SVC
SINCE 1948

PRODUCT LIFTING GUIDELINES

Revision: 1 October 2019

SVC PRODUCTS
PRODUCT LIFTING GUIDELINES

The purpose of this document is to provide clear instructions regarding the correct lifting procedures for the loading, unloading, transportation and installation of SVC precast concrete products.

Please note that failure to use the specified lifting procedures increases the risk of product failure or damage. In the case of incorrect lifting equipment or lifting techniques being used, SVC is not liable to replace products nor compensate for any damages or costs incurred.

CONTENTS

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PRODUCT LIFTING GUIDELINES

SELECTING THE RIGHT LIFTING METHOD

Heavy products can be lifted using a variety of lifting methods, where each method involves the use of specific lifting tools and techniques.

Certain products are suited to specific lifting methods only, whereas other products are able to be lifted in a number of different ways. In these instances, the below points should be taken into consideration to determine which lifting method will be most suitable.

PRODUCT LIFTING ALLOWANCE
Does the product already have lifting points cast into it? Has the designer specified how the product should be lifted or installed? If so, this will dictate the type of lifting method required.

Examples of common lifting points in products are sling recesses, holes for lifting hooks and cast-in SwiftLift anchors.

PRODUCT WEIGHT
How heavy is the product? Can it be lifted manually, or is lifting equipment required?

ONSITE CONDITIONS FOR INSTALLATION
Is the ground surrounding the installation point safe to operate heavy machinery? Is there enough space on site to allow crane truck or forklift access?

PRODUCT SHAPE
Is the product of asymmetrical shape, or is it unevenly weighted? Does it need to be positioned in a particular way on the delivery truck?

PRODUCT APPEARANCE
Is it important for the product to maintain an untarnished visual appearance? Is extra protection required to prevent any chips or blemishes on the product?

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PRODUCT LIFTING GUIDELINES

TYPES OF LIFTING METHODS

MANUAL LIFTING

Smaller products such as pavers and pit covers may be suitable for manual lifting and installation. When lifting any product by hand, it is important for the person lifting to use the proper lifting techniques such as keeping their back straight, bending their knees and keeping both feet firmly planted on the ground.

There are no legal regulations as to the maximum weight that an individual can lift by themselves. For safety purposes, SVC recommends that any products weighing more than 15kg should be lifted by two people.

FORKLIFT LIFTING

Forklifts provide an easy option for transport of products that are loaded onto timber pallets. Standard pallets are typically load-rated to carry up to 2 tonnes of weight. Forklifts have a load capacity of up to 2.5 tonne. As a general rule, SVC does not carry any products weighing over 2 tonne by forklift.

If required, forklift tine extensions can be used for additional flexibility and to increase the load-bearing capacity. However, it is important to note that forklift extensions are weakest at the extremities. Products should always be positioned so that the centre of the load does not exceed the length of the fork extensions.

It is imperative for all forklift operators to be certified and to possess a current forklift licence.

PIT LIFTING HOOKS

The majority of SVC precast concrete pits are constructed with small holes in the vertical walls, made to be lifted with compatible pit lifting hooks. These lifting hooks are load-rated up to 2 tonne each. Generally, two hooks are used per pit where they are inserted on opposing pit walls from the inside of the pit.

SWIFTLIFT LIFTING

SwiftLift clutches and anchors are the most common lifting apparatus used across SVC's suite of concrete products. They allow the most flexibility in terms of placement of lifting points, as the SwiftLift anchors can be cast anywhere within the product during the manufacturing process.

SwiftLift anchors are available in various load ratings ranging from 1.3 to 10.0 tonne.

CLAMP LIFTING

Certain products such as concrete sleepers and precast kerb units can be lifted using heavy duty clamping devices. Clamps are padded with rubber to ensure no markings are left on the product. During lifting, the clamp is connected to a crane hook via a chain, and the clamped grip on the product is increased by the pull of gravity as the product is lifted.

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TYPES OF LIFTING METHODS

VACUUM LIFTING

Vacuum lifters utilise strong suction forces via vacuum pads to lift heavy products with a mostly flat surface, such as large-format pavers and concrete slabs. Suitable products generally weigh less than 500kg. Vacuum lifters are available in many types and sizes, ranging from smaller handheld formats to large lifting beds that are connected to a crane hook.

