INDUSTRIAL MAGNETICS

EST-1961

WALKER MAGNETICS

An Industrial Magnetics, Inc. Company

Magnets designed specifically for the Steel Industry

magnetics.com

MAKING THINGS BETTER

WALKER MAGNETICS
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RL SERIES

USA M.A.D.E.

Rectangular RL Series Magnets are designed to lift plates, slabs and billets of all sizes. Found in shipyards, metal working plants and service centers moving large plates to and from cutting tables, fabricating areas, welding departments and receiving and shipping areas. RL's can be used individually or in multiples with different types of suspension systems. IMI engineers can supply the complete system including spreader beam, powersupply, controllers, remote systems, special safety features and battery back-up systems.

OPTIONS:

- Single Plate Lifting (destacking)
- Multiple Plate Lifting
- Hot Plate Lifting
- Various Suspension Options
  - Standard Beams, Telescopic Beams, Tilting Systems
- Voltages: 115 or 230 VDC
- Copper wound coils and Class "H" Insulation
- Fully welded heavy duty magnet case
- 50% Duty Cycle - Standard
- 75% Duty Cycle - Optional
- 100% Duty Cycle - Optional
- Waterproof outlet box & lead cables
- Flux Enhancement Pole Configurations
- Wireless or wired controls

MAGNET HEAD SPECIFICATIONS

Width (in.)	Length (in.)	Rated Lift Capacity (lbs)*	Power Consumption (WATTS)	Weight (lbs.)
8	16	0 - 3,500	400	150
	24	0 - 5,000	550	225
	32	0 - 7,000	725	300
	40	0 - 8,750	950	350
	48	0 - 10,000	1,000	400
12	24	0 - 8,000	700	325
	36	0 - 12,000	1,150	425
	48	0 - 16,000	1,250	600
	60	0 - 20,000	1,750	800
	72	0 - 23,500	2,300	1,000
	84	0 - 27,000	2,500	1,200

Width (in.)	Length (in.)	Rated Lift Capacity (lbs)*	Power Consumption (WATTS)	Weight (lbs.)
16	32	0 - 14,000	1,300	800
	48	0 - 21,000	2,000	1,400
	64	0 - 28,000	2,600	1,800
	80	0 - 35,000	3,300	2,200
20	40	0 - 21,000	2,250	1,400
	60	0 - 31,500	3,200	2,200
	66	0 - 34,500	3,500	2,400
	80	0 - 42,000	4,500	2,850
	100	0 - 52,500	5,500	3,250
26	48	0 - 39,000	3,100	2,400
	60	0 - 49,500	3,800	2,900

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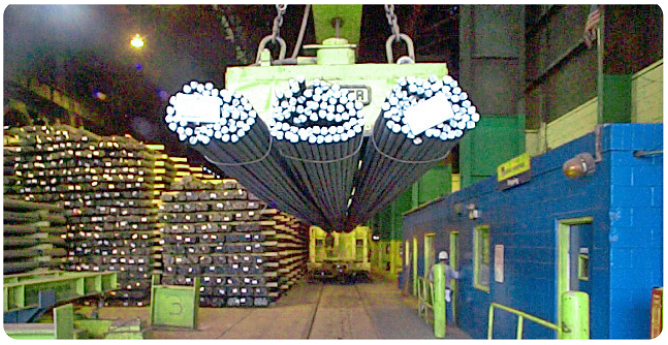
BUNDLE MAGNETS

USA M.A.D.E.

Walker Bundle Lifting Magnets are used for a wide range of applications in all areas of the steel industry. They are frequently used in the production and handling of angles, channels, flats, I-beams, pilings, rebar, rounds and tubing.

OPTIONS:
- Steel Mills
- Metal Working
- Service Centers
- Warehouses
- Shipping and Receiving
- Fabricating Areas
- Shipyards

Benefits:
- Handle bundles quicker
- Reduce dunnage cost
- Reduce manpower
- Increase storage capacity
- Safer working environment
- Can be used with fixed beams, rotating beams and expandable beams

