DESIGN GUIDE

PSA 5T TILT-UP LIFTING SYSTEM

PSA 5T TILT-UP LIFTING SYSTEM

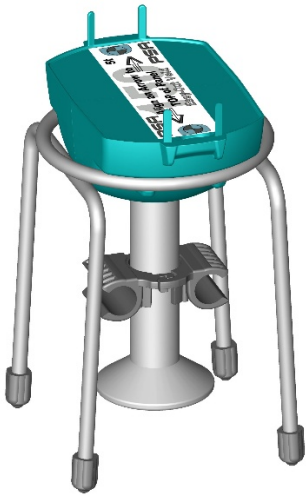
The PSA 5t Tilt-up Lifters provide an efficient system for demoulding and erecting tilt-up panels. Two chair designs accommodate a variety of reinforcement configurations around the anchors.

Features:

- Anchors are shipped pre-assembled with the chair and the recess former.
- Robust wire chair to withstand construction loads.
- Two chair designs to allow for a variety of reinforcement configurations.
- Antennae to easily identify the lifters in the panels.
- Robust plastic recess creates the void required to attach the lifting clutch.
- Hot-dip galvanised anchors ensure corrosion protection.
- Complies with AS 3850 requirements for lifting systems.
- Label to identify lifting direction and anchor size.

PSA 5T TILT-UP LIFTERS

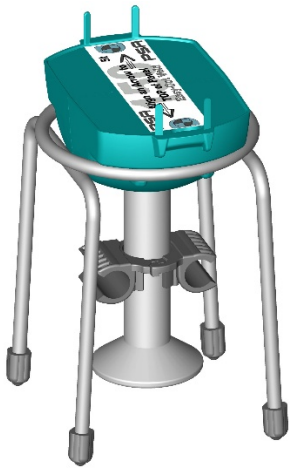
Two versions of the PSA 5t Tilt-up Lifters are available:

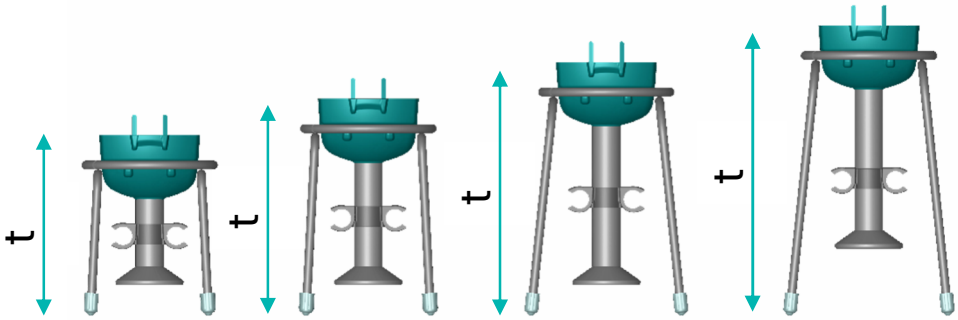


PSA 5t Tilt-up Lifters – Straight Leg Version

PSA 5t Tilt-up Lifters – Bent Leg Version

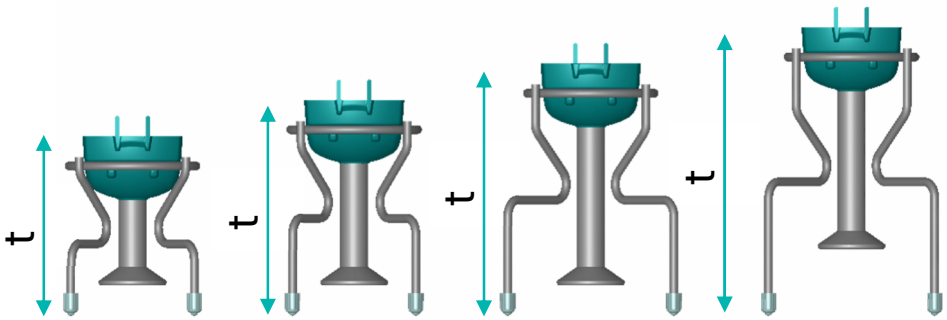
PRODUCT RANGE





PSA 5t Tilt-up Lifters – Straight Leg		
Product Code	**Description**	**Wall thickness t (mm)**
PFL05125C	PSA 5t 125mm Straight Leg Face Lifter with Clip (4 legs)	125
PFL05150C	PSA 5t 150mm Straight Leg Face Lifter with Clip (4 legs)	150
PFL05175C	PSA 5t 175mm Straight Leg Face Lifter with Clip (4 legs)	175
PFL05200C	PSA 5t 200mm Straight Leg Face Lifter with Clip (4 legs)	200

