OUR PHILOSOPHY:
SAFER, LIGHTER, MORE EFFICIENT

Harken Industrial's sailing heritage is key to our load handling and rope access innovations. Other manufacturers typically increase load-bearing capacity and safety by adding more and heavier materials. Redundancy increases this weight even more. Workers take risks and expend energy just to move, deploy, and operate oversized equipment.

This strategy is impossible in sailing. Faster speeds and larger sails have exponentially increased the loads on modern yachts, but users still demand products that are safe, lightweight, resistant to UV light and corrosive conditions, and easy to use. Friction reduction is critical when small teams need to move huge loads. Wire rope has almost disappeared from the modern yacht, now replaced with fiber ropes that are 15 times stronger than steel wire by weight.

Harken Industrial's kindred approach of taking the weight, friction, and effort out of operations means equipment is more mobile, workers are safer and more agile, and companies can complete jobs with smaller teams. Fiber rope is far easier to carry and far easier to handle for both humans and equipment. Lighter and more efficient equipment reduces strain on anchor points and improves alignment with loads. These advantages translate into huge safety increases and major benefits to the bottom line for industrial riggers, utility companies, and teams that work at height.

The ease of handling and elegant simplicity also lend an incredible amount of flexibility to our products. Harken Industrial has designed pulleys for hauling aircraft, and a winch system for handling heavy loads at height to eliminate the need for a crane. Even our gas-powered Harken PowerSeat® ascender is light enough to carry for rescue applications, yet robust enough to handle everyday utility maintenance with ease. We are always up for a challenge, looking for ways to improve working conditions, and pushing ourselves as hard as we push our products.

A LASTING PARTNERSHIP

At Harken Industrial we build more than products, we build relationships. When you partner with us you gain access to world-renowned service, two state-of-the-art manufacturing facilities in the US and Italy, in-house testing facilities for loads up to 100 tons, and professionals with decades of experience designing products that stand up to the harshest conditions. Our team offers sales and support from 11 offices around the world and is backed by a wide distributor network. At Harken Industrial, we value our next project with you as much as our first, so we dedicate ourselves to making sure you are satisfied with both the process and the end product.

Contact us today to create a solution together.
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Carbo Air pulleys feature lightweight, fiber-reinforced, nylon-resin sideplates with a 60% higher MWL than stainless-reinforced Classic pulleys. Lightweight fiber-reinforced Carbo-Cams are ideal for applications where weight is critical. The Carbo name comes from an additive that gives pulleys their color and UV-resistance.

**Carbon Black**

Carbon black is a color additive used in black Delrin ball bearings, block sheaves, and sideplates to protect against UV exposure.

Delrin is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates. Torlon is a registered trademark of Solvay Advanced Polymers, L.C.C.
**CLEAR-ANODIZED**
Clear aluminum anodizing is an electrochemical process that produces a corrosion-resistant finish. It also hardens the surface, making components less prone to scratches and dents. It is “clear” because the protective layer isn’t thick enough to change the color of the component (though dye can be added). More rigorous anodizing, such as hardcoat, can give components a black or colored hue.

**DELDRIN® ACETAL RESIN**
Black material which excels in low to moderate-load applications. Delrin® acetal resin is used for bearings, sheaves, and sideplates in smaller pulleys.

**HARDCOAT-ANODIZED**
Hardcoat aluminum anodizing is an electrochemical process that produces a corrosion-resistant finish with hardness characteristics second only to diamonds. Harken Industrial’s hardcoating process is twice as thick as black anodizing to provide extra protection against scratches, dents, superficial deformation, and corrosion.

**HARD LUBE-ANODIZED**
Hard Lube-anodized aluminum includes all the corrosion-resistant properties of hardcoat-anodized aluminum with the additional benefits of a PTFE coating for a smoother surface and reduced friction.

**NYLATRON® NYLON**
Durable, lightweight composite material that has high mechanical strength and stiffness, resists static electricity, and has excellent wear resistance.

**PTFE-COATED**
PTFE-coating, along with anodizing, protects aluminum against corrosion by sealing the surface from moisture. It also minimizes friction and gives the component better wear resistance.

**STAINLESS STEEL**
17-4 PH Stainless Steel: this alloy is used in gears because it is hardenable to extremely high strengths. 17-4 PH is more corrosion-resistant than any other standard hardenable stainless steel.
316 Stainless Steel: this is a nonhardenable alloy with high corrosion resistance in freshwater and saltwater.

---

**TORLON® THERMOPLASTIC**
Exceptionally strong crush/impact-resistant bearing material that withstands heavy long-term use and shock loading. Most Harken Industrial hardware that sees extreme loads uses greenish-brown Torlon® bearings.

**UV-STABILIZED**
UV light photo-degrades composites by breaking their chemical bonds, leaving them weak, brittle, and discolored. This is common in equipment with white bearings. All Harken Industrial composites and bearings are naturally UV-resistant or use stabilizers like carbon black.

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Nylatron is a registered trademark of Quadrant EPP USA Inc.
Torlon is a registered trademark of Solvay Advanced Polymers, L.C.C.

---

**6061-T6 Aluminum Anodizing Thickness**

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<th>Thickness range in inches</th>
<th>Clear</th>
<th>Black</th>
<th>Harken hardcoat</th>
<th>Hard-Lube</th>
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<tr>
<td>0.015</td>
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</tr>
</tbody>
</table>

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WWW.HARKENINDUSTRIAL.COM
WORKING WITH HARKEN INDUSTRIAL...
puts over 80,000 square meters of manufacturing capacity and a commitment to our own product testing to work for you. Harken Industrial products are designed to perform and reduce your risk while on the job.

TESTING
Harken Industrial prides itself on delivering products that offer unprecedented performance with appropriate safety margins. Prior to delivery, these products must be tested to meet regulatory standards set by product type.

Harken Industrial has built comprehensive in-house testing capabilities into both our major manufacturing facilities—one in Pewaukee, Wisconsin, USA and one in Milan, Italy. Using industry-standard software, we perform relevant product cycling tests for durability. We routinely load-capacity test our industrial pulleys. We execute fall-arrest and fall-restraint testing on our human suspension working-at-height products to meet applicable EN regulations today and ANSI in the future.

Our testing capabilities evolve as new products are developed. In response to the design of a new captive fiber rope winch with a 686 kN working load, we built a 20-meter, 25,000 kg test bench to test that winch, and winches we anticipate will have capacities up to 100 tons.

MANUFACTURING
Our manufacturing facilities in USA and Italy total approximately 80,000 sq. m (250,000 sq. ft.) and produce a substantial majority of all the products we sell. Here you’ll find industrial-scale metal stamping, lathing, milling, cutting, and injection-molding machinery. We have advanced composite and carbon-fiber capabilities, welding expertise in stainless steel, aluminum, and titanium, and have invested in scalable hydraulics production. In addition, our U.S. industrial fabric cutting and sewing team creates seating for our human-suspension products, and cuts prepreg carbon fiber for some high-performance pulleys. Our product assembly, packaging, and shipping functions are only steps from production for increased speed and inventory efficiency. Our U.S. Headquarters are ISO 9001:2015 Certified.
## OUR GLOBAL NETWORK…
provides service and support before and after each sale. We also provide training and consulting in application, safety and equipment usage to help ensure jobs are done safely and efficiently.

## TRAINING
Harken Industrial™ ensures its products are correctly specified and safely installed by an international network of trained distributors. This team is regularly updated on new product capabilities, capacities and safety requirements. They are also involved in solving installation challenges and maintenance issues.

Elevated Safety (elevatedsafety.com), a Harken Industrial company, provides training and consulting services in industrial rope access and rescue. Those services include training in working at height, confined space access and rescue, fire rescue and SPRAT certification. In addition to Elevated Safety, Harken Industrial has a growing network of official training partners around the world including Safety Work Services (safetyworkservices.com) in Peschiera Borromeo, Italy.

### TRAINING & SUPPORT
The result is an experienced and informed team of product and training experts prepared to transfer knowledge and skills to our customers.

### SERVICE & SUPPORT
The professionals on the Harken Industrial Customer Service and Technical Support teams pride themselves on their high levels of preparedness and experience. It takes almost a full year before a Technical Support Specialist is allowed to take the lead on a customer’s request unsupervised.

Beyond the human component in our support structure, you’ll find a rich assortment of product manuals/drawing files, and application templates on our website, harkenindustrial.com.

### Product Certifications

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>CERTIFICATION</th>
<th>CONFIGURATION</th>
<th>APPLICATION</th>
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<tbody>
<tr>
<td>Pulleys</td>
<td>CE EN795.2012 Type B certified (trolleys) and Type D compliant (rails)</td>
<td>Manual</td>
<td>Lifting objects</td>
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<td>CEN/TS16415:2013 compliant</td>
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<td>Fall arrest/Fall restraint</td>
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<td>UNI11578:2015 certified</td>
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<td>Human suspension</td>
</tr>
<tr>
<td>Access Rail</td>
<td>CE EN 795:2012 Type B certified (trolleys) and Type D compliant (rails)</td>
<td>Manual</td>
<td>Fall arrest/Fall restraint</td>
</tr>
<tr>
<td></td>
<td>CEN/TS16415:2013 compliant</td>
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<td>Human suspension</td>
</tr>
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<td>UNI11578:2015 certified</td>
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<tr>
<td>R27LS</td>
<td>EN795.2012 Type D compliant</td>
<td>Manual</td>
<td>Fall arrest/Fall restraint</td>
</tr>
<tr>
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<td>ANSI Z359</td>
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<td>Human suspension</td>
</tr>
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<td>OSHA compliant</td>
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<td>TR31</td>
<td>EN795.2012 Type D compliant</td>
<td>Manual</td>
<td>Fall arrest/Fall restraint</td>
</tr>
<tr>
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<td>ANSI Z359</td>
<td></td>
<td>Human suspension</td>
</tr>
<tr>
<td>LokHead Winch Kit</td>
<td>CE EN 13157:2009 certified</td>
<td>Manual</td>
<td>Lifting persons + Lifting objects</td>
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<td></td>
<td>CE EN 1496:2007 class B certified</td>
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<tr>
<td>Riggers Winch 200</td>
<td>CE EN 13157:2009 certified</td>
<td>Manual</td>
<td>Lifting objects</td>
</tr>
<tr>
<td>Riggers Winch 500</td>
<td>CE EN 13157:2009 certified</td>
<td>Manual</td>
<td>Lifting objects</td>
</tr>
<tr>
<td></td>
<td>Lifting persons*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Padeyes</td>
<td></td>
<td>Fall arrest/Fall restraint</td>
</tr>
<tr>
<td></td>
<td>CE EN 795.2012 Type A compliant</td>
<td>Manual</td>
<td>Human suspension</td>
</tr>
<tr>
<td></td>
<td>ANSI Z359.1</td>
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<td></td>
</tr>
</tbody>
</table>

*DIRECTIVE 2009/104/EC:*

“Persons may be lifted only by means of work equipment and accessories provided for that purpose. Without prejudice to Article 5 of Directive 89/391/EEC, exceptionally, work equipment which is not specifically designed for the purpose of lifting persons may be used for that purpose, provided appropriate action has been taken to ensure safety in accordance with national legislation and /or practice providing for appropriate supervision.”

(e.g. Loler where applies in UK)
Harken Industrial pulleys facilitate low-friction pulling power for any fiber-rope application. Designed to be as lightweight and small as possible for the load capacity, they are easy to transport and install. A variety of configurations and sizes are available.
FIRST ASCENT MT. EVEREST EAST FACE —
HARKEN PULLEYS GO ALONG

Never seen by Westerners until 1921, the Kangshung face of Mt. Everest is revered as one of the most dangerous and remote routes to climb. Six decades later, Harken pulleys assisted in the first successful ascent of Mt. Everest’s east face. The face itself features threats of avalanche, difficult terrain, and a crevice 450 m (1,500’) wide, backing up to a ledge 365 m (1,200’) tall.

To get supplies and other equipment needed for the expedition across the crevice and up the ledge, the climbing team created a winching system in which Harken pulleys served as the dynamic mechanism that facilitated movement of the gear up and across the face. At both the bottom and the top of the system, a tripod equipped with a Harken Industrial pulley was anchored in place, with connecting high and hauling lines between the two tripods. The high and hauling lines were both continuous, with lengths of 900 and 1,700 m (3,000 and 5,500’), respectively. To transport the equipment, gear was placed into 100 nylon bags (weighing 23 kg (50 lb) each), and suspended from a custom-made Harken industrial trolley. This allowed the team to transport items across the high line at a rate of 2.5 m/s (8 ft/s).

