CLUTCH USAGE GUIDE

PSA LIFTMX LIFTING SYSTEMS

PSALIFTMX

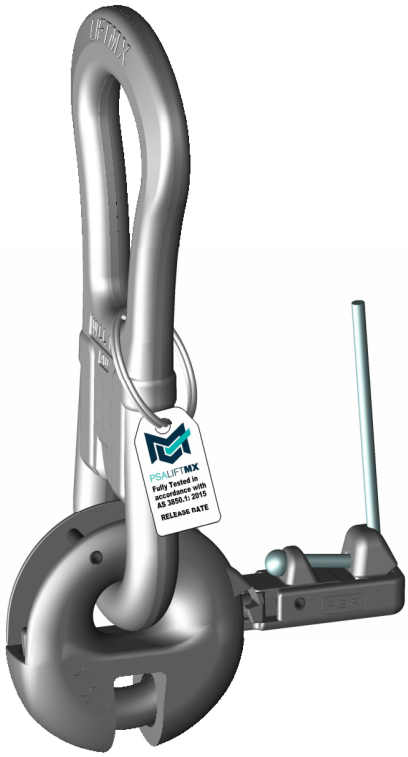
ABOUT PSA LIFTMX LIFTING CLUTCHES

The PSA **LiftMX System** is designed to deliver exceptional strength, versatility, and ease of use throughout the entire handling process—from precast yard operations to on-site installation.

LiftMX Clutches are manufactured from high-strength alloy steel and are hot-dip galvanised to ensure durability in harsh environments. Each clutch is permanently marked with the PSA LiftMX logo for clear identification and traceability.

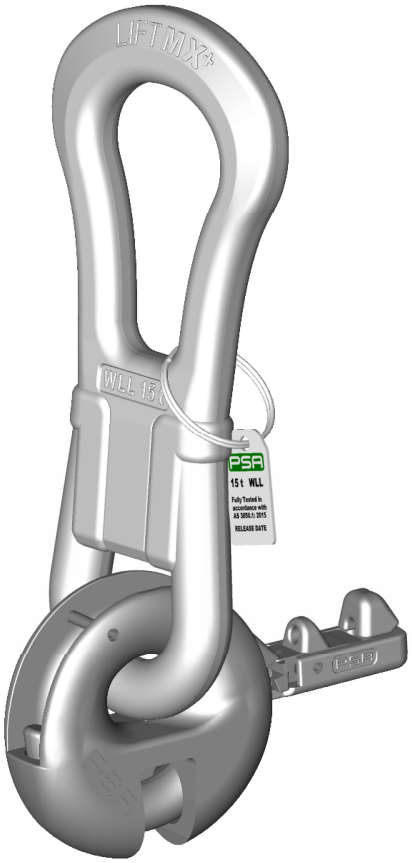
The LiftMX 10t Clutches are specifically engineered for use with PSA LiftMX Edge Lifters and Face Lifters. The **"One Clutch, One Void, One System"** design philosophy ensures compatibility across a wide range of concrete elements, reducing system complexity for 10-tonne and 8-tonne Edge Lifters, 7-tonne Face Lifters. In addition, PSA offers the 15 Tonne Edge Lifters that work in conjunction with the PSA LiftMX15 Safety Clutch.

PSA LiftMX Clutches are designed and tested to comply with Clause 2.6 of AS 3850.1. Comprehensive testing programs are undertaken both in-house and by independent third-party laboratories to verify performance, confirm compliance, and ensure that each clutch meets PSA's stringent design and safety requirements.



PSA LIFTMX 10T SAFETY CLUTCH

PSA LIFTMX 10T CLUTCH



PSA LIFTMX 15 T SAFETY CLUTCH

CLUTCH COMPATIBILITY

To ensure the use of the clutch with the correct anchor the head of all PSA LiftMX Lifters are colour coded.

The following table shows the compatibility of the PSA LiftMX Clutches with the different PSA LiftMX Anchors.

Lifter Code	Lifter Type	Colour Code	Compatible Clutch
LME10	Edge Lifter	Green	LiftMX 10t Clutch / LiftMX 10t Safety Clutch
LME08	Edge Lifter	Pink	
LMF07-095	Face Lifter	Brown	
LMF07-120	Face Lifter	White	
LMF07-145	Face Lifter	Black	
LME15	Edge Lifter	Fluro Green	LiftMX 15t Safety Clutch

The PSA LiftMX Clutches are designed and approved for use only with PSA LiftMX Edge and Face Anchors as part of the complete PSA LiftMX lifting system. PSA LiftMX Clutches should only be used to connect to the PSA LiftMX Anchors listed in the compatibility table above.

The use of other brands of lifting clutches with PSA lifters and the use of other branded lifters with the PSA Lifting clutches is not permitted.

The PSA LiftMX Clutch has not been tested, assessed, or certified for use with lifting anchors manufactured by other suppliers or as part of any alternative lifting system. Accordingly, the use of PSA LiftMX Clutches in conjunction with non-PSA anchors is not permitted and may result in reduced performance, loss of system integrity, and non-compliance with applicable requirements.

