Servo Systems
Intelligent Assist Devices (IAD)
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We are committed to
Total Customer Satisfaction
through
QUALITY, RELIABILITY and
EMPLOYEE INVOLVEMENT.

Knight Global | Warranty Information

Knight warrants that its products and parts shall meet all applicable specifications, performance requirements, and be free from defects in material and workmanship for one year, (Servo Systems for two years, Pneumatic Lift Tables for 5 years), from the date of invoice, unless otherwise noted. One exclusion would include any purchased components not manufactured by Knight and their specific individual warranties. Paint defects, scratches and marring from shipping are also excluded.

This warranty shall not cover the failure or defective operation caused by inadequate training provided by customer regarding the operation and/or maintenance of the tool, misuse, negligence, misadjustment, or any alteration not approved by Knight. Knight’s obligation is limited to the replacement or repair of Knight’s products at a location designated by Knight. Buyer is responsible for all associated internal removal and reinstallation costs as well as freight charges to and from Knight Industries. Knight’s maximum liability shall not in any case exceed the contract price for the products claimed to be defective.

Any field modification made to Knight Products or Systems without the written authorization by Knight Global shall void Knight’s warranty obligation.

Knight warrants the Servo Hoist, Arms, and Tractors to be free from defects in material or workmanship for a period of two years or 6000 hours use from the date of shipment.

Knight Distributors/Agents are not authorized to circumvent or change any of these terms and conditions of this warranty unless prior approval is received in writing by Knight Global Management. Verbal statements made by Knight Distributors/Agents do not constitute warranties.

On a design and build job, the customer is the owner of the equipment once they authorize shipment. The purchased equipment can not be returned for reimbursement or credit.

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Knight Servo Systems

Knight Servo Systems are Intelligent Assist Devices (IAD) that provide controlled transfers of workloads with speed, precision, quality and unmatched reliability. Its scalable programmability allows for many application solutions.

Traditional hoists and tractors require the operator to push buttons in order to initiate natural ergonomic motion. Knight Servo Systems enable an operator to simply grasp a handle to move the load.

As an extension of an operator’s natural movement, this technology greatly improves accuracy, responsiveness and repeatability. This increases safety, productivity and quality by eliminating wasted motions, reducing reaction times, and by mitigating inertia on heavy loads.

Features

• Load Capacity: Up to 2,000 lbs. [907kg].
• Variable speeds: Up to 241 f/min. [74m/min].
• 240 VAC / Single Phase. 50/60 Hz.
• H5 Rated (continuous duty cycle).
• Knight’s Unique “Float” Mode.
• Illuminated Run/ Stop Button.
• Fail-Safe Brake.
• Load Sensing.
• Chain Driven.
• I/O Capabilities.
• Virtual Travel Limits.
• LED Status/Fault Indicators.

Overview

Servo Hoist Configurations

<table>
<thead>
<tr>
<th>Model</th>
<th>Style</th>
<th>Max. Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHS</td>
<td>Safety Drop Stop</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>D-SERIES</td>
<td>Safety Drop Stop</td>
<td>150 lbs. [68kg]</td>
</tr>
<tr>
<td>KSHTC</td>
<td>Twin Chain Safety Drop Stop</td>
<td>700 lbs. [317.5kg]</td>
</tr>
<tr>
<td>KSHDM</td>
<td>Twin Chain Dual Motor Safety Drop Stop</td>
<td>2,000 lbs. [907kg]</td>
</tr>
<tr>
<td>KSHCA</td>
<td>Overhead Articulating Arm</td>
<td>1,500 lbs. [680kg]</td>
</tr>
<tr>
<td>KSHFA</td>
<td>Floor-Mounted Articulating Arm</td>
<td>1,500 lbs. [680kg]</td>
</tr>
<tr>
<td>KSHEA</td>
<td>Overhead Extension Arm</td>
<td>750 lbs. [340kg]</td>
</tr>
<tr>
<td>KSHAEA</td>
<td>Floor-Mounted Articulating Extension Arm</td>
<td>750 lbs. [340kg]</td>
</tr>
<tr>
<td>KSHEB</td>
<td>Overhead Extension Boom Arm</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHAEB</td>
<td>Floor-Mounted Articulating Extension Arm</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHVA</td>
<td>Overhead Vertical Arm</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHVAA</td>
<td>Floor-Mounted Vertical Articulating Arm</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHVAR</td>
<td>Overhead Vertical Articulating Roller Arm</td>
<td>1,500 lbs. [680kg]</td>
</tr>
<tr>
<td>KSHVAA</td>
<td>Floor Mounted Vertical Articulating Roller Arm</td>
<td>1,500 lbs. [680kg]</td>
</tr>
<tr>
<td>KST</td>
<td>Rack and Pinion Servo Tractor</td>
<td>4,000 lbs. [1,814kg] (Towing)</td>
</tr>
<tr>
<td>KSHXZ</td>
<td>“X” Tractor with “Z” Control</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHXY</td>
<td>“X/Y” Tractor</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHXYZ</td>
<td>“X/Y” Tractor with “Z” Control</td>
<td>1,000 lbs. [453kg]</td>
</tr>
<tr>
<td>KSHXXYZ</td>
<td>“XX/Y” Tractor with “Z” Control</td>
<td>1,000 lbs. [453kg]</td>
</tr>
</tbody>
</table>
**SERVO HOIST AND TRACTOR HOIST**

### LED Status Indicators

The LED Status lights will indicate the state the system is in, i.e. “Lift Mode” (Green LED) or “Float Mode” (Blue LED). The LED status lights may also be programmed to indicate actions such as: “Clamps Closed”, “Vacuum On”, etc.

### LED Fault Indicators

Optionally: Fault recognition is displayed by a LED fault code diagnostic located on the drive unit. This feature improves maintenance response time by providing illuminated signals that correspond with a diagnostic chart, i.e. “Bus Fault”, “Low Voltage”, etc.

### Virtual Limits

Programmable virtual limits prevent load movement beyond user-defined limitations. Limit settings improve productivity by restricting the UP/DOWN movement of the operator. Pre-set (coded) or manual options available.

### Knight’s Unique Float Mode

Knight’s Unique “Float” Mode allows the operator to balance a load in a weightless condition and then manipulate it into position without using an UP/DOWN pendant or handle. It can be enabled or disabled depending on the application and is standard on most systems.

