

HEALTH & SAFETY TOOLBOX TALKS

Delivery Pipeline Set-up

When installing a pipeline system, all individual components must be compatible and comply with the pump manufacturer's specifications for minimum pressure rating and maximum diameter. A pipeline should be installed in accordance with AS 2550.15: *Cranes – Safe use – Concrete placing equipment*, ensuring that:

- unnecessary bends are avoided
- each section of the pipeline is adequately supported and secured to the building to avoid extra load on the pipe clamps
- when changing the pipeline from the horizontal to the vertical, the pipeline is fixed to stop movement of the bend or the vertical and horizontal lines which may cause the 90° bend to snap off at the clamps
- cranes or hoist towers, scaffolding or formwork are not to be used to secure the pipeline unless designed for this purpose
- all metal pipes and pipeline components are identified and inspected before installation
- the designed pressure of the pipeline is compatible with the rated maximum concrete pressure of all pumps to be used on the pipeline during normal operations.

Note: If a pump fails during operation, a replacement may be required to complete the pour and clean out the pipeline. If a pump of the same or lower (if suitable) pressure rating is not available, a higher pressure rated pump may be used to complete the pour, provided:

- the concrete pressure rating of the pipeline is known
- there is a method of monitoring concrete pressure
- an operator is continually monitoring the concrete pressure
- the concrete pressure does not exceed the pressure rating of the pipeline.

Note: if the manufacturer provides a conversion factor, the pump's hydraulic pressure gauge may be used as an indicator of concrete pressure.

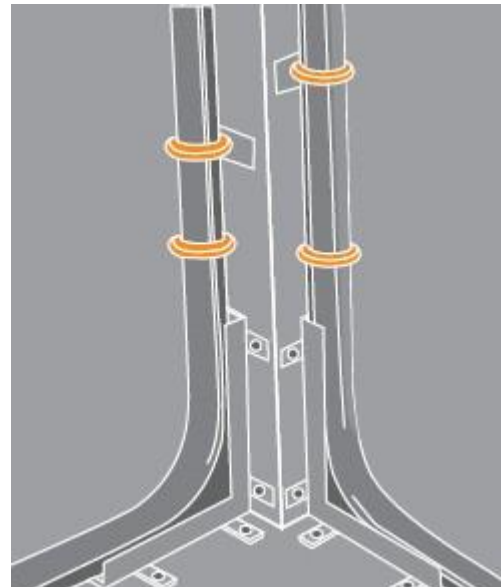


Figure 1: Securely fix the pipeline to avoid movement

Pipe clamps

Clamps connecting concrete piping need to be of the correct size, appropriate for the pressure rating of the pump, and maintained in good condition.

All pipe clamps used on any pipeline system must be:

- able to sustain the maximum concrete pressure applied to the pipeline by the pump
- regularly inspected by a competent person for signs of wear or fatigue
- immediately replaced if deformed or damaged.

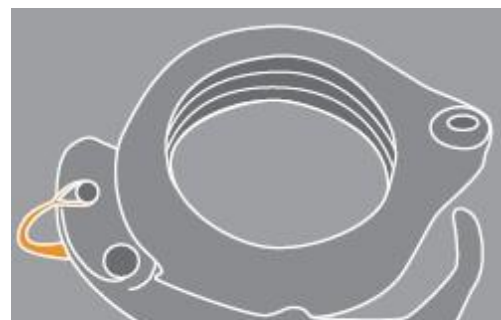


Figure 2: Quick-release clamp with locking pin

Clamps should also be permanently marked with the manufacturer's name (or trademark), and the maximum permissible operating pressure. The clamps should be rated at a working pressure equal to or greater than the maximum working pressure of the concrete pump.

Quick-release pipe clamps may only be used if provided with locking pins, and should be visually checked prior to each pumping operation.

Locking pins, R-type or equivalent, are to be fitted and engaged when quick-release pipe clamps are used on fixed or vertical pipelines, or:

- where compressed air is used for cleaning pipelines
- the rated maximum concrete pressure exceeds 40 Bar.

All pipeline connections from the boom must be secured by safety chains or wire straps to prevent the pipeline falling to the ground if a clamp fails.