In accordance with AS 3850.1 - clause 2.1, lifting equipment and components shall be used as a compatible and validated system, with lifting inserts, clutches, and associated hardware selected and used in accordance with the manufacturer's specifications and tested system capacities.

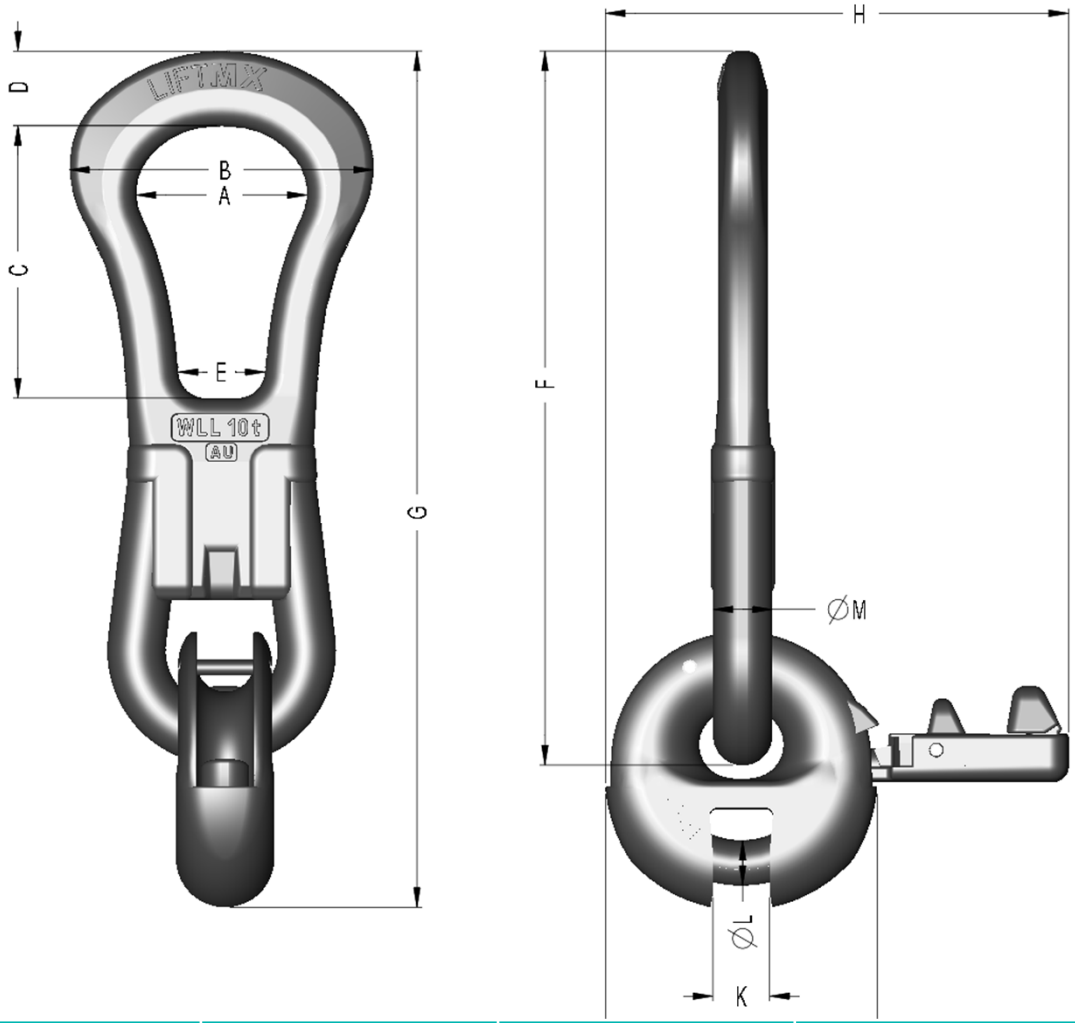
PRODUCT MARKING AND TRACEABILITY

Every LIFTMX Clutch is tested according to AS3850.1 before being sold to customer, ensuring the highest quality and safety.

The two numbers are combined and tracked in the format LM-XXXX for easy identification. Every clutch is tested to verify ultimate load.
A minimum static load safety factor of 4xWLL in relation to ultimate load, is guaranteed.

