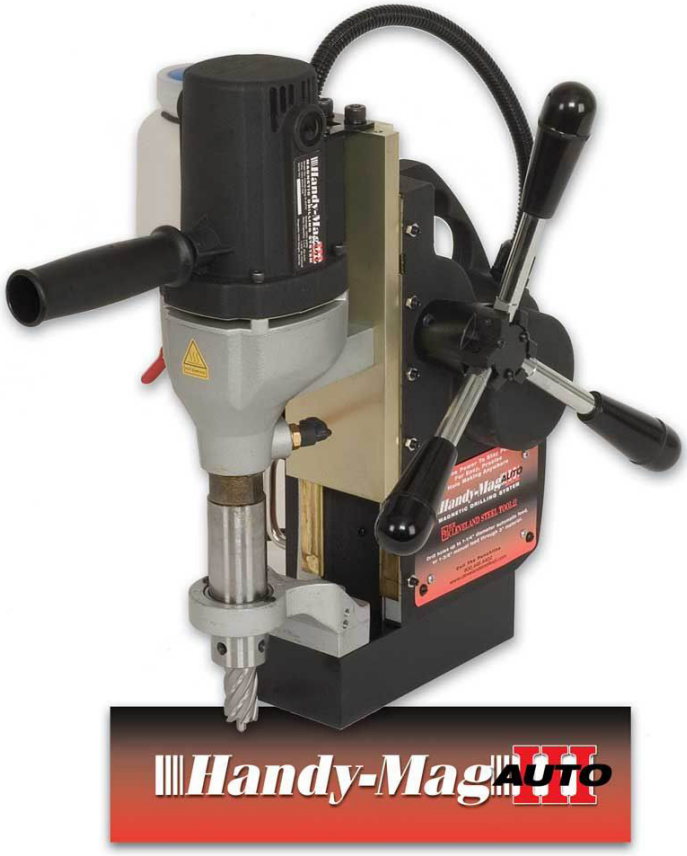
Handy-Mag III Auto



CLEVELAND STEEL TOOL

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CLEVELAND STEEL TOOL

Handy-Mag III Auto

Warranty

The Cleveland Steel Tool Company will, within one (1) year of date of purchase, replace or repair F.O.B. the factory, any goods, which are defective in materials and workmanship provided that the buyer returns the defective goods, freight prepaid, to the seller, which shall be the buyer's sole and exclusive remedy for the defective goods. THIS WARRANTY IS VOID IF YOU ATTEMPT REPAIRS YOURSELF. This warranty is void if the items have been damaged by accident, neglect, or other causes not arising out of defects in materials or workmanship. This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to use beyond recommended capacities and specifications. Electrical components are subject to respective manufacturer's warranties. In no event shall The Cleveland Steel Tool Co. be liable for loss or damage resulting directly or indirectly from the use of merchandise or from any other cause. The Cleveland Steel Tool Co. is not liable for any costs incurred on such goods or consequential damages. No officer, employee or agent of the Cleveland Steel Tool Co. is authorized to make oral representations or warranty of fitness or to waive any of the foregoing terms of sales and none shall be binding on The Cleveland Steel Tool Co.

Proof of purchase date required

This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to use beyond seller recommended capacities and specifications. In no event shall seller be liable for labor costs expended on such goods or consequential damages. Seller shall not be liable to the purchaser or any other person for loss, downtime, or damage directly or indirectly arising from the use of the goods from any other cause. The Cleveland Steel Tool Co. reserves the right to make improvements and design modifications to the machine without prior notice.

_____

Company Name

Date of Purchase_____Serial #_____

CLEVELAND STEEL TOOL

Handy-Mag III Auto

SAFETY PRECAUTIONS

1. The operator of this machine should thoroughly understand this manual before starting any operation.

2. The area around the machine should be well lit, dry, and free from obstructions.

3. Wear eye and ear protection at all times.

4. All maintenance and repair work should be performed by a person familiar with the machine.

5. Do not use Handy-Mag III Auto drilling machines on surfaces or materials being welded. Doing so can damage the machine's electrical components.

6. Disconnect the power from the machine before performing any maintenance or repair work. Turn power switch to the OFF position when changing tooling.

7. Always disconnect from the power source before moving. Be sure switches are off before connecting to a power source.

8. Magnet will not hold properly on thin materials (under 3/8") or rough and dirty surfaces.

9. Always use safety chain and chip shield provided with machine.
   Never attempt to remove chips while cutter is in motion.

