

Swiftlift™ lifting anchors



For safe and correct on-site handling

Humes Pipeline Systems in association with Alan H. Reid Engineering Ltd are pleased to introduce the Swiftlift™ pipe and manhole handling systems in New Zealand.

Reid™ Construction Systems provide an extensive range of lifting equipment for precast, tilt-up and concrete pipes including the simple, safe and innovative Swiftlift™ system.

Fully approved and recommended by the Labour Department the systems provide a major step forward in concrete pipe technology by improving handling efficiency and safety.

Swiftlift™ anchors are cast into precast components and concrete pipes during the manufacturing process. Anchors for each size and type of component are carefully designed taking into account all contributing load factors.

Features

- Designed to reduce costs in transporting and laying concrete pipes
- Provides a safer method of handling pipes at all stages of transport and laying

Benefits

- Substantial cost savings have been proven when compared to laying pipes by conventional methods
- Reduced risk of injury or downtime

Applications

- Laying concrete pipes
- Transport handling
- Handling most precast products





Safety and the law

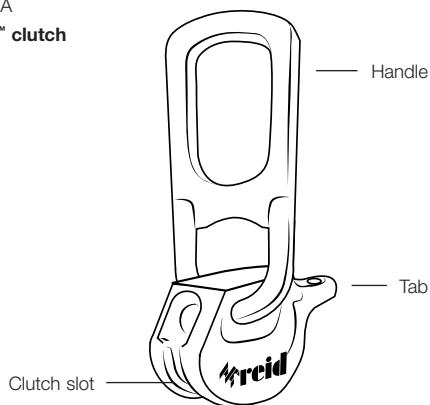
Health & Safety in Employment Act 1992

The principal object of the Health and Safety in Employment Act 1992 (HSE Act) is to prevent harm to employees at work. To do this, it imposes duties on employers, employees, principals, and others and promotes excellent health and safety management by employers. It also provides for the making of regulations and codes of practice.

The “Approved Code of Practice for the Safe Handling, Transportation and Erection of Precast Concrete” was developed by Construction Industry Representatives to ensure safe work practices are promoted and become standardised normal work practices in precast factories and on building sites.

How Swiftlift™ lifting clutches work

Diagram A
Swiftlift™ clutch



The lifting clutch is attached to the Swiftlift™ Anchor by lowering the clutch slot over the anchor and rotating the clutch tab until it rests on the concrete surface, with the tab on the side that will be uppermost when lifting. Refer Diagram C.

As the load is raised the anchor takes the full load in tension. As the load rotates or if lifted with the anchor in shear, the clutch comes into contact with the concrete. This transfers the lifting force into the concrete and the anchor prevents the clutch slipping out of the recess.

Diagram B
Swiftlift™ remote release clutch

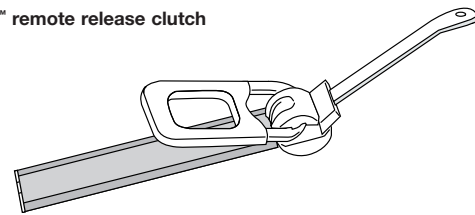
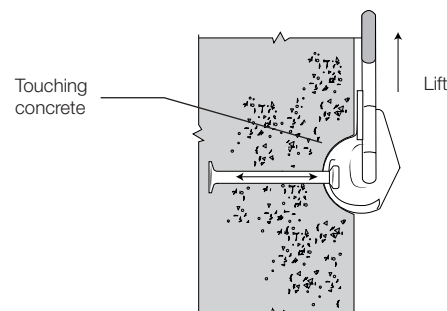
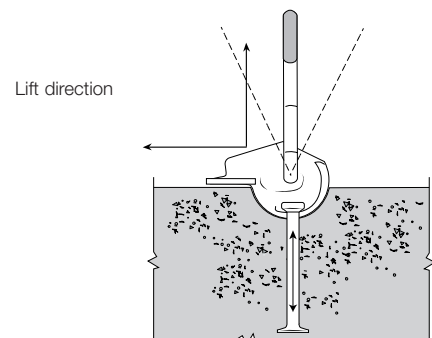
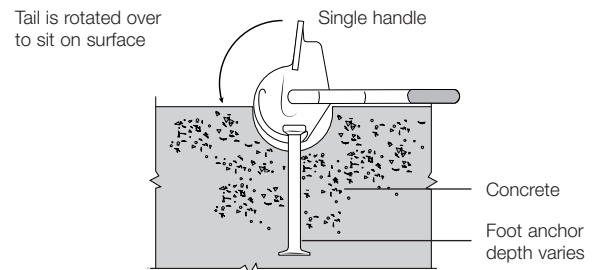


