

Design Alert 26-09 RAM Pump Fixing Methodologies

The following Design Alert contains content from internal MWHT advice and an external source (EMS – A pump manufacturer & installer who specialize in pumps that remove grit and sludge) which is relevant to MWH Treatment.

Summary:

This Design Alert provides mandatory guidance on the correct RAM pump fixing down methodology.

All RAM pumps must be fixed using resin anchors, in accordance with EMS requirements, ensuring all pumps are installed safely and securely across all projects.

NOTE - Packing and grouting must NOT be used for the fixing down of RAM pumps.

Background:

RAM pump installations have historically shown inconsistency in both plinth design and fixing methodology. This alert consolidates the correct requirements to ensure safe, compliant, and durable installations across all projects.

EMS O&M Manual Guidance:

According to EMS guidance from the CVRD200 pump O&M manual:

- The pump when installed should be level to within 5mm in 1m in any direction.
- All base fixing points must be used.
- RAM pumps should be fixed down using chemical anchors and fixing bolts (e.g. resin anchors) - these must be able to easily withstand the specified dynamic loads.
- The plinth and holding down (HD) bolts must be able to withstand at least 1450kg (Static Load) and 1600kg (Dynamic Load). NOTE – As above, these figures are relevant to the EMS CVRD200 RAM pump only.

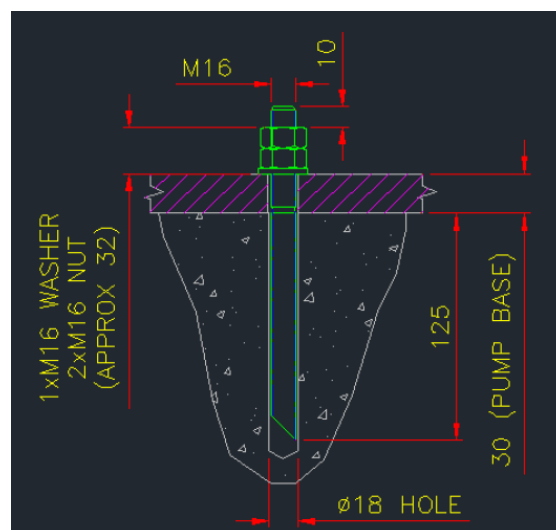



Figure 1 - Diagram of HD bolt fixing from the EMS CVRD200 O&M manual

MWHT Fixing Guidance:

The fixing bolts should be specified by the pump supplier as part of their supply package.

Resin anchors should be used. Some Hilti resin anchors are suitable for use when dynamic loads occur, these are denoted in the Hilti Profis Software by the following symbol: 

Suitable Hilti resin anchors include:

HIT-HY 200-A V3 + HIT-Z

HIT-HY 200-A V3 + HAS-U

HIT-HY 200-A V3 + HAS-D

HIT-RE 500 V4 + HAS-U

HVU2 + HAS-U

HVZ

(Other suppliers are available)

Cast-in anchors can be used as an alternative to using drill and fix chemical anchors. Although they are intrinsically robust, they require procurement and extra installation work which can be time consuming.

MWHT Plinth Guidance:

- Pump plinths should be designed and detailed with fully caged rebar.
- Medium to large pump plinths should preferably be constructed using cast-in starter bars.
- For small, light duty pumps properly designed drill-and-fix starters are acceptable.
- Where cast-in starter bars are not feasible (e.g. existing slabs or lack of early pump location info) then properly designed drill-and-fix starters are acceptable.
- Plinths must be sized to ensure adequate edge distance is maintained for the specified HD bolts.