### Speed Reduction Points

Programmable points in which the hoist will automatically reduce speed to allow precise placement.

### Programming and Diagnostic Ports

Ports allow for easy set-up, configuration, programming of system, and viewing fault tables (to rapidly identify problems). These ports eliminate overhead connections to the system. Changes and repairs can be made at floor level.

### I/O Capabilities

Ability to attach accessories such as: clamps, pumps, limit switches, proximity switches, lights, etc.

### Travel Distance

Unlimited, (Travel distance of 12-18ft. is standard)

### Exclusive Software Features

- Impact Limiting: For controlled load lifts.
- Prevents operator from snagging the load on a surface.
- Active Dampening: Enhances precise positioning.
- Adapts to unknown system installs, i.e. Rail Vibration, etc.
- Integral Tool Controls: Allows for multiple tool configurations.
- Knight’s Unique “Float” mode.
- Optional PM Alert System: Notifies user when scheduled maintenance is ready to be performed.

### Chain

Patented robust Electro Galvanized chain provides added durability and improves wear characteristics.
- 4mm and 5mm sizes available.

### Gearbox

The gearbox is a worm gear style for reliable, sealed maintenance-free operation.

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Safety Drop Stop Servo Hoist

Knight Global’s “Next Generation Servo Hoist” includes the patented “Safety Drop Stop” or “SDS” feature, which makes it the safest and most intelligent hoist in the world. This new revelation will change the entire hoist industry with Knight Global in the forefront. The “SDS” feature introduces redundant chains -- one carrying the load, and the second chain travels along for safety.

Knight Global’s KSHS “Next Generation Servo Hoist” Series has added features to its Intelligent Assist Device (IAD). These features improve an operator’s ability to precisely locate or float a load in the ‘Z’ direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHS Servo series allows for many application solutions due to its various programmable features, and unlimited I/O. Also, while traditional hoists require the operator to push buttons in order to initiate natural ergonomic motion, the KSHS Series enables an operator to simply grasp a handle to move the load.

Mechanical Features

- Redundant chain design for safe operation:
  - Load Chain: Supports the load.
  - Safety Chain: Travels with the load chain for safety and redundancy.
- Speeds: Up to 241 ft. per min. [73.5mpm].
- Maximum Lifting Capacity: Up to 1,000 lbs. [453kg].
- Safety Rating of 125%.
- Fail Safe Brake.
- Knight’s Patented Chains, for longer life.
- Knight’s redundant chain guides.
- Two buckets to keep chains separated.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).
- In-Line or Fixture Handle

Electrical Features

- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features

- STO - Safe Torque Off.
- Enhanced User Interface (UI).
- Ethernet Connection.
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Standard Float Mode.
- Programmable Overload Capability.
# KSHS Series Safety Drop Stop “SDS” Servo Hoist Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSH250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSH350S-2401</td>
<td>350 lbs. [317kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSH500S-2401</td>
<td>500 lbs. [266kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSH750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSH1000S-2401</td>
<td>1,000 lbs. [453kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

KSH250S-2401
KSH350S-2401
KSH500S-2401
KSH750S-2401
KSH1000S-2401
D-Series Servo Hoist

Knight Global is introducing their new D-Series Servo Hoist with all the features of the patented next generation safety drop stop servo hoist recently launched in 2017, minus the I/O for an significantly reduced cost.

Introducing a dynamic, lower-cost servo hoist solution that is the safest, most intelligent, and now the most economical hoist in the world.

This new dynamic servo hoist is equipped with all the same programming features and benefits as the current servo hoist systems, minus any I/O. This new version of the servo hoist allows Knight Global to be more competitive with the lower end Intelligent Assist Devices (IAD's) in the industry without sacrificing safety or intelligence features.

D-Series Servo Hoist Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSH150S-2401-005</td>
<td>150 lbs [68 kg]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>
Twin Chain Safety Drop Stop
Servo Hoist Series

Knight Global’s KSHTC Twin Chain Safety Drop Stop Servo Hoist Series enables an operator to precisely locate or float a load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. Knight’s Twin Chain design helps to control and balance parts or fixtures that are long or unwieldly. The (2) two Twin Chains are mechanically linked together so they operate as one unit. The KSHTC allows for many application solutions due to its various programmability features.

**Mechanical Features**
- Redundant chain design for safe operation:
  - Load Chain: Supports the load.
  - Safety Chain: Travels with the load chain for safety and redundancy.
- Speeds: Up to 196 ft/min. [60 m/min].
- Maximum Lifting Capacity: Up to 500 lbs. [227kg].
- Standard Chain Center Point Distances: 24 in. [610 mm] - 36 in. [914 mm].
  - (Widths over 36 in. are custom).
- Safety Rating of 125%.
- Fail-Safe Brake.
- Knight’s Patented Chains, for longer life.
- Knight's redundant chain guides.
- Two buckets to keep chains separated.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

**Electrical Features**
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

**Software Features**
- STO - Safe Torque Off.
- Enhanced User Interface (UI).
- Ethernet Connection.
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
KSHTC Series Twin Chain Servo Hoist Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHTC250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHTC500S-2401</td>
<td>500 lbs. [226kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Note:** Chain center point widths (marked red) are available in larger distances, but are considered custom. Contact a Knight representative for more detailed information.
Twin Chain Dual Motor Safety Drop Stop Servo Hoist Series

Knight Global's KSHDM Twin Chain Safety Drop Stop Servo Hoist Series enables an operator to precisely locate or float a load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. Knight’s Twin Chain design helps to control and balance parts or fixtures that are long or unwieldly. The (2) two Twin Chains are independently controlled by separate motors to provide unmatched control. The KSHDM allows for many application solutions due to its various programmability features.

Mechanical Features

• Redundant chain design for safe operation:
  - Load Chain: Supports the load.
  - Safety Chain: Travels with the load chain for safety and redundancy.
• Speeds: Up to 123 ft/min. [38 m/min].
• Maximum Lifting Capacity: Up to 2,000 lbs. [907kg].
• Standard Chain Center Point Distances: 24 in. [610 mm] - 36 in. [914 mm].
  - (Widths over 36 in. are custom).
• Safety Rating of 125%.
• Fail-Safe Brake.
• Knight’s Patented Chains, for longer life.
• Two buckets to keep chains separated.
• Chain Length, Unlimited (12 - 18 ft. Standard).
• Sealed Worm Style Gearbox.
• H5 Rated (Continuous Duty Cycle).

