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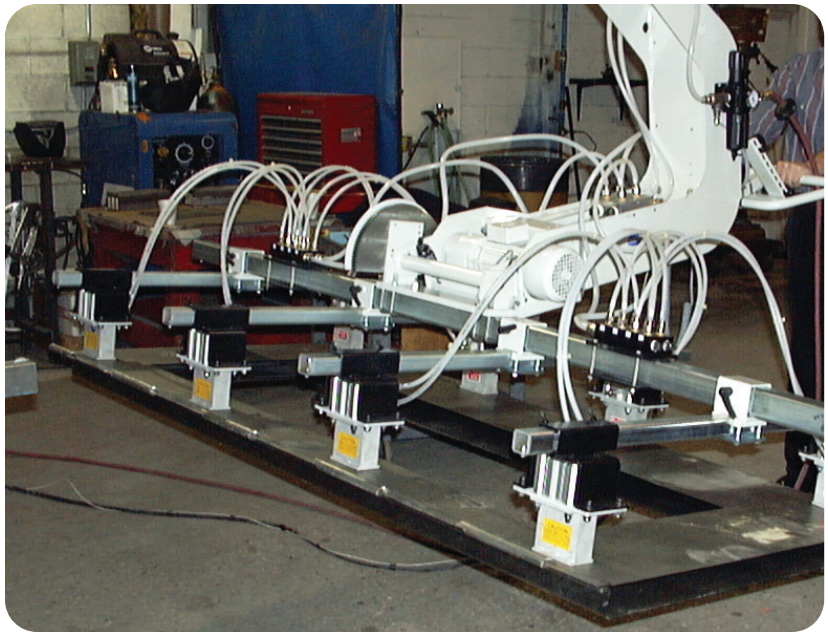

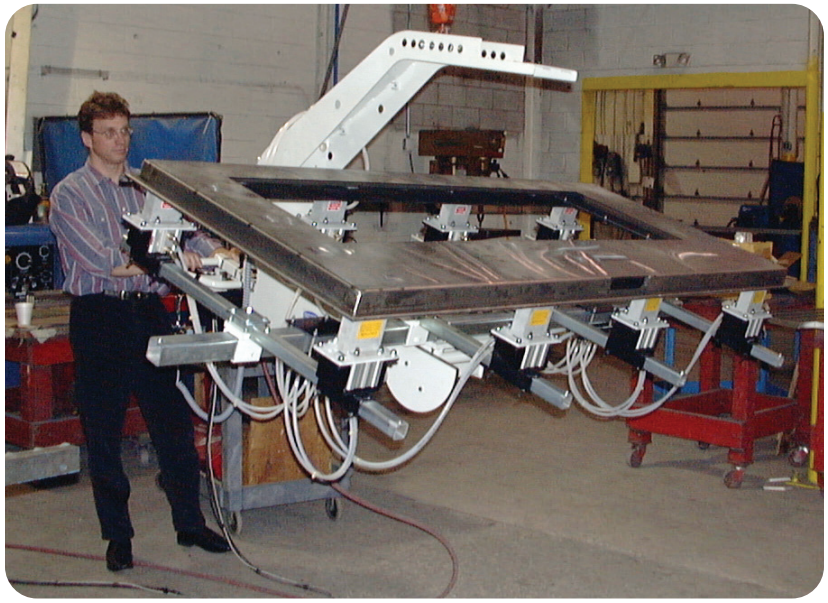

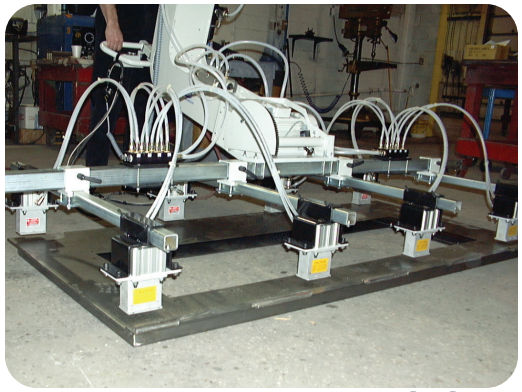

Transporter® Cylinder Actuated Magnets Provide Ergonomic Solution

IMI's line of Transporter® Cylinder Actuated (TPCA) Magnets are often used for assembly applications in conjunction with ergonomic manipulation equipment. The pictures to the left show TPCA200 Series Magnets arranged on a boom that is used to flip an industrial door framework during an assembly operation. The magnets allow the part to be lifted and moved in any orientation.

For More Information On Transporter® Cylinder Actuated Magnets See Techsheet **AG-01B**.