On October 8, 1983, the team made the 8,848 m (29,028’) ascent to the top of the world — a feat never before accomplished from the eastern face. Harken pulleys made what was widely considered to be impossible, possible.

Today, Harken pulleys continue to make fast, efficient work of seemingly impossible tasks.
HARKEN INDUSTRIAL HAS A SOLUTION FOR ANY PULLING PROBLEM

Harken Industrial™ pulleys provide low-friction pulling power for any fiber-rope application. Designed to be as lightweight and small as possible for the load capacity, they are easy to transport and install. Sheave diameters range from 57 – 150 mm with options of single and double sheaves featuring ratchets, swivels, and becket. All Harken Industrial pulleys are certified to EN13157 Machinery Directive for lifting goods and equipment. If you don’t find a pulley that meets your needs here, contact us about our full range.

CARBO® AIR® PULLEYS
These high-strength, lightweight pulleys are made of tough, reinforced composite. Free-running ball bearings run on curved races, efficiently dispersing load for a higher strength-for-size than flat races carry.

CLASSIC MIDRANGE PULLEYS
These robust pulleys are ideal for handling high loads. Free-running Delrin® ball bearings roll on flat races to allow fast haul and release under high or low loads.

Hexaratchet® versions grip loaded ropes, relieving holding loads, while maintaining quick ease and haul with complete control. A switch on the side engages and disengages the ratchet mechanism.

ESP PULLEYS
Sheaves feature sleeve bearings to handle high static loads. Ball bearings handle sideloads. Aluminum sideplates make ESP pulleys strong and durable.

BLACK MAGIC® AIR® PULLEYS
With high strength-to-weight ratios and free-rolling, high-load roller bearings, Black Magic Air pulleys handle high dynamic and static loads where friction is an issue.

CLEARLY LABELED
Blocks are engraved with part number, serial number, CE, EN test number, and max rated load (MRL).

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Rated loads are 4:1 coefficient ratio of the type test load.

WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
Harken offers a wide range of EN13157-certified pulleys for hand-operated lifting equipment.

**FAQs**

**Q: THERE IS A WIDE RANGE OF HARKEN PULLEYS, WHAT IF THE ONE I NEED ISN'T CERTIFIED?**

A: Harken Industrial can CE certify additional pulleys in response to demand. If you need a pulley that is not listed, please contact info@harkenindustrial.com.

**Q: CAN THESE PULLEYS BE USED WITH WIRE ROPE?**

A: This depends on the sheave material. Pulleys with aluminum sheaves can be used with wire rope, but the pulley's working life will be reduced due to increased wear on the sheave. Our range of wire pulleys and Black Magic® pulleys, 75 mm or larger, have aluminum sheaves.

**Q: ARE HARKEN INDUSTRIAL CE PULLEYS PROPERLY MARKED WITH CRITICAL WORKING INFORMATION?**

A: Yes. Each pulley is marked specifying block type, maximum rope diameter, working load limit, breaking load, serial number, and the manufacturer’s mark clearly visible.

**Q: WHAT DOES MAX RATED LOAD MEAN?**

A: This is the maximum load for which the equipment is designed by the manufacturer as defined by the certification standard.

**APPLICATIONS & MAINTENANCE**

**SIMPLE TO USE AND IDEAL FOR DIVERSE APPLICATIONS**

Harken pulleys can be used in rope-handling applications across many industries:

- Load towing/Securing
- Theatrical
- Cable laying
- Stunt work

**MAINTENANCE IS EASY**

The simple construction requires no lubrication. Simply flush with fresh water to keep bearings free rolling.

**RANGE**

All Harken Industrial pulleys listed below are CE certified.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Sheave Ø</th>
<th>Length</th>
<th>Weight</th>
<th>Shackle pin Ø</th>
<th>Max fiber rope Ø</th>
<th>Max rated load</th>
<th>Use with</th>
</tr>
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<tbody>
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<td></td>
<td><strong>Carbo</strong></td>
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<tr>
<td>IN2660</td>
<td>Single Carbo swivel</td>
<td>2 15/16</td>
<td>75</td>
<td>5 3/8</td>
<td>137</td>
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<td>195</td>
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<td>Single Carbo swivel w/becket</td>
<td>2 15/16</td>
<td>75</td>
<td>6 1/2</td>
<td>165</td>
<td>0.47</td>
<td>214</td>
<td>1/4</td>
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<tr>
<td>IN2662</td>
<td>Double Carbo swivel</td>
<td>2 15/16</td>
<td>75</td>
<td>6</td>
<td>152</td>
<td>0.88</td>
<td>402</td>
<td>5/16</td>
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<tr>
<td></td>
<td><strong>Classic Midrange</strong></td>
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<tr>
<td>IN1540</td>
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<td>76</td>
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<td></td>
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<td>Single ESP swivel</td>
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<td>57</td>
<td>5 1/2</td>
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<td>57</td>
<td>3 11/16</td>
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<td>IN3226</td>
<td>Single Black Magic swivel</td>
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<td>57</td>
<td>4 11/16</td>
<td>119</td>
<td>0.34</td>
<td>154</td>
<td>1/4</td>
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<td>Single Black Magic swivel</td>
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<td>57</td>
<td>4 11/16</td>
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<td>152</td>
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<tr>
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<td>Single Black Magic loop**</td>
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<td>76</td>
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<td>335</td>
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<tr>
<td>IN3255</td>
<td>Single Black Magic loop**</td>
<td>4 15/16</td>
<td>125</td>
<td>6</td>
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<td>3/4</td>
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<td>Single Black Magic swivel</td>
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<td>12</td>
<td>305</td>
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<td>1840</td>
<td>5/8</td>
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</tbody>
</table>

*Max wire rope Ø is dependent on wire construction and application. Please contact Harken Industrial for information.  **Loop not included.
LIGHTWEIGHT, COMPACT, LOW-FRICTION, CERTIFIED

Harken Industrial purchase systems increase operation strength, facilitating low-friction pulling power in a wide variety of pulling/lifting operations. Systems can be used on their own, or easily combined with an existing system for tensioning, deviation, or casualty transfer. Purchase systems come fully rigged with tamper-evident termination.

Contact Harken Industrial in the UK for purchase system sales/information.

LOW-FRICTION SHEAVE
Delrin® ball bearings provide low-friction, easy rope release under load. Ball bearings are UV-stabilized for maximum protection.

BALL BEARING CAM CLEATS
Harken Industrial ball bearing cam cleats hold rope securely and release easily under load. Multiple rows of ball bearings reduce friction. The cam’s V-shape guides rope for easy entry.

TAMPER EVIDENT
Purchase systems are supplied prereeved and fully assembled. The securing knot is sealed to prevent irreparable damage to the system.

PRE-STRETCHED POLYESTER ROPE
The purchase systems use polyester based rope in various sizes. The polyester braided covers are UV and abrasion resistant.

SAFETY COMPLIANCE
Harken Industrial purchase systems are serial numbered for full traceability. The 443.DRPS is supplied with an individual proof test certificate.

CE CERTIFICATION
CE certified under EN13157 (Machinery Directive).

Delrin is a registered trademark of E.I. du Pont de Nemours and Company or its affiliates.
FAQs

Q: WHY ARE HARKEN INDUSTRIAL™ PURCHASE SYSTEMS UNIQUE?
A: Harken Industrial purchase systems are CE certified under EN13157 (Machinery Directive).

Q: ARE THEY SUITABLE FOR HUMAN SUSPENSION?
A: IN105 and IN2624 purchase systems are intended for non-live loads but can be used to help transfer live loads in rescue situations. The 443.DRPS Diver Recovery and the 443.2141 MOB purchase systems can be used for human suspension when a safety factor of 10 is applied and used in conjunction with fall protection, in accordance with local standards and regulations.

Q: CAN I REPLACE THE ROPE OR PARTS WITHIN THE SYSTEM?
A: Any modifications made to Harken Industrial purchase systems will result in the loss of certification. Changes should not be made. This includes re-reeving the rope.

Q: WHAT IS THE PURCHASE SYSTEMS’ RANGE OF TRAVEL?
A: Purchase systems are available in different sizes from 1.2m and up, please contact Harken Industrial in the UK for a full list of size options.

Q: WHAT PURCHASES ARE OFFERED?
A: Harken Industrial offers purchase systems with 4:1 or 6:1 mechanical advantage. They are both CE certified under EN13157. Different configurations are available. Please contact Harken Industrial in the UK for more information.

Q: DOES THE SYSTEM COME WITH ATTACHMENTS OR ACCESSORIES?
A: All listed purchase systems are supplied with shackle connectors, accessories can be offered for some solutions, please contact Harken Industrial in the UK for more details.

Contact Harken Industrial in the UK for purchase system sales/information.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Max rated load for goods/equipment (BL/4)</th>
<th>SWL for human suspension (BL/10)</th>
<th>Individual proof-tested lb</th>
<th>kg</th>
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<tbody>
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<td>IN2624</td>
<td>CE 4:1 purchase system</td>
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<td>2 2 kN</td>
<td>660</td>
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<td>443.DRPS.2M</td>
<td>CE 6:1 diver recovery purchase system - 2 m throw*</td>
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<td>4.25 375 kN</td>
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<td>443.2141.10M</td>
<td>CE 6:1 MOB purchase system - 10 m throw*</td>
<td>32.8 10 900 lb</td>
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*Custom lengths available from 1 to 50 m. Rope color may vary.

Maximum rated load is calculated from a 4x safety factor from break load for load lifting and pulling applications; marked in accordance with the Machinery Directive and EN13157-2004+A1:2009 Standard.

WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
Harken Industrial Oceanic Cable blocks are used on research vessels to safely lead data cables and towed objects overboard. At only 19.3 kg (42.5 lb), the 500 mm (20”) sheave-diameter block is light enough to align to the load, optimizing cable tracking.

**DURABILITY**
Sideplates are constructed of hardcoat-anodized 6061-T6 aluminum for strength, durability, and corrosion resistance. They are PTFE-coated for a smooth surface.

**LARGE DIAMETER SHEAVE**
The block’s open center helps move the center of gravity toward the shackle, improving the block’s ability to align with the load. The sheave’s groove detailing can be designed to suit specific data cable diameters.

**DESIGN**
The block’s wide throat allows passage of data cable terminals. The sheave’s durable, lightweight Nylatron® material has high mechanical stiffness, resists static electricity, and has excellent wear resistance. Helicoils add strength while plastic isolators are used to minimize corrosion between aluminum and stainless steel.

**BEARINGS**
Delrin® roller bearings are housed in a center cage to keep them parallel for low-friction efficiency. The large-diameter bearing cage reduces friction and spreads the load. Captive Torlon® ball bearings handle sideloads.
The block is designed to work with an optional magnetic Hall Effect Sensor.

FAQs

Q: IS THE OCEANIC CABLE BLOCK COMPLIANT WITH ANY INDUSTRY BODIES?

Q: DOES HARKEN INDUSTRIAL PROVIDE A MAXIMUM CAPABILITY DOCUMENT?
A: Yes. Please contact Harken Industrial.

Q: WHAT LINEAR SPEED CAN IT HANDLE?
A: 60 m/min (196 ft/min).

Q: WHAT IS THE LIFESPAN OF THE BLOCK?
A: Harken Industrial recently serviced some 10-year-old blocks. Regularly flushing the blocks with fresh water will help extend their life before service is required.

Q: DO YOU OFFER ALTERNATIVE SHEAVE DIAMETERS?
A: Yes. The sheave groove detailing can be designed to suit specific cable diameters. Please email your requirements for a quote.

OCEANOGRAPHIC RESEARCH

The Oceanic Cable block is used by Woods Hole Oceanographic Institute, University of Rhode Island (USA), and University of Alaska – Fairbanks oceanographic research departments, as well as many other research organizations.

APPLICATIONS & MAINTENANCE

MAINTENANCE IS EASY

Flushing the block with fresh water after use will keep the dry-running bearings free rolling. If further maintenance is required, one hex wrench is all you need for disassembly. All the bearings are captive, so no need to worry about losing parts.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Sheave Ø</th>
<th>Cheek gap Ø</th>
<th>Cable Ø</th>
<th>Weight (lb)</th>
<th>Weight (kg)</th>
<th>Root Ø</th>
<th>Max rated load (lb)</th>
<th>Max rated load (kN)</th>
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</table>

Compliant with UNOLS Research Vessel Safety Standards, Appendix B  * Freeze tolerant version

WARNINGS AND INSTRUCTIONS. The user must follow the manufacturer’s instructions for each component of the system. These instructions must be provided to the user of this equipment. The user must read and understand these instructions before using this equipment. Manufacturer’s instructions must be followed for proper use and maintenance of this equipment. Alterations or misuse of this equipment, or failure to follow these instructions, can result in serious injury or death.

