

**GENERAL**

Current health and safety legislation requires that construction equipment users formulate a site specific Safe System of Work (SSoW) to undertake the works they are proposing. This document is intended to provide sufficient product specific guidance on handling, installing, maintaining and removing MGF equipment to allow the SSoW to be compiled. It should always be read in conjunction with the product specific technical files and the site specific design information (including any residual risks to be managed on site) provided by MGF or others.

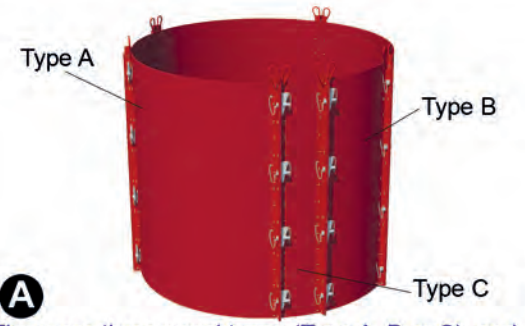
Users of this equipment should be both familiar with and competent in its use. MGF can provide toolbox talks and training material / advice on request.

MGF excavation systems can be supplied with a full range of site safety products and ancillaries. These products are designed to comply with current best practice and meet the requirements of the Lifting Operations & Lifting Equipment Regulations, Work at Height Regulations and the Confined Spaces Regulations.

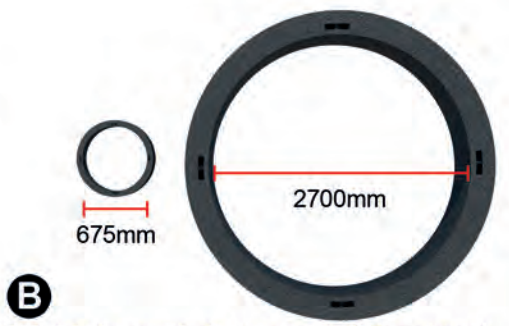
For MGF contact details or further information visit [www.mgf.ltd.uk](http://www.mgf.ltd.uk)

**SAFETY TIPS**

1. Prior to use inspect all lifting and connection points for damage. Please contact your local depot if you have any concerns.
2. Prior to use ensure that wedges and pins are clean from concrete and debris.
3. MGF recommend using a release agent.
4. Panels are connected using a simple pin and wedge system.
5. Secure wedges into the pin using a single hammer blow.
6. Before lifting into place do a trial lift to ensure load is stable.
7. Before pouring concrete, ensure all pins and wedges are secure and in place.
8. Panels must not be used for manholes larger than stated in the table.
9. The shutters are for single height pours only. Do not stack for extra height.
10. During use, visually check panels and joints for any signs of movement or cracking from a safe distance.
11. After concrete has adequately set, release wedges on one panel at a time and lift out.
12. Each shutter has two lifting points, use only lifting points for attaching chains. Do not snatch the chain during removal.
13. Always use a banksman and ensure that panels are not lifted over personnel.
14. Works should only commence after method statements and risk assessments are in place and all hazards identified. (RAMS) and a lifting plan agreed.
17. Storage: panels should be stacked as follows:  
Panel Type A (max 10 high)  
Panel Type B (max 10 high)  
Panel Type C (max 5 high, nested together)



There are three panel types (Type A, B or C), and 2 panel heights (900 or 1800). They are connected to each other using a pin and wedge detail. See table for combinations.



Suitable for manhole rings up to 2.7m internal diameter, for larger rings contact the MGF design Department.

**ASSEMBLY**



Each panel features integrated lifting points for ease of handling.



Shutter panel assemblies should never be installed on top of each other.

**INSTALLATION**



Inspect the connecting faces of the panels to ensure they are clean of debris, defects and that the connecting pins and wedges are functioning. The panels should be connected together to suit the concrete rings being used before installation.



Each panel must be securely connected using the supplied pins and wedges, secure the wedge in place using a single hammer blow. Once each panel is connected together it should be installed immediately.



Connect a 4-leg lifting chain to the lifting points, the shutter assembly should then be carefully lowered over the pre-cast concrete rings. Do not lift over personnel.



Ensure panels are fully founded on level, stable ground.



Prior to pouring in any concrete ensure that the pin and wedges are in place and secure, and the shutters are evenly spaced around the manhole. Timber packers may be required.