Note: PSA 5t Tilt-up Lifters come pre-assembled in the chair with a single-use plastic recess former
All PSA 5t Tilt-up Lifters with straight legs come with a reinforcement clip pre-installed.



PSA 5t Tilt-up Lifters – Bent Leg		
Product Code	**Description**	**Wall thickness t (mm)**
PFL05125	PSA 5t 125mm Bent Leg Face Lifter (4 legs)	125
PFL05150	PSA 5t 150mm Bent Leg Face Lifter (4 legs)	150
PFL05175	PSA 5t 175mm Bent Leg Face Lifter (4 legs)	175
PFL05200	PSA 5t 200mm Bent Leg Face Lifter (4 legs)	200

Note: PSA 5t Tilt-up Lifters come pre-assembled in the chair with a single-use plastic recess former

DESIGN

The headed anchors used in the PSA 5t Tilt-up Lifter Assemblies have a Working Load Limit (WLL) of 5t based on a factor of Safety of 2.25 as required by AS 3850.1.

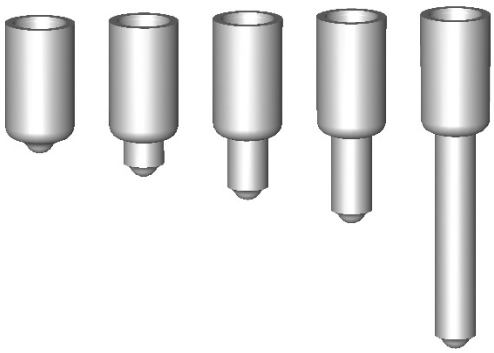
The table below shows the Working Load Limit of the anchors when installed in concrete of different strengths.

Working Load Limit for PSA 5t Tilt-up Lifters in concrete

Product Code	Working Load Limit (t) at Concrete Strength (MPa)					
	15	20	25	32	40	50
PFL05125(C)	2.31	2.67	2.99	3.38	3.78	4.22
PFL05150(C)	3.21	3.71	4.15	4.69	5.00	5.00
PFL05175(C)	4.17	4.81	5.00	5.00	5.00	5.00
PFL05200(C)	4.17	4.81	5.00	5.00	5.00	5.00

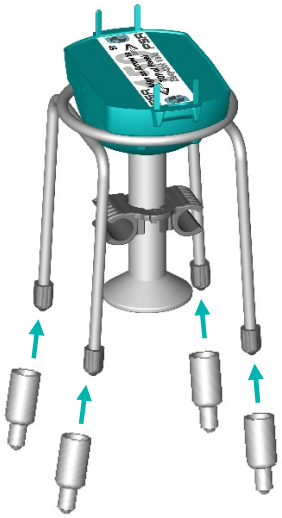
ACCESSORIES

For member thicknesses outside the four standard anchor assembly sizes, PSA offers extension feet that allow the anchor assembly feet to be adjusted to suit intermediate slab thicknesses.

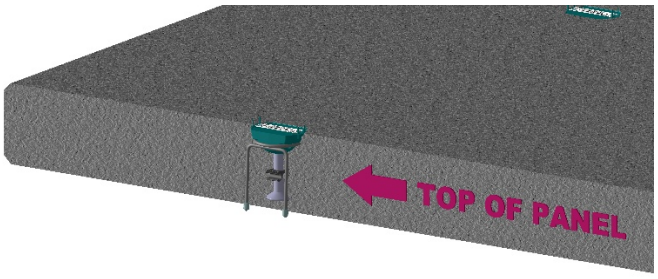


PSA 5t Tilt-up Lifters – Feet Extensions		
Product Code	**Description**	**Additional height (mm)**
EXT10	10mm Feet Extension for 5t Face Lifter	10
EXT15	15mm Feet Extension for 5t Face Lifter	15
EXT20	20mm Feet Extension for 5t Face Lifter	20
EXT25	25mm Feet Extension for 5t Face Lifter	25
EXT50	50mm Feet Extension for 5t Face Lifter	50

