

## Faecal sludge transfer station: bladder

The faecal sludge bladder with a capacity of 5m<sup>3</sup> was designed and developed as a rapid deployable but temporary sludge storage. It can be used as transfer station in places where large vacuum trucks are not readily available or have limited access. Bladders can also be used as longer term storage until solution for treatment and final disposal can be found. As faecal sludge is often mixed with solids a manhole was fitted on the bladder to facilitate emptying and cleaning.



<b>Treatment technology:</b>	Containment only
<b>Treatment objective</b>	n/a
<b>Treatment capacity</b>	Reservoir has been designed to safely store sludge, not for treatment.
<b>Site requirements</b>	The sludge bladder can be easily put up on a flat area without any sharps. It is advisable to ensure security and not put it very close to people's houses.
<b>Life expectancy</b>	Up to 3 years (to be determined based on field testing, solids within the sludge, transport and use) When bladder is used at a single location life expectancy will increase.
<b>Weight and volume</b>	Shipping weight 125 Kg Volume: 1280x800x1050mm
<b>Startup time</b>	Ready for immediate use
<b>Capital cost</b>	EUR 5540 for prototype which includes development costs
<b>Operational cost</b>	There are no direct operational costs, but it is advisable to build the reservoir in a secure and guarded area. People working with sludge should wear Personal Protective Equipment
<b>Equipment overview</b>	Material : TPU (Thermoplastic Polyurethane), EIA (Ethylene Interpolymer Alloy) Volume tank : 5.000 ltr (different sizes available) Connections : 3 and 6 Inch In/Outlet (Size : 4x5x0.6m 500mm Inspection manhole fitted in corner Sleeves fitted on sides of bladder for easy handling/cleaning purposes

<p><b>Process overview</b></p>	<p>The sludge bladder is designed to safely but temporary store fecal sludge. Even though the sludge bladder has a large outlet, it is advisable to try and prevent large solids and sharps entering the bladder, e.g. with a bar screen. Experience learned that most of the damage with bladders do happen during transport, so complete emptying and cleaning will prolong the lifespan of the bladder.</p>
<p><b>Additional considerations</b></p>	<ul style="list-style-type: none"> <li>- The sludge bladder is relatively new and untested concept to humanitarian contexts and at the time of writing had not been applied and proven at scale.</li> <li>- Though a good temporary solution the bladder is not designed to function as a permanent sludge storage solution.</li> <li>- The sludge bladder is designed on the basis of safe, flexible ad fast storage of faecal sludge, longer term solutions for treatment and final disposal are required when designing a total faecal sludge system.</li> </ul>
<p><b>Advantages over other sludge storage options</b></p>	<ul style="list-style-type: none"> <li>- Extremely fast and easy to set up.</li> <li>- The bladder is more easy to empty and clean and conventional bladders. A manhole is made to take out possible larger solids, straps are made of the side of the bladder to support the emptying a cleaning process</li> <li>- Suitable in high density urban areas or camp setting were temporary sludge storage might be required.</li> <li>- No access for flies and smell is controlled</li> </ul>



Sludge bladder



500 manhole and corner outlet

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Technical details:

