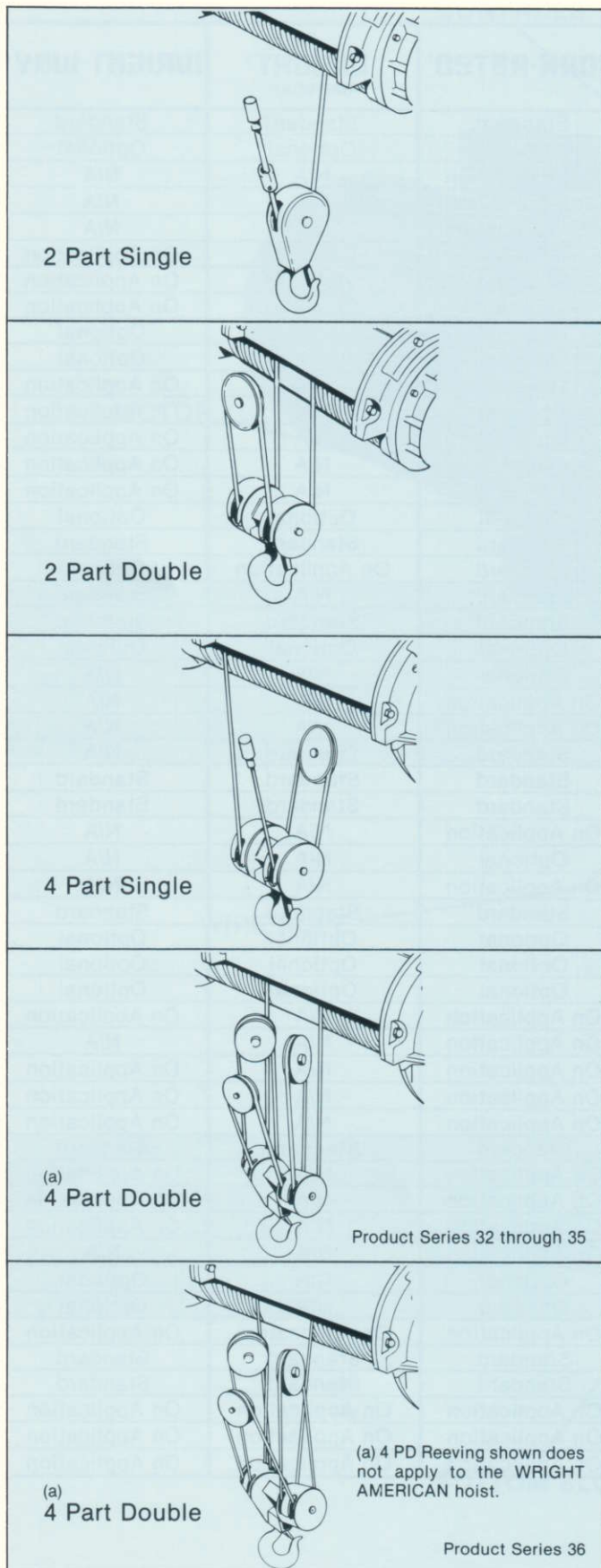


Reeving



Common Applications of HOIST Reeving

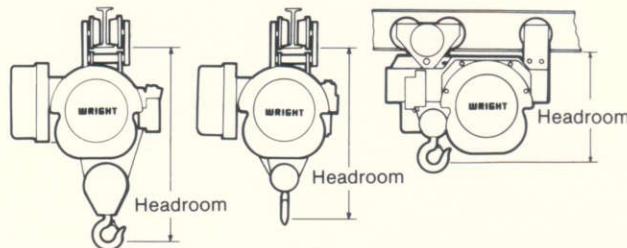
Reeving refers to the configuration of the wire rope, blocks and drum of the hoist. Reeving effects headroom, lifting speed and capacity by increasing the hoist's mechanical advantage. Reeving also determines if the hoist has lateral hook movement or true vertical lift.

The three terms used in reeving are; *single*, *double* and *part*. Single or double refers to the number of ropes coming from the drum. Part deals with the mechanical advantage gained by multiple reeving. For example, with two part single reeving (2PS) the load is distributed over the two parts, and the mechanical advantage doubles the capacity of one part reeving but reduces by one half the lifting or lowering speed of the hook.