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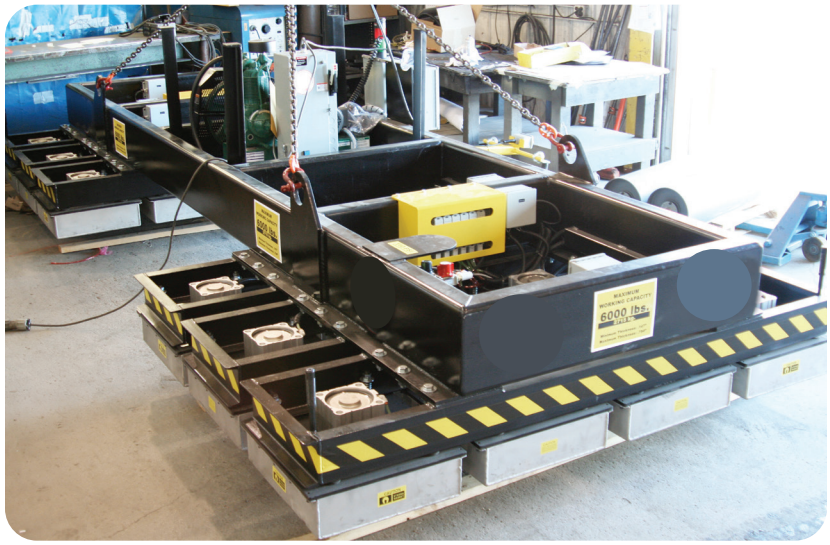
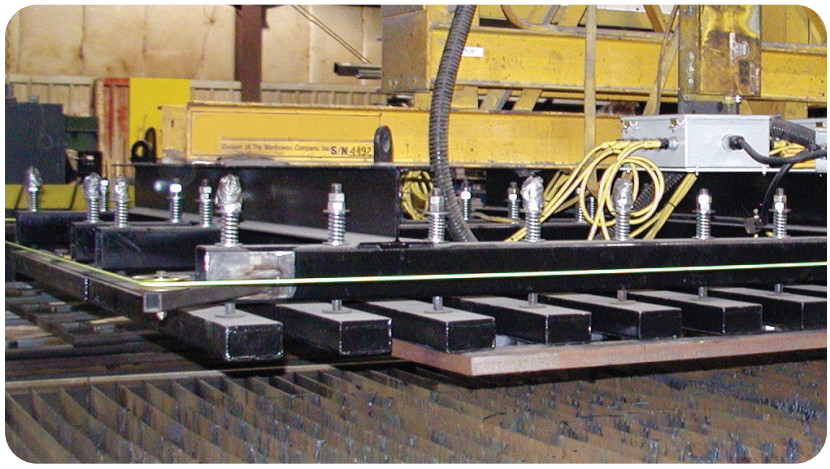


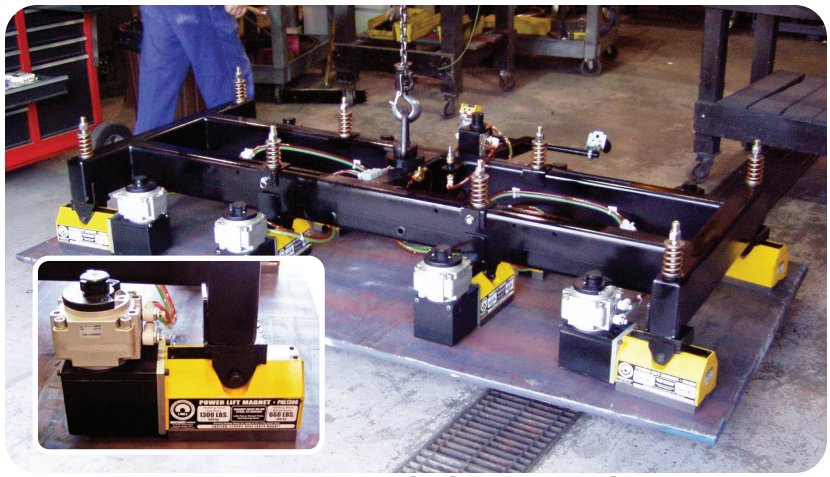
Custom Magnets For Plate Lifting And Moving

TOP: This plate lifter was designed to increase production on a large laser table for a military contractor who makes armor plating parts. The plates being lifted are 24' x 8' with thicknesses ranging from 0.147" to 0.75". The plates will be lifted from a stack onto a cutting table one at a time without double blanking. Afterwards the skeleton and parts will be cleared from the table in two passes, two quarters at once.

It features two clusters of heads spread out to lift every other quarter & provides enough coverage to clear the skeleton and all parts as small as 6" long. Parts smaller than 6" long have tabs to ensure they are lifted with the skeleton.



MIDDLE: Electromagnetic plate lift system for loading a cutting table with up to 2" thick plates. It is designed for loading 8' wide x 10' long plate steel ranging from .375" to 2" thick. This plate lift system can be used to remove the skeleton and parts together in one pass.



BOTTOM: Pneumatic actuation controls the On/Off release of PNL1300 Permanent Rare Earth magnets. Designed for lifting 5' x 10' plates 5" thick weighing up to 10,000 lbs.

Air-logic load sensor only allows the magnets to release the load when it is at rest on a solid surface. Structural steel main beams with 4 cross beams. Fixed mounting provisions for four magnets at opposite corners of the spreader beam and adjustable positioning for four magnets on the two center cross beams.

For More Information On Sheet Lifters See Techsheet **AG-03A** and for PowerLifts® See **101 Catalog pg. 14**.