CLUTCH IDENTIFICATION NUMBER

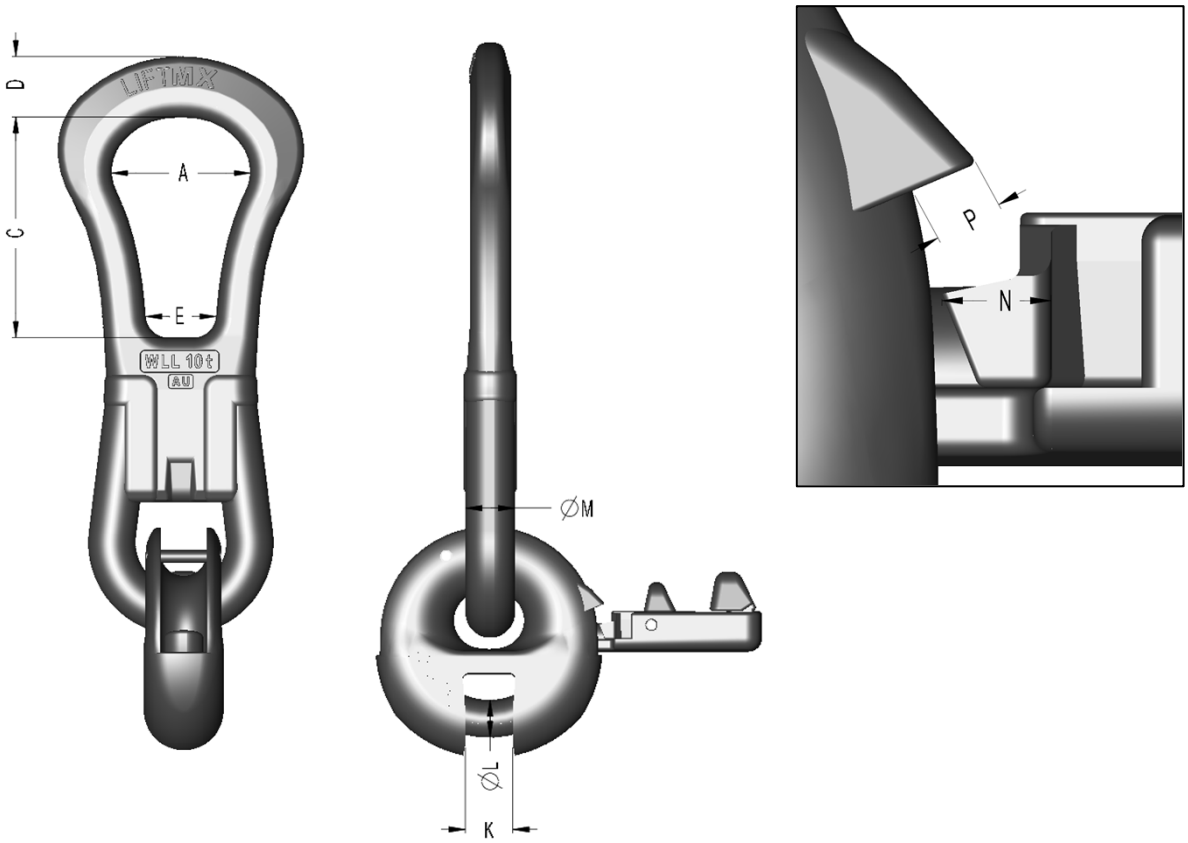
GEOMETRIC SPECIFICATIONS



Product Name	LIFTMX 10t Clutch	LIFTMX 10t Safety Clutch	LIFTMX 15t Safety Clutch
Product Code	LMC10	LMC10-SAF	LMC15-SAF
A (mm)	69	69	80
B (mm)	123	123	147
C (mm)	110	110	129
D (mm)	30	30	37
E (mm)	35	35	41
F (mm)	290	290	342
G (mm)	346	346	410
H (mm)	184	188	212
J (mm)	110	110	134
K (mm)	23	23	28
L (mm)	18.5	18.5	23
M (mm)	23	23.5	28

DIMENSIONAL INSPECTION

The dimensions below ensure the clutch has not undergone excessive deformation outside the prescribed method of use or performed beyond the normal wear.
Any dimensions Less than (<) D, ØL, ØM, N, P or Greater than (>) K, must be declared non-compliant and rejected. Checks must be performed using a vernier caliper or calibrated template/no-go gauge.



CLUTCH DISCARD MEASUREMENTS			
Product Name	LIFTMX 10t Clutch	LIFTMX 10t Safety Clutch	LIFTMX 15t Safety Clutch
Product Code	LMC10	LMC10-SAF	LMC15-SAF
D (mm)	< 28.5	< 28.5	< 35.0
K (mm)	> 24.0	> 24.0	> 29.3
L (mm)	< 17.8	< 17.8	< 22.0
M (mm)	< 22.5	< 22.5	< 27.0
N (mm)	-	< 7.6	< 7.6
P (mm)	-	< 4.2	< 6.2

⚠ Any clutch that does not meet the above criteria should be immediately removed from use and discarded.

VISUAL INSPECTION

In accordance with AS 3850.1 Clause 2.6, clutches must be inspected **before each use** for wear, distortion, cracking, or deformation.

Both in-house and third-party tests have shown that any deformation of the clutch indicates that a load greater than 2 x WLL has been applied.

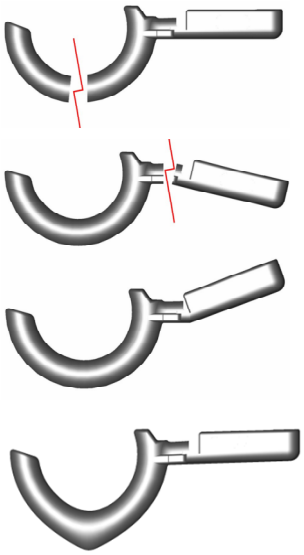
Clutches showing any of the following criteria must be discarded/replaced immediately:

+ Any clutch that has undergone permanent modification (elongation or bending of the handle), overload, or thermal shock.
+ Any clutch that has been welded (regardless of the welding location) or has undergone abnormal local or general overheating (except for the original handle closing weld).
+ Any clutch showing signs of breakage in any part of the clutch.
+ Any clutch from which the precast concrete element has fallen for any reason. (even if the anchor or clutch was not the reason for the fall, any uncontrolled fall can introduce impact loads that can cause permanent damage to the clutch)

Severe wear or excessive bruising.