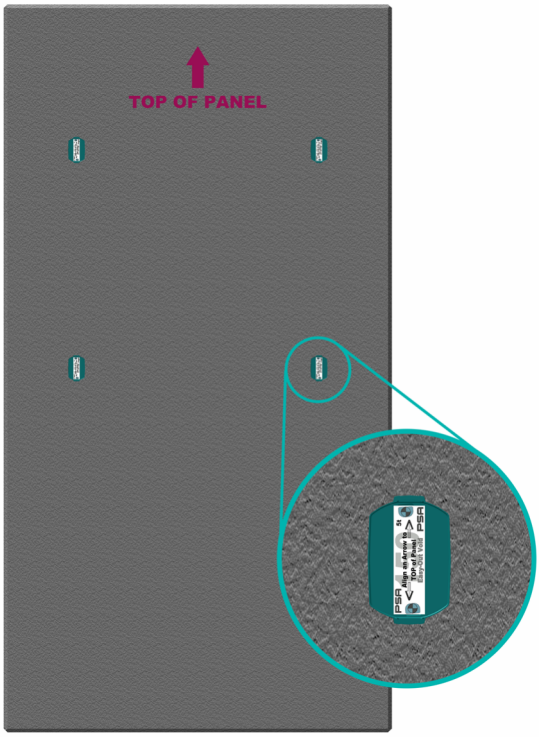
Note: EXT Feet Extensions work with straight leg and bent leg anchor assemblies.
4 pieces of EXT Feet Extensions are required for each anchor assembly.



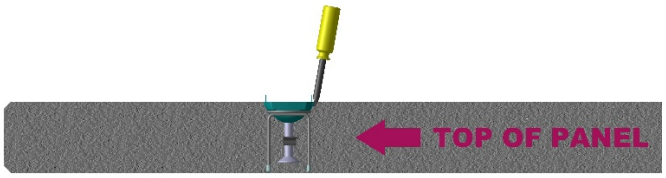
ANCHOR INSTALLATION



Step 1 – Ensure to pick the correct anchor assembly for the required panel thickness - PSA 5t Tilt-up Lifters are available for panel thicknesses of 125, 150, 175 and 200mm.



Step 2 – Install the anchor assembly in the longitudinal direction of the panel with one of the arrows on the lid lining up to the top of the panel.

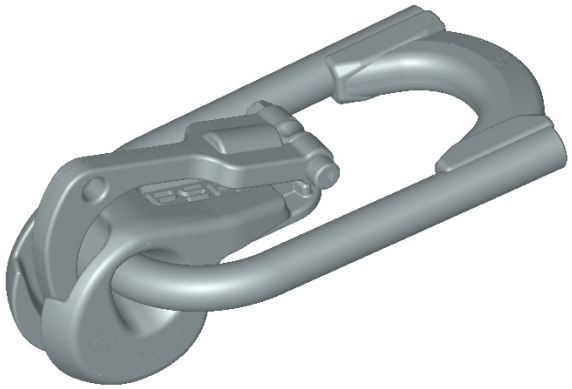


Step 3 – After concrete pour the plastic recess former can be removed using a screwdriver.

Install all anchors at the location specified by the Erection Design Engineer.

PSA 5T FACE LIFT CLUTCH

The PSA 5t Clutch has been specifically designed to be used in conjunction with the PSA 5t Tilt-up Lifters for Tilt-up applications.

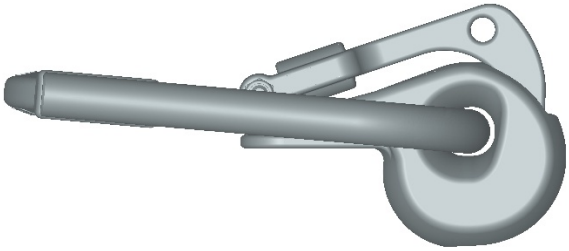


PSA 5t Face Lift Clutch

The unique locking mechanism of the clutch ensures that it is securely fastened around the anchor head and a disengagement is impossible.

