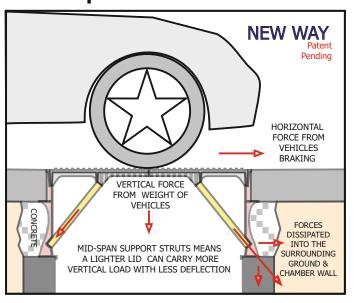
# **Pennine**

# Titan Composite Lid & Frame

# **World Beating Access Chamber Lid & Frame**

## The Challenge

Minimise lid weight for ease of removal & replacement
Reduce total weight of lid+frame to lower the cost of installation, transport and storage.
Prevent movement of frame in road made by braking vehicles (causing wrinkling of road surface)
Minimise deflection under load Keep costs to a minimum



# GAPS APPEAR AS LID IS PUSHED FORWARD VERTICAL FORCE FROM WEIGHT OF VEHICLES CAUSES MORE DEFLECTION THAN ON LIDS WITH MID-SPAN SUPPORT

#### The Answer

Support the lid mid-span & transfer the forces downwards at an angle to the vertical through the frame base into the surrounding ground.

This allows reduction of lid weight & lateral forces are dissipated in the ground, well below the road surface. Reduction of span reduces deflection. Lower lid weight=lower material cost

#### **But do the Struts Restrict Access?**

The struts can be rotated upwards and locked in position flush with the walls. The geometry is such that the lid cannot be replaced unless the struts are down.



# **Additional Benefits**

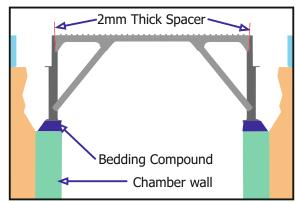
- \* Extra depth of frame means the chamber needs fewer rings
- \* Fits all Pennine and other access chambers
- \* Struts could be secured to restrict access for safety reasons.
- \* Lifting keys are included.
- \* Easy to use double lock system
- \* Most stresses are now compressive instead of tensile and so improving product longevity.

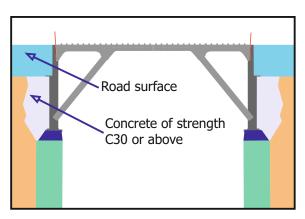
MADE IN UK TO ISO9001 QUALITY STANDARDS

# **Pennine**

### **Installation**

- 1.install the chamber with the top below the finished surface level by 280mm+depth of mortar.
- 2.Lay bedding mortar on top of the chamber.
- 3.Place 2mm spacers close to central on each edge between the lid and the frame.
- 4. Remove the lifting keys from the inside and place the lid/frame on the bedding mortar, so that the top is level with the finished road surface.

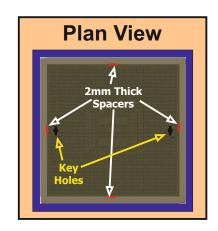




- 5.Backfill with concrete-shutter if necessary, using C30 or stronger and tamp well.
- 6.After the concrete has set, make good the road surface.
- 7.Allow time for road surface to set/firm up, then remove the spacers.

#### **Opening**

- 1.Place both keys into the lid and turn anticlockwise 90degrees.
- 2.Lift the lid out of the frame and place to one side.
- 3.Rotate the struts upwards until vertical and then allow them to move downwards 6mm on to the catches on the frame.



Lifting Key

#### **Closing**

- 1.Lift the struts upwards 6mm and rotate them down to approximately 45degrees to vertical.
- 2. Place the lid back in position, making sure it is fully down.
- 3.Rotate the keys 90degrees clockwise and then remove them from the lid

them from the lid.		External (cm)			Internal(open)				
Code		L	W `	Ĥ	L	`Ŵ ´	Wt	Lid E	EN124
MLID4545	450X450mm	55	55	28	43	43	16kg	9kg	C250
MLID6045	600X450mm	70	55	28	58	43	19kg	11kg	C250
MLID6060	600X600mm	70	70	28	58	58	25kg	16kg	C250

Pennine Manufacturing Ltd