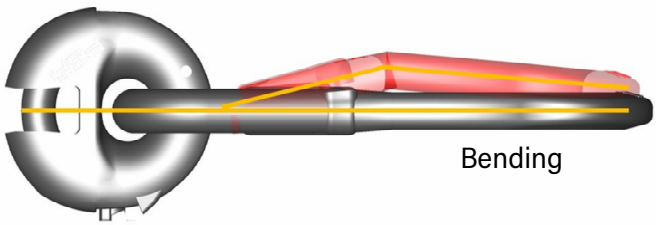
Distortion

Evidence of welding or cracks



Locking ring fracture, bending or distortion

General criteria for immediate discard and replacement; damage, distortion or fracture.



Bending

Cracked Ring

USAGE AND SAFETY CONDITIONS – GENERAL GUIDELINES

- Never use the lifting system other than for its intended purpose.
- Ensure that all personnel using the system have read and understood the usage instructions supplied with the product.
- Follow all general safety guidelines for lifting.
- Ensure that qualified person verified the sizing of the lifting system.

USAGE AND SAFETY CONDITIONS – OPERATION

- Ensure that the working load indicated on the lifting clutch corresponds to the load indicated on the anchor head.
- Ensure that the sling angle does not exceed 60°. A greater angle may be possible but must be approved by the erection design engineer.
- Ensure that the actual concrete strength is at least equal to the value specified by the erection design engineer. The concrete strength should always exceed 12MPa.
- Never break up the concrete around the anchor to enlarge the space. The clutch must be positioned without use of any other operations.
- Never perform welding operations to the anchor or the clutch under any circumstances.

PROOF LOAD TESTING

In accordance with AS 3850.1, each lifting clutch is proof-tested and certified by PSA prior to being placed into service. The initial proof test is conducted using a load equal to 2.0 times the Working Load Limit (WLL).

Subsequent proof testing shall be carried out in accordance with AS 3850.1 Appendix A.8, using a test load equal to 1.2 times the WLL. These tests shall be conducted at intervals not exceeding 12 months, commencing from the date of first use, and the results shall be recorded.

Following the initial proof test, suitable identification of ongoing proof testing shall be provided, by the attachment of a durable tag.

Additional proof testing may also be required under certain circumstances, including where a lifting clutch has been subjected to loads exceeding its specified WLL. Any lifting clutch that exhibits signs of failure, cracking, or excessive distortion during proof testing shall be immediately removed from service and discarded.

PSA LiftMX Lifting and Safety Clutches – Annual Proof Loads

Product Name	Product Code	Proof Load (kN)
LIFTMX 10t Clutch	LMC10	117.6
LIFTMX 10t Safety Clutch	LMC10-SAF	117.6
LIFTMX 10t Safety Clutch Torus without Shackle	LMC10-SAFTOR	117.6
LIFTMX 15t Safety Clutch	LMC15-SAF	176.4
LIFTMX 15t Safety Clutch Torus without Shackle	LMC15-SAFTOR	176.4

USE OF THE PSA SAFETY CLUTCH

The following steps apply to the LiftMX 10t Safety Clutch and LiftMX 15t Safety Clutch

The clutch will normally be stored with the ring in the closed position. In this position the ring will be locked in by the spring-loaded mechanism.

To attach the clutch to the anchor head, push the locking mechanism towards the outside of the clutch.

The ring will now be unlocked from the torus and can be rotated.

Ensure the handle is rotated out of the way and open the ring by rotating it.

Now the clutch can be installed over the anchor head.

Once installed over the anchor, move the ring back until the locking mechanism locks in.

RIGGING GUIDE – REGULATORY DISCLAIMER

This guide is developed in accordance with Australian Standard AS3850.3:2021, National Code of Practice for Precast and Tilt-up Construction and Dogging & Rigging Guide (NSW_ver.1). It emphasizes that rigging systems should be designed to ensure equal load distribution across all anchors in precast panels.

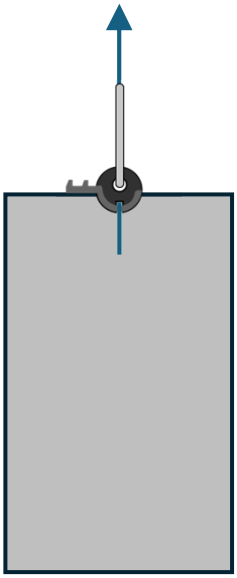
This Guide is intended as a practical resource for the rigging of precast panels. Its is not a substitute for legal advice or professional design service related to rigging.

RIGGING GUIDE – CERTIFICATION

A qualified individual should be assigned the direct responsibility of coordinating and managing the lifting and installation of precast elements. In the case of very complex lifts, it may be necessary to seek advice from an experienced structural engineer to ensure proper planning.