Electrical Features

• Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
• Enable trigger, for quicker response.
• 240 VAC, Single Phase 50/60 Hz.
• Load Sensing, Part Weight and Handle Force.
• I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
• LED Status Indicators: Green and Blue Lighted Push Buttons.
• LED Fault Indicator: Illuminated Red Run-Stop Button, Twist to Release.
• Optional: Remote Pendant or Wireless Remote Control.

Software Features

• STO - Safe Torque Off.
• Enhanced User Interface (UI).
• Ethernet Connection.
• Programming and Diagnostic Communication Ports.
• Virtual Travel Limits.
• Speed Reduction Zones.
• Impact Limiting.
• Active Dampening.
• Knight’s Unique “Float” Mode.
• Programmable Overload Capability.
## KSHTCDM Series Twin Chain Dual Motor Servo Hoist Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHDM700S-2401</td>
<td>700 lbs. [317kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
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<tr>
<td>KSHDM1500S-2401</td>
<td>1,500 lbs. [680kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHDM2000S-2401</td>
<td>2,000 lbs. [907kg]</td>
<td>39 ft/min. [12 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Note:** Chain center point widths (marked red) are available in larger distances, but are considered custom. Contact a Knight representative for more detailed information.
KSHCA Series

KSHCA Overhead Carriage Mounted Articulating Servo Hoist Arm

Knight Global’s KSHCA Series Overhead Carriage-Mounted Servo Hoist Arm provides an operator with the capabilities to reach outside the area directly below a rail system and to precisely locate or float a load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHCA Series Servo Arm allows for overhead reach that varies depending on the design of the work cell or station.

Mechanical Features

- Speeds: Up to 98 ft/min. [30 m/min].
- Maximum Lifting Capacity: Up to 1,500 lbs. [680kg].
- Maximum Reach of Extension: Up to 48 in. [1,219 mm].
- Safety Rating of 125%.
- Fail-Safe Brake.
- Overhead Mounted Carriage.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Electrical Features

- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features

- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
### KSHCA Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs (kg)</th>
<th>Maximum Speed ft/min. [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHCA500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHCA1000S-2401</td>
<td>1000 lbs. [454kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHCA1500S-2401</td>
<td>1,500 lbs. [680kg]</td>
<td>66 ft/min. [20 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Note:** Maximum KSHCA reach (48 in.) does not include length of Boom or End Effector.
KSHFA Series

KSHFA Floor Mounted Articulating Servo Hoist Arm

Knight Global’s KSHFA Series Floor-Mounted Servo Hoist Arm enables an operator to precisely locate or float a load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHFA Series Servo Arm allows for overhead reach that varies depending on the design of the work cell or station. Knight’s Floor-Mounted KSHFA Series is most commonly used when overhead clearances or support structures will not accommodate an overhead rail system.

Mechanical Features
• Speeds: Up to 98 ft/min. [30 m/min].
• Maximum Lifting Capacity: Up to 1,500 lbs. [680kg].
• Maximum Reach: Up to 48 in. [1,219 mm].
  (Boom / End Effector length not included)
• Safety Rating of 125%.
• Fail-Safe Brake.
• Floor-Mounted Pedestal Heights: 8 ft. [2.4 m] - 10 ft. [3.0 m].
• Heavy Duty Roller Chain.
• Chain Lengths (12 - 20 ft. Standard).
• Sealed Worm Style Gearbox.
• H5 Rated (Continuous Duty Cycle).

Electrical Features
• Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches,
  - Proximity Limits, Lights, etc.
• Enable trigger, for quicker response.
• 240 VAC, Single Phase 50/60 Hz.
• Load Sensing, Part Weight and Handle Force.
• I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
• LED Status Indicators: Green and Blue Lighted Push Buttons.
• LED Fault Indicator: Illuminated Red Run-Stop Button, Twist to Release.
• Optional: Remote Pendant or Wireless Remote Control.

Software Features
• Programming and Diagnostic Communication Ports.
• Virtual Travel Limits.
• Speed Reduction Zones.
• Impact Limiting.
• Active Dampening.
• Knight’s Unique “Float” Mode.
• Programmable Overload Capability.
### KSHFA Series Floor Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHFA500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHFA1000S-2401</td>
<td>1000 lbs. [454kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHFA1500S-2401</td>
<td>1,500 lbs. [680kg]</td>
<td>66 ft/min. [20 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

*Note: Maximum KSHCA reach (48 in.) does not include length of Boom or End Effector.*
KSHEA Overhead Carriage Mounted Articulating Extension Servo Hoist Arm

Knight Global’s KSHEA Series Overhead Carriage-Mounted Extension Servo Hoist Arm provides an operator with the capabilities to reach outside the area directly below a rail system. As with all of Knight’s servo hoists, this arm allows an operator to precisely locate or float loads in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHEA Series Servo Arm enables the operator to reach beyond the working limits of an overhead rail system within a workstation.

Mechanical Features
- Speeds: Up to 241 ft/min. [74 m/min].
- Maximum Lifting Capacity: Up to 750 lbs. [340 kg].
- Safety Rating of 125%.
- Overhead Carriage-Mounted.
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Lengths, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.

Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
- Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.
KSHEA Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min. [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHEA250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEA350S-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEA500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEA750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

Note: Knight’s 350 lb. and 750 lb. KSHEA Series arms are considered special ordered items. Contact a Knight representative for more information.

Dimension “A” (Knight Servo Hoist)
- KSH250 - 19.73 in. [501mm]
- KSH350 - 21.38 in. [543mm]
- KSH750 - 21.38 in. [543mm]

Dimension “B” (Extension Boom)
- Standard length is 54 in. [1371mm].
- Smaller lengths are available and considered custom.
KSHAEA Series

KSHAEA Floor Mounted Articulating Extension Servo Hoist Arm

Knight Global’s KSHAEA Series Floor-Mounted Extension Servo Hoist Arm enables an operator to precisely locate or float a load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHAEA Series Servo Arm allows for non-linear overhead reach that varies depending on the design of the work cell or station. Knight’s Floor-Mounted KSHAEA Series is most commonly used when overhead clearances or support structures will not accommodate an overhead rail system.