Some applications require that the load not move right or left of the hoist centerline while being lifted. This is called true vertical lift and requires that the hoist be double reeved. Double reeving also requires less headroom than single reeving.

REQUEST MASTER CATALOG SECTION NO. 30-2 FOR DETAILED INFORMATION

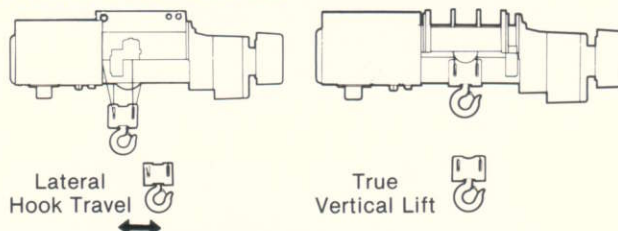
Reeving changes hoist arrangement to the beam or track, minimum headroom distance, and lateral hook travel.



	Standard Headroom Parallel Mounted	Close Headroom Parallel Mounted	Close Headroom Cross Mounted
Reeving:	2 PS or 4 PS	2 PD	2 PD or 4 PD
Minimum Headroom:	Fair	Good	Best
Lateral Hook Travel:	Hook travels	None	None
Cost:	Lower	Low	High

HEADROOM: Some applications require that the distance from the bottom of beam to saddle of the hook be held to a minimum. This dimension will determine whether a standard or close headroom is required.

LATERAL HOOK TRAVEL:



Some applications require that the load, when being lifted, not move right or left from hoist centerline. If this requirement is known, a true vertical lift hoist must be used. These are described as two part double (2PD) or four part double (4PD) and are available in both parallel or cross mounted hoists.

Common Types of WINCH Reeving

Work-rated winches can be reeved in various ways to gain designed mechanical advantages. The illustrations on this page demonstrate some of those advantages.

Winch reeving effects capacity, lifting distance, lifting speed and cable size. Winches are available in single and double line arrangements.

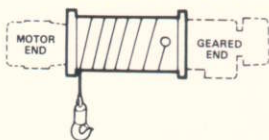
The lead off angle is a critical specification in winch applications. Standard lead off angles are shown below. For the optional lead off angles indicated by the shaded areas, the exact degree of the angle or range of angles is required when ordering.

Standard *Work-rated* winches are supplied without wire rope. When wire rope is supplied, it is 6 x 37 preformed, except on applications that require non rotating, 18 x 7 construction cable.

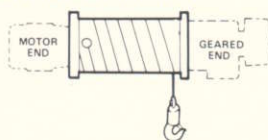
The swaged on drum end fittings of the wire rope are provided. A variety of "dead-end" fittings, such as swivel hooks and load blocks, and idler sheaves, are available to meet your specific application.

WINCH DRUM REEVING ARRANGEMENTS

SINGLE LINE REEVING ARRANGEMENTS

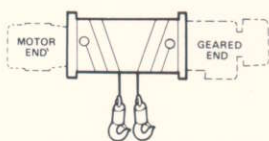


Standard Arrangement

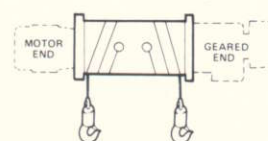


AA Arrangement

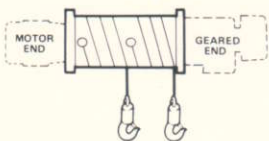
DOUBLE LINE REEVING ARRANGEMENTS



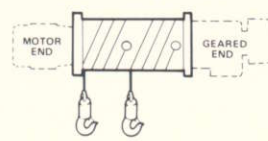
BB Arrangement



CC Arrangement



DD Arrangement



EE Arrangement

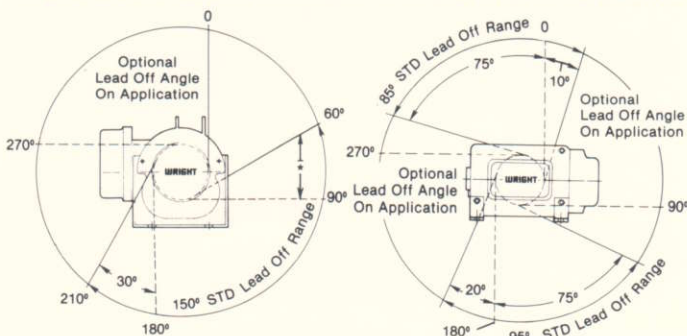
Arrangements AA, CC, DD & EE are non-standard.

