

ELECTRIC CHAIN HOIST SELECTION GUIDE



Electric chain hoists are used for lifting or lowering material by means of a drum around which a chain wraps. Utilize an electric motor and controller to lift, lower, and accelerate or decelerate the speed of the hoist. Ideal for use in applications that require more frequent and faster lifting, from industrial production lines to small machine shops.

All chain hoists provide true vertical lift—load does not vary from the hoist centerline during hoisting or lowering.

Trolleys are used with electric hoists and enable the hoists to move on a track. Trolleys can be distinguished by the following attributes:

Load capacity: Measured in pounds force or tons.

Beam height and width: The height and width of the beam to which the hoist will be affixed.

What to Consider When Selecting a Hoist:

- Weight of load
- Power supply
- Speed of lifts
- Lifting height
- Frequency of lifts
- Duty cycle

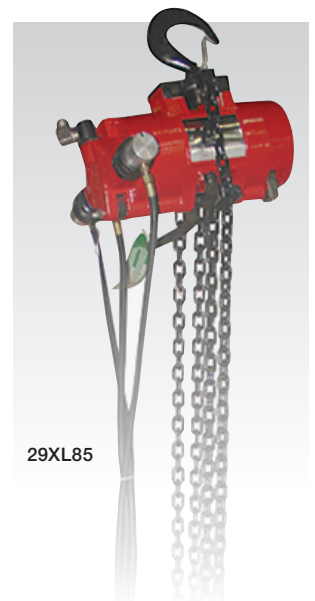
The powered hoist industry uses a service classification system to help you select the proper hoist. For details, see the chart below.



3YB91



4ZX43



29XL85









ELECTRIC HOIST SERVICE CLASSIFICATIONS

SERVICE CLASSIFICATION	TOTAL EQUIPMENT RUNNING TIME	MAX. START/STOPS PER HOUR	TYPICAL AREAS OF APPLICATION
INDUSTRY STANDARD H4	Approaching 50% of the work period	300	High-volume handling in steel warehousing, machine shops, fabricating plants, mills, and foundries. Manual or automatic cycling operations in heat-treating and plating operations.
H3	Not to exceed 25% of the work period	150	General machine shop, fabricating, assembly, storage, and warehousing use, where loads and operation are randomly distributed.
H2	Not to exceed 15% of the work period	75	Light machine shop, fabricating industries, and service and maintenance work, where loads and use are randomly distributed with capacity loads infrequently handled.



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HOW TO CHOOSE THE SERVICE CLASSIFICATION YOU NEED

			
<p>1 WEIGHT CAPACITY</p> <p>Determine the maximum weight you need to lift. Include lifting, supporting and positioning devices. <i>Ex: 2400 lb. (includes pallet, drum, sling, etc.)</i></p>	<p>2 INPUT VOLTAGE</p> <p>What is the nominal voltage ($\pm 10\%$ of rated voltage) in your facility? (Single-phase 115 or 230V; 3-phase 208, 230 or 460V) <i>Ex: 230V, 3 phase</i></p>	<p>3 LIFT SPEED</p> <p>How fast do you want to lift the load? Industry standard for $\frac{1}{2}$ to 1 ton is 16 ft./min. (fpm); 2 tons is 8 fpm. For flexibility, consider a variable speed lift. <i>Ex: 8 fpm</i></p>	<p>4 CHAIN LENGTH</p> <p>Measure the distance from the mounting location of the hoist to the floor. <i>Ex: 12 ft.</i></p>
			
<p>5 LOAD MOVEMENT</p> <p>What is the actual distance the load must be lifted and lowered? <i>Ex: 7 ft.</i></p>	<p>6 NUMBER OF LIFTS</p> <p>Determine the number of lifts per hour for the job. <i>Ex: 15</i></p>	<p>7 START/STOPS</p> <p>How many times does an operator activate the push-button control? Rule of thumb: 8 start/stops per cycle (load lift and lower). <i>Ex: 120 start/stops</i></p>	<p>8 OPERATING TIME</p> <p>Hoists have a Service Classification rating. To determine the classification for your job, see the calculations below.</p>

$$\text{Minutes Run Time} = \frac{\text{Feet of Load Lift} \times \text{Lifts per Hour} \times 2}{\text{Hoist Speed}}$$

Example:

$$(7 \text{ ft.} \times 15 \text{ lifts} \times 2) \div 8 \text{ fpm} = \frac{210}{8} = 26.25 \text{ Min. Run Time/Hr.}$$

Then calculate:

$$\% \text{ On Time} = \frac{\text{Minutes Run Time}}{60}$$

$$26.25 \div 60 = 44\% \text{ On Time/Hr.}$$

Once a % On Time is determined, see the Electric Hoist Service Classifications to determine the hoist needed.

Selected hoist in this example should offer 2-ton capacity, 230V, 3-phase operation, 15-ft. lift, 8 fpm and have a 44% or H4 service classification. Example is based on having nominal voltage and 80°F ambient still air. Higher temperatures and/or voltages outside of nominal range will result in reduced duty cycles.

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