WWW.HARKENINDUSTRIAL.COM

PULLEYS
Harken trolley-and-rail systems provide a smooth, simple, and low-maintenance way to move loads along a fixed path. Trolleys have recirculating ball bearings for the ultimate in low-friction travel.
Harken Industrial’s Access Rail systems are used for “work at height” on buildings and infrastructures around the world. Recently, one kilometer of Long Span Rail was installed in a European Olympic stadium for use in maintaining the LED lighting system, a key architectural element of the facility. The Long Span Rail system allows maintenance workers to quickly and efficiently service the light fixtures by providing freedom of horizontal movement, while suspended, around the entire stadium without the need to disconnect from the mobile anchorage. Easy access to the lights, via the rail system, makes this solution cost effective and assures owners and spectators alike will never miss the action on the field.
LOW-FRICTION LINEAR MOVEMENT

Harken Industrial trolley and rail systems provide a simple low-maintenance way to move loads smoothly. Trolleys feature recirculating ball bearings housed in strong, lightweight, corrosion-resistant aluminum for dependable, low-friction linear travel.

LOW-FRICTION, SMOOTH ROLLING

Harken Industrial rails and trolleys provide a low-friction rolling solution under both compression and tension loads.

Torlon® or Delrin® ball bearings reduce friction to move loads easily, and require no lubrication. Stainless wire guides keep ball bearings captive, allowing trolleys to be easily removed for maintenance.

Harken Industrial trolleys are designed with an open-ball race for easy maintenance. The rail can be bent to various radii, allowing the trolley to run freely.

CURVED RAIL

Rails can be bent to suit various applications. Minor bends can be made when the rail is installed. If the rail requires greater bend, Harken Industrial can provide horizontal, vertical, or compound curves to specification. Contact Harken Industrial for more details.

MULTIPLE MOUNTING OPTIONS

These include shackle connectors and threaded holes for direct mounting.

Torlon is a registered trademark of Solvay Advanced Polymers. Delrin is a registered trademark of E.I. du Pont de Nemours and Company or its affiliates.
TROLEYS

Harken Industrial trolleys are available in a variety of sizes and configurations. Use for adjustable seat rail systems, window-washing apparatus, hoisting and moving stage equipment, and material handling. Trolleys come with shackles, toggles, or tapped holes for connecting rope or pulleys. Pinstops available on some models.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
<th>Max rated load</th>
<th>Breaking load</th>
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<td>mm</td>
<td>in</td>
<td>mm</td>
<td>oz</td>
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</table>

Clear-anodized trolleys available by special order. Add: `.CLEAR` to end of part number.

Maximum working loads are 4.1 coefficient ratio of the breaking load. Human suspension applications require 10:1 ratio.

WARNINGS AND INSTRUCTIONS: You must carefully read, understand, and follow the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. For applications where trolleys are in compression please consult with a Harken Industrial Representative. Never, under any circumstances, exceed the working load limit.
RAILS

The rail is a simple, strong, low-maintenance system on which the load travels. Select size and length of rail (sizes listed by width measurement of top of rail in millimeters). Choose low-beam rail if it will be supported for the entire length. Choose high-beam rail for spanning unsupported spaces. See Harken Industrial website for high-beam span limits.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Mounting hole spacing Width</th>
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<td>High-beam metric rail</td>
<td>6' 7&quot;</td>
<td>22 mm</td>
<td>2 15/16</td>
<td>#10 FH, 5 FH</td>
</tr>
<tr>
<td>R22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2720.3M</td>
<td>Low-beam metric rail</td>
<td>9' 10 1/16&quot;</td>
<td>13 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>2725.6M</td>
<td>High-beam metric rail</td>
<td>11' 9 3/4&quot;</td>
<td>22 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>373.6</td>
<td>Low-beam imperial rail</td>
<td>6' 1.83</td>
<td>22 mm</td>
<td>4 15/16</td>
<td>102</td>
</tr>
<tr>
<td>374.6</td>
<td>High-beam imperial rail</td>
<td>6' 1.83</td>
<td>22 mm</td>
<td>4 15/16</td>
<td>102</td>
</tr>
<tr>
<td>R27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R27.3M</td>
<td>Low-beam pinstop metric rail</td>
<td>9' 10 1/16&quot;</td>
<td>13 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>R27.6M</td>
<td>Low-beam pinstop metric rail</td>
<td>11' 9 3/4&quot;</td>
<td>22 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>R27.6M</td>
<td>Low-beam pinstop metric rail</td>
<td>19' 8 1/4&quot;</td>
<td>22 mm</td>
<td>6 15/16</td>
<td>100</td>
</tr>
<tr>
<td>R27HB.3.6M</td>
<td>High-beam variable hole spacing rail</td>
<td>11' 9 3/4&quot;</td>
<td>22 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>1602.8</td>
<td>Low-beam imperial rail</td>
<td>8' 2.44</td>
<td>22 mm</td>
<td>4 15/16</td>
<td>102</td>
</tr>
<tr>
<td>R32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R32.3M</td>
<td>Low-beam pinstop metric rail</td>
<td>9' 10 1/16&quot;</td>
<td>13 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>R32.6M</td>
<td>Low-beam pinstop metric rail</td>
<td>19' 8 1/4&quot;</td>
<td>22 mm</td>
<td>6 15/16</td>
<td>100</td>
</tr>
<tr>
<td>R32HB.3.6M</td>
<td>High-beam variable hole spacing rail*</td>
<td>11' 9 3/4&quot;</td>
<td>22 mm</td>
<td>3 15/16</td>
<td>100</td>
</tr>
<tr>
<td>3159.8</td>
<td>Low-beam imperial</td>
<td>8' 2.44</td>
<td>22 mm</td>
<td>4 15/16</td>
<td>102</td>
</tr>
</tbody>
</table>

*Contact Harken Industrial.
WARNINGS AND INSTRUCTIONS: You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum load.

WARNING: Be careful when using the trolley system.

APPLICATIONS

SIMPLE TO USE AND IDEAL FOR MOVING HEAVY LOADS

Harken Industrial trolley and rail systems can be used in a wide range of applications:

- Construction
- Renewable energy
- Facilities management
- Vessel maintenance
- Material handling
- Film production
- Architectural
- Utilities, oil & gas
- Exercise
- Transportation

FAQs

Q: CAN HARKEN INDUSTRIAL TROLLEY AND RAIL SYSTEMS BE FITTED RETROACTIVELY?
A: Yes. The simplicity of the systems means they can be easily installed at a later date.

Q: ARE HARKEN INDUSTRIAL TROLLEY AND RAIL SYSTEMS ABLE TO ACCOMMODATE A RADIUS?
A: Yes. Trolley and rail systems can accommodate a radius bend. Contact Harken Industrial for information.

Q: ARE HARKEN INDUSTRIAL RAIL AND TROLLEY SYSTEMS SUITABLE FOR HUMAN SUSPENSION?
A: Only the R27 and the R32 Access Rail systems are certified for human suspension. Please see page 22.

Q: WHAT OTHER BENEFITS ARE THERE TO HARKEN INDUSTRIAL TROLLEY AND RAIL SYSTEMS?
A: Harken Industrial strong, lightweight trolleys and rails are specifically designed to resist the corrosive effects of an outdoor environment. Stainless steel wire guides hold ball bearings captive when the trolley is removed from the rail. An open-ball race makes trolleys easy to clean with soap and water.
**DESIGN**
Lightweight trolleys are constructed of strong, one-piece solid aluminum. The adjustable pinstop allows trolleys to be moved along the rail and locked into a new location.

**DURABILITY**
Trolleys and rails are available in black hardcoat or clear-anodized finishes for maximum corrosion protection.

**LOW MAINTENANCE BALL BEARINGS**
Torlon® ball bearings handle high loads, reducing friction so the trolley moves smoothly along the rail. Retaining clips keep ball bearings captive when the trolleys are removed for maintenance.

**OPTIONS**
The Access Rail system can be mounted in 3 horizontal planes. A wheel toggle attachment can be used for discrete over-edge parapet and inclined surface installations.

**INDUSTRY REGULATIONS**
27 mm and 32 mm Access Rail systems can be used for human suspension. The rails are independently tested and are EN795.2012 Type D compliant, meet ANSI Z359, and are OSHA compliant. The trolleys are independently tested and CE certified under EN795.2012 Type B, meet ANSI Z359, and are OSHA compliant.

Torlon is a registered trademark of Solvay Advanced Polymers.
**FAQs**

**Q: IS THE HARKEN INDUSTRIAL ACCESS RAIL COVERED BY ANY INDUSTRY LEGISLATION?**

A: Yes. The rails are independently tested and are EN795.2012 Type D compliant, meet ANSI Z359, and are OSHA compliant. The trolleys are independently tested and CE certified under EN795.2012 Type B, meet ANSI Z359, and are OSHA compliant.

**Q: I ALREADY WORK WITH A RAIL SYSTEM. DO I NEED ADDITIONAL TRAINING TO WORK WITH THE HARKEN INDUSTRIAL ACCESS RAIL?**

A: Skills learned while working with other rail systems are transferable. However, a short training session to become familiar with the Harken Industrial system is required to ensure safe installation and working practice. Harken Industrial offers an approved installer training course; contact your local Harken Industrial office for more information.

**Q: CAN THE HARKEN INDUSTRIAL ACCESS RAIL BE FITTED RETROACTIVELY?**

A: Yes. The simplicity of the system means it can be installed on existing buildings.

**Q: WHAT BENEFITS DOES THE HARKEN INDUSTRIAL ACCESS RAIL SYSTEM OFFER ME OVER OTHERS?**

A: The construction and materials used in the Harken Industrial Access Rail have created a stronger system, with smoother linear motion and precise positioning capabilities. The Access Rail is made of anodized, one-piece aluminum components, ensuring corrosion resistance, low maintenance, and a long working life.

---

**ACCESS RAIL SYSTEMS BY APPLICATION**

Harken Industrial manufactures several rail systems for Architectural and Commercial Marine applications. The following matrix offers a quick method of selecting a rail type based on the work-at-height application.

<table>
<thead>
<tr>
<th>Industrial rail type</th>
<th>Fall restraint</th>
<th>Fall arrest</th>
<th>Rope access/ suspension</th>
<th>Work positioning</th>
<th>Certifications</th>
<th>Static strength* (kN)</th>
<th>Max span between brackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>R27</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>13</td>
<td>0.3 m</td>
</tr>
<tr>
<td>R27LS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>22</td>
<td>3 m</td>
</tr>
<tr>
<td>R32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>22</td>
<td>0.3 m</td>
</tr>
<tr>
<td>TR31</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>1.3 m</td>
</tr>
</tbody>
</table>

*Static strength obtained by independent test.
SIMPLE TO USE AND IDEAL FOR DIVERSE APPLICATIONS

The 27 mm and 32 mm Access Rail systems have a wide range of applications and can be used in a variety of industries:

- Construction/steel frame and envelope projects
- Renewable energy/blade cleaning
- Facilities management/asset integrity inspections
- Stage management, filming and rigging
- Architectural/building survey
- Vessel maintenance

### R27 COMPONENTS

#### R27 Trolleys

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Fits Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN9606.CLEAR*</td>
<td>2-trolley</td>
<td>10 3/4 in</td>
<td>2 3/4 mm</td>
<td>70 mm</td>
</tr>
<tr>
<td>IN10567.CLEAR*</td>
<td>2-trolley with wheel toggle</td>
<td>10 3/4 in</td>
<td>5 15/16 mm</td>
<td>150 mm</td>
</tr>
<tr>
<td>IN9555.CLEAR*</td>
<td>Trolley with pinstop</td>
<td>5 3/16 in</td>
<td>132 mm</td>
<td>2 3/4 mm</td>
</tr>
<tr>
<td>IN9608.CLEAR*</td>
<td>Trolley</td>
<td>5 3/16 in</td>
<td>132 mm</td>
<td>2 3/4 mm</td>
</tr>
<tr>
<td>IN10614.CLEAR*</td>
<td>Trolley with wheel toggle &amp; pinstop</td>
<td>5 3/16 in</td>
<td>5 15/16 mm</td>
<td>150 mm</td>
</tr>
<tr>
<td>IN10615.CLEAR*</td>
<td>Trolley with wheel toggle</td>
<td>5 3/16 in</td>
<td>5 15/16 mm</td>
<td>150 mm</td>
</tr>
</tbody>
</table>

*To order black hardcoat-anodized, remove .CLEAR from end of part number.