Diagram C
Swiftlift™ clutch operation



Swiftlift™ clutches		
Product code	Description	Working load limit (tonnes)
1LE	1.3t Swiftlift™ clutch	1.3
2LE	2.5t Swiftlift™ clutch	2.5
5LE	5t Swiftlift™ clutch	5
10LE	10t Swiftlift™ clutch	10
20LE	20t Swiftlift™ clutch	20
32LE	32t Swiftlift™ clutch	32



Factors affecting anchor capacity

Factors which effect the pullout capacity of the embedded anchor are:

- Embedment depth
- Strength of the concrete
- Proximity of anchor to the edge or to adjacent anchors

All lifting inserts embedded in concrete shall be clearly marked to enable their length and type to be identified after they have been cast into the element.

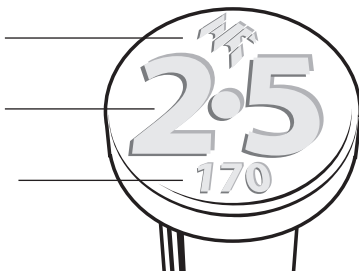
Actual WLL is controlled by concrete strength, length of anchor (refer to table) and effect of sling angle (refer below)

Note: No length stamp on top of anchor then its Not a foot anchor and will be relying on an extra reinforcing bar through the eye to provide its pull out strength.

Manufacturers logo

Nominal clutch size

Length of the anchor
(determines Working Load Limit – WLL)



System Load Limitations

Do not put more than the recommended safe working load on equipment. Pipes fitted with Swiftlift™ inserts have a minimum safety factor of 3 when slung in the correct manner. An insert with a nominal clutch size rating stamped on the head does not necessarily have the same safe Working Load Limit because of the various insert lengths available (see table)

Shock loads resulting from travelling with suspended pipes over rough terrain and uneven ground may exceed designed safety factor load of the lifting system.

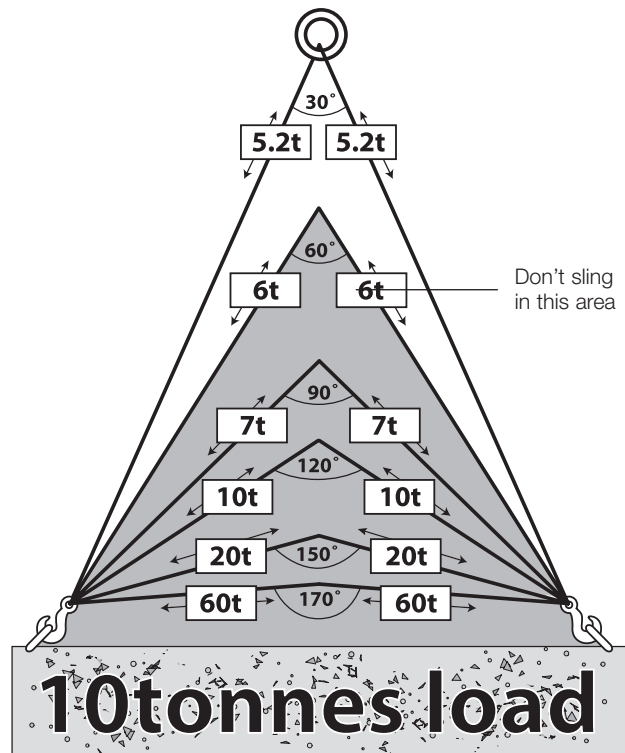
Effective Rigging & Sling Angle

The longer the sling the lower the load on the anchors. For example at an included angle of 170° the load on each sling is six times the weight of the actual load being lifted.