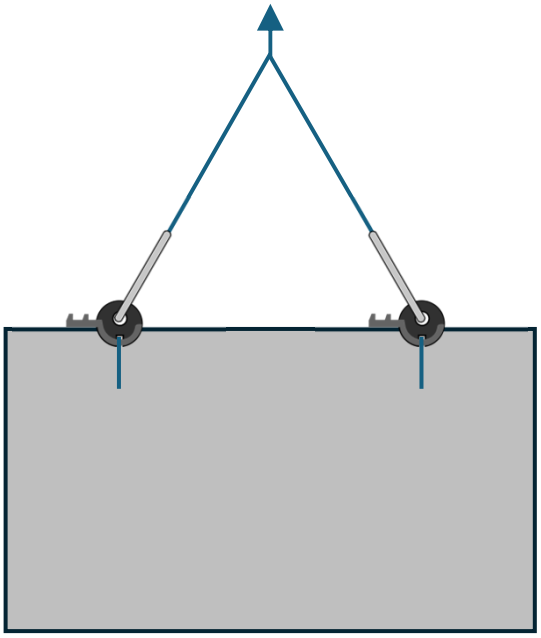
RIGGING GUIDE – PRECAST PANELS WITH SINGLE POINT LIFT

For panel / column that have a small width

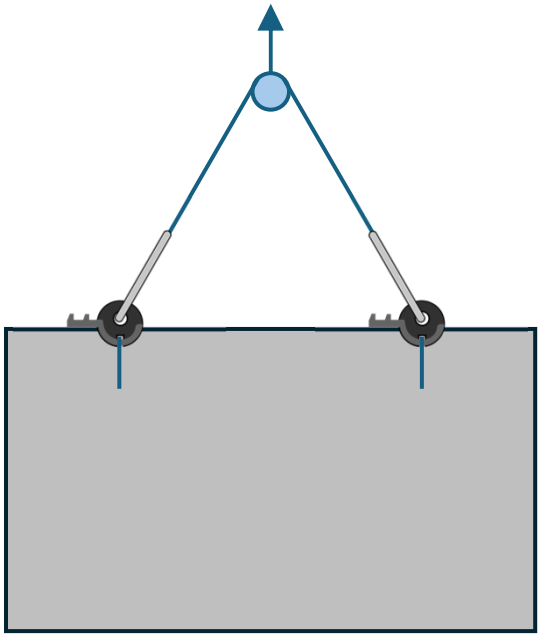


RIGGING GUIDE – PRECAST PANEL WITH 2-POINT LIFT

For precast wall panels normally not exceeding a width of 5.0m.