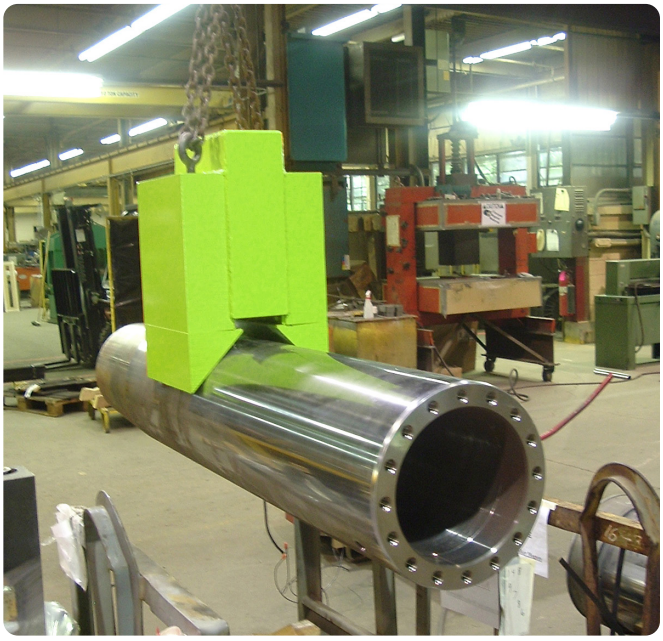


POPULAR BUNDLE MAGNETS					
BI-POLAR SERIES			**GRABBER SERIES**		
SIZE	AMPS @ 230 VDC	WT (lbs.)	SIZE (in.)	AMPS @ 230 VDC	WT (lbs.)
13x33	9	1,350	24x36	15	2,750
16 x 30	15	2,000	24 x 42	18	3,200
18 x 30	16	2,250	24 x 48	20	3,650
18 x 45	24	3,350	24 x 60	27	4,750

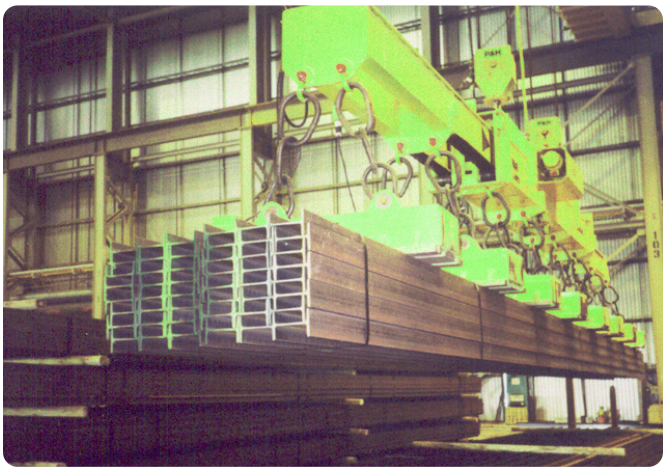
Deep Field Designs
Copper Wound Coils
Class H Insulation
Duty Cycles 50%, 75% or 100%
Hot Work Designs Available
Customized Pole Shoes to Maximize Magnetic Efficiency

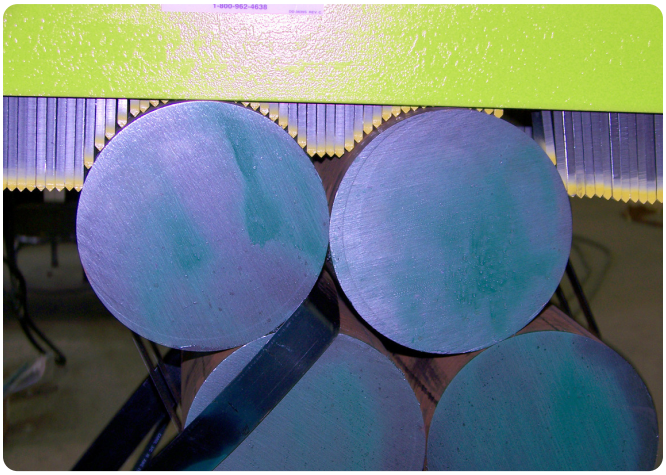
TUBES

Lift Magnets include a wide range of Permanent, Battery Powered and Electro Magnets. These magnets handle a variety of plates, shapes and rounds.



BUNDLES, SHAPES AND STRUCTURAL PROFILES





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HOT PLATES

USA M.A.D.E.

These magnets are designed to move hot steel directly from the cooling bed with no downtime. Time spent waiting for hot steel to cool down is wasted time. So is time spent handling steel with mechanical methods. With Heatmaster® Steel Mill Magnets, there's no wasted time. Hot steel can be moved quickly and easily, from the moment it leaves the casting bed.