An opening in the locking mechanism allows to install a rope for remote release.

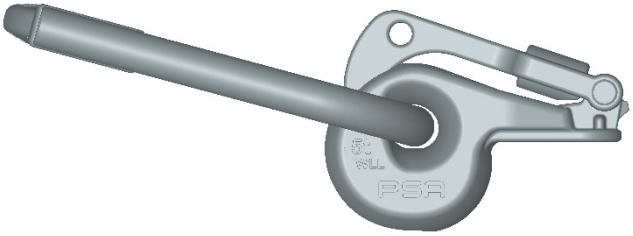
The locking hook can be positioned in two configurations, allowing the clutch to be used in two different orientations.



ORIENTATION 01

The locking hook is in the direction to the shackle

In this method the remote release cable comes downward

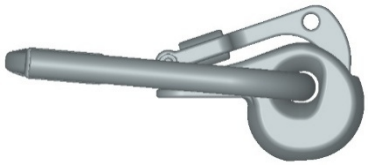


ORIENTATION 02

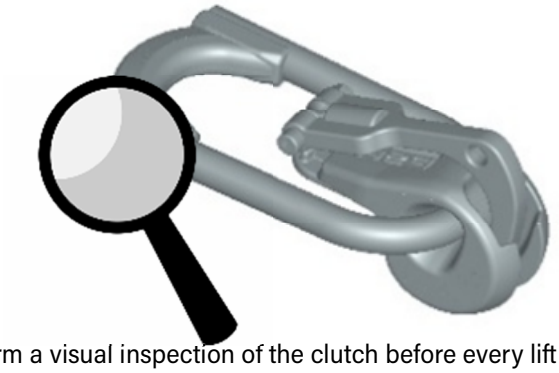
The locking hook is in the opposite direction to the shackle

In this method the remote release cable goes through the rigging above the clutch

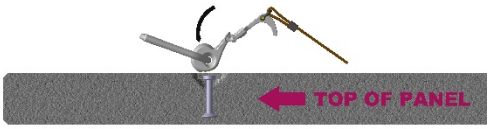
CLUTCH USER GUIDE



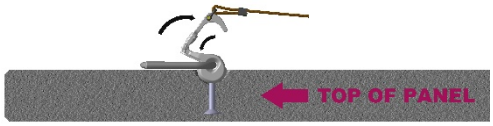
Orientation 01 (Remote release Cable facing Downward)



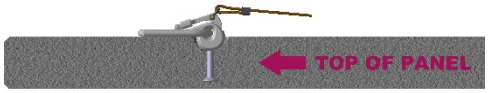
Step 1 – Perform a visual inspection of the clutch before every lift process. Do not use clutches that were exposed to shock loads or show signs of cracking, deformation or welding on any part of the clutch



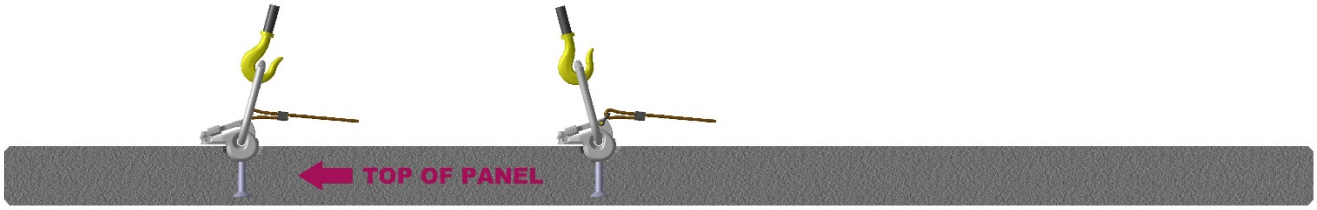
Step 2 – Open the security hook so that the clutch opening is ready to fit over the anchor head