#### R27 Rail & Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Mounting hole spacing</th>
<th>Fasteners</th>
<th>Endstop</th>
<th>Splice link/rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN1643.3M.CLR*</td>
<td>HL rail pinstop, clear</td>
<td>9’ 10 1/16”</td>
<td>3 15/16</td>
<td>100</td>
<td>5/16 FH</td>
<td>8 FH</td>
</tr>
<tr>
<td>IN1643.3M.CLR*</td>
<td>HL rail pinstop, clear</td>
<td>11’ 9 3/4”</td>
<td>3 15/16</td>
<td>100</td>
<td>5/16 FH</td>
<td>8 FH</td>
</tr>
<tr>
<td>IN1643.8M.CLR*</td>
<td>HL rail pinstop, clear</td>
<td>19’ 8 1/4”</td>
<td>6 15/16</td>
<td>100</td>
<td>5/16 FH</td>
<td>8 FH</td>
</tr>
<tr>
<td>IN1650.3M.CLR*</td>
<td>Rail for SHCS fasteners, clear</td>
<td>9’ 10 1/16”</td>
<td>3</td>
<td>15/16</td>
<td>100</td>
<td>5/16 SHCS</td>
</tr>
<tr>
<td>IN1650.3M.CLR*</td>
<td>Rail for SHCS fasteners, clear</td>
<td>11’ 9 3/4”</td>
<td>3</td>
<td>15/16</td>
<td>100</td>
<td>5/16 SHCS</td>
</tr>
<tr>
<td>IN10630.CLR*</td>
<td>HL rail for 3.04 m, 80 mm hole space</td>
<td>9’ 11 11/16”</td>
<td>3.04</td>
<td>3.5/32/80</td>
<td>100</td>
<td>5/16</td>
</tr>
<tr>
<td>IN10642.CLEAR*</td>
<td>Endstop with adjustable pin (sold individually)</td>
<td>2 1/4”</td>
<td>57 mm</td>
<td>5/16 FH</td>
<td>8 FH</td>
<td>—/IN1643</td>
</tr>
<tr>
<td>IN9561.CLEAR*</td>
<td>Endstops (sold in pairs)</td>
<td>2 1/4”</td>
<td>57 mm</td>
<td>—/IN1643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN1649</td>
<td>Splice link</td>
<td></td>
<td></td>
<td>Purchase one splice link for each rail joint.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN1651</td>
<td>Splice link</td>
<td></td>
<td></td>
<td>Purchase one splice link for each rail joint.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H-50547</td>
<td>Coupler plate</td>
<td></td>
<td></td>
<td>Purchase to connect tool trolley to access trolley</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use only endstops listed above. *To order black hardcoat-anodized, remove .CLEAR or .CLR from end of part number.

RAILS & TROLLEYS

WWW.HARKENINDUSTRIAL.COM
WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
ENGINEERED FOR DIVERSE APPLICATIONS
The R27LS is used as a horizontal rail system in many fields (industrial, architectural, civil, etc.) to create a rigid mobile anchor for fall protection and rope access systems.

PROVEN TROLLEY ASSEMBLY
The Long-Span Access Rail uses the proven R27 ball bearing trolley assembly for freedom of movement under load.

LONGER SPAN REDUCES COST
The longer span between brackets reduces installation costs: 3 m (9.84’) span for fall protection; as much as 1.5 m (4.90’) for rope access.

MULTIPLE USERS
The R27LS is certified to support as many as four users on a single span for fall protection and two users for rope access.

LOW-PROFILE ALUMINUM AND STAINLESS STEEL BRACKETS
Low-profile, corrosion-resistant brackets of extruded T6082 anodized-aluminum or polished stainless steel mount on a variety of surfaces.

INDUSTRY REGULATIONS
The Long-Span Access Rail is independently tested and compliant with EN795:2012 Class D, CEN/TS 16415, UNI11578, meets ANSI Z359, and is OSHA compliant.
## R27 Long-Span Access Rail & Turntables

### Trolleys

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Fits Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN158.CLEAR*</td>
<td>2-trolley without pinstop</td>
<td>10 3/4</td>
<td>2 3/4</td>
<td>IN1643, IN1650, R27.LS</td>
</tr>
<tr>
<td>IN9606.CLEAR*</td>
<td>2-trolley **</td>
<td>10 3/4</td>
<td>2 3/4</td>
<td>IN1643, IN1650, R27.LS</td>
</tr>
<tr>
<td>IN9608.CLEAR*</td>
<td>Trolley **</td>
<td>5 3/16</td>
<td>2 3/4</td>
<td>IN1643, IN1650, R27.LS</td>
</tr>
<tr>
<td>IN9565.CLEAR*</td>
<td>Trolley with pinstop</td>
<td>5 3/16</td>
<td>2 3/4</td>
<td>IN1643, IN1650, R27.LS</td>
</tr>
</tbody>
</table>

*To order black hardcoat-anodized, remove .CLEAR from end of part number.  **IN9606 and IN158 trolleys do not work with turntables.

### Rail

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>INR27.LS</td>
<td>Long-span rail, clear*</td>
<td>9' 10 1/16&quot;</td>
<td>1.7 kg/m</td>
</tr>
</tbody>
</table>

*Available standard in clear-anodized. A wide range of optional specialty colors are available via request/special order. Ask your Harken Industrial rep for details.

### Mounting Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Material</th>
<th>Fasteners</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>INBRKT.1</td>
<td>Bracket “C” **</td>
<td>Stainless steel</td>
<td>3/8 - 7/16</td>
<td>1 bracket, 1 double-hole insert, 2 screws, 2 washers</td>
</tr>
<tr>
<td>INBRKT.2</td>
<td>Bracket “S” **</td>
<td>Stainless steel</td>
<td>3/8 - 7/16</td>
<td>1 bracket, 1 single-hole insert, 1 screw, 1 washer</td>
</tr>
<tr>
<td>INBRKT.3</td>
<td>Bracket “L” **</td>
<td>Stainless steel</td>
<td>3/8 - 7/16</td>
<td>1 bracket, 1 single-hole insert, 1 screw, 1 washer</td>
</tr>
<tr>
<td>INBRKT.4</td>
<td>Bracket “C” **</td>
<td>Stainless steel</td>
<td>3/8 - 7/16</td>
<td>1 bracket, 1 single-hole insert, 1 screw, 1 washer</td>
</tr>
<tr>
<td>INLINK.LS</td>
<td>Structural connector</td>
<td>Stainless steel</td>
<td></td>
<td>1 complete connector, 2 INPIN.LS</td>
</tr>
<tr>
<td>INBRKT.AL</td>
<td>Low-profile bracket</td>
<td>Anodized aluminum</td>
<td>3/8 - 7/16</td>
<td>1 bracket, 2 stud screws</td>
</tr>
<tr>
<td>INLINK.AL</td>
<td>Low-profile connector</td>
<td>Anodized aluminum</td>
<td>3/8 - 7/16</td>
<td>1 connector, 10 stud screws, 2 INPIN.LS</td>
</tr>
<tr>
<td>INSTOP.LS</td>
<td>Fixed endstop</td>
<td>Stainless steel</td>
<td>3/8 - 7/16</td>
<td>1 endstop, 2 M6 self-threading screws</td>
</tr>
<tr>
<td>IN1642.CLEAR**‡</td>
<td>Endstop with adjustable pin (sold individually)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN9561.CLEAR‡</td>
<td>Endstops (sold in pairs)</td>
<td>5/16 FH</td>
<td>8 FH</td>
<td></td>
</tr>
<tr>
<td>INPIN.LS</td>
<td>Alignment pin</td>
<td>Stainless steel</td>
<td>1 pin</td>
<td>(order 2 INPIN.LS for each rail section)</td>
</tr>
</tbody>
</table>

*Mounting bracket centers: Fall Arrest: 3 meters; Rope Access/Suspension: 1.5 meters.  **To mount this endstop, drill and tap a hole for M8 threads on the rail.  ‡To order black hardcoat-anodized, remove .CLEAR from end of part number.

---

**Harken Industrial Exception:** The Access Rail system may be used for human suspension.

**Warnings and Instructions:** You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
**OPTIONAL TURNTABLES**

Turntables allow users to easily change trolley directions without disconnecting from the rail system. **INTURN1.LS** allows 90° directional changes. **INTURN2.LS** is designed for ‘T’ rail layouts and 180° or 90° directional changes. Both options are independently tested and compliant with EN795 – 2012 Class D; meet ANSI Z359, and are OSHA compliant.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Material</th>
<th>Mounting accessories</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTURN1.LS</td>
<td>Turntable “L”</td>
<td>Aluminum/Stainless Steel</td>
<td>All R27 LS brackets</td>
<td>4 INPIN LS</td>
</tr>
<tr>
<td>INTURN2.LS</td>
<td>Turntable “T”</td>
<td>Aluminum/Stainless Steel</td>
<td>All R27 LS brackets</td>
<td>6 INPIN LS</td>
</tr>
</tbody>
</table>

Double trolleys (IN9606.CLEAR) cannot be used with the turntable. Two single trolleys must be used.

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**HARKEN INDUSTRIAL EXCEPTION:** The Access Rail system may be used for human suspension.

**WARNINGS AND INSTRUCTIONS.** You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
R27 LONG-SPAN ACCESS RAIL FOR METAL ROOFS

COMPLETE SOLUTION FOR MOUNTING RAIL ON CORRUGATED METAL ROOFS
Metal roofs are becoming more popular because of the low costs to manufacture and maintain. The Harken Industrial™ complete solution for attaching access rail to corrugated metal roofs provides a way to keep workers secure. The brackets can be as much as 3 m (9.8’) apart when using Harken Industrial’s R27 Long Span Access Rails.

CUSTOMIZABLE FOR EASY INSTALLATION
Bracket plates can be customized to fit different roof profiles. Rivets are included for easy installation.

Roof construction specifications:
- Standard steel sheet: minimum thickness 0.6 mm (0.024”)
- Steel sandwich panel: minimum thickness 0.4 mm (0.02”) 
- Aluminum sandwich panel: minimum thickness 0.6 mm (0.024”)

PROVEN TROLLEY ASSEMBLY
This system uses the proven R27 ball bearing trolley assembly for freedom of movement under load.

Use with INR27.LS Long Span Access Rail and INLINK.LS structural connector.

DURABLE, WATERPROOF MATERIALS
Sandblasted stainless steel brackets are mounted with included silicone gaskets for a water-tight seal.

MULTIPLE USERS
The R27LS is certified to support as many as four users on a single span. The rail can be installed with a span between brackets of up to 3 m (9.8”).

INDUSTRY REGULATIONS
The Long-Span Access Rail is independently tested and compliant with EN795:2012 Class D, CEN/TS 16415, UNI11578, meets ANSI Z359, and is OSHA compliant.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Material</th>
<th>Fasteners</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>INBRKT.X5</td>
<td>End bracket for metal roof</td>
<td>Stainless</td>
<td>SFS BULB-TITE® rivets 5.2 x 17.5 mm</td>
<td>1 bracket, 45 rivets, silicon gaskets, and 1 single-hole insert</td>
</tr>
<tr>
<td>INBRKT.X6</td>
<td>Middle bracket for metal roofs</td>
<td>Stainless</td>
<td>SFS BULB-TITE® rivets 5.2 x 17.5 mm</td>
<td>1 bracket, 54 rivets, silicon gaskets, and 1 single-hole insert</td>
</tr>
</tbody>
</table>
The Tight Radius rail and trolley system is designed to work as a movable anchorage point for fall restraint applications. Straight rails can be bent to accommodate directional changes up to a 350 mm radius. Machined corners up to 200 mm radius bends are available for both horizontal and vertical transitions.

**TROLLEY DESIGN**
- Strong: tested to 1200 kg (2645 lb)
- Complies with 2x MCA requirements
- Compact: minimum intrusion on narrow deck and restricted work areas
- Multidirectional load bearing
- Anodized for maximum corrosion resistance

**RAIL DESIGN**
- Vertical and horizontal operating planes
- 1.3 m unsupported span
- High-strength, marine grade 6061-T6 aluminum rail
- Anodized for maximum protection
- Countersunk M10 fasteners for flush fitting

**BRAKE TROLLEY DESIGN**
- Screwpin on trolley keeps it in position when not in use

**DELRIN® ROLLERS**
- No lubrication required
- Low friction
- Smooth movement
- Roller fully supported on both ends

The Tight Radius rail and trolley system can be used for fall restraint. It is independently tested and is compliant with EN795.2012 Type D, meets ANSI Z359, and is OHSA compliant.
HOW DOES IT WORK?
The TR31 continuous rail and trolley system allows a fully-harnessed crew member, safely tethered to the trolley, to move freely along the rail during inspection and maintenance, or when assisting in pilot transfer. Rails can be either surface or stanchion mounted and are designed so the user never has to unhook and rehook the tether as he moves around the deck.