The concrete can now be poured between the concrete ring and the shutter panels. MGF can supply Manhole Ring Safety Platforms to assist with this process.



Alternatively, the concrete can be directly poured between the manhole rings and the shutter panels.



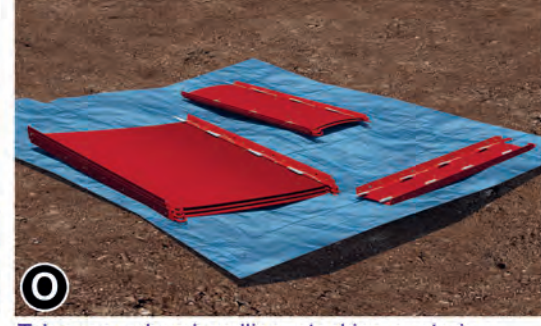
It is advised to limit the pour heights of the concrete to no more than 300mm increments and that the rate of rise is limited to 1m per hour.



During use visually check panels and joints for any signs of movement or distress.

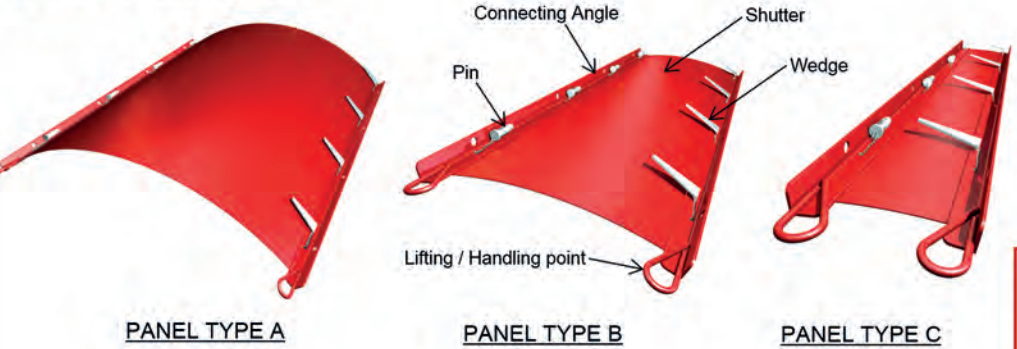


After the concrete has adequately set, strike to release the wedges and remove pins before releasing the panels from the concrete and lifting each panel individually out of the excavation.



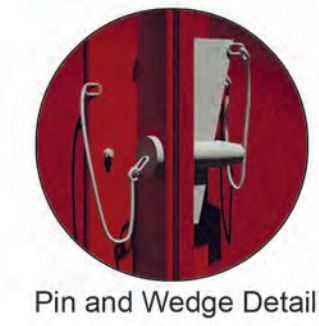
Take care when handling, stacking or storing manhole shutter panels to avoid damage.

**Manhole Shutter Options:**



Height of Panel (mm)	900			1800		
	A	B	C	A	B	C
Length of Panel (mm)	1520	640	300	1520	640	300
Weight (kg)	41	22	15	81	43	29
Product ID	7.101	7.103	7.105	7.102	7.104	7.106

X' Manhole ring internal diameter (mm)	Y' Thickness of manhole ring	Panel combination for approx. 150mm concrete Surround			'Z' External dia. of concrete (mm)	Theoretical thickness of concrete (mm)	Approx. Concrete volume (m³)	
		A	B	C			900 H	1800 H
675	65	1	3	0	1095	145	0.39	0.78
900	75	2	1	2	1362	156	0.53	1.06
1050	85	3	0	1	1547	164	0.63	1.28
1200	100	3	1	1	1751	176	0.78	1.56
1350	112	3	2	0	1859	143	0.69	1.38
1500	115	4	0	1	2031	151	0.80	1.60
1800	115	4	2	0	2343	157	0.96	1.94
2100	120	3	5	2	2661	161	1.13	2.26
2400	135	6	0	1	2998	163	1.31	2.63
2700	162	6	2	0	3310	143	1.28	2.56



See MGF [YouTube](https://www.youtube.com/user/MGFLtd) channel for installation guidance: <https://www.youtube.com/user/MGFLtd>

**IF IN DOUBT ASK!**

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**Guidance for Safe Systems of Work: Manhole Shutter Panels**

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