

BI-02A.51 Hydraulic tank specifications are detailed for hydraulic tanks on mobile equipment

(Accountable - Engineering Manager (Site) (Unassigned))

Expectations

Specifications meeting site requirements for hydraulic fluid tank designs should be provided to OEMs/Suppliers and site maintainers to confirm the tanks will maintain integrity during filling, operation (including abnormal/emergency situations) and maintenance.

Specify

1. Hydraulic fluid tank design requirements:

- Well secured and protected against mechanical damage
- Able to withstand damage during normal operations without loss of containment
- Corrosion protected
- Suited to use with non-flammable hydraulic fluids
- Automatically protected from over pressure by a vent, relief valve, etc.
- Over pressure fluid release are back into the hydraulic system
- Fitted with a protected fluid level indicator that shows at least the maximum and minimum operating level

Inservice use - hydraulic tank filling

- Apertures are accessible for filling
- Equipment provided for access if off the ground
- Apertures are designed to avoid the introduction of contaminants
- Tanks are clearly marked to avoid adding an incorrect fluid e.g. fuel or water

- Hydraulic fluid is prevented from overflow or escape on any gradient that the equipment operates in
- If there is a cap for the tank, it is secured, cannot open during equipment use, remains permanently attached when open and requires an intentional action to release it

In service use - tank drainage

- Able to be drained at their lowest point
- Fluid be drained easily and can be collected without leaving residues outside the hydraulic system
- Fluids being drained are separated from hot surfaces and electrical equipment

References

- ISO 4413 Hydraulic fluid power - General rules relating to systems, Second edition 1998-08-15
- ISO 19296 Mining - Mobile machines working underground - Machine Safety, First edition 2018-11

Implement

1. Pre-delivery inspections are conducted to confirm the status and adequacy of hydraulic lines on mobile equipment.
2. Visual min/max and go/no-go or red/green warning systems in place around tanks containing flammable liquids on items of mobile plant are regularly reviewed and reacted to by maintenance and operational workers.

Monitor

1. Detailed inspection check lists, with photographs of clamping arrangements required. Detailed parts lists are included as additional checks and as required are included in maintenance strategy / plant safety files(dossiers) documentation.
2. Field devices provide monitoring capacity to provide local and off-machine status data related to system health.
3. Where applicable, guarantees are provided from OEMs on the achievement of design/documented life of key components (such as lines carrying flammable liquids).

4. Introduction to site processes capture inclusions in the maintenance strategy and information for inclusion in the plant safety file.
5. Reports on work orders conducted and pre-start inspections confirm that ongoing checks are made on the functionality of the flammable fluid monitoring systems.
6. Defect systems trigger appropriate responses for loss of functionality of flammable fluid monitoring systems.