REQUEST MASTER CATALOG SECTION NO. 33-103 FOR DETAILED INFORMATION

LINE LEADOFF ANGLES

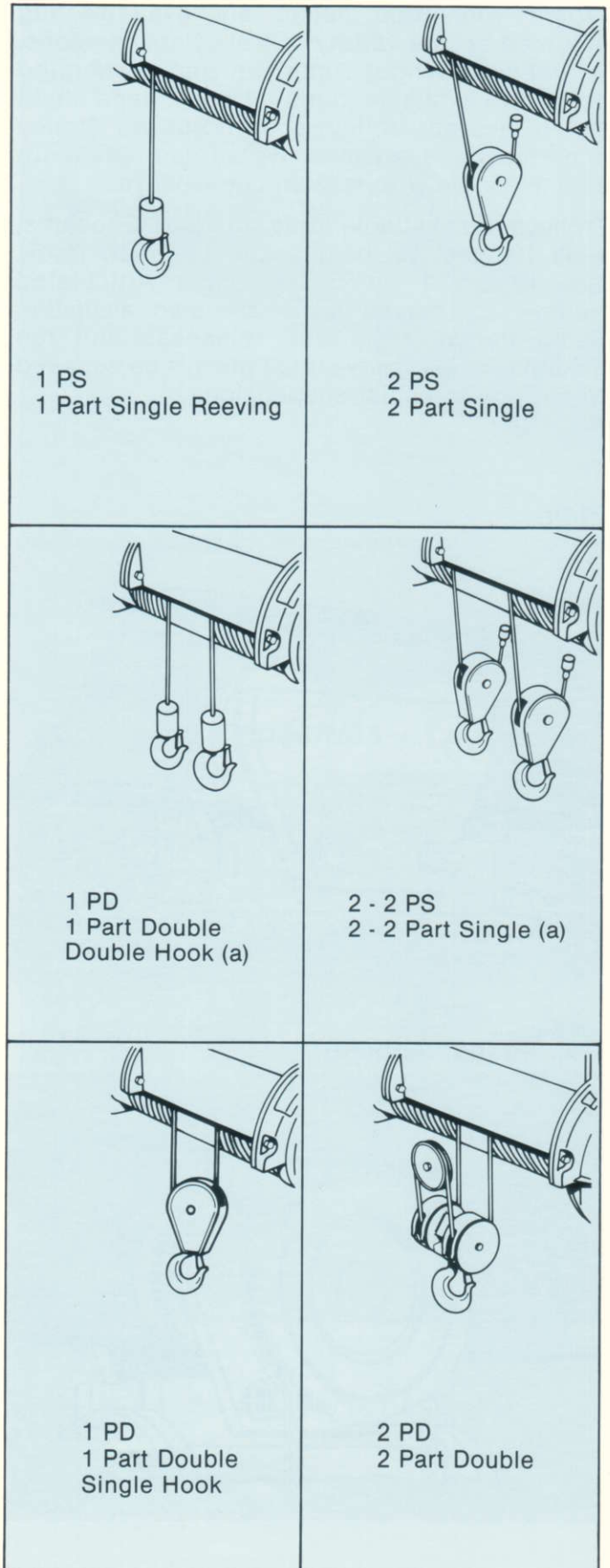
Work-rated winches are designed with a standard range or ranges of leadoff angles. See the illustration for location of the standard range.