Mechanical Features

- Speeds: Up to 241 ft/min. [74 m/min].
- Maximum Lifting Capacity: Up to 750 lbs. [340kg].
- Safety Rating of 125%.
- Floor Mounted Pedestal Heights: 8 ft. [2.4m] - 10 ft. [3.0m].
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Length, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Software Features

- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.

Electrical Features

- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.
### KSHAEA Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity [lbs]</th>
<th>Maximum Speed [ft/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHAEA250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEA350S-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEA500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEA750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Note:** Knight’s 350 lb. and 750 lb. KSHAEA Series arms are considered special ordered items. Contact a Knight representative for more information.
Knight Global’s KSHEB Series Overhead Carriage-Mounted Extension Boom Servo Hoist Arm provides an operator with the capabilities to reach outside the area directly below a rail system and to precisely locate or float loads in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHEB Series Servo Arm allows for overhead reach that varies depending on the design of the work cell or station.

**Mechanical Features**
- Speeds: Up to 241 ft/min. [74 m/min].
- Maximum Lifting Capacity: Up to 1000 lbs. [454kg].
- Safety Rating of 125%.
- Overhead Carriage Mounted
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Length, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

**Electrical Features**
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

**Software Features**
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
KSHEB Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHEB250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEB350S-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEB500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEB750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHEB1000S-2401</td>
<td>1000 lbs. [454kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Note:** Knight’s 350 lb., 750 lb. and 1,000 lb. KSHEB Series arms are considered special ordered items. Contact a Knight representative for more information.

DIM “A”

Dimension “A” (Extension Boom)
- Standard length is 54 in. [1371mm].
- Smaller lengths are available and considered custom.

360° Rotation
KSHAEB Floor Mounted Articulating Extension Boom Servo Hoist Arm

Knight Global's KSHAEB Series Floor-Mounted Extension Boom Servo Hoist Arm enables an operator to precisely locate or float a load in the "Z" direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHAEB Series Servo Arm allows for non-linear overhead reach that varies depending on the design of the work cell or station. Knight’s Floor-Mounted KSHAEB Series is most commonly used when overhead clearances or support structures will not accommodate an overhead rail system.

**Mechanical Features**
- Speeds: Up to 241 ft/min. [60 m/min].
- Maximum Lifting Capacity: Up to 1,000 lbs. [453kg].
- Safety Rating of 125%.
- Floor Mounted.
- Fail-Safe Brake.
- Knight's Patented Chain, for longer life.
- Chain Length, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

**Software Features**
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight's Unique “Float” Mode.
- Programmable Overload Capability.

**Electrical Features**
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.
KSHAEB Series

KSHAEB Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity [lbs [kg]]</th>
<th>Maximum Speed [fpm/ [m/min]]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHAEB250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEB350S-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEB500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEB750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHAEB1000S-2401</td>
<td>1000 lbs. [454kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

Note: Knight's 350 lb., 750 lb. and 1,000 lb. KSHEB Series arms are considered special ordered items. Contact a Knight representative for more information.
KSHVA Series

KSHVA Overhead Carriage Mounted Vertical Articulating Servo Hoist Arm

Knight Global’s KSHVA Series Overhead Carriage-Mounted Vertical Servo Hoist Arm enables an operator to reach low and overhead work areas to manipulate heavy loads in a confined work cell. Also, the system can precisely locate or float that load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHVA Series Servo Arm creates a stable lifting platform, eliminating the yarding and swinging of the free hanging chain or cable of other systems.

Mechanical Features

• Speeds: Up to 241 ft/min. [74m/min].
• Maximum Lifting Capacity: Up to 1,000 lbs. [454kg].
• Safety Rating of 125%.
• Overhead Carriage Mounted.
• Fail-Safe Brake.
• Knight’s Patented Chain, for longer life.
• Chain Length, Unlimited (18 ft. Standard).
• Sealed Worm Style Gearbox.
• H5 Rated (Continuous Duty Cycle).

Software Features

• Programming and Diagnostic Communication Ports.
• Virtual Travel Limits.
• Speed Reduction Zones.
• Impact Limiting.
• Active Dampening.
• Knight’s Unique “Float” Mode.
• Programmable Overload Capability.

Electrical Features

• Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
• Enable trigger, for quicker response.
• 240 VAC, Single Phase 50/60 Hz.
• Load Sensing, Part Weight and Handle Force.
• I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
• LED Status Indicators: Green and Blue Lighted Push Buttons.
• LED Fault Indicator: Illuminated Red Run-Stop Button, Twist to Release.
• Optional: Remote Pendant or Wireless Remote Control.

%KSHVA Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min. [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHVA250S-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVA350S-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVA500S-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVA750S-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVA1000S-2401</td>
<td>1000 lbs. [454kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

Note: Knight's 350 lb., 750 lb. and 1,000 lb. KSHVA Series arms are considered special ordered items. Contact a Knight representative for more information.

Dimension “A” (Vertical Boom Height)
- Vertical boom height varies upon the applications requirements.
Knight KSHVAA Floor-Mounted Articulating Servo Hoist Arm

Knight Global’s KSHVAA Series Floor-Mounted Vertical Servo Hoist Arm enables an operator to reach low and overhead work areas to manipulate heavy loads in a confined work cell. Also, the system can precisely locate or float that load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHVAA Series Servo Arm creates a stable lifting platform, eliminating the yarding and swinging of the free hanging chain or cable of other systems.

**Mechanical Features**
- Speeds: Up to 241 ft/min. [74m/min].
- Maximum Lifting Capacity:
  - Up to 1,000 lbs. [453kg].
- Safety Rating of 125%.
- Floor-Mounted.
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Length, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

**Software Features**
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.

**Electrical Features**
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.
KSHVAA Series Overhead Carriage Mounted Servo Hoist Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min. [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHVAAS-250-2401</td>
<td>250 lbs. [113kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAAS-350-2401</td>
<td>350 lbs. [159kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAAS-500-2401</td>
<td>500 lbs. [227kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAAS-750-2401</td>
<td>750 lbs. [340kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAAS-1000-2401</td>
<td>1000 lbs. [453kg]</td>
<td>82.02 ft/min. [25 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

Note: Knight’s 350 lb., 750 lb. and 1,000 lb. KSHVAA Series arms are considered special ordered items. Contact a Knight representative for more information.

Dimension “A” (Vertical Boom Height)
- Vertical boom height and travel varies upon the applications requirements.

