Hippo 7 flush rig testing

A rig was set up at GBR Industries offices which allowed the flush volume of an 8 litre WC to be accurately measured before and after the water saving device, Hippo 7 was fitted.

5 flushes were monitored before installation, during installation and after removal.

The results are detailed below.

	Before Installation (Litres)	Hippo 7 installed (Litres)	Post installation removal (Litres)
Flush 1	7.50	6.00	7.25
Flush 2	7.50	5.75	7.25
Flush 3	7.25	5.25	7.50
Flush 4	7.50	5.25	7.50
Flush 5	7.75	5.50	7.00
Total litres flushed	37.50	27.75	36.50
Average litres flushed	7.50	5.55	7.30

The results show an average of 7.40 litre flush without the Hippo 7 device and a 5.55 litre flush with the device fitted. The saving is therefore 1.85 litres per flush.

To support these calculations it is important to understand the maths based calculation.

Hippo 7 unit quantity is 2.5 litres to full with the following dimensions:
Width (gusset) = 10cm
Length = 14cm
Box Height = 16.5cm

0.00231m3 = 2.31 litres

If you assume 2.5cm of water remains in the cistern following each flush and the Hippo 7 sits on the bottom of the cistern then the effective height of the Hippo 7 is reduced to 14cm.

Therefore the volume = 0.14 x 0.10 x 0.14 = 0.00196 x 1000 = 1.96 litres.

This calculation is based on the perfect square volume and does not take into account that the device, Hippo 7 will swell and therefore increase the available displacement volume to a maximum of 2.5 litres.

In comparison, **Hippo 9** unit quantity is 4.25 litres to full with the following dimensions:
Width (gusset) = 10cm
Length = 19cm
Box Height = 19cm

0.00361m3 = 3.61 litres

Again taking into account the 2.5cm of water remaining in the cistern following each flush and the Hippo 9 sitting on the bottom of the cistern then the effective height of the Hippo 9 is reduced to 16.5cm.

Therefore the volume = 0.10 x 0.19 x 0.165 x 1000 = 0.003135 = 3.135 litres.

This calculation is again based on the perfect square volume and does not take into account that the device, Hippo 9 will swell and therefore increase the available volume to a maximum of 4.25 litres.