remote locations in Southern Sudan approached Kentainers Limited of Nairobi Kenya, a group company of Aquasan Africa Ltd. Group, for developing a new concept in shallow well liners for hand dug shallow wells.

Their brief to Kentainers was:-

“To develop and perfect a long lasting, lightweight, rapidly Assembled, sectional polyethylene (plastic) liner, resistant to aggressive water, capable of being installed during excavation of loose soils without need for local materials and with minimal labour and technical inputs”

Our PermaWell brand liners are manufactured by rotational moulding process, using advanced PE foaming technology acquired by us from Norway. PermaWell have thick, foamed, PE walls and are now proven through extensive field use. They are readily available from us.

The two halves of PermaWell liners can be nested and transported with ease by all available means, including even a small aircraft. They are lightweight and can be portered over long distance by beneficiaries themselves.

The liners have moulded-in (captive) nuts. We supply stainless steel bolts with the PermaWell liners which can be rapidly assembled on site using a single fixed spanner. Only minimal training on assembly is required.

Precise moulding permits assembly of PermaWell liners by single individual, either above ground or within a well. This unique feature permits addition of PermaWell liners to lower end of the column either during initial excavation or whilst deepening existing Lined well.

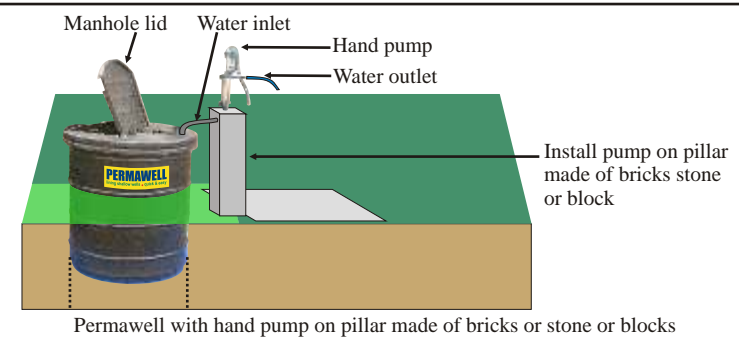
PermaWell foamed PE liners have been very well received by the Governments, international humanitarian agencies, donors and the private sector in the Eastern and North Eastern Africa and the Great Lakes Region as sustainable, long lasting solution for providing water in schools, clinics and other institutions and even for villages and farms in areas of high water tables. PermaWell are highly valued by them for rapid construction of shallow wells. The first of its kind anywhere in the world, this innovative PermaWell, has been patented By us in a number of countries.

PermaWell liner is made in the dimensions 1M diameter by 1M height



PERMAWELL installed in S. Sudan by Save the Children fund

PERMAWELL installation for DWD project in Uganda.



PermaWell liner is the ideal choice to protect shallow wells from collapse due to its low weight and inert material. It is a simple “do-it-yourself” solution that can be assembled and installed at site by an unskilled labourer within a few days. We provide all the necessary accessories including tools with each lot to help you complete installation.

PermaWell comprises of two semi-circular sections, which are bolted together to make an open cylinder with a diameter of 1M and height of 1M. We also provide protective cover to reduce risk of well contamination. A hand pump can be installed by the side of the well as shown in this brochure

The semi-circular sections and the well cover are rotationally moulded using food grade polyethylene, making the products inert, rust-free and extremely hygienic. The polyethylene used is suitably stabilised against the harmful effects of sunlight to give an expected lifespan of more than 30 years.

Each sections is double-walled with foamed polyethylene core within its cavity which makes PermaWell very strong, making PermaWell suitable for almost all soil conditions.

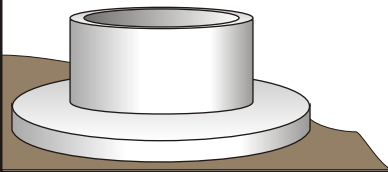
PermaWell, being lightweight and nestable, is easy, convenient and cost effective to transport anywhere by air or road.

When compared to competing products shown below, PermaWell has many advantages mentioned above and none of the disadvantages of the concrete well liner (casing) or metal well liner (casings).

Concrete well liners (Casing)



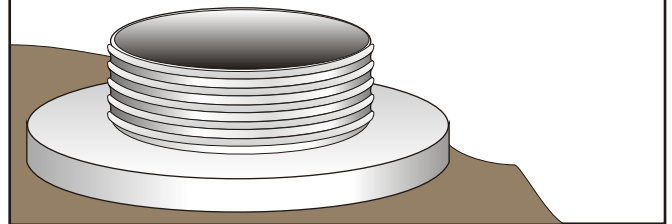
- ⊗ Needs expensive steel moulds at site
- ⊗ Need supervision and masonry skills
- ⊗ Adequate water for curing a must
- ⊗ Long curing time up to 40 weeks to complete a single well
- ⊗ Concrete casings are difficult and dangerous to install
- ⊗ Heavy and expensive to transport
- ⊗ Permanent and not re-usable when well dries up



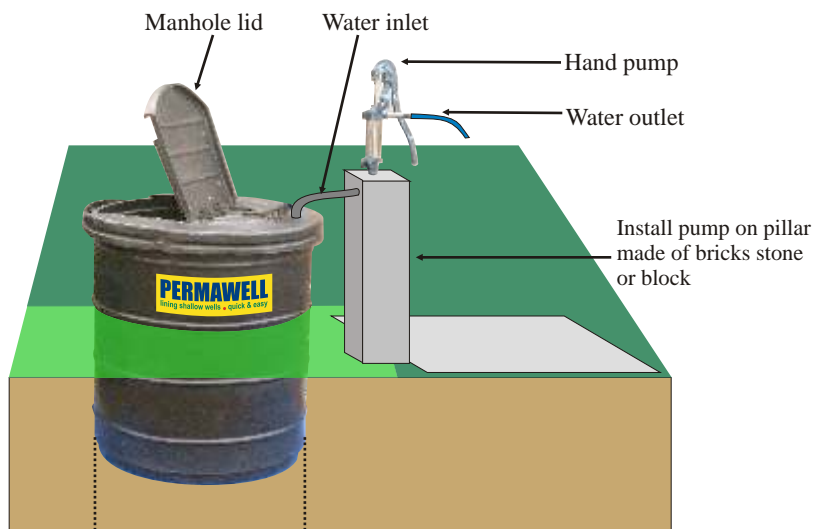
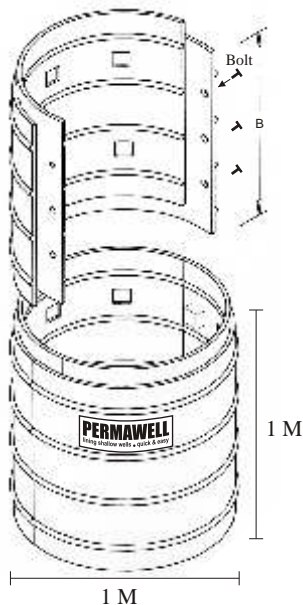
Corrugated GI metal well liners (Casing)



- ⊗ Rusts quickly, especially in saline conditions
- ⊗ Changes taste of water
- ⊗ Lifespan of 2-5 years - temporary solution only
- ⊗ Difficult to transport
- ⊗ Not re-usable



PERMAWELL Casing



PermaWell with hand pump on pillar made of bricks or stone or blocks

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