Pipeline movement

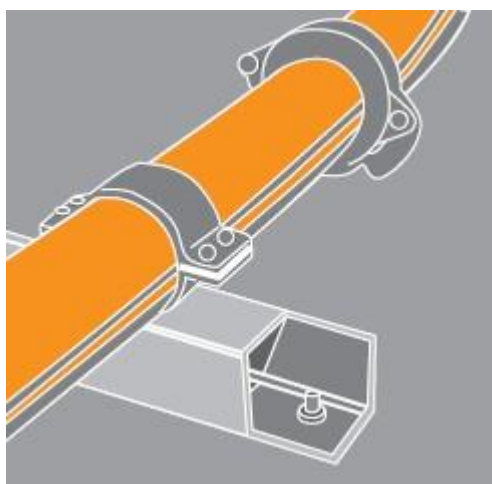


Figure 3: Use anchor brackets to restrict pipe movement.

The pipeline should be adequately secured to the building or structure, with attention given to the reaction forces generated where high pump pressures are involved. The mounting system should be designed to ensure the pipeline remains in place.

Support brackets in a vertical pipeline should be spaced no more than three metres apart. Expansion anchors of the high-load slip control type or other fixing methods of at least the same structural strength should be used if fixed to masonry.

The surging action of the pump should not cause excessive pipe movement. If required, additional anchor brackets or other suitable methods to restrict pipe movement should be used.

End-hose

The rubber delivery end-hose should:

- be inspected for excessive wear or damage prior to being fitted
- where connected to a boom: be secured by a safety chain, sling or other restraining device
- not contain metallic parts
- not be longer than specified by the pump manufacturer.

If concrete pumping has stopped and the hose is manoeuvred over a work or public area, the operator must prevent concrete falling from the hose outlet.

End-hose and reducer combination

If the delivery end-hose is replaced by a hose and reducer combination, only those combinations assembled to the manufacturer's instructions should be used, and:

- locking pins are to be engaged on all quick-release pipe clamps in the assembly
- each piece must be capable of withstanding the rated maximum pressure of the pump
- each hanging piece is tethered by a safety cable, sling or chain
- the combined weight of all pieces MUST NOT EXCEED the weight of the manufacturer's recommended

end-hose.

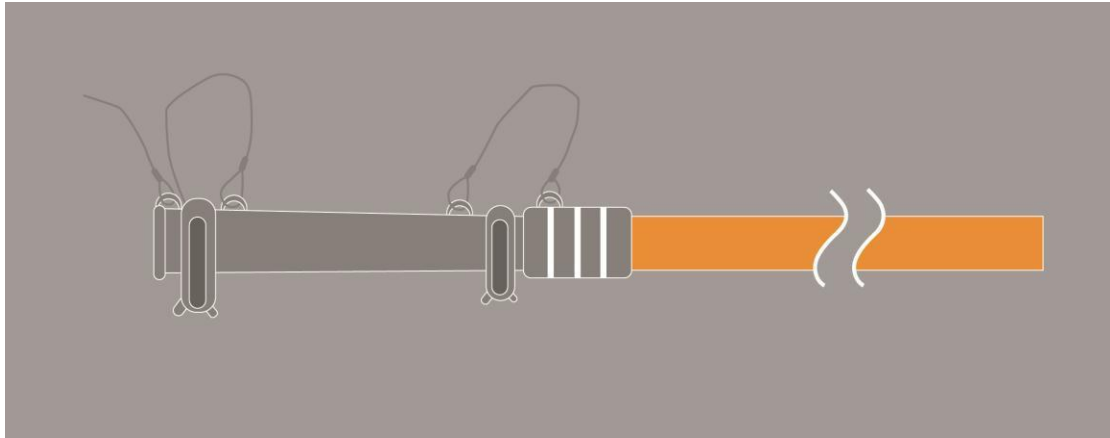


Figure 4: End-hose and reducer with safety slings

Section 4.9 Concrete Pumping Health and Safety Guidelines



Safety Guidelines, Products and Manuals

[Concrete Pumping Health and Safety Guidelines](#)

[Safety at Work with Putzmeister Machines](#)

[CPENZ Safety Products for sale](#)