Dimension “B” (Horizontal Boom Length)
- Horizontal boom length varies upon the applications requirements for dimension of “C” length.
KSHVAR Series

KSHVAR Overhead Carriage-Mounted Vertical Articulating Servo Hoist Roller Arm

Knight Global’s KSHVAR Series Overhead Carriage-Mounted Vertical Servo Hoist Roller Arm enables an operator to reach low and overhead work areas to manipulate heavy loads in a confined work cell. Also, the system can precisely locate or float that load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHVAR Series Servo Roller Arm creates a stable lifting platform, eliminating the yarding and swinging of the free hanging chain or cable of other systems.

The KSHVAR roller chain series allows for more stroke of the arm, versus the standard chain because the servo is offset to the backside of the arm. The roller chain is a more robust option compared to the link chain and provides a smoother transition across the sprocket. These systems are used very successfully to load instrument panels (IP’s) in vehicles through the driver’s side door and to load large batteries into recessed vehicle compartments.

Mechanical Features

- Speeds: Up to 131 ft/min. [40 m/min].
- Maximum Lifting Capacity: Up to 1,500 lbs. [680kg].
- Safety Rating of 125%.
- Overhead Carriage-Mounted.
- Fail-Safe Brake.
- Heavy Duty Roller Chain.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Software Features

- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.

Electrical Features

- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Note: Product does not come as shown. Overhead carriage sold separately. Contact a Knight representative for more information.
### KSHVAR Overhead Carriage Mounted Vertical Articulating Roller Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity lbs [kg]</th>
<th>Maximum Speed ft/min. [m/min]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHVAR-750-2401</td>
<td>750 lbs. [340kg]</td>
<td>131 ft/min. [40 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAR-1500-2401</td>
<td>1500 lbs. [680kg]</td>
<td>66 ft/min. [20 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

Dimension “A” (Vertical Boom Height)
- Vertical boom height varies upon the applications requirements.
Mechanical Features
- Speeds: Up to 131 ft/min. [40 m/min].
- Maximum Lifting Capacity: Up to 1,500 lbs. [680kg].
- Safety Rating of 125%.
- Floor-Mounted.
- Fail-Safe Brake.
- Heavy Duty Roller Chain.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.

Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
  - Enable trigger, for quicker response.
  - 240 VAC, Single Phase 50/60 Hz.
  - Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
- Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

KSHVAAR Series

KSHVAAR Floor-Mounted Vertical Articulating Servo Hoist Roller Arm

Knight Global’s KSHVAAR Series Floor-Mounted Vertical Servo Hoist Roller Arm enables an operator to reach low and overhead work areas to manipulate heavy loads in a confined work cell. Also, the system can precisely locate or float that load in the “Z” direction (vertical axis) with speed, precision, quality, unmatched reliability and repeatability. The KSHVAAR Series Servo Roller Arm creates a stable lifting platform, eliminating the yarding and swinging of the free hanging chain or cable of other systems.

The KSHVAAR roller chain series allows for more stroke of the arm, versus the standard chain because the servo is offset to the backside of the arm. The roller chain is a more robust option compared to the link chain and provides a smoother transition across the sprocket.
### KSHVAAR Floor Mounted Vertical Articulating Roller Arm Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Capacity [lbs [kg]]</th>
<th>Maximum Speed [fpm/mpm]</th>
<th>Voltage / Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHVAAR-750-2401</td>
<td>750 lbs. [340kg]</td>
<td>131 ft/min. [40 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHVAAR-1500-2401</td>
<td>1500 lbs. [680kg]</td>
<td>66 ft/min. [20 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**Dimension “A” (Vertical Boom Height)**
- Vertical boom height and travel vary upon the applications requirements.

![Diagram of KSHVAAR Series with dimensions labeled]
Knight Global’s KST Series Rack and Pinion Servo Tractor is a stand-alone tractor that is designed to push, tow and position loads that are suspended from a trolley on an overhead rail system.

Knight’s KST Series Servo Tractors have Knight’s Intelligent Assist Device (IAD) Servo Technology incorporated into their design allowing them to provide controlled transfers of workloads with speed and precision. Rack and Pinion Tractors can be programmed to automatically or manually move the runway (X Axis) or bridge (Y Axis) to intended locations with repeatable accuracy. Also, the Knight Servo Tractors can also be programmed for line speed synchronization.

The KST Servo Tractor offers a continuous contact non-slip rack and pinion design. This continuous non-slip design allows for a more accurate positioning of the load. The Servo Tractor can either be manually controlled by the operator or programmed for automatic movement.

### Mechanical Features
- Maximum Travel Speed: 259 ft/min. [79 m/min].
- Maximum Towing Capacity: 4,000 lbs. [1,814 kg].
- Non-Slip Rack and Pinion Drive System.
- Clutch (24 VDC).
- Absolute Positioning and Line Tracking.

### Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Limit Switches, etc.
- H5 Rated (Continuous Duty Cycle).
- 240 VAC, Single Phase, 50/60 Hz.
- I/O Capabilities.

### Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.

### KST SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Towing Capacity lbs. [kg]</th>
<th>Travel Speed fpm. [mpm]</th>
<th>Voltage/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KST</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>259 ft/min. [79 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KST</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>
Servo Tractor/Hoist System

KSHXZ Servo “X” Tractor with “Z” Hoist Control Series

Knight Global’s KSHXZ Servo “X” Tractor with a “Z” Lift Hoist is designed to accurately locate, push, tow, lift and position loads from an overhead rail system. The KSHXZ Series facilitates a (2) two axis combo configuration which includes (1) one lift hoist. Knight’s KSHXZ Series Servo Tractors have Knight’s Intelligent Assist Device (IAD) Servo Technology incorporated into their design allowing them to provide controlled transfers of workloads with speed and precision.

Knight Global’s Servo “X” control tractor with “Z” lift assist servo can be programmed to automatically or manually move and stop on the runway (X Axis) at intended locations with repeatable accuracy while lifting loads (Z Axis) at the same time, thus eliminating unnecessary operator motions. Also, Knight Servo Tractors can be programmed for assembly line speed synchronization.

The KSHXZ Servo Tractor offers a continuous contact non-slip rack and pinion design. This continuous non-slip design allows for a more accurate positioning of the load. The Servo Tractor can either be manually controlled by the operator or programmed for automatic movement.