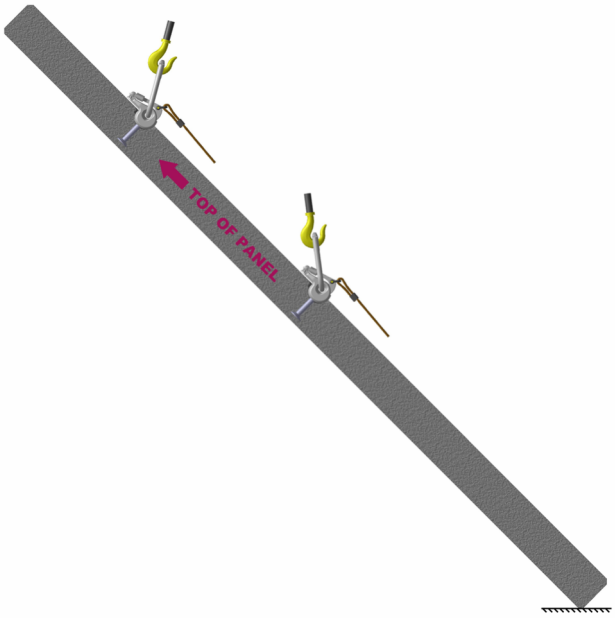
Step 3 – Position the clutch body over the anchor head and lower it until the clutch is fully engaged with the anchor. The heel of the clutch should sit in the lifting direction.



Step 4 – Close the security hook to lock the anchor head in place and move the handle into the lifting direction.

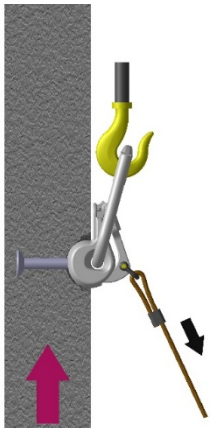


Step 5 – Connect the shackle to crane and start the lifting procedure.

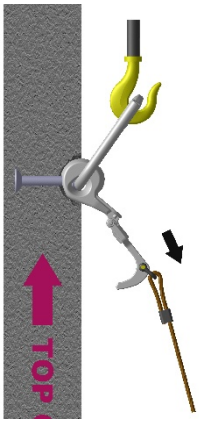


Step 6 – With the lifters being installed unsymmetrically, the panel will rotate up.

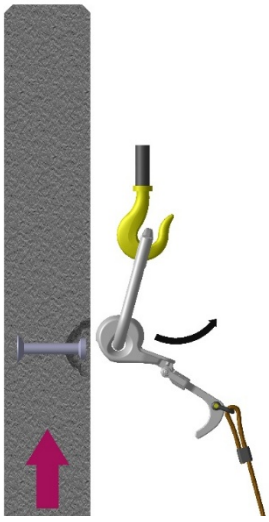
Step 7 – Land the Panel in the desired location.



Step 8 – Pull the remote release cable downward to open the security hook.

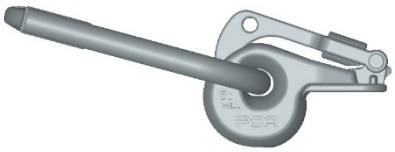


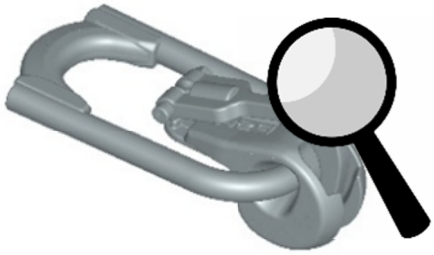
Step 9– Once the lock is released the clutch will sit safely on the anchor head



Step 10– Use the crane to gradually take up the chain slack and lift the clutch assembly until it disengages from anchor head. Once released, transport the clutch to the next panel for the next lifting operation

Orientation 02 (Remote release Cable facing Upward)





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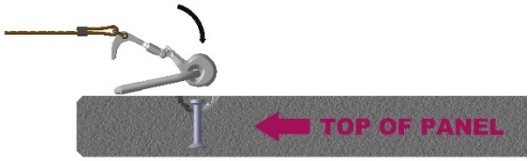
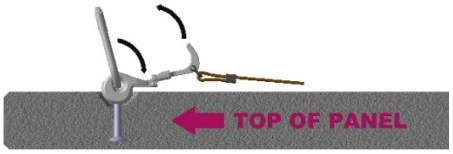


Step 2 – Open the security hook so that the clutch opening is ready to fit over the anchor head



