



Form 16046195
Edition 1
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Warehouse Handling Device

Installation Manual



Save These Instructions

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PRODUCT SAFETY INFORMATION

WARNING

- Do not use this Handling Device for lifting, supporting, or transporting people. Do not use the system to lift or support loads over people. Always operate, inspect and maintain this equipment in accordance with applicable safety codes and regulations.
- Equipment shown in this manual is intended for industrial use only. Use only Ingersoll-Rand components in installation. All Ingersoll-Rand components are tested and certified to applicable safety standards.

■ Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in a hazard. The following signal words are used to identify the level of potential hazard.

 DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
NOTICE	Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

■ Safety Summary

WARNING

- Noncompliance, either in full or in part, with the operational directions marked with this symbol can result in injury, property or material damage. Danger, Warning and Caution notices must be strictly adhered to.

CAUTION

- The manufacturer has attempted to detail in this manual all areas of possible danger to personnel concerning the use of this equipment. However, personnel should use caution when installing, commissioning, adjusting, operating, and servicing this equipment.
- The manufacturer is not liable for any damage or injury arising from a workers failure to follow the instructions contained in this manual and failure to exercise due care and caution in the adjustment, installation, operation, service of this equipment. The following safety information should be carefully read and followed.
- Personal protective and safety equipment required by the operator's surrounding environment must be used and maintained in accordance with the manufacturer's instruction.

NOTICE

- The Custom End Effector will be referred to as the H/D (Handling Device) throughout this document.
- Lifting equipment is subject to different regulations in each country. These regulations may not be specified in this manual.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near suspended loads or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting

operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

The Occupational Safety and Health Act of 1970 generally places the burden of compliance with the owner/employer, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, associated with the final installation. It is the owner's and user's responsibility to determine the suitability of a product for any particular use. It is recommended that all applicable industry, trade association, federal, state, and local regulations be checked. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. Refer to ASME B30.9 for rigging information, American Society of Mechanical Engineers, Three Park Ave, New York, NY 10016.

This manual has been produced by **Ingersoll-Rand** to provide dealers, mechanics, operators and company personnel with the information required to install, operate, maintain and repair the products described herein. It is extremely important that mechanics and operators be familiar with the servicing procedures of these products, or like or similar products, and are physically capable of conducting the procedures. These personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of mechanics common hands tools as well as special **Ingersoll-Rand** or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

Ingersoll-Rand cannot know of, or provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

Ingersoll-Rand recognizes that most companies who use **Ingersoll-Rand** H/D Systems have a safety program in force at their facility. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow personnel trained in safety and operation of this system to operate and maintain this system.
2. When a "DO NOT OPERATE" sign is placed on the H/D, do not use until repairs or adjustments have been completed and the sign has been removed by designated personnel.
3. Before each shift, visually check the H/D for wear and damage. Never use a H/D that inspection indicates is worn or damaged.
4. Never exceed the rated capacity of the H/D. Refer to labels attached to the H/D.
5. Pay attention to loads suspended from the H/D at all times.
6. Make sure everyone is clear of the load path. Do not lift a load over people.
7. Use good posture when operating H/D.
8. Do not swing a suspended load.
9. Never suspend a load for an extended period of time.
10. Never leave a suspended load unattended.
11. Never weld or cut a load suspended from the H/D.
12. Do not operate H/D if jamming, overloading, or binding occurs.
13. Avoid collision or bumping of suspended components on the H/D.