Mechanical Features
- Axis Direction: “X” and “Z”.
- Maximum Tractor Travel Speed:
  - Up to 174 ft/min. [53 m/min].
- Maximum Towing Capacity:
  - Up to 4,000 lbs. [1,814 kg].
- Maximum Lifting Capacity:
  - Up to 1,000 lbs. [454 kg].
- Non-Slip Rack and Pinion Drive System.
- Clutch (24 VDC).
- Absolute Positioning and Line Tracking.
- Safety Rating of 125%.
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Lengths, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
- Programmable Operator Path.
## KSHXZ SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Hoist Capacity lbs. [kg]</th>
<th>Towing Capacity lbs. [kg]</th>
<th>Hoist Lift Speed ft/min. [m/min]</th>
<th>Tractor Travel Speed ft/min. [m/min]</th>
<th>Voltage/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHXZ250S-2401</td>
<td>250 lbs. [113 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXZ350S-2401</td>
<td>350 lbs. [159 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXZ500S-2401</td>
<td>500 lbs. [227 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXZ750S-2401</td>
<td>750 lbs. [340 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXZ1000S-2401</td>
<td>1,000 lbs. [454 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

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**NOTE:** All Knight Global Tractor configurations are dependant on the total weight of the systems. All Tractor systems require the use of Rigid End Trucks.

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Servo Tractor System

KSHXY Servo “X/Y” Tractor

Knight Global’s KSHXY Servo “X/Y” Tractors are designed to accurately locate, push, tow, lift and position loads from an overhead rail system. The KSHXY Series facilitates a (2) two axis combo configuration. Knight’s KSHXY Series Servo Tractors have Knight’s Intelligent Assist Device (IAD) Servo Technology incorporated into their design allowing them to provide controlled transfers of workloads with speed and precision.

Knight Global’s Servo “X/Y” Tractors can be programmed to automatically or manually move and stop the bridge (Y Axis) or runway (X Axis) at intended locations with repeatable accuracy, thus eliminating unnecessary operator motions. Also, Knight Servo Tractors can be programmed for assembly line speed synchronization.

The KSHXY Servo Tractor offers a continuous contact non-slip rack and pinion design. This continuous non-slip design allows for a more accurate positioning of the load. The Servo Tractor can either be manually controlled by the operator or programmed for automatic movement.

Mechanical Features
- Axis Direction: “X” and “Y”.
- Maximum Tractor Travel Speed: - Up to 174 ft/min. [53 m/min].
- Maximum Towing Capacity: - Up to 4,000 lbs. [1,814 kg].
- Non-Slip Rack and Pinion Drive System.
- Clutch (24 VDC).
- Absolute Positioning and Line Tracking.
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as: Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Programmable Operator Path.
### KSHXY SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Towing Capacity lbs. [kg]</th>
<th>Tractor Travel Speed ft/min. [m/min]</th>
<th>Voltage/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHXY-2401</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**NOTE:** All Knight Global Tractor configurations are dependant on the total weight of the systems. All Tractor systems require the use of Rigid End Trucks.
KSHXYZ Servo “X/Y” Tractors with “Z” Hoist Control Series

Knight Global’s KSHXYZ Servo “X” and “Y” Tractors in conjunction with a “Z” Lift Hoist is designed to accurately locate, push, tow, lift and position loads from an overhead rail system. The KSHXYZ Series facilitates a (3) three axis combo configuration which includes (1) one lift hoist. Knight’s KSHXZ Series Servo Tractors have Knight’s Intelligent Assist Device (IAD) Servo Technology incorporated into their design allowing them to provide controlled transfers of workloads with speed and precision.

Knight Global’s Servo “X” and “Y” Tractors in conjunction with “Z” Lift Hoists can be programmed to automatically or manually move and stop the runway (X Axis) or bridge (Y Axis) at intended locations with repeatable accuracy while lifting loads (Z Axis) at the same time, thus eliminating unnecessary operator motions. Also, Knight Servo Tractors can be programmed for assembly line speed synchronization.

The KSHXYZ Servo Tractor offers a continuous contact non-slip rack and pinion design. This continuous non-slip design allows for a more accurate positioning of the load. The Servo Tractor can either be manually controlled by the operator or programmed for automatic movement.

Mechanical Features

- Axis Direction: “X”, “Y”, and “Z”.
- Maximum Tractor Travel Speed:
  - Up to 174 ft/min. [53 m/min].
- Maximum Towing Capacity:
  - Up to 4,000 lbs. [1,814 kg].
- Maximum Lifting Capacity:
  - Up to 1,000 lbs. [454 kg].
- Non-Slip Rack and Pinion Drive System.
- Clutch (24 VDC).
- Absolute Positioning and Line Tracking.
- Safety Rating of 125%.
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Lengths, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Electrical Features

- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches,
  - Proximity Limits, Lights, etc.
- Enable trigger, for quicker response.
- 240 VAC, Single Phase 50/60 Hz.
- Load Sensing, Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and (4) Analog Outputs
  - (24) Inputs or Outputs, configurable
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features

- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
- Programmable Operator Path.
### KSHXYZ SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Hoist Capacity lbs. [kg]</th>
<th>Towing Capacity lbs. [kg]</th>
<th>Hoist Lift Speed ft/min. [m/min]</th>
<th>Tractor Travel Speed ft/min. [m/min]</th>
<th>Voltage/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHXYZ250S-2401</td>
<td>250 lbs. [113 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXYZ350S-2401</td>
<td>350 lbs. [159 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXYZ500S-2401</td>
<td>500 lbs. [227 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXYZ750S-2401</td>
<td>750 lbs. [340 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXYZ1000S-2401</td>
<td>1,000 lbs. [454 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

**NOTE:** 20-30 ft. bridges require the XXYZ configuration.
KSHXXYZ Servo “XX/Y” Tractor with “Z” Hoist Control Series

Knight Global’s KSHXXYZ Servo “XX/Y” Tractors in conjunction with a “Z” Lift Hoist is designed to accurately locate, push, tow, lift and position loads from an overhead rail system. The KSHXXYZ Series facilitates a (3) three axis combo configuration which includes (1) one lift hoist. Knight’s KSHXXYZ Series Servo Tractors have Knight’s Intelligent Assist Device (IAD) Servo Technology incorporated into their design allowing them to provide controlled transfers of workloads with speed and precision.