IN210.CLEAR  IN212.CLEAR

IN209.3M.CLEAR  IN213.3M.CLEAR

H-73945

IN211  548

INSTALLATION AND MAINTENANCE
The system can be installed either at initial build or as a retrofit. Flush clean with fresh water and mild detergent. It is important to clean the trolley. Excessive build-up of grease, dirt, and salt will affect trolley movement.

IN201.CLEAR  IN202.CLEAR

IN204.CLEAR  IN207.CLEAR

IN205.CLEAR  IN208.CLEAR

IN203.CLEAR  IN206.CLEAR

TR31 Trolleys

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Weight</th>
<th>Fasteners</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN210.CLEAR*</td>
<td>Trolley</td>
<td>2.63 in/66.8 mm</td>
<td>2.06 in/52.32 mm</td>
<td>0.56 lb/254 g</td>
<td></td>
</tr>
<tr>
<td>IN212.CLEAR*</td>
<td>Brake trolley</td>
<td>2.73 in/69.2 mm</td>
<td>2.6 in/66.04 mm</td>
<td>0.60 lb/270 g</td>
<td></td>
</tr>
</tbody>
</table>

*To order black hardcoat-anodized, remove .CLEAR from end of part number.

TR31 Rail & Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Bend Information</th>
<th>Bend Radius</th>
<th>Arc Length**</th>
<th>Weight</th>
<th>Fasteners</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN209.3M.CLEAR*</td>
<td>Straight rail section</td>
<td>Straight</td>
<td>200 mm/78.7 in</td>
<td>3 ft/in</td>
<td>3 m/8.47 ft</td>
<td>8.49 lb/3850 g</td>
</tr>
<tr>
<td>IN213.3M.CLEAR*</td>
<td>Straight rail section without holes</td>
<td>Straight</td>
<td>200 mm/78.7 in</td>
<td>3 ft/in</td>
<td>3 m/8.49 lb</td>
<td>3850 g</td>
</tr>
<tr>
<td>IN203.CLEAR*</td>
<td>Corner rail</td>
<td>Horizontal 30°</td>
<td>200 mm/78.7 in</td>
<td>0.17 ft/in</td>
<td>0.57 m</td>
<td>260 lb</td>
</tr>
<tr>
<td>IN205.CLEAR*</td>
<td>Corner rail</td>
<td>Horizontal 45°</td>
<td>200 mm/78.7 in</td>
<td>0.22 ft/in</td>
<td>0.77 m</td>
<td>260 lb</td>
</tr>
<tr>
<td>IN204.CLEAR*</td>
<td>Corner rail</td>
<td>Horizontal 60°</td>
<td>200 mm/78.7 in</td>
<td>0.27 ft/in</td>
<td>0.98 m</td>
<td>440 lb</td>
</tr>
<tr>
<td>IN201.CLEAR*</td>
<td>Corner rail</td>
<td>Horizontal 90°</td>
<td>200 mm/78.7 in</td>
<td>0.36 ft/in</td>
<td>1.39 m</td>
<td>630 lb</td>
</tr>
<tr>
<td>IN206.CLEAR*</td>
<td>Corner rail</td>
<td>Vertical 30°</td>
<td>200 mm/78.7 in</td>
<td>0.18 ft/in</td>
<td>0.60 m</td>
<td>270 lb</td>
</tr>
<tr>
<td>IN208.CLEAR*</td>
<td>Corner rail</td>
<td>Vertical 45°</td>
<td>200 mm/78.7 in</td>
<td>0.23 ft/in</td>
<td>0.81 m</td>
<td>370 lb</td>
</tr>
<tr>
<td>IN207.CLEAR*</td>
<td>Corner rail</td>
<td>Vertical 60°</td>
<td>200 mm/78.7 in</td>
<td>0.28 ft/in</td>
<td>1.03 m</td>
<td>470 lb</td>
</tr>
<tr>
<td>IN202.CLEAR*</td>
<td>Corner rail</td>
<td>Vertical 90°</td>
<td>200 mm/78.7 in</td>
<td>0.39 ft/in</td>
<td>1.46 m</td>
<td>660 lb</td>
</tr>
<tr>
<td>548</td>
<td>Endstop set (2.83’/71.8 mm)</td>
<td></td>
<td></td>
<td></td>
<td>0.13 lb/60 g</td>
<td></td>
</tr>
<tr>
<td>IN211</td>
<td>Splice link</td>
<td></td>
<td></td>
<td></td>
<td>0.051 lb/23 g</td>
<td></td>
</tr>
<tr>
<td>H-73945</td>
<td>Splice link with 10 mm thread</td>
<td></td>
<td></td>
<td></td>
<td>0.053 lb/24 g</td>
<td></td>
</tr>
</tbody>
</table>

*To order black hardcoat-anodized, remove .CLEAR from end of part number.  ** Arc length is to the inside of the radius.
ADJUSTABLE SEAT RAIL SYSTEM

A BETTER RAIL SYSTEM FOR SEAT MOUNTING
This system is specifically designed for the marine environment, giving you a flexible cockpit layout with fast, hassle-free reconfiguration. These systems meet HSC regulations.

SPRING MOUNTED PINSTOPS
- Secure seat location
- Quick and easy adjustment

ENDSTOPS
- Low-profile endstop for smooth, snag-free end

RAIL DESIGN
- High strength 6061-T6 aluminum low-profile rail
- Hardcoat-anodized for maximum protection
- Pinstop holes for maximum flexibility in seat spacing
- Countersunk fasteners for flush fitting
- Underside of rail recess for mastic sealant

TROLLEY DESIGN
- Strong – 22 mm system tested to 20 kN and 27 mm system tested to 25 kN
- Adaptable – can be fitted to dive tank racks, weapons racks, deck boxes, etc.
- Compact – minimum intrusion on cockpit sole
- Black hardcoat-anodized; maximum corrosion resistance

DELRIN® INSULATING SLIDERS
- No metal-to-metal contact
- No lubrication required
- Low friction
- Smooth movement
- Minimum rattle
HOW DOES IT WORK?
Seats are mounted on four trolleys that run on parallel rails. Two of the trolleys have pinstops that fit into the holes in the rails. Two trolleys are free sliding. To adjust the trolley location, simply raise the two pinstops and slide to new location.

INSTALLATION AND MAINTENANCE
Flush clean with fresh water and mild detergent. To reduce friction further, use McLube® high-performance dry lubricant. Do not use oils or greases. For added protection against corrosion, We recommend using Tef-Gel® corrosion eliminator on the fasteners when installing the rail.

Trolleys

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Weight</th>
<th>Fits rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN120</td>
<td>Slider trolley with pinstop</td>
<td>3.3</td>
<td>84</td>
<td>0.208</td>
<td>94.68</td>
</tr>
<tr>
<td>IN121</td>
<td>Slider trolley with plain top</td>
<td>3.3</td>
<td>84</td>
<td>0.208</td>
<td>94.68</td>
</tr>
<tr>
<td>27 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN152</td>
<td>Slider trolley w/3x M8 tapped holes</td>
<td>5</td>
<td>127</td>
<td>0.51</td>
<td>233</td>
</tr>
<tr>
<td>IN153</td>
<td>Slider trolley w/3x M8 tapped holes and pinstop</td>
<td>5</td>
<td>127</td>
<td>0.54</td>
<td>246</td>
</tr>
</tbody>
</table>

Rail & Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Mounting hole spacing*</th>
<th>Fasteners</th>
<th>Endstop</th>
<th>Trim cap</th>
<th>Splice link</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2751.600MM</td>
<td>Low-beam pinstop metric rail</td>
<td>1' 11 5/8&quot;</td>
<td>0.6</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2751.1M</td>
<td>Low-beam pinstop metric rail</td>
<td>3' 3 3/8&quot;</td>
<td>1</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2751.5M</td>
<td>Low-beam pinstop metric rail</td>
<td>4' 11 1/16&quot;</td>
<td>1.5</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2751.8M</td>
<td>Low-beam pinstop metric rail</td>
<td>5' 10 13/16&quot;</td>
<td>1.8</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2751.2M</td>
<td>Low-beam pinstop metric rail</td>
<td>6' 6 3/4&quot;</td>
<td>2</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2751.3M</td>
<td>Low-beam pinstop metric rail</td>
<td>11' 9 3/4&quot;</td>
<td>3.6</td>
<td>#10 FH</td>
<td>263</td>
<td>2722</td>
<td>2724</td>
</tr>
<tr>
<td>2722</td>
<td>Trim cap set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2200</td>
<td>Endstop set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R27.1M</td>
<td>Low-beam pinstop metric rail</td>
<td>3' 3 3/8&quot;</td>
<td>1</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>R27.2M</td>
<td>Low-beam pinstop metric rail</td>
<td>3' 11 1/4&quot;</td>
<td>1.2</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>R27.5M</td>
<td>Low-beam pinstop metric rail</td>
<td>4' 11 1/16&quot;</td>
<td>1.5</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>R27.8M</td>
<td>Low-beam pinstop metric rail</td>
<td>5' 10 13/16&quot;</td>
<td>1.8</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>R27.2M</td>
<td>Low-beam pinstop metric rail</td>
<td>6' 6 3/4&quot;</td>
<td>2</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>R27.3M</td>
<td>Low-beam pinstop metric rail</td>
<td>8' 2 7/16&quot;</td>
<td>2.5</td>
<td>5/16 FH</td>
<td>1022</td>
<td>1621</td>
<td>1619</td>
</tr>
<tr>
<td>1621</td>
<td>Trim cap set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2700</td>
<td>Endstop set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*First mounting hole distance from end of track: 50 mm (1 31/32”).

McLube is a registered of McGee Industries.
Tef-Gel is a registered trademark of Ultra Safety Systems, Inc.
Delrin is a registered trademark of E.I. du Pont de Nemoursand Company or its affiliates.
Harken Industrial winches are designed to withstand tough conditions and work hard to make your job easier. Applications include: recovery, load lifting, tripod, personnel-hoisting, and more. Manual, electric, cordless and hydraulic power options are available.
HARKEN INDUSTRIAL’S POWERSEAT® ASCENDER PROTECTS AND PROMOTES PRODUCTIVITY FOR BRIDGE MAINTENANCE

Traditionally, working at height meant that workers had to manually ascend and descend hundreds of feet of rope, which is extremely tiring and leads workers to falling short of their potential. With its motorized engine and seat, Harken Industrial’s PowerSeat has taken the work out of working at height.

As part of maintenance work on an arch bridge across a major American river, a technology solutions company used PowerSeats in their project. Their SPRAT Level III Rope Access Supervisor and Technical Specialist made note that “these devices significantly reduce fatigue for inspectors and improve the efficiency through refined techniques.”

With the mobility and flexibility of rope access and the comfort and productivity of a platform, the PowerSeat motor allows workers to quickly get to the worksite and stay in position longer on the molded seat, culminating in increased work efficiency and lowered risk of suspension trauma. Harken Industrial’s PowerSeat has revolutionized work at height and innovated its way into modern height access by introducing a new way to handle rope. The PowerSeat may be used for construction, alpine projects, arbor work, rescue, and more.
**FIBER ROPE WINCHES**

redefining load management

**DESIGNED TO WITHSTAND DEMANDING CONDITIONS**

Harken offers a range of winches to take the work out of load management. The winches handle rope diameters from 6 – 32 mm and loads from 110 lbs. – 77 tons/50 kg – 70 metric tons. Applications include emergency recovery, manual load handling, tripod applications, electric and manual davit arms, and certified personnel hoisting. The range of power ratios helps to reduce fatigue and risk of injury when managing heavy loads.

---

**MANUAL**

Efficient and dependable, Radial Line® winches are powerful performers. The shaped drums feature diagonal ribs to maximize gripping power and reduce rope wear. Lightweight high-strength bearings and bushings reduce friction under load, are corrosion resistant, and do not require lubrication.

---

**ELECTRIC**

Powered winches allow the operator to handle high loads with push-button control. Vertical or horizontal motors offer flexible mounting options.

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**HIGH POWER, ULTRA LIGHTWEIGHT**

Use when high load capacity and high strength-to-weight ratios are critical. The wide drums provide extra surface area to secure high-tech rope. Winches can be driven by electric or hydraulic motor or pedestal for power.