SLING LIFTING

Lifting slings are made from a durable polyester webbing material and are available with different load ratings ranging from 2.0t to 10t. Depending on product shape, certain products can be lifted with slings without the need to include a specially designated lifting point. Slings can be additionally padded with rubber or carpeted material to reduce the chances of leaving markings or causing damage to products.

During lifting, slings are looped around products in either a choke sling or cradle sling method. In a choke sling formation, the sling is looped back through itself and the product is lifted from a central point. In a cradle sling formation, two or more slings are passed underneath the product and lifted together using even sling lengths to ensure that the product is balanced safely. If using the cradle sling method, a spreader bar should be used.

It is important to note that certain sites may prohibit the use of slings on-site. It is the contractor's responsibility to ensure that their planned lifting method and lifting tools are suitable for each site and each project.

CHAIN-ONLY LIFTING

Crane operators have been using chains to lift and transport products for many decades. Like slings, chains are used in a choke or cradle hold to lift products. Many chain types and sizes with different load ratings are available.

SVC recommends the use of lifting slings rather than chains, especially when transporting products that are designed for an architectural or aesthetic purpose. This is because the chain-only lifting method has a higher likelihood of causing damage to product, particularly if utilised by less experienced operators.

USING A SPREADER BAR

In certain lifting applications, a spreader bar is required in addition to the lifting equipment. This is typically the case when the internal angle between the lifting chains exceeds 60°.

When using a spreader bar, chains must be vertically aligned with the lifting points and set at a minimum length of 600mm. The overhang of the spreader bar over the chains must be equal on both sides to avoid any weight imbalances.

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SVC PRODUCTS
PRODUCT LIFTING GUIDELINES

SVC PIT LIFTING INSTRUCTIONS

Please follow the below guidelines for the safe handling and installation of your SVC concrete pit. Failure to comply with these instructions may result in product failure or damage. SVC will not be liable for any losses incurred if the proper lifting instructions have not been followed.

PIT SIGNAGE

All SVC pits are clearly labelled with the product weight. Please ensure you use lifting equipment that is sufficiently load-rated to bear the pit weight.

Lifting points and lifting instructions are clearly marked on the pit walls. Pits should never be lifted from any other points except those specified.

LIFTING APPARATUS

Only the compatible SVC-approved lifting apparatus should be used when lifting SVC pits. These include 2.0 tonne pit lifting hooks and SwiftLift anchors and clutches.

LIFTING HOOKS

2.0 tonne pit lifting hooks should be used to lift pits that have been manufactured with lifting holes. Generally, two hooks are used per pit, and the pit weight typically does not exceed 2 tonne.

Lifting hooks must be inserted from the **inside** of the pit, and correct placement is when the hook is vertically aligned with the pit wall. The hook should not be pushed too far in that the corner of the hook enters the hole. The lifting chains connected to the pit hooks must also be sufficiently load-rated, and the internal angle between the two chains must not exceed 60°.

Where the angle of 60° is not achievable, a **spreader bar** must be used and each chain must be vertically aligned from the spreader bar to the lifting point. Chains hung from a spreader bar must have a minimum length of 600mm.

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SVC PIT LIFTING INSTRUCTIONS

SWIFTLIFT DEVICES

Certain pits may not be compatible with lifting hooks, such as when the pit walls have large holes or when lifting points can only be safely incorporated into the pit base. In these instances, SwiftLift clutches and cast-in anchors are the required lifting apparatus.

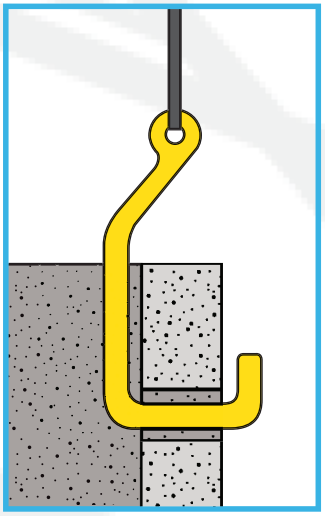
When attaching SwiftLift clutches to the anchors, it is important to ensure that the clutches are properly fitted and that the clutch tabs are upright, facing the direction of the lifting chain.

As per the previous instructions for lifting with hooks, the chains connected to the SwiftLift clutches must be sufficiently load-rated and the internal angle between the lifting chains must not exceed 60°.