Walker Heatmaster® Magnets utilize state-of-the-art materials and design features. During our years of experience in designing and building steel mill magnets, we have perfected several methods of coping with heat. For handling hot steel at up to 260ºC (500ºF.). Heatmaster® Magnets have a special double bottom with an air space between the inner and outer bottom plates. The coil is isolated from the high temperatures by an air space, so hotter materials can be handled for longer periods of time without damage to the coil or the insulation system.

When the need to handle higher temperature material increases, IMI adds additional features based on a computerized thermal analysis. This thermal analysis has given our magnet design engineers the ability to vary the parameters and elements which effect the magnet's operating temperature.

Walker incorporates other special features into Heatmaster® Magnets, including 100% duty cycle operation, cooling fins, and proprietary insulation materials. Heatmaster® Magnets built with these unique design features run "cool" in extreme conditions.

BENEFITS:

- Different models for different temperature ranges
- No external cooling required
- No hassles due to fans, radiators or waterlines
- 75% and 100% Duty cycle operation
- Welded watertight design
- Special proprietary insulation utilized for layer-to-layer, turn-to-turn, coil-to-case insulation
- Alloy steel lift chains or solid bails, as required
- Heavy manganese steel bottom plate
- Heavy-duty fabricated and cast construction available

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HEATMASTER SERIES

MOVE HOT STEEL DIRECTLY FROM THE COOLING BED WITH NO DOWNTIME. Different Models For Different Temperature Ranges No External Cooling Required, No Maintenance Hassles due to Fans, Radiators or Waterlines.

- 75% and 100% duty cycle operation
- Welded watertight design
- Special proprietary insulation utilized for layer-to-layer, turn-to-turn, coil-to-case insulation
- Alloy steel lift chain or solid bails as required
- Heavy manganese steel bottom plate
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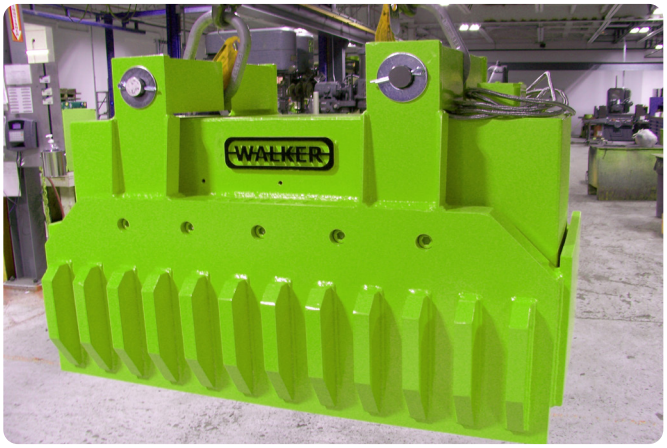
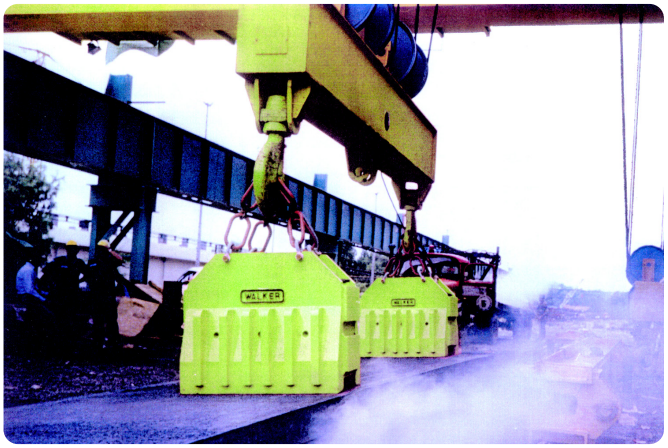




ELECTRO PERM MAGNETS

Walker has been designing and manufacturing electropermanent devices since 1960. These magnets utilize permanent magnet material surrounded by an electrically powered coil. DC current is applied to the coil in order to magnetize and demagnetize the magnetic material. Once this current activates the magnet material, it becomes magnetic indefinitely with no loss of strength over time. In other words, electrical current can be completely removed with no reduction in the magnetic force available.

FEATURES:

- Cold Operation
- Cycle Time
- Safer Holding

BI-POLAR SERIES LIFTING MAGNETS

Handling of bundles of pipe, tubing, rebar, bar stock, plate, structural shapes, castings, forgings, and coiled strips.

