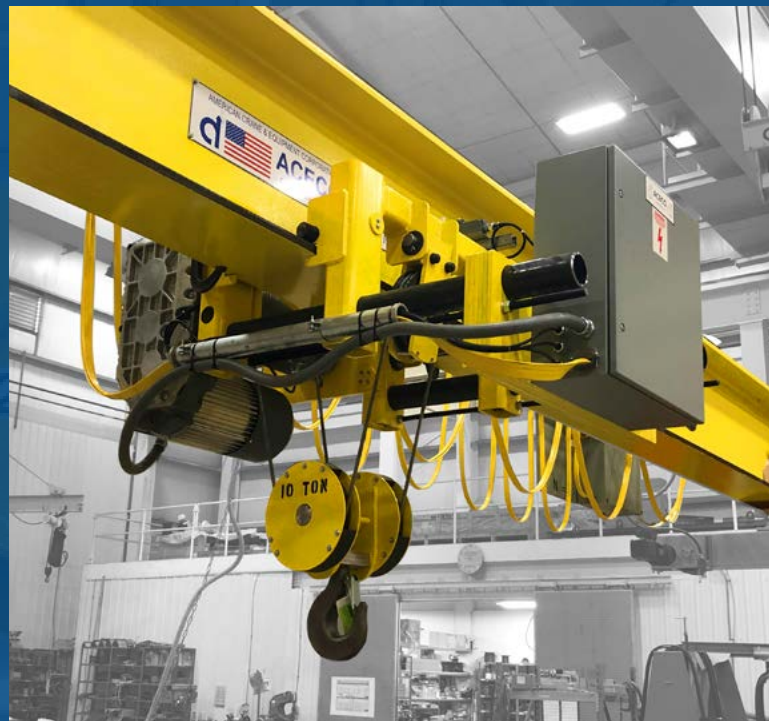


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# How to Choose the Right Hoist

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Hoists are mechanical components in overhead material handling systems that facilitate lifting and lowering operations. Due to the critical function they play, it is important to ensure the one employed fully meets the requirements and restrictions of the application. Some of the key considerations to keep in mind when choosing a hoist include:

- CMAA crane classification
- Lift height and working range
- Duty cycle
- Maintenance requirements

The following eBook discusses the above factors to help industry professionals select the right hoist solution for their facility.

## Understand CMAA Crane Classifications

The Crane Manufacturers Association of America (CMAA) developed and distributed an internationally recognized set of specifications outlining the various classifications of complete crane systems (including the hoist component) and their operational ratings. These standards dictate the industrial applications for which a given crane system is suitable to ensure the safety of workers and identify the necessary usage, inspection, and maintenance requirements. The classifications are as follows:

- **CMAA Class A (Standby or Infrequent Service):** Class A cranes are suitable for applications that require slow speeds with long periods of downtime between lifts, such as the installation of equipment in motor rooms, power houses, public utilities, transformer stations, and turbine rooms. They are generally used for handling capacity loads during initial equipment installation and occasional maintenance operations.
- **CMAA Class B (Light Service):** Class B cranes are employed for applications that require two to five lifts per hour with an average lifting/lowering height of 10 feet. Loads range from none to full capacity (occasionally). Typical applications for these cranes include repair shops, low-volume warehouses, or light assembly operations.

- CMAA Class C (Moderate Service): Class C cranes accommodate five to 10 lifts per hour with an average lifting/lowering height of 15 feet. The loads handled should not exceed an average of 50% of the total rated load capacity. These cranes are suitable for moderate service applications, such as machine shops and papermill machine rooms.
- CMAA Class D (Heavy Service): Class D cranes are used in demanding applications such as heavy machine shops, metal warehouses, container yards, and similar environments. They are capable of 10 to 20 high-speed lifts per hour with an average lifting/lowering height of 15 feet. No more than 65% of loads should be at full rated capacity.

There are similarities regarding the applications for which different types of hoists are suitable. For example, hoists used in Class A cranes are used in light-duty operations, while hoists used in Class D cranes are employed for severe service operations.

## Consider the Duty Cycle and Lifting Speed Requirements

As the CMAA standards suggest, it's essential to consider the lifting and lowering demands placed on the hoist. One of the key considerations is the duty cycle, which is the amount of time a hoist is in operation expressed as a ratio or percentage (e.g., a hoist in operation for five minutes and shut-off for 95 minutes has a duty cycle of 5/100 or 5%). Some of the factors that affect the duty cycle are:

- Number of lifts performed per hour
- Total number of lifts performed per shift
- Number of starts/stops per hour
- Number of shifts completed per day
- Average lifting/lowering height
- Average load weight
- Maximum load weight
- Frequency with which maximum loads weights are handled

Another consideration to keep in mind when selecting a hoist for lifting/lowering operations is the lifting speed. This quality is affected by the following factors:

- Lifting/lowering distance
- Frequency of use
- Positioning accuracy requirements
- Type of load