Where the angle of 60° is not achievable, a **spreader bar** must be used and each chain must be vertically aligned from the spreader bar to the lifting point. The chains must have a minimum length of 600mm.

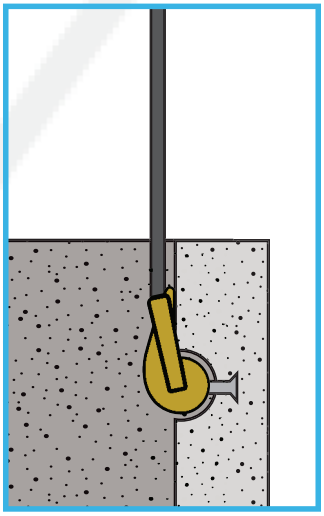
For more information pertaining to the use of SwiftLift devices, please refer to the Reid website at https://reid.com.au/product/swiftlift-general-lifting.

LIFTING DIAGRAMS



USING PIT HOOKS

- Only use the SVC-approved 2.0t rated pit lifting hooks.
- Insert hook from the inside of the pit.
- Ensure that the hook is vertically aligned with the pit wall.
- Ensure that the corners of the pit hook are not inside the lifting hole.



USING SWIFTLIFT DEVICES

- Only use SwiftLift devices with the appropriate load rating for the pit.
- Ensure that the clutch is properly fitted to the cast-in anchor.
- Ensure the clutch tab is upright, facing the direction of the chain and pulling direction.

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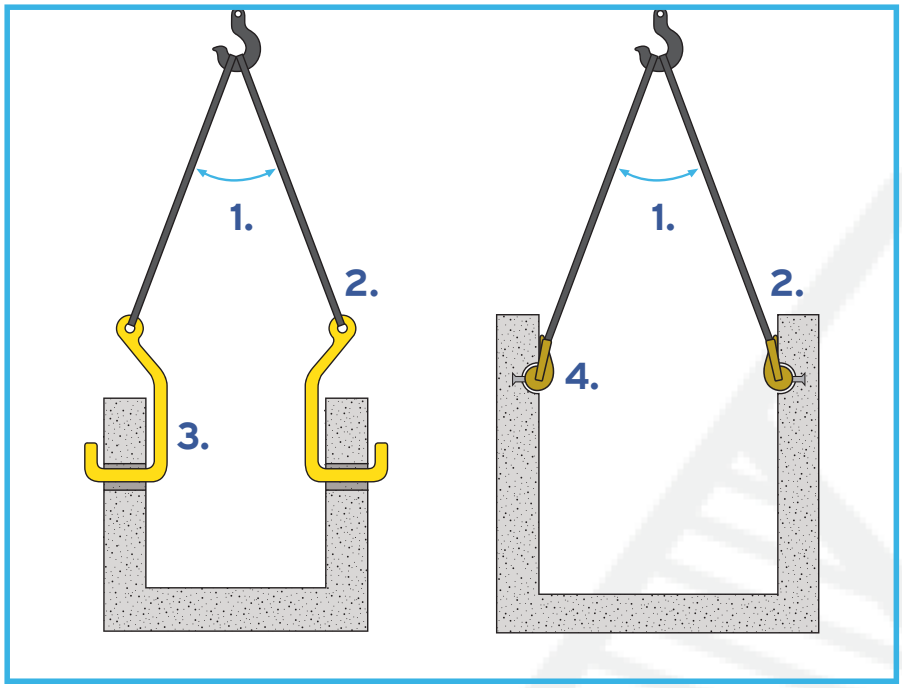
SVC PRODUCTS
PRODUCT LIFTING GUIDELINES

SVC PIT LIFTING INSTRUCTIONS

LIFTING DIAGRAMS (continued)