2-point lift with fixed length

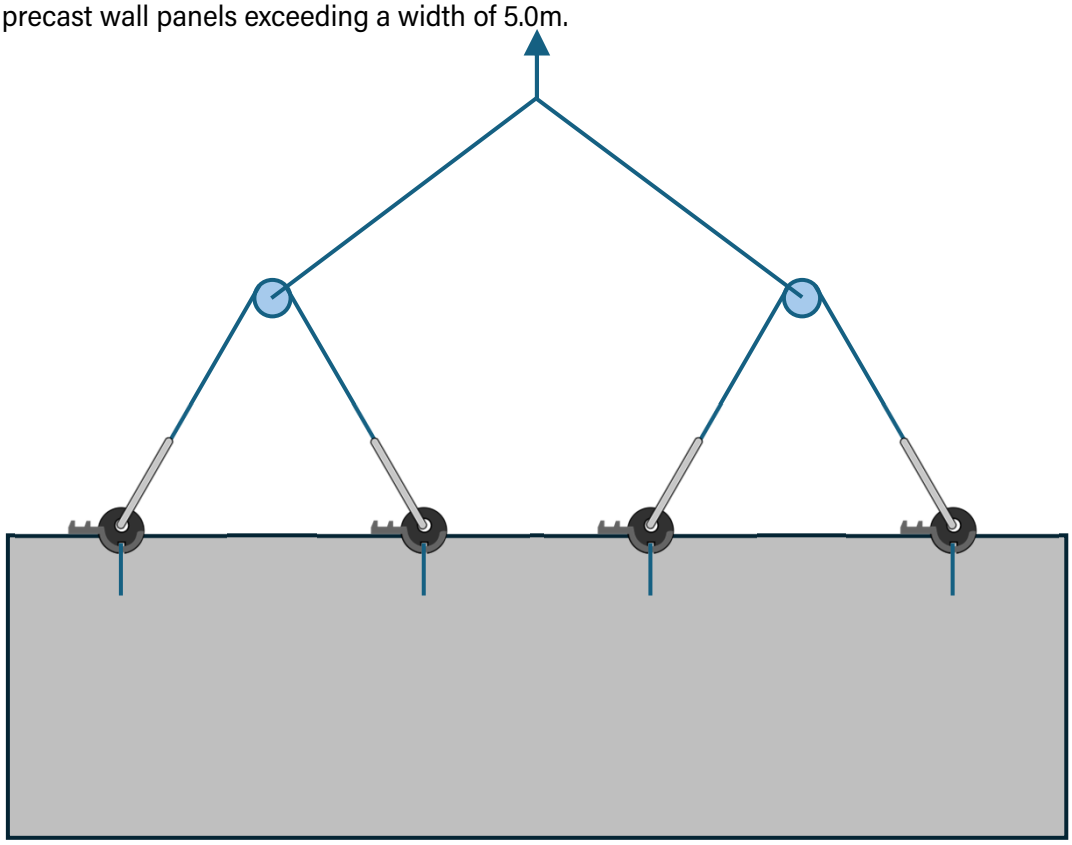


2-point lift with Sheave

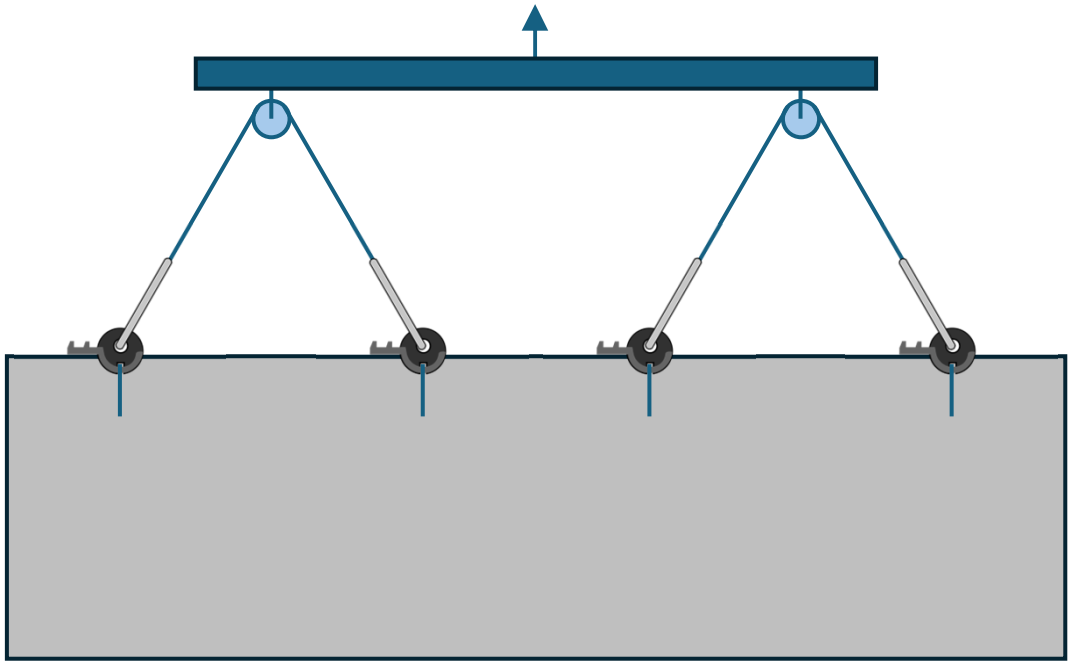
The lifting and rigging information in this design guide should be seen as general advice only. All information on lifting of specific prefabricated concrete items should come from a Lifting design created by the responsible Erection Design Engineer.

RIGGING GUIDE – RIGGING GUIDE – PRECAST PANEL WITH 4-POINT LIFT

For precast wall panels exceeding a width of 5.0m.

