

Hydraulic Aluminium Waler Frames Safety and Operating Procedures

Preamble

Aluminium Waler Frames are designed for the following ground pressures. If in doubt about the generated ground pressure in the excavation consult a qualified soil engineer.

Capacity Table

| | |
|------|--|
| 2.0m | 24.7kN/m run |
| 3.0m | 16.2kN/m run |
| 4.0m | 10.7kN/m run |
| 5.0m | 37 kN/m run (3 rams) 13.9kN/m run (2 rams) |

Waler frames are intended to be used in conjunction with trench sheets or piles. The position of the waler frames in the excavation is critical and must be carefully determined by Design to prevent collapse, taking account of the type of soil, presence of water or surcharge etc.

Unloading (Method to be determined by Risk Assessment on Site)

Assembled

1)By forklift/telehandler

Ensure the forklift/telehandler has sufficient capacity and adequate fork length to lift the equipment safely. (See capacity table).

Ensure all pins in the waler frame are fully connected and secured by “R” clips before lifting.

Ensure that each lift occurs at the centre of gravity. Lift only one item at a time. When lifting the waler frame position the forks in the centre underside of the frame. Never lift using the cylinders.

2)By crane/excavator

Ensure the crane/excavator has sufficient capacity and adequate chains to lift the equipment safely. (See capacity table). Use good slinging practice at all times.

Ensure all pins in the waler frame are fully connected and secured by “R” clips before lifting.

Ensure the chain(s) are connected to the four lifting points on the waler frame. Lift only one waler frame at a time.

Disassembled.

1)By forklift/telehandler

Ensure the forklift/telehandler has sufficient capacity and adequate fork length to lift the equipment safely. (See capacity table).

Ensure that each lift occurs at the centre of gravity of the waler rail. Lift only one item at a time. When lifting the waler rail position the forks in the centre underside of the rail.

2)By crane/excavator

Ensure the crane/excavator has sufficient capacity and adequate chains to lift the equipment safely. (See capacity table). Use good slinging practice at all times.

Ensure the chain(s) are connected to the two lifting points on the waler rail. Lift only one waler rail at a time.

Assembly.

- 1) Place the waler rails on firm level ground with the with the “C” section facing each other.
- 2) Inspect the waler cylinders for damage.
- 3) Undo the “lock off” valve on each of the waler feet.
- 4) Place the waler foot into the “C” section of the waler rail and secure by inserting a pin through the rail and foot, lock in place by means of a R clip.
- 5) Insert the second waler cylinder into the rail and secure in the same manner. Ensure the foot is pointing in the same direction as the first cylinder.
- 6) Insert the third cylinder if required as above.
- 7) Insert the other ends of the waler cylinders into the second waler rail . ensuring that they point in the opposite direction as the waler feet in the first rail, so that they look like a “Z”. **This operation is most important as it allows the frame to articulate.**

- 8) Attach the hoses from the manifold to each waler cylinder in turn. Ensuring the quick release coupling is properly seated – failure to seat these couplings properly will result in the hydraulic circuit not being made therefore the cylinders will not expand.
- 9) Check the assembly by pressurising the waler cylinder so that they expand slightly.

Storage/Stacking (To be determined by Risk Assessment on Site)

Aluminium waler framed articulate to allow easy installation, this may cause them to fall over when stored or stacked. Therefore never stack waler frames by standing them on their edge or by leaning them on a structure. Waler frames may be stacked on top of each other if they are 1.0m or more wide and on level ground with battens between each frame. Never stack them more than 4 high. If the waler frames are less than 1.0m wide or the ground is not level then they should be disassembled for storage. In all cases risk assessment should be undertaken to ensure site safety.

How to install an Aluminium Waler Frame. (to be determined by Risk Assessment on Site)

Pick and Place

This method of installation maybe inappropriate to use in certain ground conditions where there is risk of movement, where reinstatement is critical or if the excavation is subject to surcharge.

Excavate the trench to the required width and depth. Do not over dig.

Place trench sheets into the excavation to the correct depth, ensure that the sheets protrude from the excavation sufficiently to prevent soil or other items falling into the trench. Lift the waler frame into position using the lifting points on the waler frame and locate to the correct depth within the excavation as determined by the Design.

Pump the waler cylinders out until the pump handle will not move. Tighten the lock off valves on the waler foot and attach the hanging chains on the waler rail to the top of the sheets. Ensure the waler frame is level.

If the Design requires subsequent waler frames the operation is repeated threading each frame through the one above it by articulating the frame then pressurising the struts at the Design position in the excavation.

Do not enter excavation until installation is complete and declared safe.

Dig and Push

Dig a starter hole approximately 1.0 metre deep and long enough and wide enough to accept the waler frame. Place the sheets around the waler frame.

The sheets are then pushed down to the required depth by the excavator (including any “toe-in” for the sheets).

Dig out the excavation to the depth of the first waler frame as determined by the Design. Pump the waler cylinders until the pump handle will not move. Tighten the lock off valves on the waler foot and attach the hanging chains on the waler rail to the top of the sheets. Ensure the waler frame is level.

Dig out the excavation to the required depth or to the position of the next waler frame.

If the Design requires subsequent waler frames the operation is repeated threading each frame through the one above it by articulating the frame then pressurising the struts at the Design position in the excavation.

Do not enter excavation until installation is complete and declared safe.

Extraction (to be determined by Risk Assessment on Site).

Before removing the waler frame the excavation must be secured by “toeing in” the sheets, backfilling and compacting or by a concrete blinding or by another method approved by the Design.

Attach the lifting chain to the lifting points on the lowest waler frame. Attach the hoses to the quick release fittings then loosen the lock off valve. This allows the waler cylinders to de-pressurise and they can be retracted manually. The waler frame is then articulated, it can then be lifted through the frame above. Then back fill and compact.

Repeat this operation for each frame in turn.

Always practise good site safety practice