10. Assure all tooling is properly held in position before starting any operation. Periodically check all tooling for tightness.

11. Do not use dull or broken cutters.

12. Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.

13. Beware of slugs ejected at end of cut. They become HOT during the cut.

14. Keep bottom of magnet burr free and clear of chips and debris.

15. Avoid operating drill at greater than 45 degree angle. Overhead drilling is extremely hazardous and is not recommended.

16. Drilling stacked material requires a special STACKED GEOMETRY cutter.

General Information

The Cleveland Steel Tool Handy-Mag III Auto is a lightweight, compact drilling system that features:

- Manual capacity up to 1-3/8" diameter through 2"" material
  Automatic capacity 1-1/4" through 2"" material
  *Drilling stacked material requires a special STACKED GEOMETRY cutter.
- Positive slug ejection system
- Internal cutter lubrication for increased tool life
- Powerful motor with cast aluminum housing
- Adjustable motor slide ways
- Complete coolant system
- Safety Chain
- Chip shield
- Rugged carrying case

SPECIFICATIONS:

- Annular cutter range: 7/16” thru 1-3/8”
- Annular cutter depth range: 0-2”
- Weight: 38 lbs.
- Height: 17”
- Voltage: 110v AC only, 10 amps, 1200 watts, earth ground & double insulation
- Frequency: 50-60 HZ
- RPM No Load: 550 RPM
- Magnetic Holding Deadlift: 3500 lbs.
- Magnet dimensions: 8” x 3” footprint

Grounding Instructions

Warning:
Improperly connecting the grounding wire can result in the risk of electrical shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with tool. Never remove the grounding prong from the plug. Do not use tool if the cord or plug is damaged. Have it repaired before using. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician. The Handy-Mag III Auto must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The rigid ear or lug extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box or receptacle. Simply remove the center screw from the outlet, insert the adapter and reattach the screw through the green grounding ear to the outlet. If in doubt of proper grounding, call a qualified electrician.

Extension Cords

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-pole receptacles that accept the tool's plug. Replace or repair damaged cords. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. See table for the correct size to use depending on cord length and nameplate amperage rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

Drip Loop: To help prevent fluids from traveling the power cord and contacting the power source, tie a drip loop in the power cord.

Getting Started

Your Handy-Mag III Auto package should contain the following parts:

QTY	Part#	Description
1		Handy-Mag III Auto
1		Carrying Case
1		Owners Manual
1	ME3017	Coolant elbow connector
1	ME3041	Retaining Knob M5x16
1	ME3042	Coolant Tank
1	ME3044	Coolant PU Tube
3	ME3062	Crank Spindle
1	ME3077	Combination Wrench M8
1	ME3078	Hex Wrench M2.5
1	ME3079	Hex Wrench M4
1	ME3082	Safety Guard
1	ME3083	Safety Chain

Assemble 3 crank spindles (ME 3062) to the crank hub (ME3100). The crank hub is mounted on the right side of the machine frame. Attach the coolant tube (ME3044) to the coolant tank (ME3042) using screw (ME3041). Attach coolant tube (ME3044) to coolant elbow connector (ME3017).

What You Need To Know

Type of material to be drilled, Brinell or Rockwell hardness, material thickness and position should all be determined to ensure proper selection of Handy-Mag III Auto cutting tools, RPM, coolant and drilling time.

Remove any excessive mill scale or rust from the surface to be drilled.

When drilling materials under 3/8" thick, an additional steel plate may be required to achieve proper magnetic adhesion.

Drilling stacked material requires a special STACKED GEOMETRY cutter.

Material that has been flame cut may have become heat treated and therefore difficult to drill. Avoid drilling near such areas whenever possible.

Drilling with the Handy-Mag III Auto in horizontal positions requires a special lubrication for Handy-Mag III Auto cutters. Consult The Cleveland Steel Tool Co. for details.

Caution!

Do not use the Handy-Mag III Auto for work other than it's intended use.
The Handy-Mag III Auto is designed to work only with the tooling provided.
Use of other tooling may cause damage to the drill,
cause personal injury and void the warranty.

Before the Cut

1. Select the correct pilot pin and place it in the cutter shank from the rear.
   Align the flats on the cutter shank with the arbor body set screws.
   Insert cutter shank into the arbor body.

2. Tighten the set screws securely on the cutter shank flats. Note: The set screws should be recessed in the arbor body when tight.