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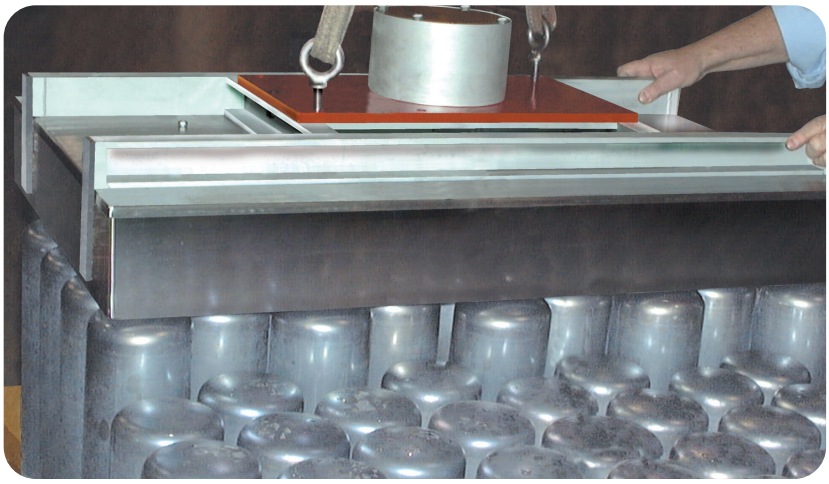

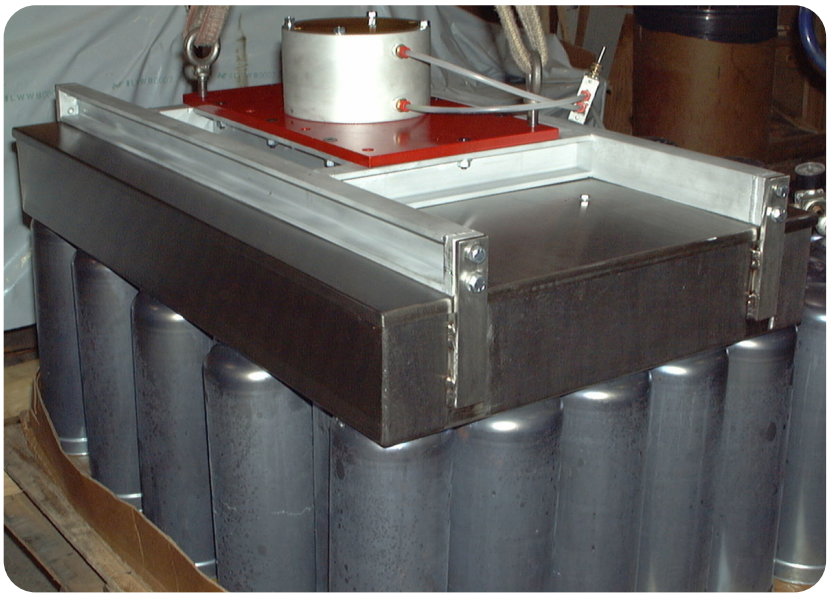

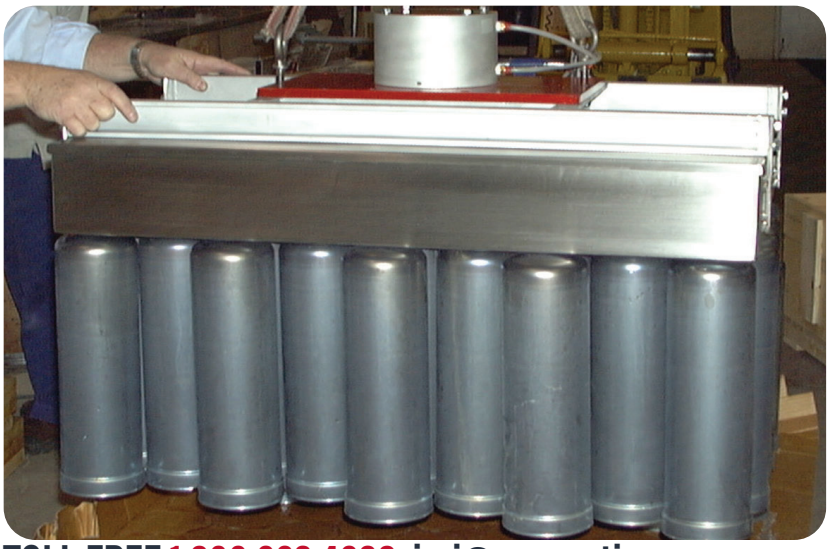

Custom Palletizer/ Depalletizer Application

Designed to increase production and reduce product damage. Magnetic Depalletizers provide a safe and efficient method of transferring any items that are palletized. Powerful magnetic transfer heads securely move products from accumulators to shipping containers, without the need for additional holding devices.

Both Palletizers and Depalletizers are designed with a cylinder actuation, which makes them perfect for automated processes.

Typical Applications

- Full or empty food and beverage cans
- Brake drums and rotors
- Jars with steel lids
- Empty paint cans
- Composite cans
- Batteries
- Aerosol cans
- Lids

For More Information On Palletizers / Depalletizers See Techsheet **AG-03C**.