Bi-polar magnets lift directly from the center of the load, so no aisle room is required to sling or maneuver a hook into the eye. Loads can be stacked as high as the crane allows.

LIFTS FOR COILS & LARGE BILLETS

BILLETS

Walker provides heavy steel mill duty magnets for handling hot or cold, billets, slabs, and rail. Walker billet and rail handling magnets are available in a wide range of sizes to accommodate your application. Because the majority of our magnets are welded, fabricated designs, we can customize the size as well as many optional features.

There are two basic magnetic circuits that we use in the designing and building of these magnets: the well recognized "grabber" three-pole design and the "bi-polar" two-pole design.

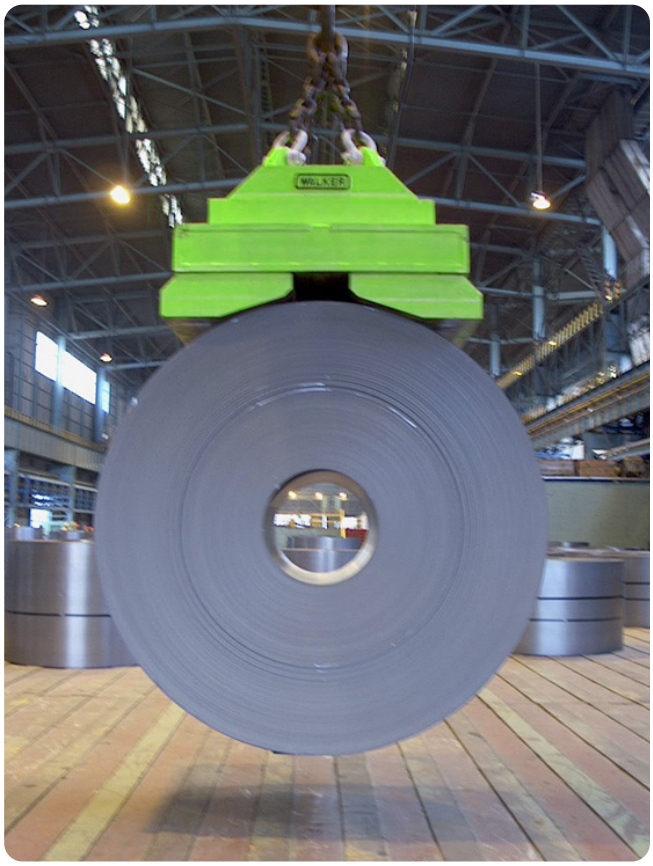
The Grabber Magnet was developed to help mills that were having difficulty lifting full layers of billets due to the air gaps between the magnet's face and the billets. These gaps are not unusual in normal steel mill production and it was time-consuming to make return trips to retrieve bent billets that were not lifted the first time. Walker engineers designed billet magnets with very high penetrating power that are able to "snap-up" the bent billets, making full, dynamic lifts.

The Grabber Magnet is most efficient for ambient temperature billet handling, but can easily be supplied with Walker's Heatmaster features for handling billets at elevated temperatures.

The bi-polar design has all of the high powered penetrating ability of the Grabber style lifting magnets but has proven to have superior heat resistant capabilities due to the location and attitude of the coil. These magnets are generally taller and heavier than the equivalent capacity Grabber style magnet, but these features contribute to the advantages that these magnets have for higher temperature steel handling.

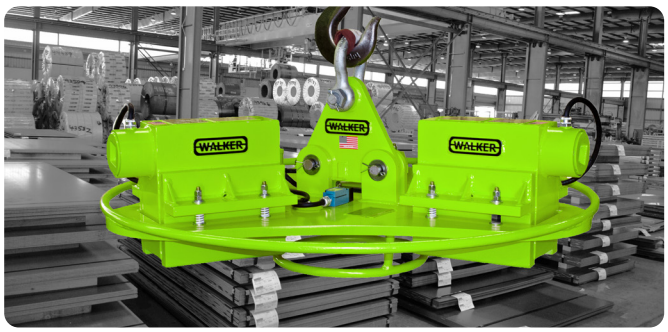
COILS

Walker Lift Magnets are the easiest, fastest and most economical way to lift and handle steels coils. Since the magnet is in contact and holding only the top of the coil, potential coil damage is virtually eliminated. We have the ability to lift coils in the vertical or horizontal orientation.