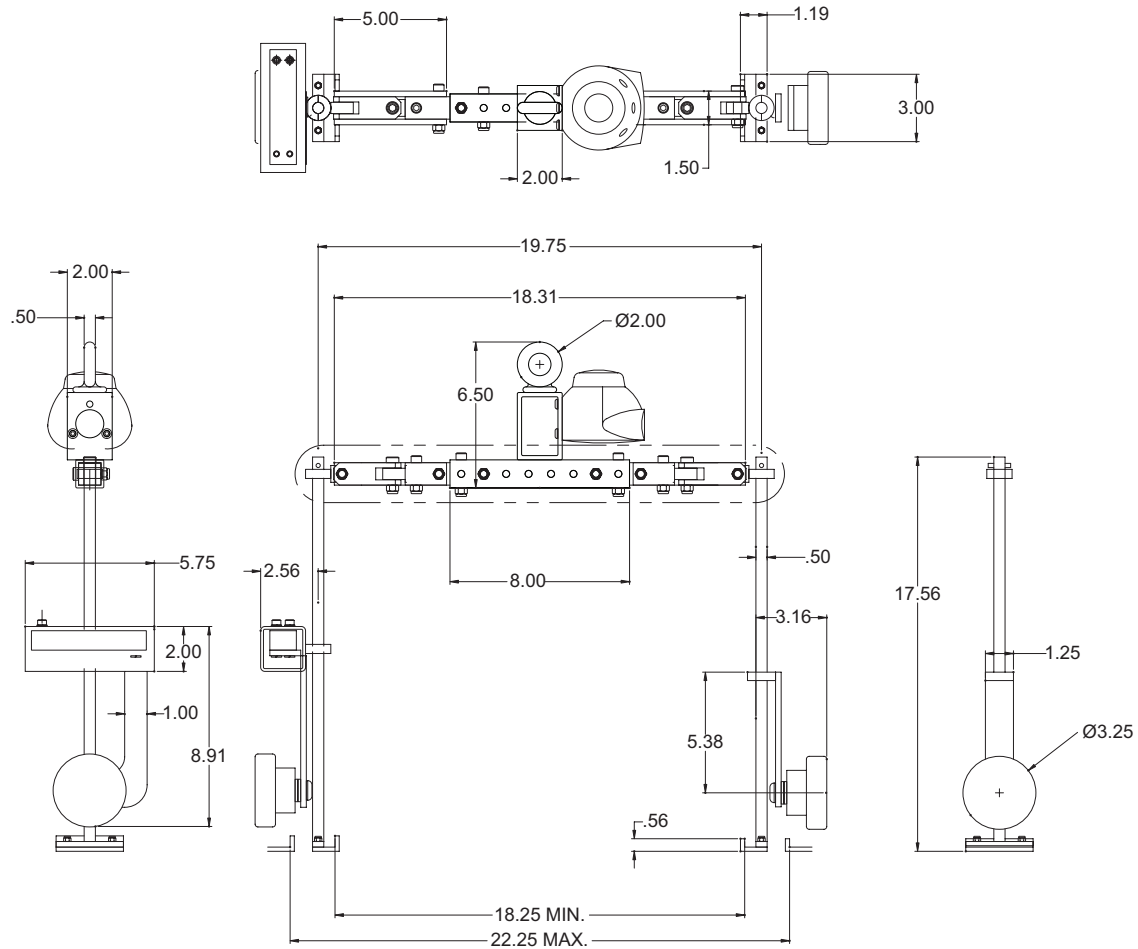
GENERAL HANDLING SYSTEM INFORMATION

Ingersoll-Rand H/D Systems are a group of engineered components designed to maximize the interaction between man and machine. The H/D mounts to a **Ingersoll-Rand** support system, articulating arm, balancer, jib crane, or aluminum and steel rail system. The H/D has a wire rope with load hook attached to a H/D that is used to lift and manipulate the part(s).

The support system provides easy horizontal movement, which creates a package that requires little physical effort reducing operator fatigue. Suspended part(s) can be moved left or right, forward or back, for a predetermined distance, from a pick up point to a set down point. This manual provides necessary information for the **Ingersoll-Rand** Ergonomic Handling System. While its scope cannot be complete unless addressing a specific system in a specific environment, it provides the installer and operator a

clearer picture of the systems that can be assembled with **Ingersoll-Rand** equipment and accessories.

SPECIFICATIONS



(Figure - 1)