WLL vs Concrete Strength

Anchor size	Anchor length (mm)	Concrete compressive strength when lifting	
		15 Mpa	40 Mpa
1.3	35	0.55	0.90
1.3	45	0.77	1.27
1.3	55	1.02	1.30*
1.3	66	1.30*	1.30*
1.3	85	1.30*	1.30*
1.3	120	1.30*	1.30*
2.5	55	1.07	1.50
2.5	65	1.34	1.90
2.5	75	1.63	2.50*
2.5	90	2.10	2.50*
2.5	120	2.50*	2.50*
2.5	170	2.50*	2.50*
5.0	95	2.36	3.86
5.0	120	3.42	5.00*
5.0	150	5.00*	5.00*
5.0	170	5.00*	5.00*
5.0	240	5.00*	5.00*
10.0	150	5.20	9.55
10.0	170	6.57	10.00*
10.0	340	10.00*	10.00*

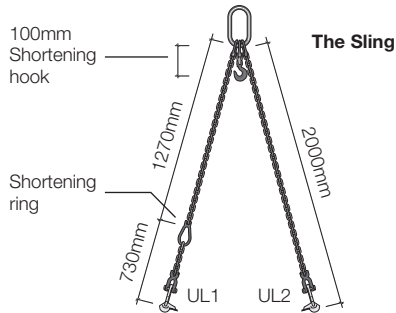
* WLL as stamped on head of anchor



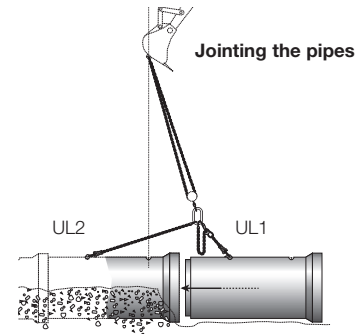
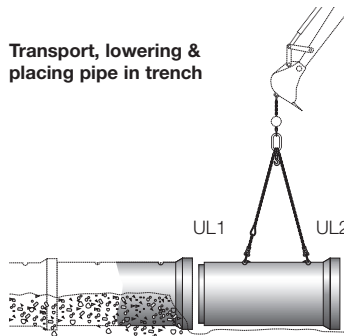
Note: never make sling length shorter than the distance between two anchors



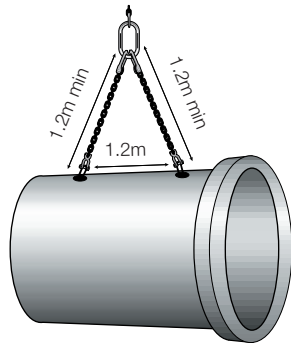
Correct on-site handling & jointing of pipes



The Sling



Jointing the pipes



Never make chain length shorter than the distance between two anchors.

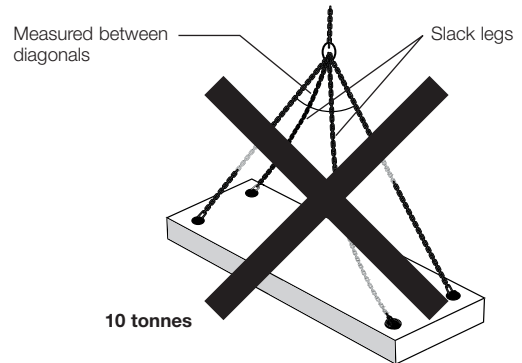
Using a spreader between 2 chains will ensure no damage to top edge of the manhole riser



Effective rigging

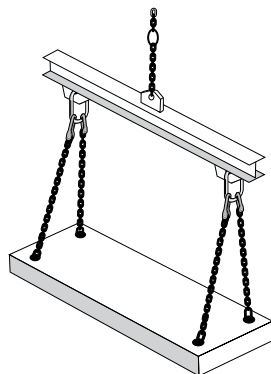
The effect of uneven slings from a central lifting point

When lifting with 4 slings any slight variation in sling lengths will cause the load to be shared between 2 slings **not** 4 slings causing individual anchor and sling loads to double. This lifting arrangement is not recommended, unless all the load can be taken on either pair of diagonal anchors.

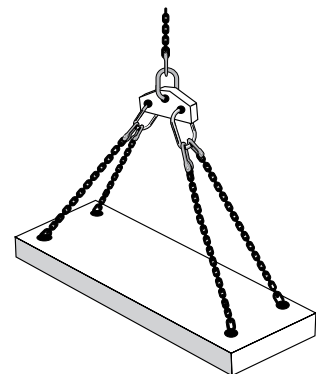


Recommended methods or good practice for lifting

Using a spreader beam with two sets of chains will ensure the legs are equally loaded.



Using a triangular spreader beam with shackles and two sets of chains will ensure legs are equally loaded.



Buyers and users of the products described in this brochure must make their own assessment of the suitability and appropriateness of the products for their particular use and the conditions in which they will be used. All queries regarding product suitability, purpose or installation should be directed to the nearest Humes Sales Centre for service and assistance. © Fletcher Concrete and Infrastructure Limited 2006. Printed 05/06.