



OVERHEAD ALLIANCE

Lecture Material

Objective: This lecture material can be used to increase awareness of the overhead material handling industry and its products. The target audience is any academic who wants to integrate this material into their course work. Click [here](#) for information on the Overhead Alliance itself or on the logos below at any time for information on particular member groups.





Overhead equipment

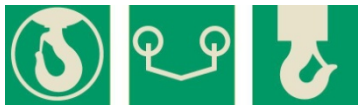
When choosing a lifting and moving solution for a facility, consider an overhead hoist, crane or monorail. Overhead lifting solutions can improve efficiency, productivity and safety, and reduce environmental impact. New technology has made overhead lifting solutions easier and more productive to use than ever before. Advancements include enhanced precision controls and longer lasting equipment.



Basic choices for MH

Solutions

<u>Application</u>	<u>Floor-mounted</u>	<u>Overhead</u>
Fixed-path/ continuous use	Conveyors	Monorails
Variable path/ intermittent use	Industrial trucks	Cranes & hoists

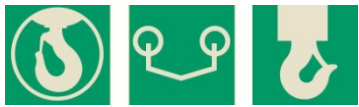


Conveyors

Commonly used for moving uniform loads continuously from point to point over fixed paths. Common types:

- Powered - continuous belt, split belt, trolley, chain, rollers, etc.
- Gravity - skate wheels, chutes, slides, rollers, etc.





Industrial trucks

Used for lifting and/or moving loads intermittently over variable paths.

Three main categories:

- hand trucks
- “walkies”
- riding trucks

Automatic guided vehicles (AGVs) are essentially computer-guided and controlled riding trucks.



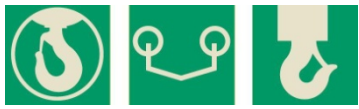


Overhead Cranes

Overhead Cranes lift and move material using a hoist, magnet, or other device to place a load at any point within its range.

Common types such as a bridge or gantry crane allow three axes of hook motion. A jib crane can operate with 360° rotation.





Overhead Hoists

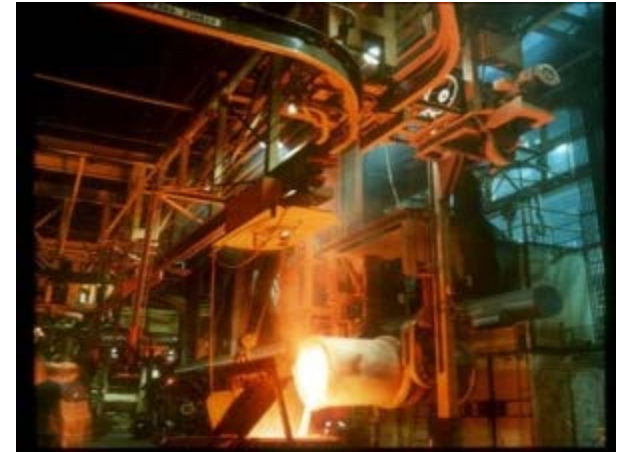
Overhead Hoists are machinery units that are used for vertical lifting service involving material handling of freely suspended (unguided) loads. Overhead hoists are a basic and versatile piece of equipment used in manufacturing, warehousing, construction, and numerous applications to aid workers in the handling and moving of loads. Lifting mediums include wire rope or chain. Operation types include manual, electric, or air power.





Monorails

Monorails are a single overhead track or track network used for lifting and transporting product on a fixed path. One or a group of carriers (powered or manually operated) move along the track. Monorail systems can provide coverage over almost any distance and are installed in the



building roof structure with the benefit of open floor space. Monorails allow access to hard-to-reach areas; they are a perfect solution for repetitive production processes or movement of product throughout one facility or multiple buildings. Monorails can be fixed, or part of a workstation crane system allowing for positioning of the monorail above product.



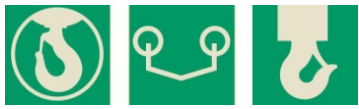
Advantages of overhead equipment

Compared to floor-mounted equipment, overhead lifting systems can increase safety, productivity, efficiency, and value for a facility, as well as improving environmental impact aspects.