3. Place the Handy-Mag III Auto machine on work piece with pilot pin over the center of hole to be drilled.

4. Connect machine to power source.

5. Lower Handy-Mag III Auto cutter to surface of material to be cut. Fill coolant tank with a water soluble coolant. Open coolant tap (ME3043) to release coolant.
   Note:Coolant flow starts when pilot pin contacts work surface. Coolant flow can be stopped by lifting pin off work surface.

⇨ **CAUTION:** Always use safety chain. Failure to do so could result in personal injury and/or damage to the Handy-Mag III Auto drilling machine.

6. Safety chain must be securely fastened to machine and around the work being drilled.

   Note: Safety chain is intended only to secure drill to work piece in case of emergency, such as a loss of power to the magnetic base.

7. Attach chip shield (ME3082) to machine with butterfly screws (ME3081) and washers.

Making the Cut

CAUTION: Always use chip shield.

1. Move magnet switch to “On” position, panel lamp should illuminate indicating power is on. Magnetic base should be firmly secured to work piece at this time.

2. Start drill motor by depressing green motor “On” button.

3. Using the feed handles, advance cutter into material until Handy-Mag cutter has established an external groove in the material, during the remainder of cut apply, smooth constant pressure without overloading motor.

⇨ NOTE: Handy-Mag cutters are designed for uninterrupted cutting, chips are evacuated during the cut. Do not peck drill when using Handy-Mag cutters.

CAUTION: If drill motor should stall or stop before a complete cut is made, always shut the motor off and remove the cutter from the hole before attempting to restart the motor. Failure to do so could result in personal injury and/or damage to the Handy-Mag III Auto drilling machine or cutter.

After the Cut

1. After the Handy-Mag III Auto cutter has finished the cut, the “slug” or uncut center portion of material will be expelled when motor is returned to the full up position. Beware of slugs ejected at end of cut. They become HOT during the cut.

2. Return the machine to a full upright position and depress red motor “OFF “ button. Wait until motor completely stops.

3. Move magnet switch to “OFF” position when ready to release magnetic base from work surface.

Operating Auto-Feed Feature

The Handy-Mag III Auto can be used as a manual machine when the three feed handles are pointed out.

To switch to automatic drilling:

1. Begin drilling manually with the handles pointed out.

2. After the cutter has begun cutting, push the feed handles in parallel with the side of the machine.

Note: The gears may not always line up perfectly. If the handles will not push in, simply raise the feed upward slightly and the handles will engage.

3. Once in auto-feed and throughout the drilling process, always keep a hand firmly on the side handle to stabilize the machine.

4. As a precaution, always keep the other hand near the motor shut off switch in the event of a problem.

5. Once the hole is drilled, the machine will expel the slug and stop.

Situations Where The Safety Override Systems Will Automatically Engage

1. When there is a sharp decrease in load, such as when the hole is finished or if a cutter breaks, the feed will automatically return to the top and stop. The magnet will remain on.

2. If the chip load exceeds maximum for 2 seconds, the motor and feed will stop and stay in that position. Only the magnet will stay on. This will alert the operator of an overload problem. If this happens repeatedly, it may be an indication of a worn cutter or other problem.

3. If the feed reaches the bottom of its stroke, it will automatically return. This will happen if the machine is operating under zero load (test conditions) if attempting to drill past the maximum depth of a 2" depth cutter.

Maintenance

1. Adjusting motor slide tension:
The motor slide assembly may become loose and require adjustment after the machine has been in service. Wrenches are provided in the tool kit for performing adjustments.

- Using the feed handles, position motor and slide assembly in the full up position.
- Loosen 6 jam nuts (ME3048) and equally tighten 6 adjustment screws (ME3047) using 2.5mm and 8mm combination wrench and hex key.
- Do not over tighten adjustment screws. Excessive slide tension can damage the machine. Properly adjusted, the motor/slide assembly should have no side to side movement and remain positioned without drifting down.

2. Inspecting magnet base:
Keep bottom of magnet clean, free of chips, burrs, nicks, oil and other contaminants. Inspect magnet face to insure surface is flat and square. A worn magnet surface dramatically reduces magnetic holding force.

3. Lubricating motor slideways:
Periodically clean and lubricate motor slide ways with lithium base grease.

4. Inspecting arbor support system:
Visually inspect arbor, sleeve and support bracket for wear.

⚠ Caution: Always remove cutter from arbor body before measuring runout, never use hands or fingers to rotate arbor or motor spindle.