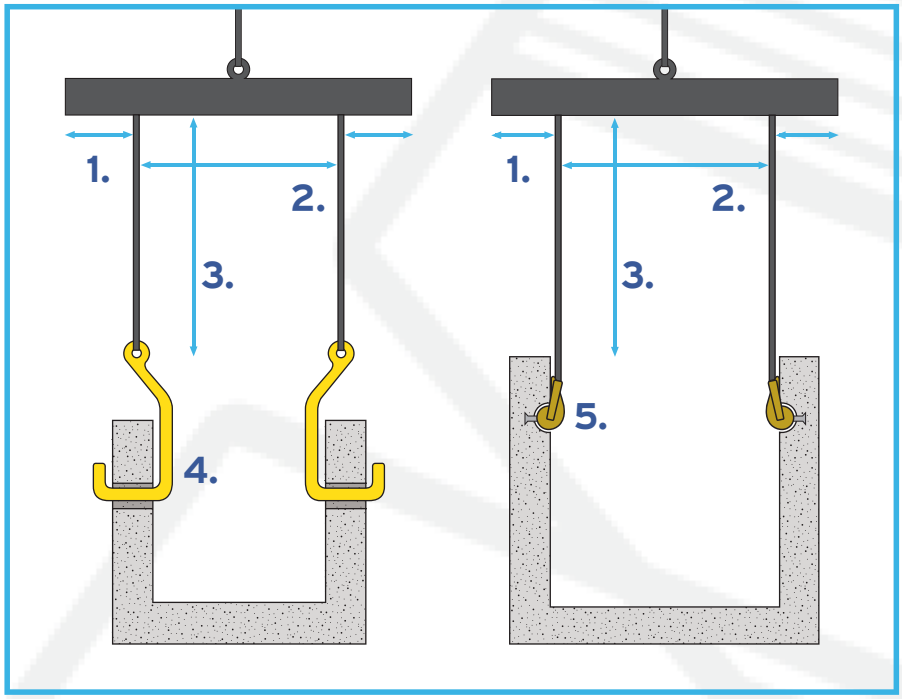
STANDARD CHAIN LIFTING

1. The internal angle between the lifting chains must not exceed 60°. If this cannot be achieved, a spreader bar must be used.
2. Lifting chains must be appropriately load-rated in accordance with the pit weight.
3. Lifting hooks must be the SVC-approved 2.0-tonne pit lifting hooks only. They must be inserted from the inside of the pit.
4. SwiftLift clutches must be properly inserted around the anchors and the clutch tab should be facing upwards, towards the pulling direction.



USING A SPREADER BAR

1. Lifting chains suspended from the spreader bar should be hung at an equal distance from the ends of the spreader bar.
2. The spacing between the lifting chains should match the internal width of the pit.
3. Lifting chains must be a minimum length of 600mm.
4. Lifting hooks must be the SVC-approved 2.0-tonne pit lifting hooks only. They must be inserted from the inside of the pit.
5. SwiftLift clutches must be properly inserted around the anchors and the clutch tab should be facing upwards, towards the pulling direction.



NOTE:
If you observe any visible signs of damage around any of the pit lifting points, pits must **not** be lifted. Please consult SVC for further assistance.

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LIFTING OTHER CONCRETE ITEMS

When lifting other concrete items, it is important to select the most appropriate lifting method after careful consideration of the product installation method, site conditions and transport procedures. Please refer to **page 3: Selecting the Right Lifting Method.**

CONCEALMENT OF LIFTING POINTS AFTER INSTALLATION

Products that are installed above ground in a landscape or architectural application may have lifting points in a visibly noticeable area. Various methods can be used to conceal the lifting points after installation.

Concrete infill: One option is to 'patch up' the lifting point by infilling it with concrete. This is generally not advisable as the best option, as it is always quite visibly apparent that there has been some patchwork done. Often, the colour of the infilled concrete will not exactly match the rest of the product.

Stainless steel caps: There are certain products that can be inserted over lifting anchors to cover them from view, such as small stainless steel caps. These provide a subtle feature that is still noticeable when looking at the product, but successfully conceals the actual lifting anchor.

Separate design elements: The most common method is to conceal lifting points with other material components of the product, which are installed after the concrete product has been placed on-site. An example of this is a concrete bench with lifting points on the top, which become hidden from view by the installation of a timber seating frame above the concrete.

MAINTAIN BEST PRACTICE LIFTING PROCEDURES

To achieve best results while maintaining all safety precautions during the lifting of heavy products, all lifting equipment and machinery should be tested and tagged on a regular basis, at least once a year.

Staff members who are operating cranes or other lifting equipment must always remain aware of safe operating procedures. For example, no individual nor object should ever be directly underneath a product that is being lifted.

If a staff member acting as a crane chaser/dogman needs to guide a product, this can be done by attaching a rope to the product, allowing the crane chaser to maintain a safe distance away from the suspended product. The crane chaser should always be accompanied by a spotter who has an unimpeded view of everything that is going on.

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