REQUEST MASTER CATALOG SECTION NO. 33-102 FOR DETAILED INFORMATION



PRODUCT SERIES 32-35 WINCHES

PRODUCT SERIES 36 WINCHES

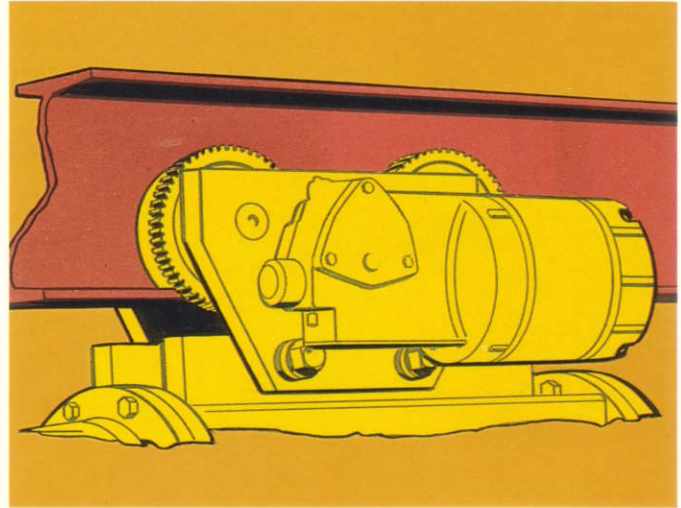


Trolley Suspensions

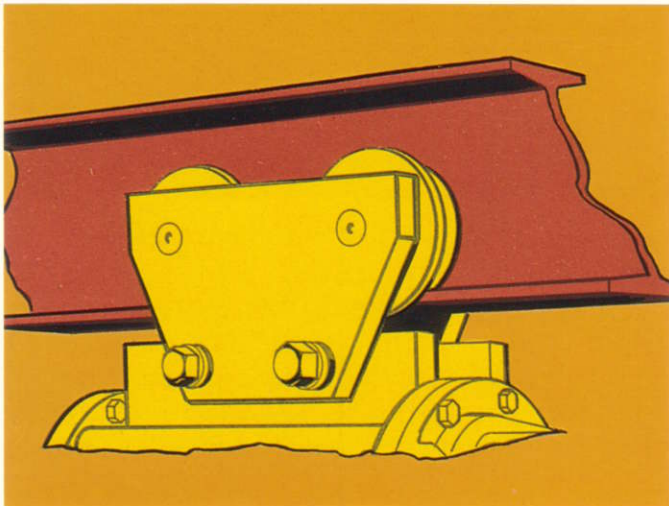
Wright wire rope hoists are available lug mounted or in a variety of trolley suspensions. *Wright-way*, *Wright American* and *Work-rated* hoists are available in plain trolley, hand chain driven geared trolley and motorized trolley underhung suspensions. *Work-rated* hoists are also available with top running trolleys.

Trolleys are available to fit standard 'S' beams, wide flanged 'W' beams and patented track. (see Figure 1 on facing page) Articulated trolleys for curved track are also available. Beam flange width and thickness and the minimum radius curve must always be supplied when ordering hoist suspensions.