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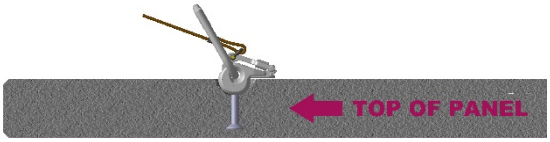
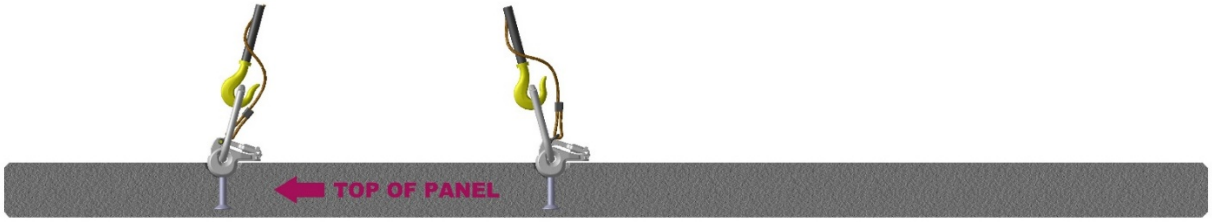
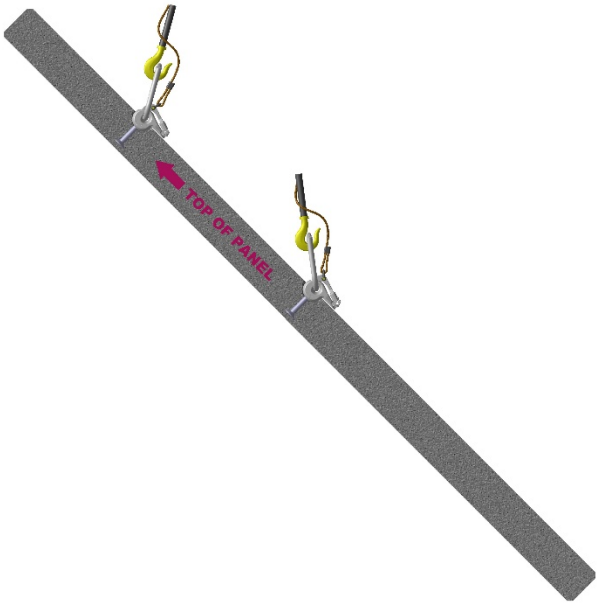


Step 4 – Close the security hook to lock the anchor head in and move the handle into lifting direction



Step 5 Attach and adjust the release cable so that it runs through the crane hook and start the lifting procedure.



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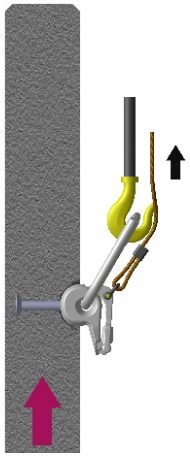
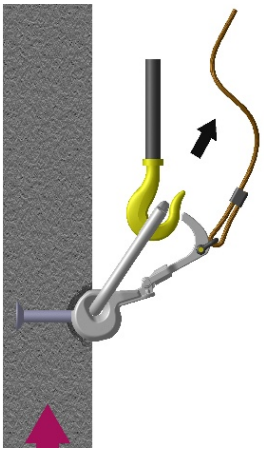
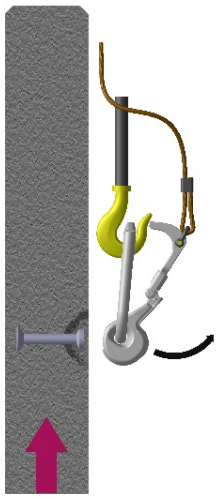
Step 7 – Land the Panel in the desired location.



Step 8 – Pull the remote release cable upward to open the security hook.



Step 9– Once the lock is released the clutch will sit safely on anchor head



Step 10 – Use the crane to gradually take up the chain slack and lift the clutch assembly until it disengages from anchor head. Once released, transport the clutch to the next panel for the next lifting operation

The selection, placement, and use of Tilt-Up Anchors must be in accordance with the certified erection design prepared by the Project's Erection Design Engineer. Anchor capacities, lifting configurations, panel orientations, concrete strength requirements, and erection loads vary between projects and must be verified for the specific application.

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