OPERATION

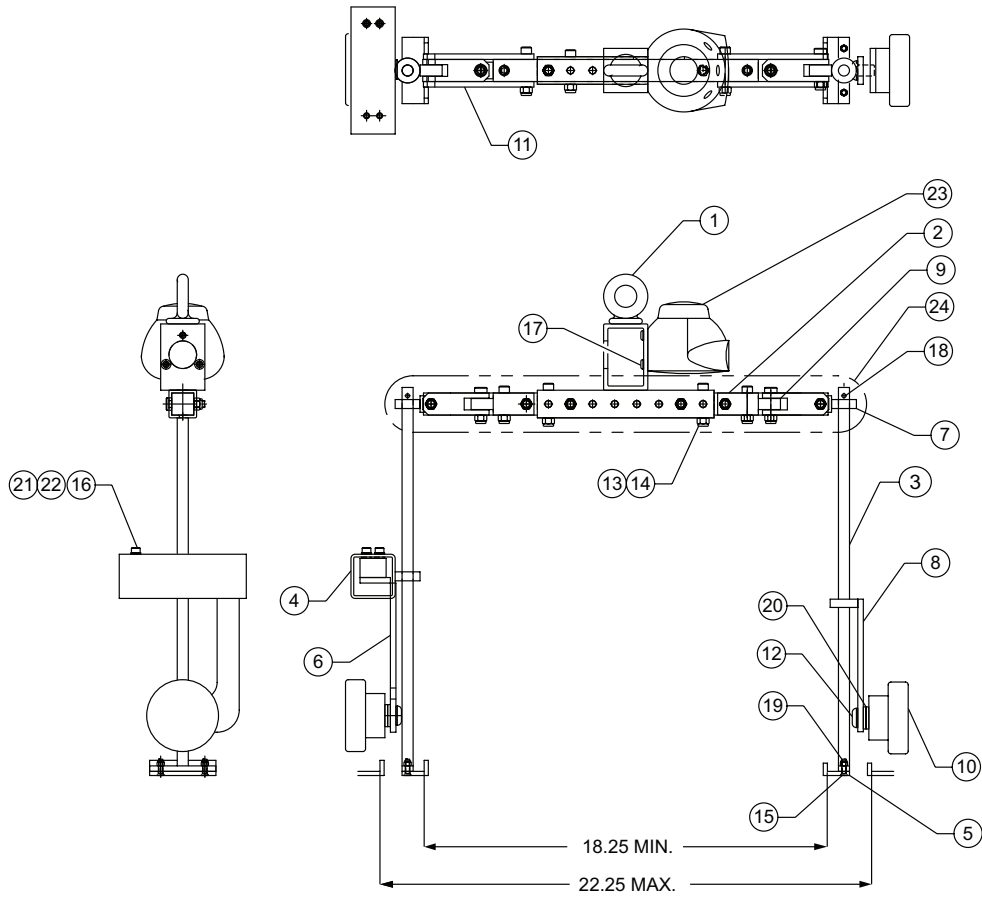
■ Handling Device Operation:

The handling device is controlled by use of the Fluted Knobs (Item 10, Figure - 2). The knob is connected to the Load Cell Bracket (Item 4). When **upward** pressure is applied to the knob, the handling device will raise. Pressing **downward** on the knob will lower the device. For Intelift operation, refer to manual MHD56222.

■ Maneuvering the Load:

1. Position the device over the load.
2. Articulate the Swing Arms (Item 3) to engage the load.
3. Ensure the load is engaged completely.
4. Apply **upward** pressure to the Knob to raise the load.
5. Reposition the device to the set-down area.
6. Apply **downward** pressure to the Knob to lower the load.
7. Ensure the load is resting securely in the set-down area.
8. To release the load, apply **downward** pressure to the Knob while articulating the Swing Arms away from the load.

WAREHOUSE H/D ASSEMBLY DRAWING



(Figure - 2)

WAREHOUSE H/D ASSEMBLY PARTS LIST

Item No.	Description of Parts	Total Quantity	Part Number
1	Pad Eye Bracket	1	16010217
2	Telespar Insert	2	54039508
3	Swing Arm	2	54039516
4	Load Cell Bracket - Enclosure	1	16010795
5	Gripper	2	16010787
6	Handle Bracket	1	54039540
7	Clevis	2	54039557
8	Dummy Handle Bracket	1	54039565
9	Tool Holder Assembly - Bi-Directional Tilt	2	54033162
10	Fluted Knob	2	54039581
11	Lock-Out Plate	4	16012288
12	Screw (1/2-13 x 1.25" LG. B.H.C.S)	2	72053
13	Screw (5/16-18 x 1.75" LG. S.H.C.S)	4	70951
14	Locknut (5/16-18 ESNA NE)	4	75518
15	Screw (#10-32 x 0.75" LG. F.H.C.S)	4	70219
16	Screw (M6-1.0 x 30mm LG. S.H.C.S)	4	70976M
17	Screw (1/4-20 x 0.50" LG. B.H.C.S)	3	10070
18	Spring Roll Pin (3/16 x 1.0" LG.)	2	77056
19	Locknut (#10-32 ESNA NE)	4	75510
20	Washer - Bronze (0.5 ID x 1.0 OD x 0.125 Thick)	4	65008
21	Washer - Flat M6	2	54027750
22	Lock washer M6	4	54027776
23	Load cell Handle with Pre Coil Cable	1	ZHSEA0152
24	Nylon Wrap - 24" LG.	1	16051344

PARTS ORDERING INFORMATION

Handling Systems are designed and constructed to provide long, trouble-free service. In time it may become necessary to order and install new parts to replace those that have been subjected to wear.