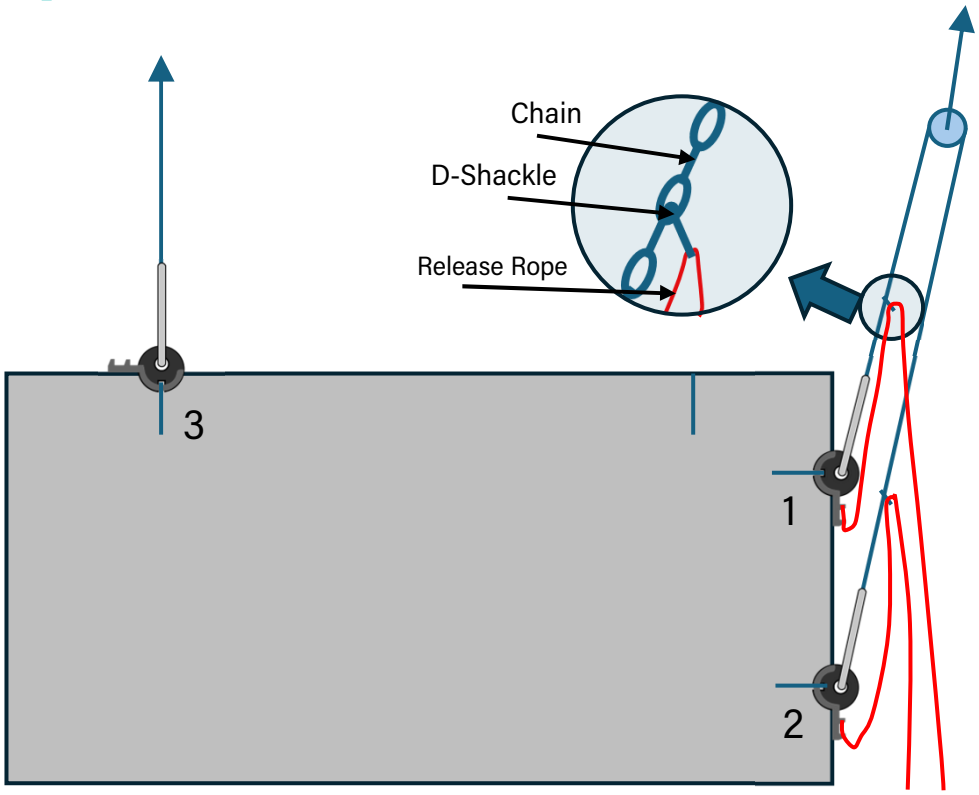


4-point lift with sheaves and fix length



4-point lift with sheaves and Lifting / Spreader Beam

RIGGING GUIDE – ROTATION OF PRECAST WALL PANELS



Step 1

Install the PSA LiftMX Safety Clutches over the anchors at the top site of the panel (**Anchor 1 and 2**). As the Locking mechanism of the PSA LiftMX Safety Clutch will prevent the clutch to open, the clutches can be used in each orientation.

If release ropes are used to remote release the clutches, we recommend to position D-Shackles to the lifting lines approximately 500-800mm above the clutches and lead the release ropes through the shackle. The use of a D-Shackle ensures an unrestricted run of the release rope.

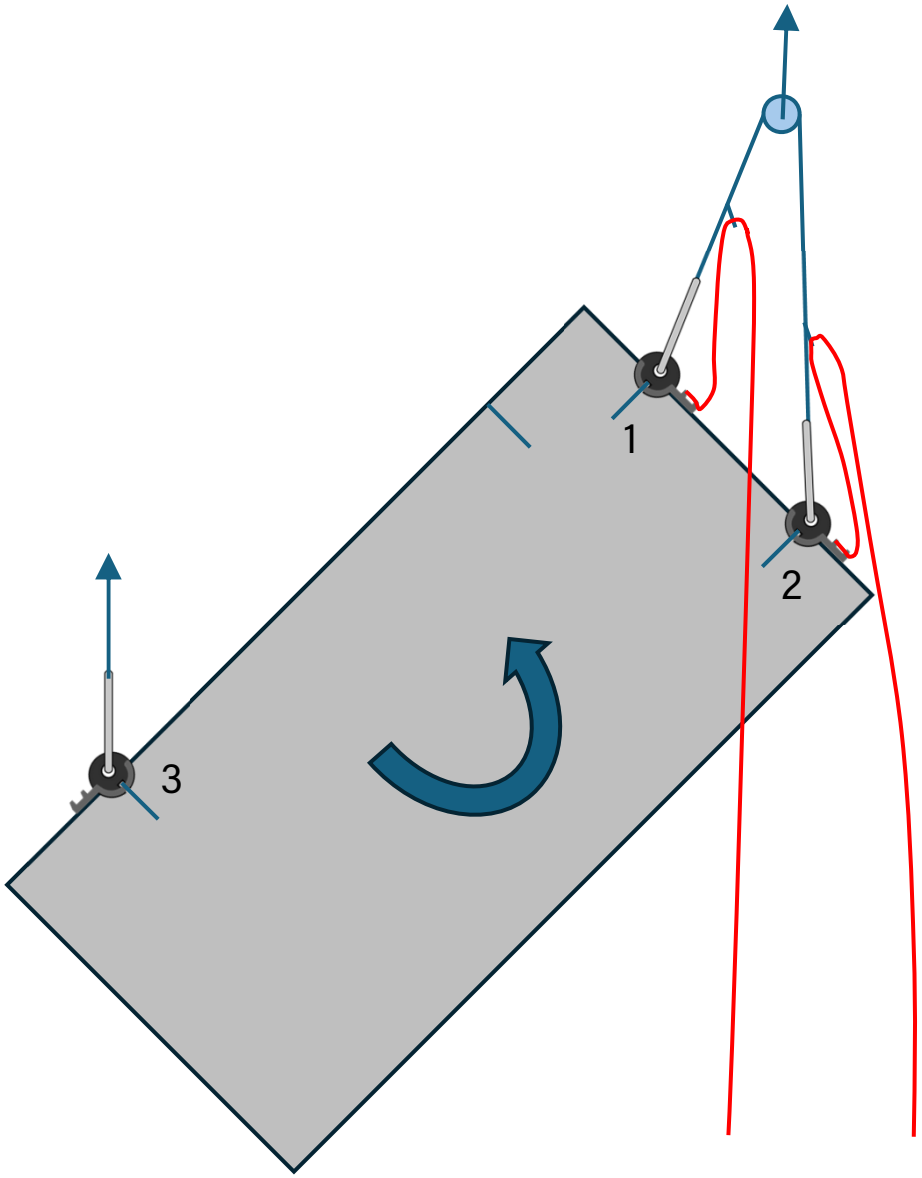
Install a clutch over the bottom anchor (**Anchor 3**). Orientation of the clutch can be as shown, or in the opposite direction.

Ensure the safety lock in all clutches are engaged, prior to commencement of panel rotation.

Ensure the release ropes can move freely through the shackles and cannot get caught during the lifting procedure.

The lifting and rigging information in this design guide should be seen as general advice only. All information on lifting of specific prefabricated concrete items should come from a Lifting design created by the responsible Erection Design Engineer.