USED IN:
- Annealing shops
- Metal Working
- Service Centers
- Warehouses
- Shipping and Receiving
- Fabricating Areas

BENEFITS:
- No damage to coils while handling
- Only one operator is needed – freeing up man power
- Less storage area is needed – reducing floor space
- Electromagnet and Electro-Permanent magnets are available



SCRAP LIFTING MAGNETS

The Scrapmaster II Series has been designed specifically to fit the needs of scrap processing operations. From a utilitarian 40" to a giant 100", magnet diameters and weights were selected to maximize the lifting capabilities of standard scrap handling cranes. The high lift-to-weight ratio of these magnets allows the movement of more and heavier scrap.

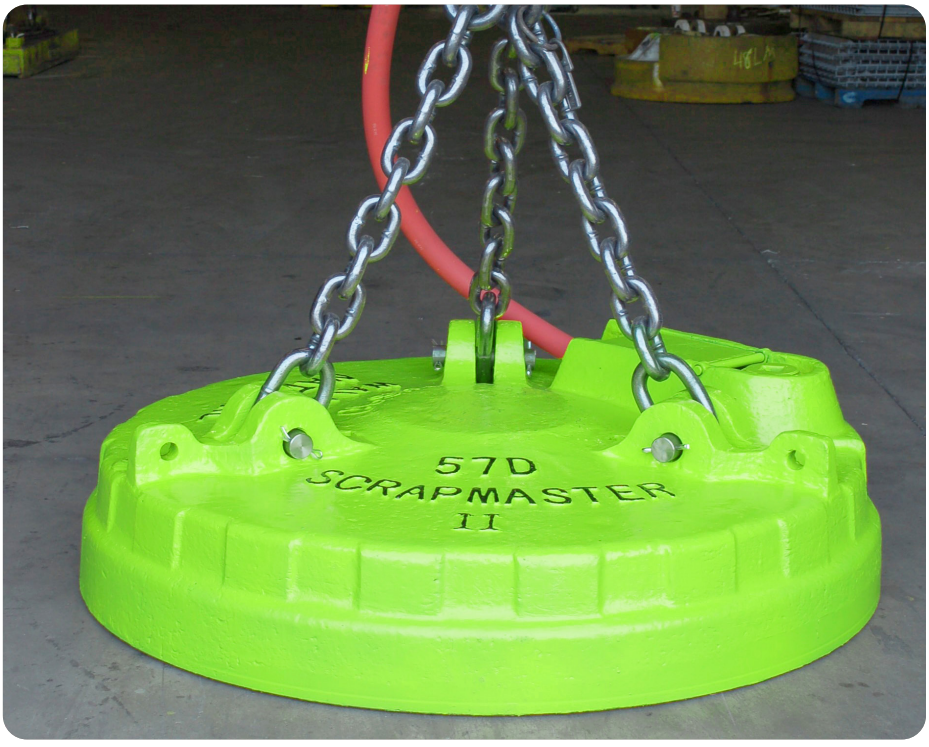
The Scrapmaster II Series magnet has a rugged ribbed case, heavy-duty manganese bottom plate, welded watertight construction and tough alloy steel chains for maximum durability. All elements are designed for top operating efficiency, with deadweight engineered out.

SPECIFICATIONS								LIFTING CAPACITY (lbs.)		
Model	Dia.	Approx. wt. (lbs.)	D.C. Voltage	Amps (cold)	Generator (KW)	Controller (amps)	Minimum Cable Size	#1 Heavy Melting	#2 Heavy Melting	Steel Turnings
40D	40"	1,800	230	35	10	50	#8	0 - 900	0 - 600	0 - 375
45DSH	45"	2,700	230	43	10	50	#8	0 - 1,500	0 - 1,030	0 - 480
48D	48"	2,900	230	58.5	15	75	#8	0 - 1,750	0 - 1,160	0 - 600
54DSH	54"	4,150	230	63	15	75	#6	0 - 2,560	0 - 1,660	0 - 730
57D	57"	4,400	230	75	20	75	#6	0 - 2,700	0 - 1,800	0 - 850
63DSH	63"	6,180	230	82	20	100	#4	0 - 3,970	0 - 2,580	0 - 1,230
66D	66"	6,400	230	91	30	100	#4	0 - 4,100	0 - 2,750	0 - 1,350
69DSH	69"	8,000	230	99	30	100	#4	0 - 4,520	0 - 3,000	0 - 1,360
72D	72"	8,300	230	113	30	125	#4	0 - 4,700	0 - 3,150	0 - 1,500
78D	78"	10,300	230	126	30	150	#2	0 - 5,700	0 - 3,800	0 - 2,000
87D	87"	12,500	230	168.5	40	175	#2	0 - 6,825	0 - 4,550	0 - 2,600
92D	92"	15,400	140	218	40	220	#2	0 - 8,500	0 - 5,660	0 - 3,000