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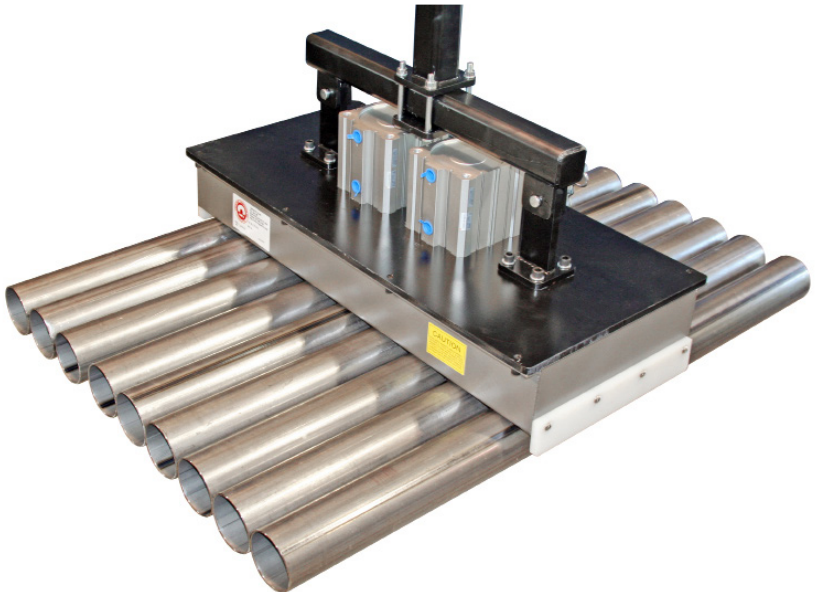
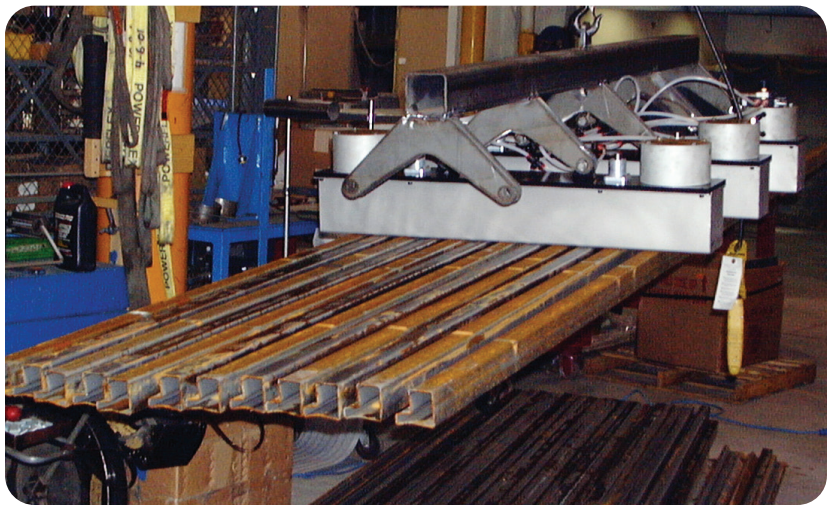


Customized Tube Lifting

Magnetic Tube Lifters are designed to assist in stacking, destacking, loading and unloading a variety of tube and pipe applications. This is a permanent magnet that utilizes cylinder actuation to release a single tube/pipe or row of tube/pipe.

In the result of a loss of shop air, the Tube Lifter is designed to remain in a “failure safe” mode without the need for a battery back-up system; simply put, the magnet will not drop the tube or pipe, ensuring safer working conditions.

TOP/MIDDLE: The Tube Lifter is ideal for hydroforming, roll-forming, packing, cutting or tube or pipe fabrication applications.



BOTTOM: This heavy-duty lifter was designed to move large pipe with diameters ranging from 12” to 42”. The maximum pipe weight is 8,000 lbs.

A compressor was mounted to the spreader to provide the compressed air required. The spreader doubled as an accumulator tank for the compressed air. The leg supports doubled as load sensors alerting the operator to the proper placement of the magnet on the pipe.

Sensors were used to determine the position of cylinders to ensure all magnets were engaged before the operator was allowed to lift the load.

For More Information On Tube Lifters See Techsheet **AG-03B**.