5. Checking arbor runout:
Arbor runout should not exceed .0035 per revolution. This is most accurately measured by placing a dial indicator needle inside of arbor bore and rotating arbor while observing indicator.

6. Motor brush inspection:
Inspect motor brushes and replace as needed during extended periods of heavy machine usage.

⚠ CAUTION: Never operate machine with worn or missing parts.

Troubleshooting

1. Magnetic base is not holding securely:

- Material being drilled must be a minimum of 3/8" thick for proper magnetic adhesion.
- Surface of material should be free of chips, debris, rust and mill scale.
- Verify size of cutter. It should not exceed machines capacity.
- Check magnet face for unevenness, nicks and burrs.
- Welding equipment should not be connected to material being drilled.

2. Drill motor is running, arbor and spindle is not turning:

- Spindle key (HM3006) could be sheared.

3. Motor slows when drilling:

- Check extension cord requirements if one is being used. (pg. 4)
- Excessive downfeed pressure during drilling cycle will cause motor to slow and overheat.
- The cutting tool may need to be resharpened.

4. Coolant system not working:

- Coolant system is gravity dependent. Machine must be in an upright position to operate properly.
- Consistency of coolant mixture is too thick.
- Check for the correct pilot pin.

5. Slugs not ejecting from cutter:

- Lack of coolant can cause slugs to expand in cutter bore.
- Check for correct pilot pin.
- Check for broken internal arbor parts.

* Drilling stacked material requires a special STACKED GEOMETRY cutter.

6. Breaking cutters:

- Coolant must be applied to the interior of the cutter.
- Excessive downfeed pressure when cutter contacts work surface can cause breaks.
- Confirm material hardness.
- Drilling stacked material with improper cutter. (Drilling stacked material requires special cutters)
- Dull cutters and dull or chipped cutting edges require excessive feed pressure resulting in breakage.
- Excessive arbor runout. (see pg.9 for maintenance)
- Motor spindle is bent or there is a worn arbor sleeve.
- Motor slide is improperly adjusted. (see pg.9)

7. Oversized or rough holes:

- Insufficient coolant.
- Excessive feed pressure.
- Dull cutter.
- Worn support bracket roller bearing or arbor body sleeve.
- Bent motor spindle.
- Motor slide improperly adjusted.

Parts List

Item	Description	Part No.	Qty Req.
1	Set Screw M5 x 6	ME3001	5
2	Cutter Arbor Complete (inc 125-132)	ME3002	1
3	Water Seal	ME3003	1
4	Spring	ME3004	1
5	Main Drive Spindle	ME3005	1
6	Woodruff Key M5x5x10	ME3006	1
7	Oil Seal 22x32x7	ME3007	2
8	Gearbox Case	ME3008	1
9	Bearing 6003zz	ME3009	2
10	Snap Ring R-35	ME3010	1
11	Circlip S-17	ME3011	1
12	Final Drive Gear 52T	ME3012	1
13	Circlip S-14	ME3013	1
14	Bearing 608zz	ME3014	4
15	Gear Pinion 8T	ME3015	1
16	1st Drive Gear 50T	ME3016	1
17	Coolant Elbow Connector	ME3017	1
18	Inter Gear Plate	ME3018	1
19	Fan Shroud	ME3019	1
20	Bearing 609zz	ME3020	1
21	Armature 110V	ME3021	1
22	Screw M5x55	ME3022	2
23	Field Assy 110V	ME3023	1
24	Motor Housing	ME3024	1
25	Brush Holder	ME3025	2
26	Carbon Brush Set	ME3026	2
27	Brush Cap	ME3027	2
28	Hex Head Bolt M5x40	ME3028	4
29	Spring Washer M5	ME3029	8
31	Motor Cord	ME3031	1
32	Cord Armour	ME3032	1
33	Cord Clip	ME3033	2
34	Pan Head Screw M4x16	ME3034	2
35	Wire Connector C4	ME3035	2
36	Gear Rack	ME3036	1
37	Main Slide Plate	ME3037	1
38	Hex Head Bolt M6x20	ME3038	5