SCRAPMASTER D MAGNETS

Lifting, capacities are based on optimum conditions. Variables in the materials or magnetic system can affect performance. Material description based on specifications for iron and steel scrap published by the Institute of Scrap Recycling Industries.

- 75% duty cycle standard
- Steel Mill Operations
- Foundry Operations
- Scrap Yard Processing
- Waste Processing
- Crop Pit Applications
- Under Water Applications
- Burn Table Applications
- Manufacturing Scrap Waste Handling
- Fabrication Scrap Waste Handling
- Demolition Clean Up
- Hot Works Available



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USA M.A.D.E.

RLSD SERIES STEEL MILL MAGNETS

Rectangular shaped scrap handling magnets are the newest development from Walker Magnetics. Designed to lift large volumes of scrap in and out of confined areas, these powerful magnets are becoming the standard in melt shops around the world. Extra heavy-duty construction with unique Multiple Bumper Perimeter Plates and resilient manganese steel bottom plates make this the toughest scrap magnet ever! Available in a wide variety of sizes, these tough welded RLSD's operate cool 24 hours per day, 7 days per week.

- Scrap Yard Processing
- Rail Car loading/unloading
- Barge loading/unloading
- All welded heavy duty construction
- Manganese steel bottom plate
- 75% duty cycle
- Cooling operating
- Class H insulation
- Aluminum Coil, Copper Optional
- Powerful deep field design
- Quick disconnect lead assembly

MILLMASTER "D" SERIES

USA M.A.D.E.

EXTRA HEAVY DUTY, DEEP-FIELD AND EXTRA DEEP-FIELD MODELS
Millmaster® "D" is a special series of heavy duty lifting magnets designed for steel mill use. For added impact resistance, a rugged ribbed case is cast from a special high-strength alloy steel that combines high strength and magnetic permeability. The special bottom plate is wear resistant manganese steel with an extra-heavy cross section. The case has welded watertight construction and utilizes tough alloy steel chains. Millmaster®D is available in standard, deepfield, and extra deep field strengths. Models are offered with Aluminum Coils or Copper Coils. All elements are specially engineered and designed for ultimate lifting performance with mechanical strength. The result is a lifting magnet that sets the standards for performance, endurance, and reliability. From heavy duty chain through high temperature insulation to specially-designed-and built winding hubs, Millmaster®D technology offers every insurance against costly downtime.

- 75% Duty Cycle
- Maximum slag/slab/dropball capacity
- Extra rugged cast steel case
- Larger pole shoes
- Triple sealed terminal box
- Heavy manganese steel bottom plate
- Alloy steel chains for greater life and durability

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SSC CONTROL MASTER

USA M.A.D.E.

The Solid State Controller (SSC) is compatible with all electromagnets. It includes the option to have infinitely variable power control. These controllers have fanning/dribble options and are radio control compatible. They are lighter than traditional magnet controls. Outdoor enclosures are available upon request. Multiple magnet selection options are also available upon request along with a reduced initial magnet power feature.

- Enhanced magnet performance
- Infinitely variable power control available
- Reduced maintenance
- Solid state digital design
- AC line circuit breaker disconnect
- Fanning/dribble
- Radio control compatible
- Reduced cycle time (faster lift/faster drop)
- Compatible with all electro magnets
- Smaller and lighter than traditional magnet controls
- Magnet "ON" indicator light
- AC noise suppression circuit
- Runs cooler
- Type 12 enclosure with louvers- standard
- Type 3R enclosure available
- Magnet temperature monitor alarm available
- Multiple magnet selection available
- Reduced initial magnet power feature available

BATTERY BACK-UP SYSTEM

USA M.A.D.E.