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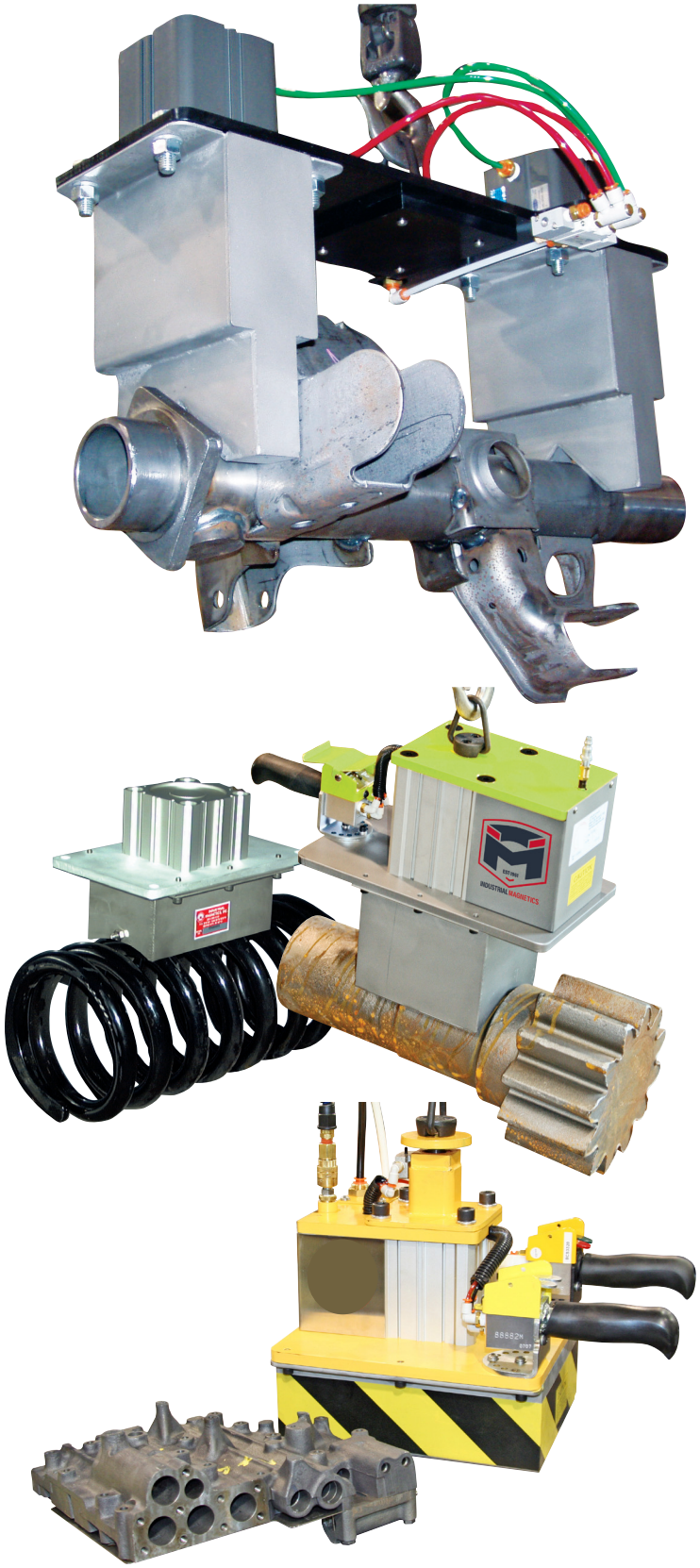

Custom Transporter® Cylinder Actuated Magnets For Awkward Products

TOP: Two magnets move the weldments out of a robotic weld cell. The magnets were required to be same profile as the weldments to fit narrow gaps between welding components.

The lifter is suspended from a customer supplied air balancer. The parts weigh over 40 lbs., have multiple sharp edges and very few handholds - making a magnetic solution ideal.

MIDDLE: Transporter® Cylinder Actuated Magnets (TPCA) custom designed to pick-up unique and odd shaped parts such as a large truck spring and a solid steel gear used in large machinery.

The Transporter technology combined with custom curved and/or angled faces solve material handling applications with round shapes and various steel thickness very well.

BOTTOM: A Transporter® Cylinder Actuated Magnet is used to lift two different valve housings. The housings are cast iron and do not have any flat surfaces. They are moved from packaging to an assembly. Maximum weight of each housing is 35 lbs.

The controls include the standard Magnet Grip & Release as well as Hoist Up & Down controls. Two Release buttons have to be pressed at the same time to release the magnet. This option was provided to prevent the operator from accidently dropping the part by pressing one of the RELEASE buttons accidently.

For More Information On Transporters® See Techsheet **AG-01B**.

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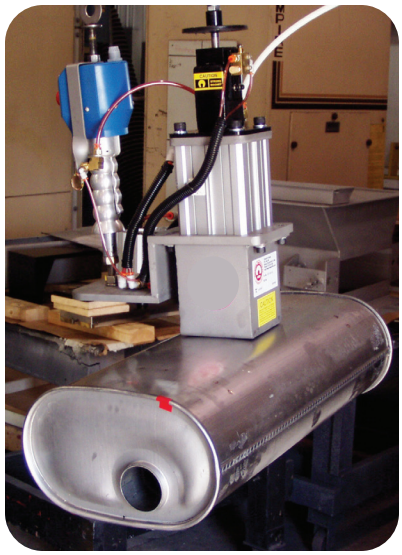
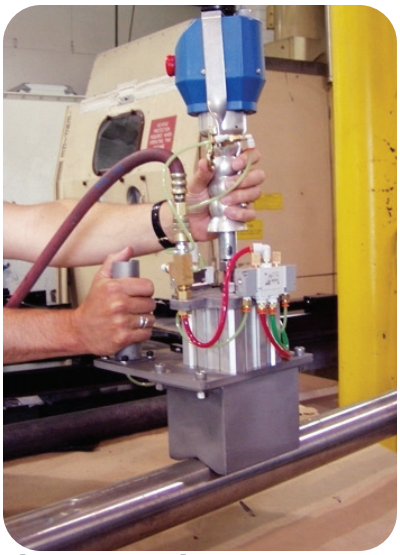
Combining Gorbel Technology With Transporter® Cylinder Actuated Magnets

TOP: A Gorbel slide handle was integrated into a small spreader for lifting clutch components during assembly. Stacks of pressure plates are moved to an assembly area where the magnet lifts one at a time from the stack. It is then moved to the assembly area. The single GRIP/RELEASE button allows the operator to maintain contact with the slide handle. Indicators were mounted on the exterior of the control enclosure to alert the operator to the state of the magnet.