Knight’s Global’s Servo “XX/Y” Tractors with a “Z” Lift Hoist can be programmed to automatically or manually move and stop a dual runway (X Axis) or bridge (Y Axis) at intended locations with repeatable accuracy while lifting loads (Z Axis) at the same time, thus eliminating unnecessary operator motions. Also, Knight Servo Tractors can be programmed for assembly line speed synchronization.

The KSHXXYZ Servo Tractor offers a continuous contact non-slip rack and pinion design. This continuous non-slip design allows for a more accurate positioning of the load. The Servo Tractor can either be manually controlled by the operator or programmed for automatic movement.

Mechanical Features
- Axis Direction: “X”, “Y” and “Z”.
- Maximum Travel Speed:
  - Up to 174 ft/min. [53 m/min].
- Maximum Towing Capacity:
  - Up to 4,000 lbs. [1,814kg].
- Maximum Lifting Capacity:
  - Up to 1,000 lbs. [454kg].
- Non-Slip Rack and Pinion Drive System.
- Clutch (24 VDC).
- Absolute Positioning and Line Tracking.
- Safety Rating of 125%.
- Fail-Safe Brake.
- Knight’s Patented Chain, for longer life.
- Chain Lengths, Unlimited (18 ft. Standard).
- Sealed Worm Style Gearbox.
- H5 Rated (Continuous Duty Cycle).

Electrical Features
- Industry Standard 24 VDC, 2 AMP power is available for custom tooling such as:
  - Clamps, Vacuum Cups, Switches, Proximity Limits, Lights, etc.
  - Enable trigger, for quicker response.
  - 240 VAC, Single Phase, 50/60 Hz.
- Load Sensing:
  - Part Weight and Handle Force.
- I/O Capabilities:
  - (4) Analog Inputs and
  - (4) Analog Outputs.
  - (24) Inputs or Outputs, configurable.
  - (8) Dedicated Inputs.
  - Expansion I/O: Ethernet, Unlimited.
- LED Status Indicators: Green and Blue Lighted Push Buttons.
- LED Fault Indicators: Illuminated Red Run-Stop Button, Twist to Release.
- Optional: Remote Pendant or Wireless Remote Control.

Software Features
- Programming and Diagnostic Communication Ports.
- Virtual Travel Limits.
- Speed Reduction Zones.
- Impact Limiting.
- Active Dampening.
- Knight’s Unique “Float” Mode.
- Programmable Overload Capability.
- Programmable Operator Path.
### KSHXXYZ SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Hoist Capacity [lbs. [kg]]</th>
<th>Towing Capacity [lbs. [kg]]</th>
<th>Hoist Lift Speed [ft/min. [m/min.]]</th>
<th>Tractor Travel Speed [ft/min. [m/min.]]</th>
<th>Voltage/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSHXXYZ250S-2401</td>
<td>250 lbs. [113 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>197 ft/min. [60 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXXYZ350S-2401</td>
<td>350 lbs. [159 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>241 ft/min. [74 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXXYZ500S-2401</td>
<td>500 lbs. [227 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>98 ft/min. [30 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXXYZ750S-2401</td>
<td>750 lbs. [340 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>123 ft/min. [38 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
<tr>
<td>KSHXXYZ1000S-2401</td>
<td>1,000 lbs. [454 kg]</td>
<td>4,000 lbs. [1,814 kg]</td>
<td>82 ft/min. [25 m/min]</td>
<td>174 ft/min. [53 m/min]</td>
<td>240 / 1 Phase</td>
</tr>
</tbody>
</table>

*NOTE:* 20-30 ft. bridges require the XXYZ configuration.
**Servo Accessories**

Knight Global Servo Hoist Accessories contain a wide variety of accessories that include: Trolleys for Rail Systems, Air Balancer Pulleys, Hooks and Safety Cable Kits.

<table>
<thead>
<tr>
<th>KDSA1010 Servo Hoist Chain Replacement Kit</th>
<th>KDSA1011 Servo Hoist Chain Replacement Kit</th>
<th>EBD1547 Servo Hoist Roller Chain</th>
<th>KSAD1022 Swivel Hook with Eye</th>
<th>KSAA1001 &amp; KSAA1002 Quick Connect/Disconnect</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
<td><img src="image5" alt="Image" /></td>
</tr>
<tr>
<td>• Knight’s unique 4mm chain.</td>
<td>• Knight’s unique 5mm chain.</td>
<td>• Standard Series Double Strand ANSI 50-2 Rolle Chain.</td>
<td>• Max. Capacity: Up to 3,200 lbs. [1,451kg].</td>
<td>• Max. Load Capacity: Up to 2,000 lbs. [907kg].</td>
</tr>
<tr>
<td>• Servo Hoist Model: KSH250S &amp; 500S Series.</td>
<td>• Chain Length: 18 ft. [549 cm].</td>
<td>• Avg. Tensile Strength: 12,200 lbs [5,534kg].</td>
<td>• Positive Lock Latch is Self-Locking when hook is loaded.</td>
<td>• KSAA1001- 16mm to 7/8 in. adapter.</td>
</tr>
<tr>
<td>• Maximum Working Load: 500 lbs. [227 kg].</td>
<td>• Maximum Working Load: 2,000 lbs. [907kg].</td>
<td>• Maximum Working Load: 2,000 lbs [907kg].</td>
<td></td>
<td>• KSAA1002- 20mm to 1.25 in. adapter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KSAA1004 Shackle</th>
<th>KSAA1007 Swivel Hook Shackle</th>
<th>EBA1020 Load Trolley</th>
<th>EBA1173 Load Trolley</th>
<th>EBA1030 Load Trolley</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6" alt="Image" /></td>
<td><img src="image7" alt="Image" /></td>
<td><img src="image8" alt="Image" /></td>
<td><img src="image9" alt="Image" /></td>
<td><img src="image10" alt="Image" /></td>
</tr>
<tr>
<td>• Secures fixtures or loads in-line with chain.</td>
<td>• Max. Capacity: Up to 1,000 lbs [454kg].</td>
<td>• Transfers Loads along the horizontal axis and suspends Servo Hoists from RAD4110 rail.</td>
<td>• Transfers Loads along the horizontal axis and suspends Servo Hoists from RAD6110 rail.</td>
<td>• Transfers Loads along the horizontal axis and suspend Servo Hoists from RAD7510 rail.</td>
</tr>
<tr>
<td>• Maximum Capacity: Up to 1,000 lbs [453kg].</td>
<td>• Larger Connection Opening.</td>
<td>• Max. Capacity: Up to 900 lbs. [408kg].</td>
<td>• Max. Capacity: Up to 1,600 lbs. [725kg].</td>
<td>• Max. Capacity: Up to 2,500 lbs. [1,134kg].</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EBA1293 RAD7510 Servo Load Trolley w/ Brake</th>
<th>KSA1001 KSHS Series Servo Hoist Rail Brake</th>
<th>KCA1040 Series Electrical Coiled Cable</th>
<th>KCA1041 Series Electrical Straight Cable</th>
<th>4-Pin Micro Switch Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image11" alt="Image" /></td>
<td><img src="image12" alt="Image" /></td>
<td><img src="image13" alt="Image" /></td>
<td><img src="image14" alt="Image" /></td>
<td><img src="image15" alt="Image" /></td>
</tr>
<tr>
<td>• Typically used when an operator needs to lock or park a servo hoist on a bridge or runway.</td>
<td>• Pneumatic Brake.</td>
<td>• Connects a Servo Hoist to a load monitoring module by wrapping itself around the Servo Chain.</td>
<td>• Connects a separate control handle pendant to Servo Hoists.</td>
<td>• 4-Pin Micro DC Single Key.</td>
</tr>
<tr>
<td>• Max. Capacity: Up to 3,000 lbs. [1,360kg].</td>
<td>• Attaches to the servo hoist’s load trolley.</td>
<td>• 90 Degree Male to Female Connectors.</td>
<td>• Available with Straight or Right Angle Connector Ends.</td>
<td></td>
</tr>
</tbody>
</table>
### Servo Accessories (Cont.)