Battery Back-Up Units are used to provide 20 minutes of emergency power to the magnets in the event of an interruption of power to the crane. The Battery Back-Up System is designed for use with the SSC Controlmaster Solid State Digital Power Converter/Magnet Controller and Traditional Walker PCCU Controller. This unit provides a highly regulated charging system that never requires adjustment in the field to provide maximum battery life with minimal maintenance. The charging system monitors both the charging voltage and the charging current. A PLC monitors the data and keeps the batteries at the correct float voltage regardless of line fluctuations. Outdoor enclosures are available upon request.

- PLC based solid state controls for reduced maintenance and ease of troubleshooting
- Continuous voltage monitoring
- Continuous current monitoring
- Door mounted: charging indicator light, charger fault light, magnet-on-batteries indicator light, horn silence push button, battery voltmeter, and battery ammeter
- Diagnostic circuitry
- Remote mounted 98dB alarm sounds to indicate magnet-on-batteries
- Optional remotely mounted display section
- Type 12 enclosure with louvers, Type 3R available
- Door mounted battery disconnect switch

CUSTOM CONTROL OPTIONS

All controls can be customized for individual needs.

GENERAL MAGNET SERVICE AND REPAIR

Thousands of magnets are in service today performing safe, efficient material handling applications. Like any other type of industrial equipment, they should be maintained properly for optimum safety and performance. Worn contact surfaces, loose or broken cam-links, weld cracks, worst of all, illegible or missing labels and nameplates are common problems with older magnets. After years of use, worn bottom surfaces may not yield their original rated lift capacities. After reconditioning, IMI calibrates the bottom surfaces to ensure that they yield their original rated lift capacities. Don't wait until your magnet has an expensive breakdown requiring emergency repairs. IMI will inspect your magnet and controls and advise what repairs are needed. Before proceeding with your repairs, you'll receive an accurate estimate of the cost for your approval.

All IMI authorized repairs will carry a full 12-month warranty on the work performed. IMI reconditions other manufacturers' heavy lift, material handling and separation equipment. Equipment found to be in need of inspection/repair should be taken out of service and scheduled for inspection and repair at the IMI facility.

BEFORE AFTER BEFORE AFTER BEFORE AFTER

LIFT MAGNET SERVICE AND REPAIR

Safety consultants often say, "It's always better to prevent an accident than to defend your responsibility for one." Now is the time to inspect your lift magnets. Contact IMI to recondition or repair your magnet so it's as good as the day it was put into service.

STEP 1: The first step in the repair process is a complete incoming inspection. This inspection process includes both a mechanical and electrical evaluation. The magnet is assigned a job number and a "Magnet Service Report" is initiated.

STEP 2: The magnet is disassembled by machining or a controlled arc process. The parts are then inspected, noting those needing reconditioning or replacement. At this point a quotation is prepared and sent to the customer.

STEP 3: After the quotation has been approved by the customer, mechanical parts are cleaned and sand blasted in preparation for reassembly.

STEP 4: If required, the copper or aluminum conductor is then cleaned and inspected, noting any that are out of specification or needing replacement. Failure to replace conductor with the proper width and thickness leads to premature failure.

STEP 5: Engineering creates a CAD drawing for the production department along with a detailed bill of materials for the store room.

STEP 6: Coils are wound turn by turn with Nomex insulation in between each turn. When winding aluminum, the last three turns are wound with copper conductor.

STEP 7: After winding, the coil is tied off with vertical straps of copper. Alcuplate is used to join the aluminum conductor to the last two turns of copper conductor. This is one of the crucial steps that differentiates Walker Magnetics from other repair facilities. Alcuplate prevents galvanic corrosion and we are the only manufacturer to use this quality material.

STEP 8: Components are inspected against OEM drawings and remanufactured to the latest revision. Following a machining process, the magnet is ready for reassembly.

STEP 9: After the coil is installed in the case and properly insulated, the bottom plate is inserted and pressed to 4000 psi and tack welded. The magnet is then semi-automatically welded using stainless steel weld to permanently create a water tight seal.

STEP 10: The magnet is filled with a specially formulated insulating potting compound and baked to over 350 degrees F to produce a water tight fit and cure the potting compound.

STEP 11: In this final stage, all magnets are electrically tested. The values are recorded to create a historical record in the customer's individual folder.

STEP 12: Prior to shipment, the magnet is painted and the chains and pins are attached. The completed magnet is ready for shipment or to be put in a customer's individual Magnet Exchange Program inventory.

STEP 13: Walker delivers the highest quality New or Remanufactured magnet to your facility.

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