LOWER LEFT: A permanent magnet was designed to lift and load three different sized mufflers into cardboard boxes. This ergonomic solution saves the operator from repetitive bending and lifting of heavy parts. The lift magnet has two handles, each with their own release button, combined with the "float mode" on the G-Force lets the operator precisely guide the load into the shipping container.

LOWER RIGHT: The permanent magnet was designed to move different diameter shafts between machining operations.

For More Information On Transporters® See Techsheet **AG-01B**.

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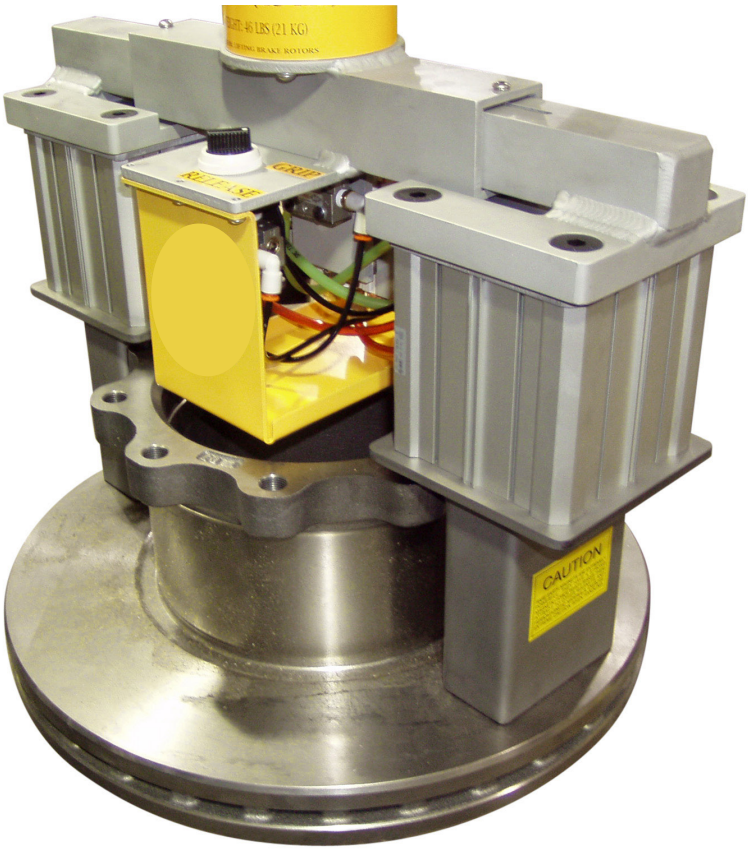

Custom Cylinder Actuated Magnets For Lifting And Moving Large Circular Applications

TOP: Three Transporter® Cylinder Actuated Magnets are used to lift coils of steel banding 26" in diameter and weighing up to 500 lbs.

The unit was built with an extremely strong custom magnet load. Several safety features were incorporated to prevent unintentional engagement of the magnet.

Magnet Location Sensors are located on the aluminum lift plate to alert the operator as to when the magnets are set down onto a part or another surface. Part Present Switches located on the magnet housings will detect when a part/load is in contact with the face of the magnet and prevent the magnet load from engaging when a load is not present.

BOTTOM: Two Transporter® Cylinder Actuated Magnets are used to lift a variety of large brake rotors. Rotors are moved from a conveyor to packaging. Maximum weight of each rotor is 125 lbs. Diameters range from 14" to 18".

The magnets can be adjusted to match the required diameter. The controls duplicated the existing lift system to make the transition to magnets easier. A load sensor was included to inhibit RELEASE of the load unless it was supported from below.

For More Information On Transporters® See Techsheet **AG-01B**.

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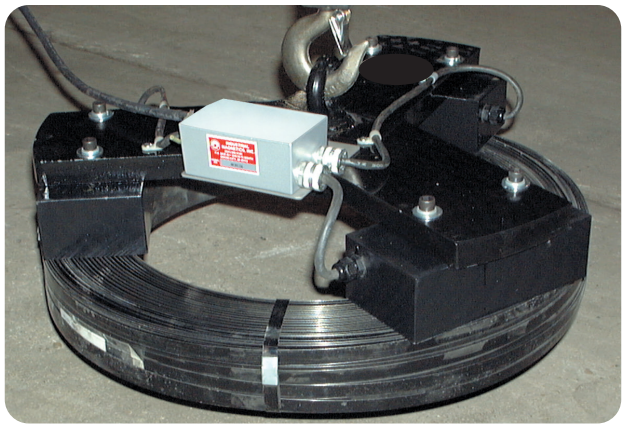
Custom Electromagnets For Lifting And Moving Large Circular Applications

TOP: Lifting flywheels and similar parts weighing up to 85 pounds each. The parts are lifted and moved horizontally. This application was solved with a custom lifting device that utilizes three electromagnets that could be adjusted along a fixed spreader.



MIDDLE: Three electromagnets mounted on a common spreader bar were utilized to pick up rolls of banding.