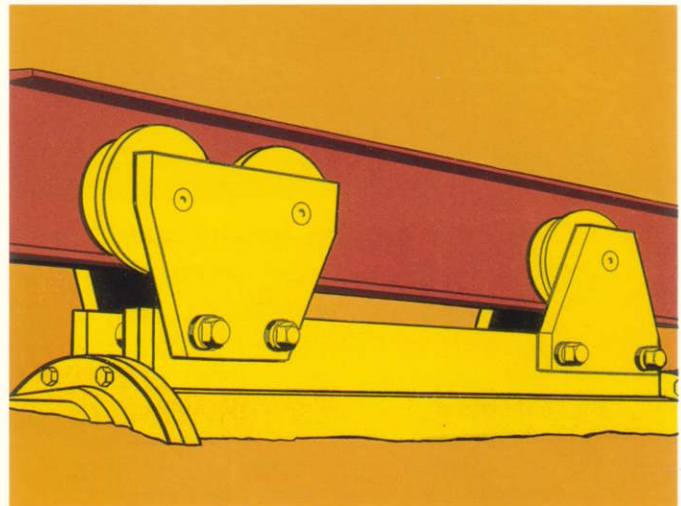
Motor driven



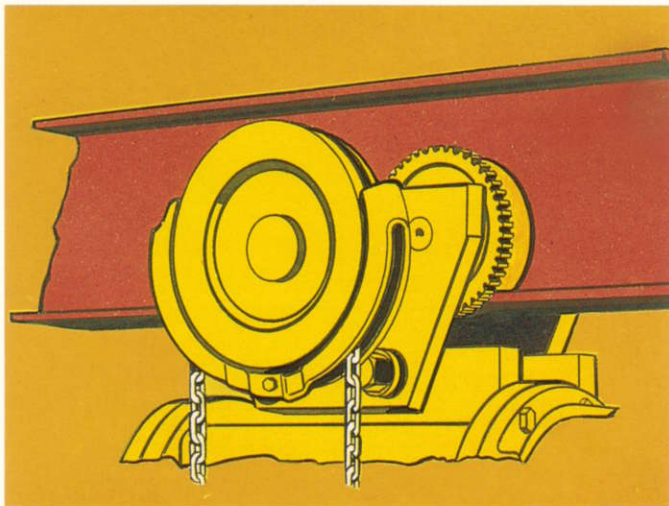
Plain



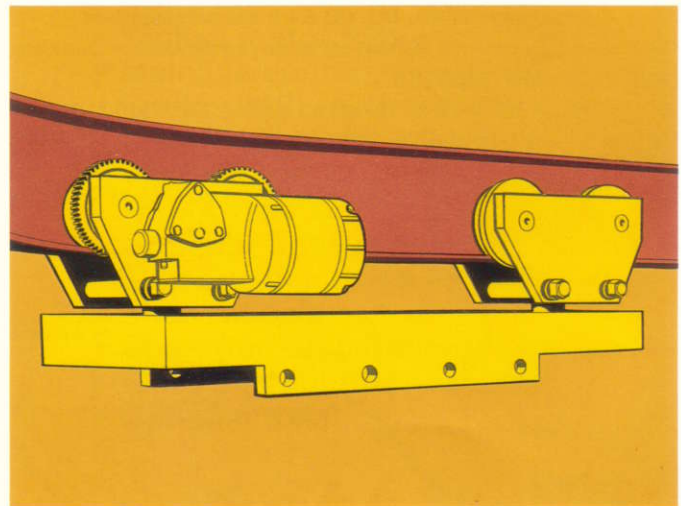
Straight track

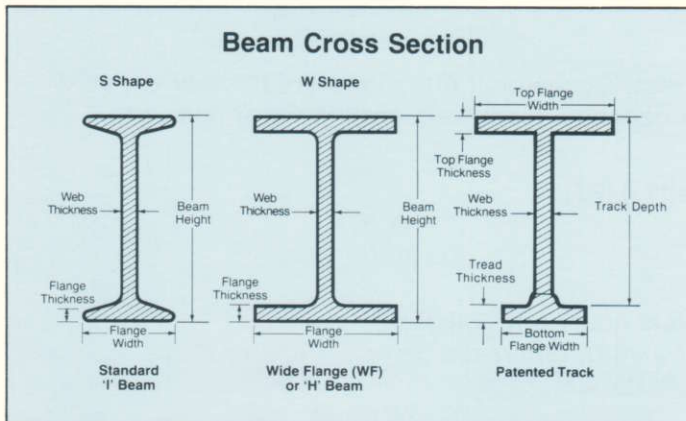


Geared (hand chain)



Curved track




FIGURE 1

Hoist Duty Service Classification

To help in hoist selection the Hoist Manufacturers Institute has grouped these typical areas of application into five classifications shown in the chart below. These are only guidelines and do not consider overall equipment life or routine maintenance.

Duty Class	Typical Areas of Application
H1	Powerhouse and utilities, infrequent handling. Hoists are primarily to install and service heavy equipment, where loads frequently approach rated load, and where the hoist is idle for 1 to 6 month periods between periods of operation.
H2	Light machine shop, fabricating service, and maintenance. Loads and utilization randomly distributed. Rated loads infrequently handled. Total running time not over 12.5% of the work period.
H3	General machine shop, fabricating, assembly, storage, and warehousing. Loads and utilization randomly distributed. Total running time not over 25% of the work period.
H4	High volume handling of heavy loads, frequently near rated load in steel warehousing, machine and fabricating shops, mills, and foundries, with total running time not over 50% of the work period. Manual or automatic cycling operations of lighter loads with rated loads infrequently handled such as in heat treating and plating operations, with total running time frequently 50% of the work period.
H5	Bulk handling of material in combination with buckets, magnets, or other heavy attachments. Equipment often cab operated. Duty cycles approaching continuous operation are frequently necessary. User must specify exact details of operation, including weight of attachments.