Safety

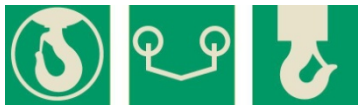
- Overhead Lifting Systems work within a specific area and limit an employee's exposure to potential accidents caused by dangers like forklift traffic.
- According to the National Institute for Occupational Safety and Health (NIOSH), back injuries cost American industry \$10-14 billion in workers' compensation costs and about 100 million work days annually. In the past, light loads were lifted manually, contributing to the statistics of on the job injury. Whether handling 50 pounds or 50 tons, installing a lifting and moving solution that limits the amount of manual handling by employees can help prevent physical injury.



Safety

- Radio remote controls and independent traveling pushbutton pendants allow for the operator of Overhead Lifting Solutions to stand away from the load. This means that the operator is further removed from danger. This reduces the risk of injury, and allows for a better view. This limits the risk of accidentally maneuvering the load into other workers in the area, walls, machinery, or obstacles.





Productivity

- Overhead Lifting Solutions minimize product handling and operator error. They allow for smooth direct-path transportation over obstacles with soft start features and multiple speed options for optimum control. There are a variety of below-the-hook devices and customized cranes, monorails, and hoists available for any application.
- Product damage results in wasted materials, and it's almost inevitable that some products with minor damage still make it to customers. Overhead Lifting Systems protect your products by self-centering loads. Compared to floor-based solutions, Overhead Lifting decreases the chance of damaging walls and structural supports or overturning.





Efficiency

- Overhead Lifting Solutions allow the user to take product up and over obstacles, instead of navigating back and forth through aisles. Straight lines are more efficient than roundabout paths to get from one point to another.
- Overhead Lifting Solutions allow for greater lifting height, vertical storage, and more efficient use of space than floor-based units.





Value

- Overhead Lifting Solutions can accommodate overhead or floor obstructions, and multiple workstations may be covered with one system.

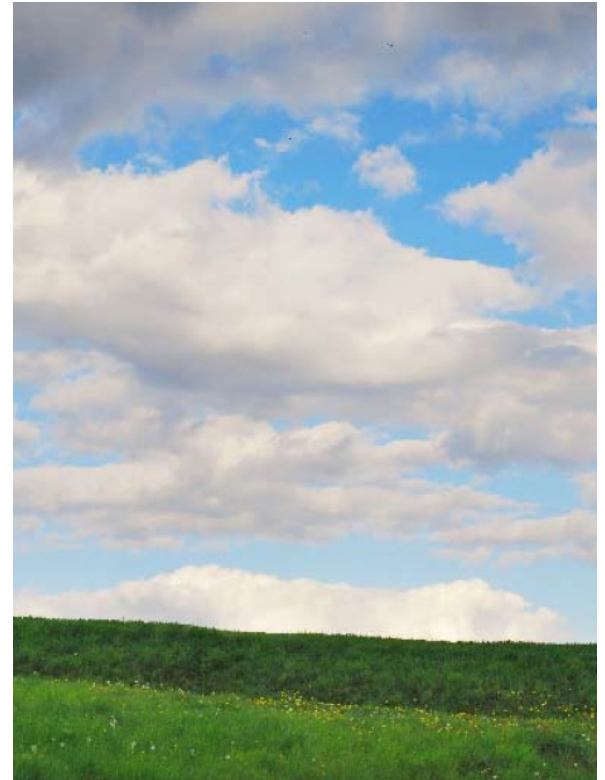


- Overhead Lifting Solutions are flexible by their very nature, and can easily be re-configured or converted and adapted to fit your changing needs, increasing the value of the facility.



Environment

- The limitations of other lifting and moving choices often force business owners to seek new storage space for their facility, or for battery charge terminals. This need creates a domino effect of events detrimental to the environment.
- Lifting systems powered the produce emissions can have numerous adverse effects on business, the environment, and employee health. These lifting and moving systems can produce air pollution through emissions as well as ground pollution through daily leakage.
- Also consider the possible regulations and costs imposed on operations due to these harmful contaminants. Evaluation of building ventilation, regular emissions testing, and investment in contaminant detection equipment are just a few examples.