The use of other than **Ingersoll-Rand** replacement parts may result in decreased performance, and may invalidate the warranty. For prompt service and genuine **Ingersoll-Rand** parts, provide your nearest Distributor with the following:

1. Complete model number and serial number as it appears on the nameplate.
2. Part number and part description as shown in this manual.
3. Quantity required.

For your convenience and future reference it is recommended that the following information be recorded.

Model Number _____

Serial Number _____

Date Purchased _____

■ Return Goods Policy

If it becomes necessary to return the complete Handling System or certain parts to the factory, contact the Distributor from whom you purchased the Handling System, or the nearest **Ingersoll-Rand** Distributor in your locality, **Ingersoll-Rand** will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased.

NOTICE

• **Continuing improvement and advancement of design may cause changes to this Handling System which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.**

■ Disposal

When the life of the Handling System has expired, it is recommended that the Handling System be disassembled, degreased and parts separated as to materials so that they may be recycled.

SERVICE AND MAINTENANCE

For additional information contact:

Ingersoll-Rand
U.S. and International Sales
1872 Enterprise Drive
Rochester Hills, MI 48309
Phone: (248) 293-5700
Fax: (248) 293-5800

For additional information on related products order publication by the referenced Part/Document Number listed:

Product	Part/Document Number
Balancer Service Manual	MHD56151

WARRANTY

The Company warrants that the Equipment manufactured by it and delivered hereunder will be free of defects in material and workmanship for a period of twelve months from the date of placing the Equipment in operation or eighteen months from the date of shipment, whichever shall first occur.

Separately sold parts are warranted for a period of six months from date of shipment. The Purchaser shall be obligated to promptly report any failure to conform to this warranty, in writing to the Company within said period, whereupon the Company shall, at its option, correct such nonconformity, by suitable repair to such Equipment or, furnish a replacement part F.O.B. point of shipment, provided the Purchaser has stored, installed, maintained and operated such Equipment in accordance with good industry practices and has complied with specific recommendations of the Company. Accessories or equipment furnished by the Company, but manufactured by others, shall carry whatever warranty the manufacturers have conveyed to the Company and which can be passed on to the Purchaser. The Company shall not be liable for any repairs, replacements, or adjustments to the Equipment or any costs of labor performed by the Purchaser or others without the Company's prior written approval.

The effects of corrosion, erosion and normal wear and tear are specifically excluded. Performance warranties are limited to those specially stated within the Company's proposal.

The company makes no other warranty or representation of any kind whatsoever, expressed or implied, except that of title, and all implied warranties of merchantability and fitness for a particular purpose, are hereby disclaimed.

Correction by the Company of non conformities whether patent or latent, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of the Company for such non conformities, whether based on contract, warranty, negligence, indemnity, strict liability or otherwise with respect to or arising out of such Equipment.

The Purchaser shall not operate Equipment which is considered to be defective, without first notifying the Company in writing of its intention to do so. Any such use of Equipment will be at the Purchaser's sole risk and liability.

Limitation of Liability

The remedies of the purchaser set forth herein are exclusive, and the total liability of the company with respect to this contract or the equipment and services furnished hereunder, in connection with the performance or breach thereof, or from the manufacture, sale, delivery, installation, repair or technical direction covered by or furnished under this contract, whether based on contract, warranty, negligence, indemnity, strict liability or otherwise, shall not exceed the purchase price of the unit of equipment upon which such liability is based.

The company and its suppliers shall in no event be liable to the purchaser, any successors in interest or any beneficiary or assignee of this contract for any consequential, incidental, indirect, special or punitive damages arising out of this contract or any breach thereof, or any defect in, or failure of, or malfunction of the equipment hereunder, whether based upon loss of use, lost profits or revenue, interest, lost goodwill, work stoppage, impairment, of other goods, loss by reason of shutdown or non-operation, increased expenses of operation, cost of purchase of replacement power or claims of purchaser or customers of purchaser for service interruption whether or not such loss or damage is based on contract, warranty, negligence, indemnity, strict liability or otherwise.

NOTES

www.irttools.com

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