How to order check list

WRIGHT®

1. How will the hoist be used? (CAPACITY)
 - ☐ Avg. load will be 65% of hoist capacity or less. Occasional lifts made at full hoist capacity.
 - ☐ Avg. load will be greater than 65% of hoist capacity. More frequent lifts at or near full capacity.
2. How far must loads normally be lifted or lowered? (LIFT)
 - ☐ 1 - 3 ft. ☐ 8 - 11 ft. ☐ 16 - 19 ft.
 - ☐ 4 - 7 ft. ☐ 12 - 15 ft. ☐ 20 - 30 ft.
3. How many times will the hoist be used in a typical hour? (LIFTS/HR.)
(If the hoist is used extensively for two hours of a shift, report the times for one of those hours; do not average those lifts over the entire shift)
 - ☐ 1 - 4 times ☐ 8 - 11 times ☐ 20 - 24 times
 - ☐ 5 - 9 times ☐ 15 - 19 times ☐ 25 - 29 times
4. What kind of suspension is required? (SUSPENSION) *(see illustration on pages 7 and 22)*
 - ☐ lug mounted ☐ deck mounted ☐ geared trolley
 - ☐ base mounted ☐ plain trolley ☐ motorized trolley

a) Specify the type of beam or track on which the trolley will operate. *(see Figure 1 on page 23)*
☐ S Shape ☐ W Shape ☐ Patented Track

b) Specify beam flange width _____ in.

c) Must the trolley operate on curved track?
If so, specify curve radii _____
5. What is the minimum beam to high hook distance? (HEADROOM) _____ in.
6. What kind of hoist motor is required? (MOTOR TYPE)
 - ☐ single speed ☐ two speed ☐ 5 step variable speed
 - ☐ other _____

a) What catalog lifting speed is required? (LIFTING SPEED) _____ FPM

b) Specify hoist power source (MOTOR VOLTAGE/PHASE) _____
7. Is lateral hook travel a problem? (REEVING)
 - ☐ single reeving ☐ double reeving
8. What options or accessories are required?

9. Are there any special operating environment requirements? _____

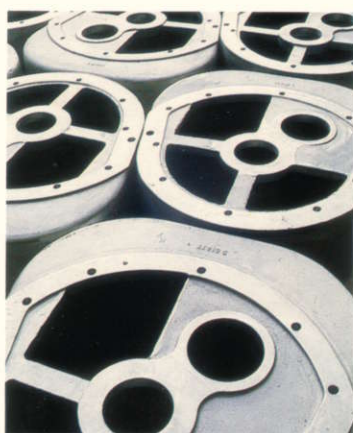
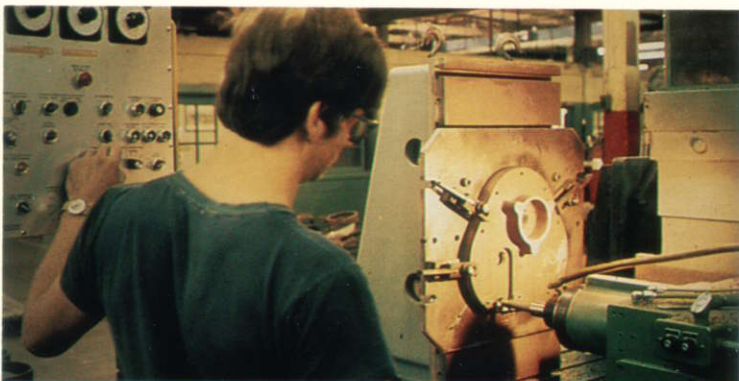
When ordering any *Wright* hoist, the first place to start is its proper *Acco* product number. The product number is specific for the following information: capacity, headroom, reeving, suspension, lift, lifting speed, hoist control and motor horse power. For *Wright-Way* hoist it also specifies motor voltage (for *Work-Rated* and *Wright American* hoists the motor voltage must be supplied along with the hoist product number).