Selected case studies - Cranes

- [Cranes provide solution for major manufacturer of steam turbines](#)
- [ASRS crane facilitates enzyme blending and storage for biofuel manufacturers](#)
- [Gantry simplifies loading of large concrete panels](#)



- [Cranes service hydroelectric plant](#)
- [Wall-mounted jibs provide supplemental lifting for crane manufacturer](#)
- [Bridge crane with precise hook positioning lifts jet engines](#)

- [Custom hoists for railroad car maintenance](#)
- [Coke-handling crane increases productivity and reduces downtime](#)
- [Improved remote controls solve service center problems](#)





Selected case studies - Hoists

- [Unique rail system allows quick hoist exchange](#)
- [University-Industry partnership studies auto worker ergonomic situation](#)
- [Heavy duty electric chain hoist operates over hot sulfuric acid](#)
- [Power station long lift wire rope hoist](#)
- [Vertical roller mill maintenance hoists lift up to 200 tons](#)
- [Hoist maintenance program reduces downtime](#)



- [Crane and hoist efficiently load metal press](#)
- [Hoist for critical nuclear weapon applications](#)
- [Simultaneously-controlled hoists handle long loads](#)
- [Electric hoist for railcar AC maintenance](#)
- [Electric chain hoist for low headroom application](#)



Selected case studies - Monorails

- [Sand distribution application](#)
- [Monorail reduces maintenance and increases safety in medical supply lab](#)



- [Stainless steel rail in food plant](#)
- [Aerospace company solves die handling problem](#)



- [Hot metal carrying system for auto-pouring operation](#)
- [Tire manufacturer improves productivity](#)



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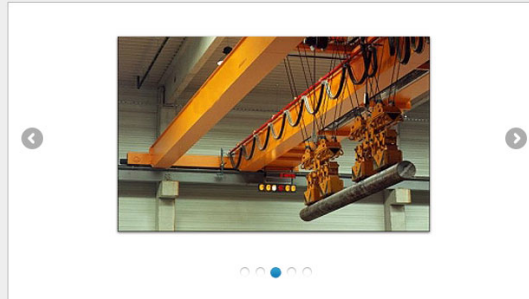
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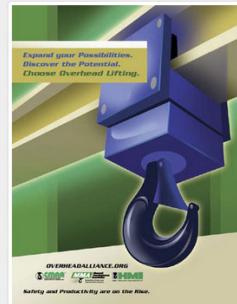
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Safety and Productivity are on the Rise

When choosing a lifting and moving solution for your facility, consider an overhead hoist, crane or monorail. Overhead lifting solutions improve efficiency, productivity and safety and reduces environmental impact. New technology has made overhead lifting solutions easier and more productive to use than ever before. Advancements include enhanced precision controls and longer lasting equipment.



Overhead lifting:

- Reduces product damage
- Improves workflow
- Reduces lifting accidents
- Improves workplace health and safety
- Lowers costs
- Is a green solution that reduces the footprint of your facility through recyclable equipment and minimized land consumption.

[Download Brochure](#)





CMAA

The Crane Manufacturers Association of America (CMAA) is an independent trade association incorporated in 1955. Member Companies, representing the industry leaders in the overhead crane industry, serve the US market from operations based in the United States, Canada, and Mexico. CMAA is recognized as the leading authority and the principal resource in the overhead traveling crane industry.

CMAA serves the overhead material handling industry through:

- Safety Advocacy
- Engineering Specifications and Standards Development
- Educational Materials





HMI

The Hoist Manufacturers Institute (HMI) members are the Industry's leading suppliers of hoisting equipment including hand chain hoists, ratchet lever hoists, trolleys, air chain hoist, air wire rope hoists, electric chain hoists, and electric wire manufacturing and distribution sector. HMI operates through committees with programs and policies reviewed and adopted by the membership with representation from each member company. Its many activities include an active engineering committee. HMI is represented on a number of standards developing committees and actively supports the development and certification of safety standards by the ANSI consensus method.





MMA

The Monorail Manufacturers Association, Inc. (MMA) is an independent incorporated trade association affiliated with the Material Handling Industry. MMA Members produce the preponderance of patented and enclosed track underhung cranes and monorail systems. MMA operates through committees with programs and policies reviewed and adopted by the membership with representation from each member company. Its many activities include an active engineering committee. MMA is represented on a number of standards developing committees and actively supports the development and certification of safety standards by the ANSI consensus method.





Other Overhead Lifting info sources

[Cranes Today Magazine](#)

[Hoist Magazine](#)

[Industrial Lift and Hoist](#)

[OCH Magazine](#)

[Material Handling & Logistics Magazine](#)

[Modern Materials Handling Magazine](#)