BOTTOM: Lifting a bearing supported stub shaft and stub shaft assembly weighing up to 60 pounds total. The stub shaft with hub is lifted from a 8" O.D. surface. Once the stub shaft with hub is bolted to the assembly the entire assembly is lifted from a flat backing plate surface. The diameter of the assembly with the flat surface is approximately 16" in diameter. The parts are not rotated during lifting. This application was solved with a custom lifting device that utilizes two electromagnets on a pivoting magnet system.

For More Information On Electromagnets See Techsheet **AG-10A**.

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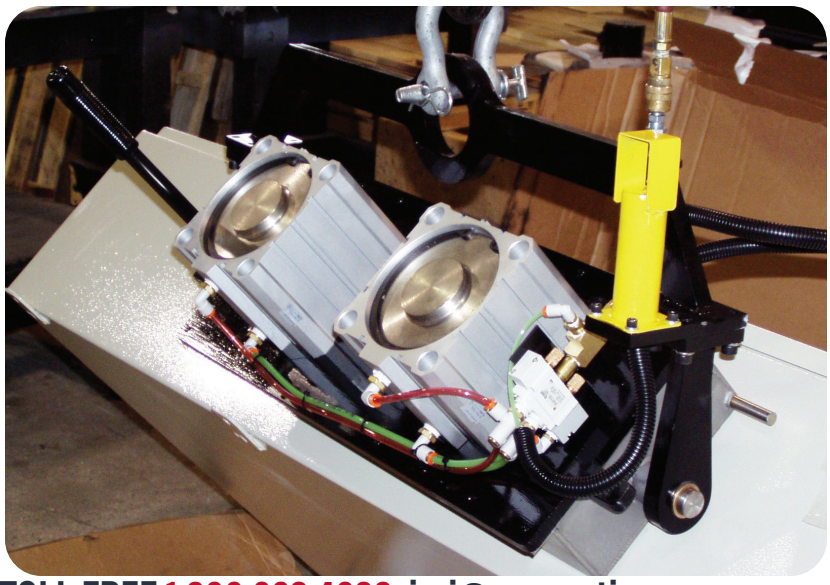
Pivot Mounted Transporter® Cylinder Actuated Magnet Solution

Using an overhead crane, the pivot-mounted TPCA magnet engages the top panel of enclosures presented “doors up”. The crane and magnet then lift the enclosure to a vertical orientation or position so that it can be placed on hangers in a paint line.

After painting, the non-marring magnet face allows the same magnet to be used to remove the enclosures from the paint line and place them back on a table in the “doors up” attitude.

The enclosure weights are 150 to 200 pounds. Prior to using the IMI solution, the end-user was utilizing two operators to manually lift the enclosures onto paint rack hooks that are several feet off the floor.

For More Information On Transporters® See Techsheet **AG-01B.**



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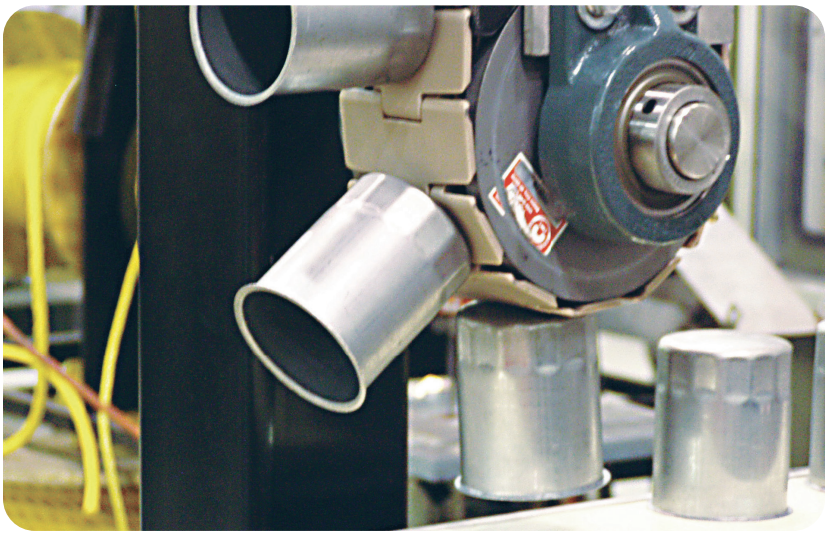