Product numbers for *Wright-Way* hoists are found in "Wright Hoists" Bulletin No. PD-2000. *Wright American* product numbers are found in "Wright American Electric Wire Rope Hoists" Bulletin No. PD-2010. Product numbers for *Work-Rated* hoists are found in the "Wright Products" engineering catalog sections 30 through 35.

For more information regarding identifying beams and track, the "Wright Structural Beam Guide" is a helpful publication available by ordering Bulletin No. PD-2020.

The Wright Dealer Network

Your first contact with *Wright* is your local *Wright* hoist dealer. Experienced, knowledgeable dealers are qualified to answer questions that you might have regarding *Wright* equipment. The dealer organization is strongly supported by factory representatives, strategically located warehouses and parts and service centers. Product application data is yours for the asking. Your *Wright* dealer can provide factory trained service personnel quickly to help you with your specific problems.



Wright Engineering and Manufacturing

Wright actively participates in the Hoist Manufacturers Institute, the Crane Manufacturers Association of America, the Monorail Manufacturers Association, the Material Handling Institute and the Industrial Distributors Association, to establish and to meet the most current industry standards.

Our extensive engineering staff, experienced in analyzing and meeting your material handling needs, is supported by state-of-the-art computer aided design equipment (CAD) in their on going product development programs.

They assure that *Wright* hoists meet or exceed all national safety codes and specifications, including Hoist Manufacturing Institute specifications for electric wire rope hoists HMI 100-74, "Safety Standards for Overhead Hoists" ANSI B30.16-1973 and the National Electrical Code.

A sixty year heritage of quality hoist manufacturing continues in a modern 400,000 square foot facility. Your hoist's progress through each step of manufacturing is monitored with the latest process control and documentation procedures. Parts machined on digitally controlled equipment are assembled by a highly skilled workforce.

Inspection and quality control procedures for every *Wright* hoist range from basic capacity tests to sophisticated dimensional checking. Constant inspection assures you a reliable product.

Glossary of Terms

ACM (Acceleration Control Module) A solid state electronic control that provides gentle acceleration and deceleration of a hoist trolley or crane throughout the entire operation cycle. ACM minimizes load pendulum swing more efficiently than ballast resistors or fluid coupling by controlling acceleration up to 5 seconds after start while providing full motor voltage for the whole cycle.

AGMA American Gear Manufacturers Association

ANSI American National Standard Institute

Ballast Resistors Inserted in the power lines to an induction motor, ballast resistors control trolley acceleration for smoother starts by reducing the voltage while starting; in turn reducing torque; increasing the motor acceleration time, allowing the motor to come to speed smoothly. Ballast resistors are field adjustable.

CSA Canadian Standards Association

Contactors Electro-mechanical devices for establishing and interrupting an electric power circuit.

CMAA Crane Manufacturers Association of America

End Approach The minimum distance that a hoist can travel to the end of a crane bridge or track without impacting a wall or some other obstruction. Cross mounted hoists have a lower minimum end approach than standard parallel mounted hoists.

Explosion Proof The property of an enclosure to contain internal sparking without causing external hazard. Explosion proof hoists are used in operating environments where flammable gases are present.

FPM (Feet per minute) The standard measurement of hoist lifting speed, trolley travel and crane bridge travel.

Headroom The distance from the bottom of the beam or monorail on which the hoist travels to the bearing point of the load hook when the hook is raised to its highest position. On a top running hoist, it is the distance from the operating tread of the trolley wheels to the hook high position.

Impact Loading The initial impact of the load that creates greater stress to the block, wire rope, drum, hoist frame and the other load bearing parts of the hoist.

Inching Control Extra push buttons that permit small movements of the load hook or hoist trolley through relays. The control can be adjusted to meet hook motion or hoist movement requirements for particular applications.

Inverter A solid state electronic device that allows infinite speed variation of electric motors used in hoists, trolley motors and crane drives.