<table>
<thead>
<tr>
<th>8-Pin Micro Switch Cable</th>
<th>KCA1001 Electrical Disconnect Enclosure Stand</th>
<th>KCA1018 3KVA Electrical Disconnect Enclosure</th>
<th>KCA1055 5KVA Electrical Disconnect Enclosure</th>
<th>KCA1056 Dual 5KVA Elec. Disconnect Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="8-Pin Micro DC Single Key" /></td>
<td>• Mounts enclosures at an ergonomically correct height. • Provides mounting surface for enclosures in open workstation environments.</td>
<td>• Used with: KSH250S, 350S, 500S, 750S and 1000S Servo Hoists. • Step down from 480VAC to 240VAC Flange disconnect.</td>
<td>• Used with: KSHXY, KSHXZ, KSHTC and KSHXYZ Servo Tractors and Hoists. • Step down from 480VAC to 240VAC Flange disconnect.</td>
<td>• Used with: KSHXY, KSHXZ, KSHTC and KSHXYZ Servo Tractors and Hoists. • Step down from 480VAC to 240VAC Flange disconnect. • Provides disconnection point for two Knight Global systems.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EBA1289 7.5 KVA Electrical Disconnect Enclosure</th>
<th>KSAA1008 Precision Roller Chain Wear Gauge</th>
<th>ETA1045 Gear Rack Installation Clamp</th>
<th>KSA1003 Precision Chain Wear Gauge</th>
<th>KDSA1010 / KDSA1011 SDS Servo Chain Replacement Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="EBA1289 7.5 KVA Electrical Disconnect Enclosure" /></td>
<td>• Used with: KSHXXYZ and KSHXYZ Servo Tractor Systems. • (2) Flange disconnect</td>
<td>• Assists in the installation of the linear gear rack by holding the rack in position, tight to the rail. • Can be used as a gauge, to splice two pieces of rack together.</td>
<td>• Used to measure the wear on Servo Hoists and Pneumatic Air Balancers 4mm/5mm galvanized chain.</td>
<td>• Developed in conjunction with Pewag to ensure optimal strength and wear. • Ideal for high-wear applications and high dynamic chain loads. • 4mm or 5mm chain.</td>
</tr>
</tbody>
</table>

---

*8-Pin Micro DC Single Key. Available with Straight or Right Angle Connector Ends.*
## Servo Controls

<table>
<thead>
<tr>
<th>KCA1030 Two-Speed Control Handle</th>
<th>EPDTA9600 Two-Speed Control Handle w/ Trigger</th>
<th>KCA1033 Two-Speed Control Handle w/ Operator Control Int.</th>
<th>KLCA1000 Inline Control Handle w/ Trigger</th>
<th>KCA1071 Load Cell Fixture Handle</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td>• May be mounted remotely from the end effector.</td>
<td>• Various Mounting Options.</td>
<td>• Allows for 2-Speed Operation.</td>
<td>• (LMM) Load Monitoring Module.</td>
<td>• Attaches directly to fixture.</td>
</tr>
<tr>
<td>• Custom lever markings, specified when ordering.</td>
<td>• UL Listed, CE Approved.</td>
<td>• Operator Control Interface</td>
<td>• Illuminated Blue Float and Green Lift Push Buttons.</td>
<td>• Load Responsive Handling.</td>
</tr>
<tr>
<td>• Different Call-out Languages Available.</td>
<td>• Optional Color-Coded Thumb Levers.</td>
<td>• Safety Run-Stop Button.</td>
<td>• Illuminated Red Run-Stop Button.</td>
<td>• Handle Force Response: Less than 1.5 lbs. [0.68kg].</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KCA1002 Load Monitoring Module w/ O.C.I.</th>
<th>KCA1004 Load Monitoring Module w/ Pass Through</th>
<th>KCA1004 / KCA1005 / KCA1006 Wireless Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td>• Used in conjunction with the Dual Speed Remote Pendant or Fixture Handle.</td>
<td>• Used in conjunction with the Dual Speed Remote Pendant, Fixture Handle or remote OCI module.</td>
<td>• Wireless Signal: Up to 900 ft. [300m].</td>
</tr>
<tr>
<td>• (1) 6-Pin M12 Receptacle for Fixture Handle.</td>
<td>• (2) 4-Pin receptacles for inputs.</td>
<td>• Ultra-Durable Nylon and Fiberglass Composite Enclosures.</td>
</tr>
<tr>
<td>• Ethernet Programming Port.</td>
<td>• Ethernet Programming Port.</td>
<td>• Available in (4) button, (6) button, or (8) button configurations.</td>
</tr>
</tbody>
</table>