---

**ACCESSORIES**

Harken can supply manual winch handles, spare parts, and servicing kits for the winch range, making them easy to service and maintain. No need to send parts back to the manufacturer.

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**WWW.HARKENINDUSTRIAL.COM**

---
CAPTIVE REEL
These powerful, lightweight winches have pulling loads of 1.5 – 70 tons/1 – 63 metric tons. The feeder screw ensures the line is loaded onto the drum smoothly, so it pays in and out with complete control. Available in both hydraulic and electric models.

APPLICATIONS

SIMPLE TO USE AND IDEAL FOR MOVING HEAVY LOADS
Harken winches are used in a wide range of industries:
• Commercial marine
• Construction
• Renewable energy
• Facilities management
• Theatrical
• Architectural
• Utilities, oil & gas

FAQs

Q: HOW MUCH ROPE CAN WINCHES PULL?
A: Standard winches can pull an infinite length of rope and do not require the end of the rope to install onto the drum. Captive reel winches have a limited pull length, but each size winch is available in multiple rope storage lengths.

Q: DO I HAVE TO HOLD THE TAIL OF THE ROPE WHILE OPERATING THE WINCH?
A: The majority of Harken winches are fitted with a self-tailing jaw. This holds the rope captive during and after winching.

Q: HOW DO I EASE THE LOAD?
A: On conventional winches, the rope is removed from the self-tailing jaw eased by hand with most of the load held by the wraps on the drum.

Q: CAN I USE AN ELECTRIC WINCH IF THERE IS A POWER OUTAGE?
A: Yes. A Harken winch handle inserted into an unloaded winch automatically disconnects the motor gear for manual operation.

Q: CAN HARKEN WINCHES BE USED FOR HUMAN RESCUE/SUSPENSION?
A: Some Harken winches are certified for human rescue/suspension; please refer to the product certification and specification.

WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
REVOLUTIONARY DEVICE FOR WORKING AT HEIGHT
The unique Harken Industrial PowerSeat® ascender has revolutionized working at height, allowing the operator to ascend quickly, stay in position longer, and work comfortably. The PowerSeat is the best solution for completing a job on time.

SPEED CONTROL
The unit is operated using a fail-safe dead man’s switch to control ascent speed, up to 15 m/min (49.2 ft/min).

DURABILITY
Stainless steel load-carrying gears and pins provide strength and durability. Sealed gearbox and high-load roller bearings reduce friction under load, are corrosion resistant, and do not require lubrication.

BRAKE
The braking system controls descent and provides workers protection against free-falls. The encapsulating jaw cover protects fingers and clothing from catching in the winch.

ERGONOMIC DESIGN
The PowerSeat is designed to stay in an upright position, conserving worker energy.

CERTIFICATION
The Harken Industrial PowerSeat is CE certified to the Machinery Directive and independently verified by Bureau Veritas.
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APPLICATIONS

- Construction
- Renewable energy
- Facilities management
- Vessel maintenance
- Theatrical
- Telecommunications
- Architectural
- Utilities, oil & gas

This is not PPE equipment. Use in conjunction with a full fall-arrest system at all times.

WARNINGS AND INSTRUCTIONS. The user must follow the manufacturer’s instructions for each component of the system, which must be provided to the user. The user must read and understand these instructions before using this equipment. Manufacturer’s instructions must be followed for proper use and maintenance. Alterations or misuse of this equipment, or failure to follow these instructions, may result in serious injury or death.

FAQs

Q: IS THE POWERSEAT JUST A MECHANICAL ASCENDER?
A: The certification of the PowerSeat allows it to be used as a powered ascender for access, as well as rigged to assist with hauling and pulling. For example, high angle rescue (when attached to an appropriate anchor), or in conjunction with a tripod for confined space/winching operations.

Q: IS THE POWERSEAT ONLY RATED FOR SINGLE PERSON USE?
A: Although ideal for one person, the PowerSeat can also be used in tandem rescue situations to a maximum working load of 273 kg (600 lb) for gas, 300 kg (660 lb) for electric and battery.

Q: WHAT HAPPENS IF I INADVERTENTLY EXCEED THE WORKING LOAD OF THE POWERSEAT?
A: The gas PowerSeat engine is designed to stall when the working load is exceeded. The electric PowerSeat has a cutoff to stop power to the winch. In both cases, the seats are free to descend to release the load. The seats can be restarted to continue use.

Q: WHAT TYPE OF FUEL DOES THE GAS POWERSEAT USE?
A: The gas PowerSeat runs on unleaded gasoline with a pump octane rating of 86 or higher.

Q: HOW LONG DOES THE FUEL LAST IN THE GAS POWERSEAT?
A: A full tank of fuel (0.6 L) allows approximately 1200 m (3937’) climb distance at 273 kg (600 lb).

Q: WHAT IS THE ASCENT SPEED?
A: For the gas version, the rate of climb is 15 m per minute at 120 kg (42.2’ per minute at 265.6 lb). 11 m (36.09 ft) per minute at 273 kg (600 lb).

Q: WHAT TRAINING IS REQUIRED? CAN ANYONE USE THE POWERSEAT?
A: Use of the PowerSeat must meet the regulations of the nation and industry in which it is used. It is restricted to those certified for temporary work at height with access and positioning systems using ropes.

A. WHAT BATTERY DOES THE POWERSEAT BATTERY HAVE AND HOW LONG DOES THE CHARGE LAST?
A: The PowerSeat battery has a 50.4V lithium-ion battery with a BMS (Battery Management System) to preserve its useful life. Certified IP54. In optimum conditions this has a battery life of 550 m with a 125 kg load.
STANDARD POWERSEAT® ASCENDERS
Harken Industrial PowerSeats are comfortable sit-on powered ascenders and manual friction-brake descenders designed for use by rope-access and rescue operators working at height. Strong and lightweight, these portable ascenders allow workers to get to the job quickly and work comfortably for longer periods of time. Most importantly, safety is greatly enhanced through a significant reduction in fatigue.

GASOLINE
Fuel efficient; 4-stroke mix of unleaded gas.

ELECTRIC
50.4V motor; 35 m long cable; 110/230V transformer; certified to IP54.

BATTERY
50.4V lithium-ion battery with BMS battery management; certified to IP54.

COMPACT POWERSEAT ASCENDERS
These powerful, lightweight ascenders maximize the efficiency of the PowerSeat as a hauling device, while maintaining their functionality as powered ascenders. The seats have been removed and the long stem shortened for significant reductions in weight and size — perfect for confined space access. The user is suspended under the unit with full control from below.

PowerSeat is a registered trademark of Harken, Inc.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Max line speed</th>
<th>Weight</th>
<th>Rope Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ft/min m/min</td>
<td>lb kg</td>
<td>in mm</td>
</tr>
<tr>
<td>PWRS-G</td>
<td>Gas</td>
<td>49 15</td>
<td>31 14</td>
<td>3/8 10</td>
</tr>
<tr>
<td>PWRS-E</td>
<td>Electric</td>
<td>46 14</td>
<td>42 19</td>
<td>3/8 10</td>
</tr>
<tr>
<td>PWRS-B</td>
<td>Battery</td>
<td>46 14</td>
<td>42* 19*</td>
<td>3/8 10</td>
</tr>
<tr>
<td>PWRS-GC</td>
<td>Compact gas</td>
<td>49 15</td>
<td>28 13</td>
<td>3/8 10</td>
</tr>
<tr>
<td>PWRS-EC</td>
<td>Compact electric</td>
<td>46 14</td>
<td>39 18</td>
<td>3/8 10</td>
</tr>
<tr>
<td>PWRS-BC</td>
<td>Compact battery</td>
<td>46 14</td>
<td>39* 18*</td>
<td>3/8 10</td>
</tr>
</tbody>
</table>

*Plus 3 kg (6.6 lb) for battery.

This is not PPE equipment. Use in conjunction with a full fall-arrest system at all times.

WARNINGS AND INSTRUCTIONS. The user must follow the manufacturer’s instructions for each component of the system, which must be provided to the user. The user must read and understand these instructions before using this equipment. Manufacturer’s instructions must be followed for proper use and maintenance. Alterations or misuse of this equipment, or failure to follow these instructions, may result in serious injury or death.
MODELS

STANDARD POWERSEAT® ASCENDERS

Harken Industrial PowerSeats are comfortable sit-on powered ascenders and manual friction-brake descenders designed for use by rope-access and rescue operators working at height. Strong and lightweight, these portable ascenders allow workers to get to the job quickly and work comfortably for longer periods of time. Most importantly, safety is greatly enhanced through a significant reduction in fatigue.

COMPACT POWERSEAT ASCENDERS

These powerful, lightweight ascenders maximize the efficiency of the PowerSeat as a hauling device, while maintaining their functionality as powered ascenders. The seats have been removed and the long stem shortened for significant reductions in weight and size — perfect for confined space access. The user is suspended under the unit with full control from below.

GASOLINE

Fuel efficient; 4-stroke mix of unleaded gas.

ELECTRIC

50.4V motor; 35 m long cable; 110/230V transformer; certified to IP54.

BATTERY

50.4V lithium-ion battery with BMS; certified to IP54.

This is not PPE equipment. Use in conjunction with a full fall-arrest system at all times.

WARNINGS AND INSTRUCTIONS.

The user must follow the manufacturer’s instructions for each component of the system, which must be provided to the user. The user must read and understand these instructions before using this equipment. Manufacturer’s instructions must be followed for proper use and maintenance. Alterations or misuse of this equipment, or failure to follow these instructions, may result in serious injury or death.

PowerSeat is a registered trademark of Harken, Inc.

Part No. Description

Max line speed Weight

Rope Ø

Max rated load Min Max

ft/min m/min lb kg in mm in mm lb kN

PWRS-G

Gas 49 15 31 14 3/8 10 1/2 12.7 600 2.7

PWRS-E

Electric 46 14 42 19 3/8 10 1/2 12.7 660 3

PWRS-B

Battery 46 14 42 * 19 * 3/8 10 1/2 12.7 660 3

PWRS-GC

Compact gas 49 15 28 13 3/8 10 1/2 12.7 600 2.7

PWRS-EC

Compact electric 46 14 39 18 3/8 10 1/2 12.7 660 3

PWRS-BC

Compact battery 46 14 39 * 18 * 3/8 10 1/2 12.7 660 3

*Plus 3 kg (6.6 lb) for battery.
**SELF-TAILING PERSONNEL-HOISTING CAPSTAN WINCH KIT**
**WITH THE SECURITY AND SAFETY OF A CAPTIVE HEAD**

The kit includes the innovative LokHead winch, which is a portable or fix-mounted load-lifting, personnel-hoisting winch used with an unlimited length of fiber rope. The captive head allows the winch to be used safely and keeps the rope from accidentally releasing. Perfect for fixed or temporary applications and rescue. Kit includes mounting plate, handle, tripod adaptor, and more.

---

**LIGHTWEIGHT**

The LokHead winch and mounting bracket can be incorporated into a rescue/lifting system without significantly increasing overall weight.

**RELIABLE**

The braking system controls descent and provides workers protection against free-falls. The encapsulating jaw cover protects fingers and clothing from catching in the winch.

**ERGONOMIC**

Easy to rig and efficient, the LokHead makes the most of the operator’s efforts. The winch offers two gears; 15:1 for low load/high speed use and 40:1 for higher load applications.

**VERSATILE**

The winch is designed for use with fiber rope 10–12.7 mm (3/8 –1/2”) in diameter and unlimited rope length.

**CE CERTIFIED**

Certified under EN1496 for Human Suspension and EN13157 Machinery Directive for lifting goods and equipment.

---

**Part No.** | **Description** | **Rope Ø Max in mm** | **Weight lb kg** | **Max rated load lb kN**
--- | --- | --- | --- | ---
INLHS00KIT | LokHead winch kit | 1/2 12.7 | 44 20 | 1100 5
**MANUAL OR POWERED**
The winch can be driven manually with the provided B10AL handle. Alternatively, use a compatible power drill with the available power tool adapter (for lifting goods or equipment only) to drive the winch.

**KIT INCLUDES**
- LokHead winch
- White lever for non-human suspension
- LokHead box
- Winch handle
- Tripod adapter
- Reversible plate
- Counter plate, carabiner & sling

**APPLICATIONS & MAINTENANCE**

**SIMPLE TO USE AND IDEAL FOR DIVERSE APPLICATIONS**
The LokHead winch can be used anywhere a load needs to be lifted or lowered. Rigged to a tripod, it can be used in confined space rescue operations, for load moving/hauling, and personnel hoisting.