An inverter closely controls the frequency of the AC current; the motor gets only enough current to supply the required torque for a specific speed. It eliminates inefficient and dangerous overheating resulting from unused electrical energy, a common problem of many other infinitely variable speed control methods.

Limit Switch Electro-mechanical devices that limit travel of the load block hook. There are two types of limit switches: gravity type and geared type.

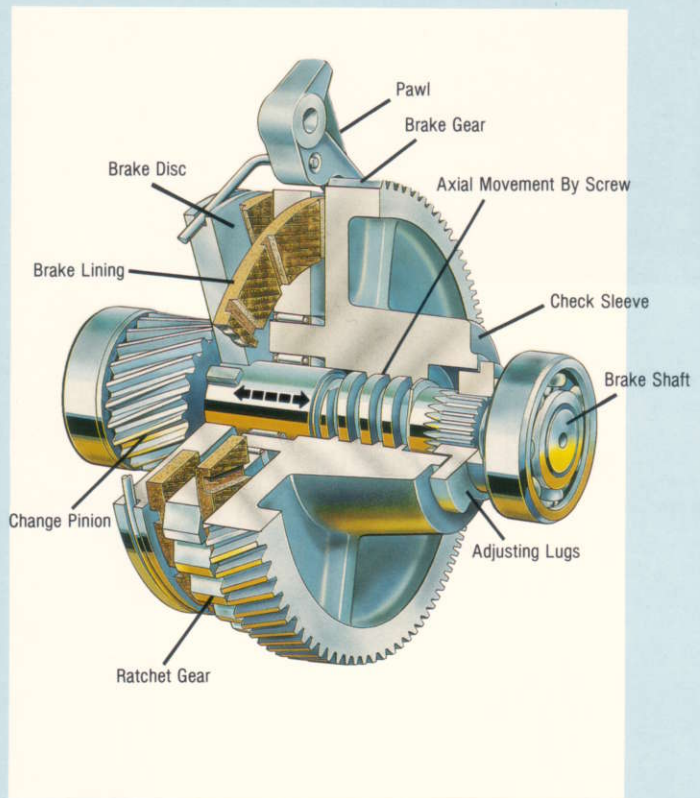
Gravity type limit switches use a weight, paddle or a lever that when it contacts

the load block, trips a switch to the open position, that opens the raising circuit that causes hoist contactors to open and breaks the power supplied to the motor. Geared limit switches are driven by either the drum or gear reduction; a geared limit switch operates on a definite ratio of drum revolutions. It is adjustable and can be activated at any predetermined point of the hoist lift range, unlike the gravity switch which can only limit upper hook travel. In the event of the wire rope overwrapping or jumping the drum grooves through misapplication of the hoist, the geared limit switch is no longer synchronized and will not be activated when the hook reaches its upper limit. For this reason geared limit switches should be used with a gravity limit switch as a back-up.

MMA Monorail Manufacturers Association

Mainline Contactor A manually operated magnetic device that shuts off all power to the hoist and crane motors in the event of a malfunction.

Mechanical Load Brake Part of the gear train of the hoist, the load brake serves as a back-up to the electric motor brake. It automatically slows and controls lowering speed and, if the motor brake fails, holds the load while the motor or motor brake is repaired or replaced. A Weston type load brake (see illustration) uses a brake gear with an internal helical thread which mates with and rotates on a threaded shaft. Brake linings bonded on both sides of a ratchet gear are engaged by the screw actuated axial movement of the brake gear along the threaded shaft...to the left toward the brake disc while raising the load and to the right away from the disc while lowering the load. If the load starts to accelerate during lowering, the brake gear again moves to the left slowing lowering speed and preventing the load overdriving the hoist motor.



Motor Thermostat A bi-metallic, automatic reset thermostat is standard equipment on all *Wright* hoists. It is a thermally operated device that protects the hoist motor from damage due to operating at a higher-than-normal current. Built into the motor windings, it causes the motor control to be de-energized when the temperature of the motor winding exceeds its predetermined limit.

NEMA National Electric Manufacturers Association

True Vertical Lift A lift without lateral hook movement. Requires that the hoist be double reeved (see reeving section on page 20).