## Examine the Facility Environment

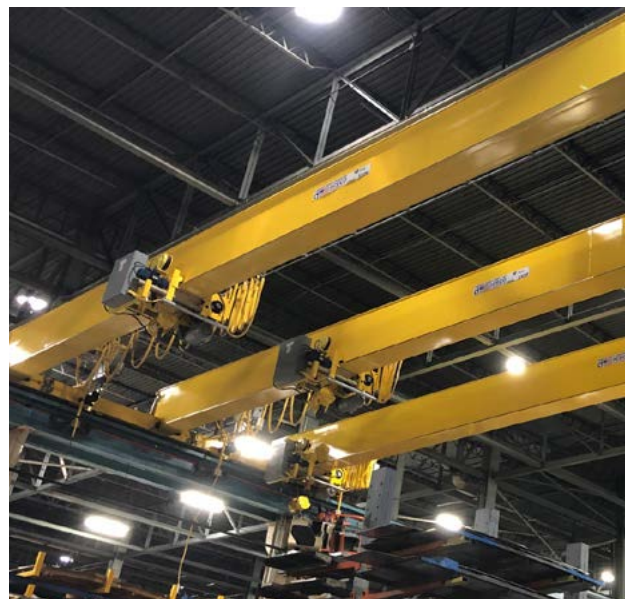
The hoist chosen for a facility should suit the dimensions of the room in which it will be employed. Otherwise, it may not fit or function correctly. The dimensional considerations to keep in mind include:

- Headroom
- Obstacles that may interfere with lifting/lowering operations (e.g., other machinery/equipment)
- Vertical lifting heights

If a hoist is purchased for use in multiple locations throughout a facility, it is essential to select one that accommodates the clearance requirements of all of the rooms.

## Research the Maintenance Requirements

Ensuring the safety of hoist operators during lifting/lowering operations necessitates the implementation of a proper maintenance schedule. As these servicing operations should be tailored to the specific type of hoist employed, it is important to consider the maintenance requirements when selecting a hoist for a facility, including in regard to the following:





- **Duty cycle.** As indicated above, the duty cycle of a hoist depends on a number of factors. The duty cycle, in turn, influences the life expectancy of the hoist; given two hoists with the same specifications, the one subjected to a higher duty cycle has a shorter expected service life than the one subjected to a lower duty cycle. As such, the former will require maintenance and replacement much sooner than the latter.
- **Availability of replacement parts.** In the event of component malfunction or failure, replacement parts should be readily available to minimize the amount of a time a hoist is out of commission. Hoists that require hard-to-find parts or tooling can cost a facility more time and money. As such, they should be replaced with one that requires materials and tools that are easier to find.

## Hoists and Other Material Handling Solutions at American Crane

American Crane is an industry-leading manufacturer and distributor of overhead cranes and hoists suitable for use in a wide range of industrial applications. In addition to a broad selection of standard products manufactured by reputable lifting equipment companies, we design and develop custom equipment solutions for highly specific and unique customer requirements. Whether a customer requests a half-ton ratchet lever hoist or a 300-ton overhead crane, our team can engineer a solution that fully meets their needs.

Below we outline our single-girder bridge crane solutions, including the type of hoist they employ and their standard features.



### ACECO Bridge Crane With YALE YK of SK Hoist

- 1–10 ton capacity
- Low cost
- Low duty cycle

## ACECO Bridge Crane With ACCO Work-Rated Hoist

- 1–10 ton capacity
- Moderate cost



## ACECO Bridge Crane With Yale Cable King Hoist

- 1–10 ton capacity
- Higher cost

\* If you are unsure which option is best for your particular situation, we're here to help! [Contact](#) one of our Parts and New equipment specialists today

## ACECO Bridge Crane With ACECO NorHoist

- CMAA Class D classification
- 1–10 ton capacity
- Higher cost



## American Crane: Your Lifting Equipment Expert, Craftsman, and Partner

At American Crane, we pride ourselves on our GRIT—a quality that we define as bringing perseverance, heart, and integrity to everything that we do. Our team is fully committed to providing every customer with high-quality turnkey material handling equipment solutions that meet their exact needs. Equipped with decades of industry experience and an extensive range of in-house resources, we can develop and deliver cranes and hoists suitable for virtually every industry, including aerospace, energy, general manufacturing, and nuclear.



To find out more about our material handling equipment solutions or partner with us on your next project, [contact our experts](#) today.



## We are your Expert, Craftsman & Partner.

Our goal is to make our customer's job easier. We provide turnkey material handling solutions for all types of industries; including nuclear, aerospace, energy, and general manufacturing. Our quality is built on depth of capabilities, with an integrated approach, in-house resources, and experience.

At American Crane & Equipment Corporation, we are uniquely positioned to provide our customers with a single source to provide the most highly engineered material handling solutions. This integrated approach includes project managers, engineers, complete manufacturing facilities and service technicians to help you with your material handling needs. Our company has a long-standing reputation as a leading supplier of quality equipment and engineering services to customers throughout the world.

At American Crane, **GRIT Matters**. We are passionate about delighting our customers and put **perseverance, heart** and **integrity** into everything we do.

President & COO

Contact Us

Resource Library

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