**MAINTENANCE IS EASY**
The simple construction requires no lubrication and can be flushed clean with fresh water.

**FAQs**

**Q: IS THE LOKHEAD WINCH CERTIFIED?**
A: Yes. It is CE certified for the EN13157 and conforms to the EN1496.

**Q: IS THE LOKHEAD WINCH SUITABLE FOR HUMAN SUSPENSION IN RESCUE OPERATIONS?**
A: Yes. It conforms to EN1496.

**Q: WHAT IS THE MAXIMUM ROPE OPERATING LENGTH?**
A: The LokHead winch is able to pull an infinite length of rope. The end of the rope does not need to be installed onto the drum.

**Q: HOW DO I ATTACH THE LOKHEAD WINCH?**
A: The LokHead winch can be mounted to a variety of structures including rated tripods using compatible mounting brackets.

**OPTIONAL**

**POWER TOOL ADAPTER**
Fits all standard chucks. Used for lifting goods or equipment only, not for human suspension. For safety reasons, the adapter is designed to shear under overloaded conditions.

**B10AL HANDLE**
Smaller handle provides greater speed, but less power.

**WINCH SERVICE KIT**
Everything you need to service your winch and keep it in prime working order.

---

**Maximum rated load for lifting & pulling load applications:** 500 kg/1102.3 lb; **Maximum rated load for human suspension:** 285 kg/628 lb (coefficient ratio 10:1 of breaking load); marked in accordance with the Machinery Directive and EN13157.2004 standard.

**WARNINGS AND INSTRUCTIONS.** You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
A LIGHTWEIGHT, CE CERTIFIED, PORTABLE WINCH
The Riggers Winch provides the user with a lightweight, CE certified, portable winch mounted to a robust adapter plate. Offered in two (2) sizes, the single-speed 200 model weighs only 4 kg (8 lb) and has a maximum rated load of 1.96 kN. The 2-speed 500 model weighs just 7 kg (15.4 lb). Its maximum rated load of 4.90 kN maximizes operator pulling power by up to 40 times. Multiple mounting options provide versatility when working in challenging or remote environments.

DESIGN
The mounting plate is sculpted to remove excess weight and provides multiple attachment points without compromising strength. The pigtail lead ensures correct alignment and loading of the winch for maximum efficiency.

WINCH
Winches feature 17-4 PH stainless steel load-carrying gears and pins for strength and durability. Packages include a universal mounting plate, 10’ winch handle, and either the single-speed Riggers Winch 200 or the two-speed Riggers Winch 500.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Min Rope Ø</th>
<th>Max Rope Ø</th>
<th>Weight</th>
<th>Max rated load</th>
<th>Breaking load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>in</td>
<td>mm</td>
<td>in</td>
<td>mm</td>
<td>lb</td>
</tr>
<tr>
<td>INRW200</td>
<td>Riggers Winch 200</td>
<td>1/4</td>
<td>6</td>
<td>1/2</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>INRW500</td>
<td>Riggers Winch 500</td>
<td>5/16</td>
<td>8</td>
<td>1/2</td>
<td>12</td>
<td>15.4</td>
</tr>
</tbody>
</table>

FIBER ROPE
The winch is designed for use with fiber rope up to 12 mm (1/2”) in diameter, reducing weight and allowing alignment to the load. Smooth surfaces and chafe-free design reduces rope wear. The unique drum design maximizes grip on the rope.
CE CERTIFICATION
CE certified under EN13157 (Machinery Directive) with a maximum working load of 5 kN and a breaking load of 25 kN.

APPLICATIONS & MAINTENANCE

SIMPLE TO USE AND IDEAL FOR DIVERSE APPLICATIONS

- Utility masts
- Telecoms
- Marine
- Wind turbine transition piece davits
- Stage and theatre rigging
- Confined space
- Construction
- Access and rescue

FAQs

Q: WHAT IS THE MAXIMUM LINE OPERATING LENGTH?
A: There is no maximum rope length for use with the Riggers Winch. The pigtail allows the rope to be installed without feeding the end of the rope through.

Q: IS THE RIGGERS WINCH SUITABLE FOR HUMAN SUSPENSION?
A: In accordance with Directive 2009/104/EC persons may be lifted only by means of work equipment and accessories provided for that purpose. Without prejudice to Article 5 of Directive 89/391/EC, exceptionally, work equipment which is not specifically designed for the purpose of lifting persons may be used for that purpose, provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice providing for appropriate supervision.

Q: IS THE KIT SUPPLIED WITH THE ATTACHMENT FITTINGS?
A: Because attachments and fittings are used differently depending on operational purpose, they are not included with the kit. This allows for more of a customized application of the kit. The Harken Industrial Tech Team can provide advice on the best attachment solution.

Q: CAN I SERVICE MY OWN RIGGERS WINCH?
A: Yes. However, service and winch maintenance must be in accordance with Harken service instructions and using Harken-approved replacement parts.

WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
A PORTABLE DAVIT THAT ATTACHES SECURELY TO ALL TUGBOAT BITTS

Designed for work boats and barges, the Rescue Davit is a portable lightweight man overboard lifting davit that quickly attaches to a bitt on a boat. The straps and brackets on back of the unit allow customization for any bitt. The davit is light enough (only 17.2 kg or 38 lbs) for one person to retrieve and carry into position. It attaches to the bitt in less than 30 seconds. One small person on deck can hoist a 158.8 kg (350 lbs) person aboard. The boom is long enough to clear tires and fenders; the worm gear controls the boom swing. Use the Rescue Davit with the VR 12 Rescue Pole, sold separately, to complete the system.

ATTACHES QUICKLY
5 cm (2”) adjustable polypropylene straps with latch clamps for tightening.

ADJUSTABLE FEET AND STABILIZERS
15.2 cm x 7.6 cm x 61 cm (6” x 3” x 24”) aluminum tubing hold the adjustable feet and stabilizers.

INCLUDES WINCH
System features Harken Industrial 20STA Radial winch, Spinlock rope brake and 20.3 cm (8”) Harken Industrial winch handle.

LONG LINE TO REACH MOB
13.7 m (45’) long, 10 mm lift line with stopper ball and hook, 6 mm tension line.
SIMPLE TO OPERATE
Worm gear and handle control boom swing.

ADDITIONAL FEATURES
• Rescue can be performed by one person.
• Constructed of anodized marine-grade aluminum and stainless steel to withstand harsh marine environments.

FAQs
Q: HOW LONG DOES IT TAKE TO DEPLOY A C-HERO RESCUE SYSTEM AND RECOVER A MOB?
A: The C-Hero system has a proven 3-minute underway MOB recovery.

Q: WHO DEVELOPED THE C-HERO RESCUE SYSTEM, AND WHY?
A: The system was developed by Capt. Shane Smith, who spent more than 30 years as a tug captain performing coastwise towing, pushing barges on the rivers, and ship docking on the San Francisco Bay. He has operated push boats, conventional, and tractor tugs. Smith started C-Hero in a garage with the notion of helping crews with MOB recovery.

Q: CAN I SEE VIDEOS OF THE SYSTEM?
A: Videos can be found at www.c-hero.com/videos.htm

<table>
<thead>
<tr>
<th>Part No</th>
<th>Description</th>
<th>Height in</th>
<th>Width in</th>
<th>Depth in</th>
<th>Davit length ft</th>
<th>Davit length m</th>
<th>Weight lb</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN144.6FT</td>
<td>Rescue davit</td>
<td>206</td>
<td>47</td>
<td>38</td>
<td>6'8&quot;</td>
<td>2</td>
<td>38</td>
<td>17.2</td>
</tr>
</tbody>
</table>

WARNINGs AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
PERFORM RESCUES QUICKLY AND SAFELY
The intuitive system provides quick recovery of conscious or unconscious persons. When deployed, the strap goes over the person in the water and then under their arms for a vertical recovery. Crew members stay safe onboard and inside the bulwarks during the process. To be used with the C-Hero Rescue Davit, sold separately, or with your boat’s anchor-handling davit.

STURDY CONSTRUCTION
Strap has a one-way buckle that will not back out.

SIMPLE OPERATION
“V” cleat holds the lift line and keeps line out of the way.

ADDITIONAL FEATURES
- 1.9 cm (3/4”) aluminum tubing with a strong 2.1 m (7’) foam-filled hoop that allows a single crew member to rescue a fully dressed person wearing a life jacket who weighs as much as 159 kg (350 lb).
- Can be easily and quickly re-rigged for additional rescues.
- Two detachable 1.8 m (6’) long, 3.2 cm (1.25”) diameter fiberglass foam-filled poles allow body to be pulled close to boat before deploying the strap.
- Rescue strap detaches from holding blocks and snaps when being deployed.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Pole length</th>
<th>Pole Ø</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pole length</td>
<td>ft</td>
<td>m</td>
<td>in</td>
</tr>
<tr>
<td>IN145</td>
<td>Vertical rescue pole</td>
<td>6</td>
<td>1.8</td>
<td>1.25</td>
</tr>
</tbody>
</table>

WARNINGS AND INSTRUCTIONS. You must carefully read, understand, and follow all of the warnings and instructions in the manual provided by Harken Industrial in order to avoid an accident. Never, under any circumstances, exceed the maximum rated load.
COMPLEMENTARY HARDWARE
A MOBILE, ANCHORING SYSTEM TO POSITION WORKERS
The Harken Industrial Roller Sling is a mobile, anchoring system that keeps workers safely aligned to their working surface.

DESIGN
Use this simple device in a basket configuration around structures like pipe or cable. Perfect for extending anchors over a sharp edge that could damage rope.

DURABLE
Rollers are made of durable urethane and rotate on flexible 7 x 19 stainless steel wire cable; urethane tubing covers attachment eyes on ends.

SMOOTH ROLLING
Delrin® spacers separate rollers for friction-free operation.

CERTIFICATION
The Roller Sling is Certified ANSI/ASSE Z359.1 1-07 and CE EN795:2012 Type B and EN354. It is fully-rated end-to-end for work positioning, fall restraint, fall arrest, and general fall protection.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Length</th>
<th>Breaking load</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN106.3FT</td>
<td>Roller Sling</td>
<td>3 ft 0.91 m</td>
<td>5000 lb 22.5 kN</td>
</tr>
</tbody>
</table>

Custom lengths on request.

Delrin is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.
Climbing rope has never been easier. The boot-mounted Ninja™ foot ascender from Harken Industrial™ is lightweight and durable. The housing is aluminum while the rope-holding dual cams are stainless steel. Foot ascenders use your body’s largest muscle group to ascend a rope easily and quickly. The Ninja has a maximum working load of 150 kg (330 lb) and can handle rope of up to 13 mm (1/2”).

**INCREASED PRODUCTIVITY**
The Ninja™ is designed with springs that have the least rope drag of any available foot ascender. This means that there is a smoother and easier take off without having to counterweight the line or reach down to pull the line through the unit. The result? Increased worker productivity.

**WON’T DAMAGE YOUR ROPE**
The Ninja uses a transverse ribbed cam instead of teeth. Competitive designs rely on aggressive teeth on their single cams, which can damage rope cover.

**INNOVATIVE DESIGN**
Dual cam system (based on Harken’s marine Cam-Matic® ball bearing cleats) applies pressure to both sides of the rope simultaneously. This provides more thorough holding power than competitive designs that press just one side of the rope against just one side of the ascender’s wall. It also prevents accidental kick-outs.

**WORKS ON EITHER FOOT**
The Ninja is the only foot ascender that can be used on either foot.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Minimum Ø</th>
<th>Maximum Ø</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
<th>Maximum working load</th>
<th>Cam material</th>
<th>Housing material</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN400</td>
<td>Ninja foot ascender</td>
<td>5/16</td>
<td>8</td>
<td>1/2</td>
<td>13</td>
<td>3.3</td>
<td>2.9</td>
<td>83</td>
<td>0.3</td>
</tr>
</tbody>
</table>

WWW.HARKENINDUSTRIAL.COM
LONG-LASTING STRENGTH AND DURABILITY
Harken Industrial’s experience with rope handling on yachts has led to the development of a wide variety of attachment point products — from simple eyestraps to high-strength, lightweight padeyes, to removable solutions.

CERTIFICATION
EN795:2012 Class A, ANSI Z359.1 meets the requirements for human suspension according to BS7985:2009, SPRAT and IRATA guidelines, when used in pairs.

APPLICATIONS
Use as an anchorage device, allowing operators to work safely at height. Padeyes are perfect for mounting pulleys and can be used as attachment points where needed.

MATERIAL BENEFITS
The IN647, IN688, and IN689 anchors are 316 stainless. The IN627, IN629 and IN648 are 17-4 PH stainless. The IN647 has a mirror finish and is highly corrosion resistant. All are suitable for onshore and offshore installations.