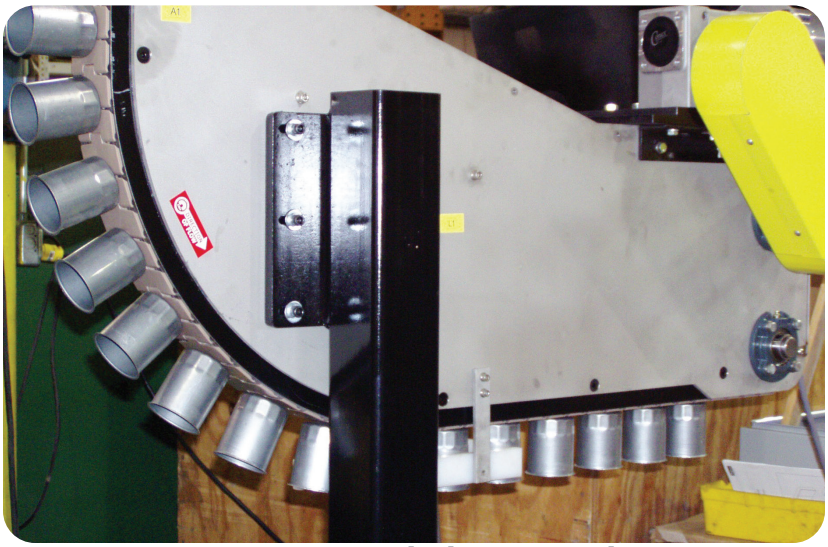

Complete Overhead Magnetic Conveyor With Inverted Inside/Outside Radiused Curves

This system was designed to transfer filter parts overhead in order to keep aisle ways clear for loading the coiled steel into two presses.

The filter cans are lifted from a non-magnetic conveyor with a magnetic pulley and then conveyed on the underside of the conveyor. Once the cans reach the exit end of the conveyor they pass onto a tapered magnetic field where they drop onto a storage yard conveyor system.

This system is equipped with a variable speed drive that can slow or stop the flow of the cans via the customers PLC if the storage yard conveyor gets backed up. This solution eliminated the end user from hand loading filter cans from a turntable on the end of the second press onto the storage yard conveyor over 30 feet away.

IMI engineered and manufactured the entire system at the customers request for a competitive price on a short lead time.

For More Information On Magnetic Conveyors See Techsheet **AG-06B.**

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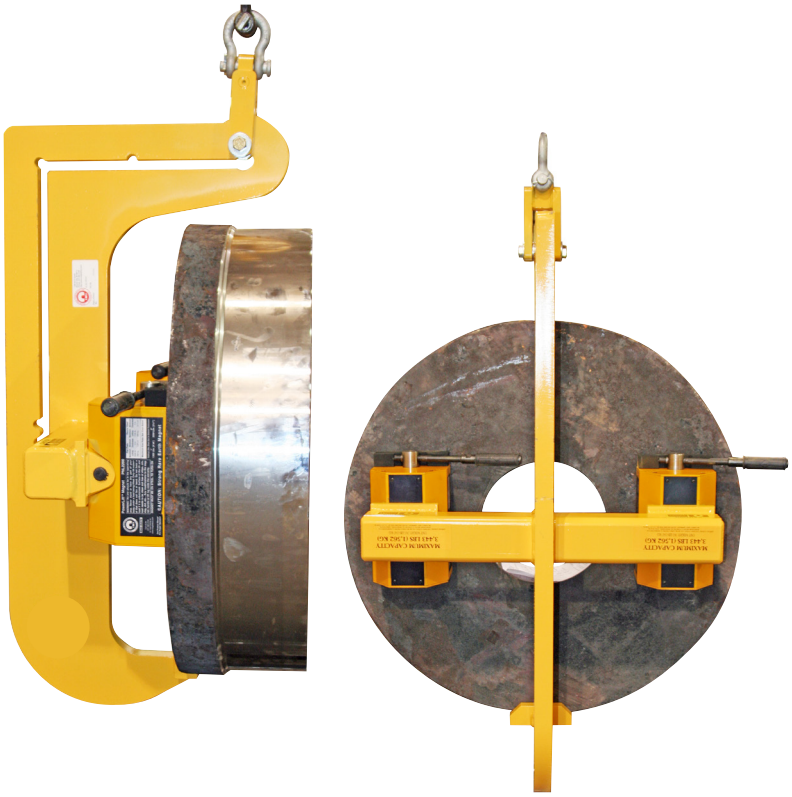
PowerLift® Customized For Lifting And Moving Large Billets

IMI's Steel Billet Lifters quickly & easily transfer billets from a flat to a vertical position, or vice versa.

TOP: Built with a PowerLift® magnet and designed for lifting and moving solid billets that range from 15 to 31 inches in diameter and 6 to 16 inches thick. Lifting capacity of up to 3,750 pounds. Support Feet are adjustable so that the magnet is always centered on the load.



BOTTOM: This billet lifter is custom designed to lift blanks 39 inches in diameter with a 12 inch diameter center hole and an 11.25 inch thickness. It offers a lifting capacity of more than 3,400 pounds using two Rare Earth PowerLift® magnets. This lifter is also designed to lift the billet from either a horizontal or vertical position. Other designs are available.

For More Information On PowerLifts® See **101 Catalog pg. 14**.

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Cylinder Actuated Magnet Solutions For Lifting, Moving And Changing Orientation Of Parts

TOP: A hydraulic cylinder manufacturer needed to lift cylinder on to and off of a paint line. The cylinders are transported to the paint line on skids but must be rotated into the vertical position for hanging.

This magnet employs a "weightless control handle" that stays at the operator level as the magnet is raised up and down.

BOTTOM: Transformer cores weighing up to 800 lbs are lifted and rotated using this custom magnet. Controls include magnet GRIP and RELEASE, hoist UP and DOWN and handle LOCK.

The handle is capable of locking at several different angles as it pivots on plane. A blade projects out from the face of the magnet to help support the weight of the core when lifting in shear.

For More Information On Transporters® See Techsheet **AG-01B.**

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