RIGGING GUIDE – ROTATION OF PRECAST WALL PANELS

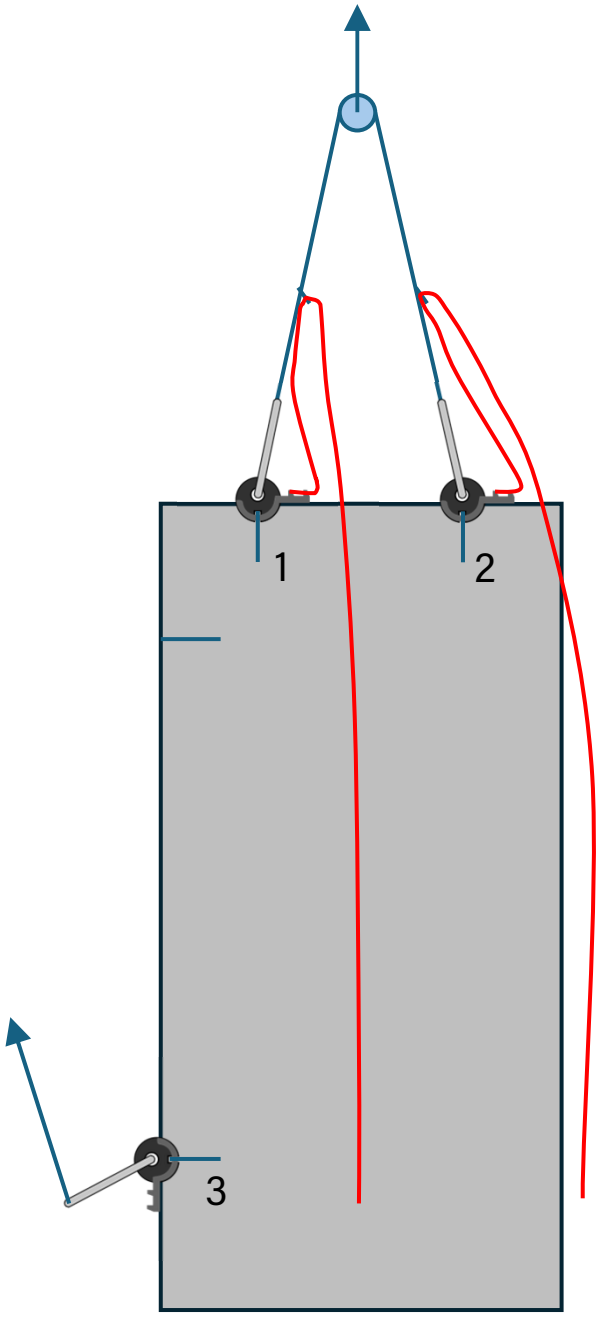


Step 2

Start lifting the panel of the floor or truck and start the mid-air rotation.

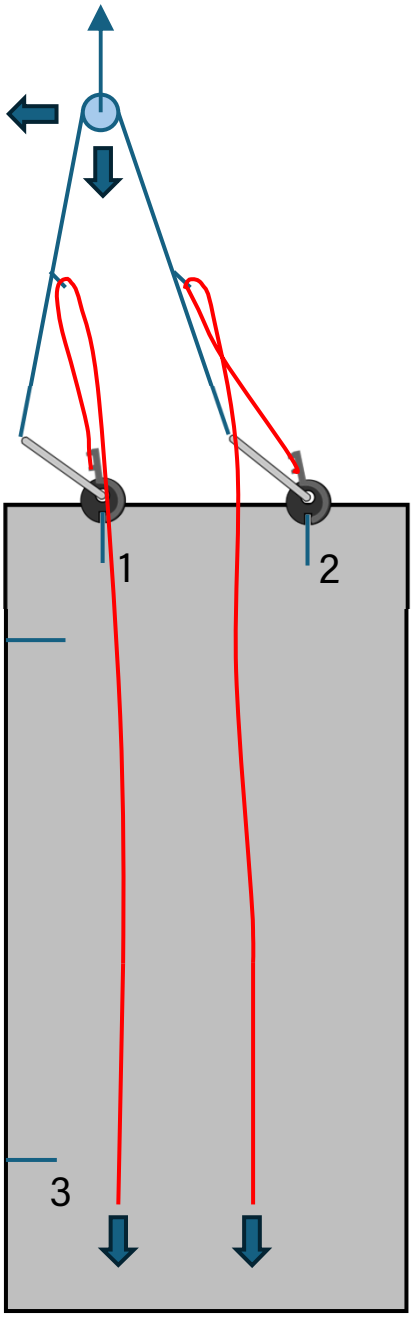
Ensure the release ropes can move freely through the shackles and cannot get caught during the lifting procedure.

RIGGING GUIDE – ROTATION OF PRECAST WALL PANELS



Step 3

Once the panel is in upright position, release the crane line connected to the tail anchor (anchor 3). Disengage the safety lock and rotate the ring to release the clutch.



Step 4

Install panel in final location. Once the panel is braced, move the crane hook connected to the top anchors down and in the direction opposite to the safety lock.

Pull the release ropes to disengage the safety lock and release the clutches from the lifting anchors.

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