Parts List

Item	Description	Part No.	Qty Req.
39	Coolant Tank Hanger	ME3039	1
40	Flat Washer 3/16x16x1	ME3040	2
41	Retaining Knob M5x16	ME3041	1
42	Coolant Tank	ME3042	1
43	Coolant Tap	ME3043	1
44	Coolant PU Tube	ME3044	1
45	Conduit Gland	ME3045	1
46	Main Body Assy	ME3046	1
47	Set Screw M5x20	ME3047	8
48	Nut M5	ME3048	8
49	Brass Slide Right	ME3049	1
50	Steel Strip Tensioner	ME3050	1
51	Brass Slide Left	ME3051	1
52	Electro-Magnet Switch	ME3052	1
53	Motor Switch Button On	ME3053	1
54	Bushing	ME3054	2
55	Motor Switch Button Off	ME3055	1
56	Front Switch Panel	ME3056	1
57	Screw M4x16	ME3057	4
58	Selector Cam	ME3058	1
59	Screw & Washer	ME3059	1
60	Switch Plate Bar Short	ME3060	2
61	Engagement Ball M5	ME3061	8
62	Crank Spindle	ME3062	1
63	Handle Grip	ME3063	3
64	Rear Cover Plate	ME3064	1
65	Screw M3.5x6	ME3065	4
66	Pan Head Screw M4x8	ME3066	7
67	Stroke Limiting Switch	ME3067	1
68	Electronic Unit 110V	ME3068	1
69	Star Washer M4	ME3069	1
70	Power Cord	ME3070	1
71	Pan Head Screw M4x6	ME3071	1
72	Electro-Magnet	ME3072	1
73	Arbor Support Bracket	ME3073	1
74	Arbor Support Bearing HK3516	ME3074	1
75	Spring Washer M8	ME3075	3
76	Hex Head Screw M8	ME3076	3
77	Combination Wrench M8	ME3077	1
78	Hex Wrench M2.5	ME3078	1

Parts List

Item	Description	Part No.	Qty Req.
79	Hex Wrench M4	ME3079	1
80	Washer M6x13x1	ME3080	2
81	Butterfly Screw M6x10	ME3081	2
82	Safety Guard	ME3082	1
83	Safety Chain	ME3083	1
84	Pan Head Screw M4x12	ME3084	1
85	Flatwasher M4	ME3085	5
86	Cover Plate	ME3086	1
87	Hex Head Screw M8x16	ME3087	4
88	Cord Protector	ME3088	1
89	Flat Washer M8x20x1	ME3089	2
90	Hex Head Screw M10x30 V1	ME3090	1
91	Spring Washer M10 V1	ME3091	1
92	Flat Washer M10x23x2 V1	ME3092	1
93	Motor Mounting Plate V1	ME3093	1
94	Hanger	ME3094	1
95	Crank Handle	ME3095	3
96	Pan Head Screw M5x8	ME3096	1
97	Crank Lever Tip	ME3097	3
98	Hub Cover	ME3098	1
99	Spring Pin 4.2x25	ME3099	3
100	Crank Hub	ME3100	1
101	Selector Rod	ME3101	1
102	Auto Feed Motor Unit 110v	ME3102	1
103	Feed Motor Gear Box Unit	ME3103	1
104	Feed Support Plate	ME3104	1
105	Flat Head Screw M5x15	ME3105	4
106	Flat Head Screw M5x45	ME3106	4
107	Ball Bearing 6809zz	ME3107	1
108	Gear 63T	ME3108	1
109	Auto Feed Side Cover	ME3109	1
110	Hex Head Screw M5x10	ME3110	5
111	C-Clip C-28	ME3111	1
112	Bushing 8x12x6	ME3112	2
113	Output Gear 80T	ME3113	1
114	Woodruff Key 4x4x10	ME3114	1
115	Gear Pinion 12T	ME3115	1
116	Screw M4x25	ME3116	2

Parts List

Item	Description	Part No.	Qty Req.
117	Cord Protector	ME3117	1
118	Hex Nut M4x8	ME3118	2
119	Hex Nut	ME3119	1
120	Flat Washer 1/2x24x2.5	ME3120	1
121	O-Ring 7.5x1.5	ME3121	1
122	Limit Switch Pin 2.2x10	ME3122	2
123	Set Screw M8x8	ME3123	3
124	Capacitor	ME3124	1
125	Circlip	ME3125	1
126	Collar	ME3126	1
127	Return Spring	ME3127	1
128	Spring Retainer Ring	ME3128	1
129	Set Screw M3x12	ME3129	1
130	Lock Pin	ME3130	1
131	Screw M3x6	ME3131	1
132	Flat Spring	ME3132	1
133	Hex Bolt M8x60	ME3133	1
134	Screw M4x10	ME3134	2

Parts Breakdown