OTHER STATIC ATTACHMENTS ARE AVAILABLE
Eyestraps, fixed, removable and folding padeyes.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>A in</th>
<th>B mm</th>
<th>Fasteners</th>
<th>Max rated load*</th>
<th>Breaking load</th>
<th>Fall arrest</th>
<th>Human suspension</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN627</td>
<td>Round</td>
<td>2 1/4</td>
<td>57</td>
<td>1/4 FH</td>
<td>8.75</td>
<td>8.75</td>
<td>1 user</td>
<td>1 user</td>
</tr>
<tr>
<td>IN629</td>
<td>Round</td>
<td>3 3/4</td>
<td>95</td>
<td>1/2 FH</td>
<td>24</td>
<td>24</td>
<td>2 users</td>
<td>1 user</td>
</tr>
<tr>
<td>IN647</td>
<td>Round/polished</td>
<td>3</td>
<td>76</td>
<td>3/8 FH</td>
<td>6</td>
<td>6</td>
<td>2 users</td>
<td>1 user</td>
</tr>
<tr>
<td>IN648</td>
<td>Round</td>
<td>3</td>
<td>76</td>
<td>3/8 FH</td>
<td>17.5</td>
<td>17.5</td>
<td>1 user</td>
<td>1 user</td>
</tr>
<tr>
<td>IN688</td>
<td>Diamond</td>
<td>3 1/8</td>
<td>79</td>
<td>1/4 FH</td>
<td>7.8</td>
<td>7.8</td>
<td>1 user</td>
<td>1 user</td>
</tr>
<tr>
<td>IN689</td>
<td>Diamond</td>
<td>3 7/8</td>
<td>98</td>
<td>5/16 FH</td>
<td>15.75</td>
<td>15.75</td>
<td>1 user</td>
<td>1 user</td>
</tr>
</tbody>
</table>

*= Breaking Load/4

Larger padeye for size comparison only
Nothing beats Harken Industrial ball bearing cam cleats for a secure grip. Cleat engages rope with a downward snap of the wrist, keeps it where you put it, and releases quickly — even under high loads. Ideal for material handling and for use in the exercise equipment and theatrical industries.

Engage, Hold, Release Rope Easily Under Load

PROTECTIVE TOOTH DESIGN
Each rope size is held securely by the most number of teeth which squeeze, rather than cut into the rope, greatly reducing wear.

MATERIALS FOR DIFFERENT LOAD RANGES
Hard Lube-anodized aluminum for high loads; lightweight, UV-stabilized composite also available for low-load applications. Contact Harken Industrial for more information.

Engage and Release Easily
Cam cleats engage under maximum tension, hold securely, and release instantly under load. Multiple rows of UV-stabilized ball bearings reduce friction. The cam's V-shape guides rope for easy entry.

Full Range of Accessories
Stainless eyestraps, colored Flairleads, fairleads, and cam cleats guide rope, with some releasing and recleating up to 90 degrees; adapter plates ensure optimal cleating heights; wedge kits and risers improve cam angles.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Min Rope Ø</th>
<th>Max Rope Ø</th>
<th>Fasteners</th>
<th>Min Rated Load</th>
<th>Breaking Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>468</td>
<td>Micro aluminum cleat</td>
<td>3/32 in</td>
<td>1/4 in</td>
<td>#8 RH</td>
<td>150 lb</td>
<td>400 lb</td>
</tr>
<tr>
<td>150</td>
<td>Standard aluminum cleat</td>
<td>1/8 in</td>
<td>1/2 in</td>
<td>#10 FH</td>
<td>200 lb</td>
<td>750 lb</td>
</tr>
<tr>
<td>280</td>
<td>Large aluminum cleat</td>
<td>1/4 in</td>
<td>5/8 in</td>
<td>1/4 FH</td>
<td>500 lb</td>
<td>1000 lb</td>
</tr>
</tbody>
</table>
COVERAGE. Harken® warrants that each Harken Industrial product, when properly used and maintained, will be free from defects in material and workmanship from the date of receipt of the product by the final customer.

THE LIMITED PROFESSIONAL CUSTOMER WARRANTY. This limited warranty applies to all Harken Industrial products purchased for final use by or on behalf of any entity other than a private individual (such as by corporations, partnerships, etc.)

The Owner’s sole and exclusive remedy under this limited PROFESSIONAL CUSTOMER WARRANTY for original defects in materials or workmanship of a Harken Industrial product shall be the repair or replacement, in Harken Industrial’s sole discretion, of the defective part or component, in accordance with the terms of this warranty.

WARRANTOR. For products originally sold in the Unites States, the limited warranty for the products is supplied by Harken, Inc. For products originally sold in the European Union, the limited warranty for the products is supplied by the dealer who sold the product through the Harken Distributors in that country. For products originally sold in the rest of the World, the limited warranty for the products is supplied directly by the Harken Industrial Distributors in that country. When “Harken Industrial” or “Harken” is mentioned throughout this Limited Warranty, it refers to the entity as defined in this paragraph.

OWNER – NON-TRANSFERABLE WARRANTY. This warranty is made by Harken with only the original purchaser of the product and does not extend to any third parties. The rights of the original purchaser under this warranty may not be assigned or otherwise transferred to any third party.

WARRANTY TERM. The limited PROFESSIONAL CUSTOMER WARRANTY covers any original defects in material or workmanship manifested within 12 months of the date of receipt of the product by the final customer. The same coverage for Access and Tight Radius rail and trolley in non-marine applications such as built environments has a term of 10 years. The same coverage for Access and Tight Radius rail and trolley in marine use and corrosive applications is limited to the aforementioned 12 month term.

NOT COVERED. The limited PROFESSIONAL CUSTOMER WARRANTY does not apply to, nor shall Harken have any liability or responsibility for, damages or expenses relating to defects caused by misuse, abuse, failure to install, use, maintain or store the Harken Industrial product as specified in the warranty booklet, service booklet, manuals, catalogue or other literature available from Harken Industrial.

The limited PROFESSIONAL CUSTOMER WARRANTY does not apply to, and neither Harken shall have any liability or responsibility in respect of, damages or expenses relating to:

- defects in material or workmanship that did not exist when the product was first delivered;
- defects in material or workmanship that are manifested outside the warranty period;
- defects which are not reported to Harken Industrial within sixty (60) days of discovery;
- a product that has been altered or modified from factory specifications;
- damage or deterioration of cosmetic surface finishes, including cracking, crazing, discoloration or fading;
- accidents, misuse, abuse, abnormal use, improper use, lack of reasonable or proper maintenance or storage;
- installation, wiring, service or repairs improperly performed or replacement parts or accessories not conforming to Harken Industrial’s specifications;
- use exceeding the recommended and permitted limits or loads of the product and/or the product on which the product is installed;
- normal wear or deterioration occasioned by the use of the product or its exposure to the elements;
- ropes, lines, LOUPS™, buckles and webbing;
- clear coat finishes on carbon fiber;
- loss of time, loss of use, inconvenience, travel expense, costs related to procuring any substitute product, transportation costs, any incidental or consequential damages arising out of the non-use of the product, or compensation for inconvenience or loss of use while the product is being repaired or otherwise not available, or other matters not specifically covered hereunder;
- the costs to remove, disassemble or re-install the product;
- removal, storage and replacing of the product on which the product has been installed, even where this is necessary to carry out the warranty service.

The limited PROFESSIONAL CUSTOMER WARRANTY does not cover, nor shall Harken have any liability or responsibility in respect of, damages or expenses relating to, the following products and/or components:

- pawls and pawl springs in winches;
- components and gears in titanium;
- washers and spacers;
- winch drum grip;
- ball bearings, roller bearings, thrust bearings;
- winch handles.

PROCEDURE. In the event of a defect covered by this limited warranty, the Owner shall contact one of Harken Industrial’s worldwide Distributors (see www.harkenindustrial.com). If the product was originally sold in European Union the Owner shall contact the dealer that sold the product. To obtain warranty service for or replacement of your Harken Industrial product, your specific and detailed claim must be reported to and received by Harken Industrial, in writing, in accordance with the terms of this warranty and within the applicable warranty period. Also provide your name, address, phone number, original sales receipt, a description of the application of the product, and an explanation of the defect and conditions under which the product was used. The Owner is responsible for all expenses associated with transporting the product to and from Harken Industrial or a Harken Industrial dealer. If the examination of the product and the warranty claim reveals that the defect is not covered by this warranty, you will be contacted and advised of the cost of repair of your product. If you accept this estimate, the product will be repaired outside of this warranty.

DAMAGES OR OTHER COSTS. Except as expressly provided by this warranty, HARKEN SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR OTHER COSTS, WHETHER THE CLAIM IS BASED IN CONTRACT, TORT OR OTHERWISE, including but not limited to any costs, taxes, fees, levies or other expenses imposed by any location in which the product was originally sold. The foregoing statements of warranty are exclusive and in lieu of all other remedies. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you.

DISCLAIMER. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL IMPLIED WARRANTIES ARISING FROM A COURSE OF DEALING, USAGE OF TRADE, BY STATUTE OR OTHERWISE, IS HEREBY STRICTLY LIMITED TO THE TERM OF THIS WRITTEN LIMITED WARRANTY. This Agreement shall be the sole and exclusive remedy available to the Owner with respect to this product. In the event of any alleged breach of any warranty or any legal action brought by the purchaser based on alleged negligence or other tortious conduct by Harken, the Owner’s sole and exclusive remedy will be repair or replacement of defective materials as stated above. No dealer and no other agent of Harken is authorized to modify, extend or enlarge this warranty.
Industrial products make work easier and can save valuable time. However, there are inherent risks in using industrial products and related equipment that must be respected in order to avoid an accident, damage to property, personal injury, or death.

WARNINGS AND INSTRUCTIONS: You must carefully read, understand, and follow all warnings and instructions provided by Harken Industrial in order to avoid an accident. These warnings and instructions are found on the equipment, in packaging, in our brochures, on our website, or through our customer service department.

TRAINING AND EXPERIENCE: Even though Harken Industrial equipment appears simple and easy to operate (as intended by our design), our equipment should never be used unless you have a sufficient level of training and experience with load handling, or general experience in industries such as work at height, rescue, or fall restraint, and with the equipment in particular. The amount of training and experience depends on a number of factors: associated equipment, regulations, the weather conditions, and the task you are trying to complete. If you have any doubt about your training or experience, do not use the equipment. Please contact Harken Industrial or seek additional training.

AVOID ACCIDENT OR INJURY: Regardless of your skill level, in order to avoid an accident, damage to property, personal injury, or death:

1. Loads on equipment can be significant, and shock loading can quickly multiply that load to extremely high levels. All persons selecting, installing, using, or maintaining Harken Industrial equipment and related fastenings must be aware and cautious of such loads.
2. Select appropriate Harken Industrial equipment by careful analysis of published loading and relevant loading factors. Consult with a structural engineer to confirm your choice. Always follow current regulations for your industry, and use formal risk assessment for your project. See Safer Working Practice at www.harkenindustrial.com. If you prefer, contact Harken Industrial directly.
3. Never, under any circumstances, exceed the capacity or Maximum Working Load (MWL) of any piece of equipment. The maximum working load may be found in our catalog, on our website, or through our Technical Service department. Loads above the MWL can cause the equipment to suddenly fail unexpectedly.
4. Harken equipment is used in a wide variety of applications including a line of products dedicated solely to the sport of sailing. The sport of sailing has very different loading requirements compared to industrial applications. Equipment is shown and described in a separate sailing related catalog and website. Always use the industrial catalog and website for specifications and correct safety factors for non-sailing applications. Contact Harken Industrial if you have any questions about this distinction.
5. Do not use Harken equipment for human suspension unless product is specifically certified and labeled for such use. Consult Harken Industrial technical service if you have any questions regarding suitability for human suspension.
6. Make certain that all related fasteners, connections, tethers, and anchorage points follow industry regulations and match or exceed maximum working loads of Harken Industrial equipment.
7. Keep fingers, hands, hair, loose clothing, gloves, and tools away from moving parts.
8. Before manipulating any piece of equipment, be sure that all persons and objects are clear of moving components.
10. Follow maintenance procedures specified in the manual to keep your equipment in optimum working order.
11. Be sure all products and related safety equipment and electronics are in good working order before using.
12. Always have a rescue plan in place and the means to implement it for operators working in human suspension or working at height. Communicate that plan to users, authorized personnel, and rescuers.
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For an up-to-date listing of independent Harken Industrial Distributors, Dealers and Certified Installers, please visit harkenindustrial.com.