



Pakistan Oilfields Limited

HSE Bulletin

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“A SAFE LIFTING DEVICE IS WHAT YOU INSPECT, NOT WHAT YOU EXPECT”

MECHANICAL LIFTING

What is Mechanical Lifting?

Mechanical lifting refers to raising, lowering or moving materials or objects with the help of a mechanical device or equipment. Mechanical lifting devices are one of the most essential equipment found in every workplace. They not only make the task easier but also save workers from intensive manual lifting.



میکینیکل لفٹنگ سے مراد مشینی آلات کی مدد سے اشیاء کو اٹھانا، اتارنا یا ایک جگہ سے دوسری جگہ منتقل کرنا ہے۔

Types of Mechanical Lifting Devices

Although there is vast range of mechanical lifting devices used in different industries however, following are some of the types which are commonly used at our workplace:

Mobile Cranes

Mobile cranes are most widely used mechanical lifting device in a workplace. They are designed to lift different types of loads with little or no setup assembly. There are different types of mobile cranes however, the most common type is telescopic boom type which is hydraulic-powered having cable-controlled hoisting block and is self-propelled. The other common type is truck mounted crane which has the ability to transport loads on its own carrier.



Forklifts

Forklifts are used to lift and move materials over short distances and are normally powered by battery or internal combustion engines. There are different types of forklifts depending upon their load lifting capacities and terrain on which they are required to operate. All forklifts are designed to move from one place to another with the load lifted on their forks.



Overhead Hoists

An overhead hoist is a mechanical lifting device used for lifting or lowering a load by means of a drum or lift-wheel around which a cable or chain wraps. They are normally electricity driven and installed overhead on a girder in workshop areas where loads are frequently lifted at low heights on the same place.



Chain Blocks

A chain block is the most common mechanical lifting device which is used in almost every workplace due to its portability and ease of use. A chain block contains a lifting chain, a hand chain and a lifting hook. Chain blocks are normally hanged using a tripod however it can also be hanged using any suitable capacity anchor point. Chain blocks are categorized as per their size and load lifting capabilities.



Winches

A winch is lifting device consisting of a rope or cable winding around a horizontal rotating drum, turned typically by a motor or compressed air. The cable goes through a pulley hanged at suitable height to lift the load vertically. Winches are normally installed where loads are frequently lifted on the same place.



Hazards of Mechanical Lifting

When operated with a focus on safety, mechanical lifting devices are usually safe. However, when they're used carelessly, they can be serious hazard to people and property. Following are the main hazards involved in the mechanical lifting:

Falling of Materials

The most dangerous hazard that must be carefully managed during mechanical lifting is falling of materials. This hazard is associated with almost all types of mechanical lifting devices. Falling of materials can happen if the lifting accessories/attachments holding the load break off or the mechanical lifting device itself fails. It can cause serious injury or fatality if the load falls on any worker and can also cause severe damage to the property if it falls on any other equipment or structure.



Striking or Crushing by Load

This hazard is mostly associated with forklifts and cranes during moving of loads from one position to another. Workers may get hit or crushed by the load if they are not visible to the operator of forklift or crane. This normally happens when the load blocks the vision of forklift operator while moving or workers stand within the swinging radius of a crane. Also failure to attach taglines or improper maneuvering of load can cause striking or crushing accidents.



Overturning

Overturning of mechanical lifting device can cause devastating damages. This hazard is associated with cranes, forklifts and chainblocks hanged on tripods or temporary structures. Overturning occurs when the lifting device is overloaded or incorrect lifting technique is used. Also unsafe movement of cranes & forklifts, overspeeding, uneven terrain and lifting loads during high wind speeds can cause them to overturn.



Indirect Hazards

In addition to above hazards, there are many indirect hazards which are associated with mechanical lifting. Contact with overhead electric lines, falling



from height & crushing of hands when attaching lifting accessories, Fire & explosion hazard while operating cranes & forklifts in hazardous areas & road accidents are some of the most common indirect hazards.

Safety Precautions for Mechanical Lifting

Here are the general safety precautions for mechanical lifting. In addition to these, always ensure proper risk assessment for the specific lifting job and follow relevant safety precautions:

Authorised & Certified Operators

لفٹنگ مشینری صرف اہل / مصدقہ آپریٹرز کے ذریعہ چلائی جانی چاہیے۔

Inspected & Certified Equipment

لفٹنگ مشینری اور سامان اٹھانے کے تمام آلات درست حالت میں اور تصدیق شدہ ہوں۔

Assess the Risks & Ensure PTW

لفٹنگ مشینری اور سامان اٹھانے سے متعلق تمام خطرات کو مد نظر رکھیں اور کام کے مطابق اجازت نامہ لیں۔

Never Exceed From Lifting Capacity

کسی بھی صورت میں لفٹنگ مشینری اور آلات کی وزن اٹھانے کی صلاحیت سے زیادہ وزن مت اٹھائیں۔

Never Stand Under the Lifted Load

اٹھائے گئے سامان کے نیچے ہر گز مت کھڑے ہوں۔ اٹھائے گئے سامان اور لفٹنگ مشینری سے مناسب فاصلے پر رہیں۔

Attach Lifting Accessories Correctly and Take all Necessary Safety Precautions

اس بات کو یقینی بنائیں کہ سامان اٹھانے کے تمام آلات درست طریقے سے لگے ہوں اور تمام حفاظتی اقدامات لے لئے گئے ہوں۔

Never Lift Loads in High Wind Speed

تیز ہوا یا طوفان کی صورت میں کسی بھی قسم کی لفٹنگ مشینری کا استعمال ہر گز مت کریں۔

Never Block Operator's Vision

اس بات کو یقینی بنائیں کہ لفٹنگ مشینری کا آپریٹر اس پاس کے تمام خطرات کو ہر وقت ٹھیک سے دیکھ سکے۔

Ensure Supervision

کسی بھی طرح کی لفٹنگ مشینری کے استعمال کے دوران قابل اور بااختیار شخص کی نگرانی کو یقینی بنائیں۔