

Gunner Ridge Companies, LLC

MAGIK KLEENER

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GRAIN CLEANER

OPERATIONS MANUAL

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***** READ ME *****

LIMITED WARRENTY (p. 17)

- Prior to installation and startup -

Table of Contents

- 3. GENERAL DESCRIPTION
- 5. MATERIALS WITH WHICH THE PRODUCT MAY BE USED
- 6. USE APPLICATIONS
- 7. ADVANTAGES OF THE MAGIK KLEENER AND DRAWING
- 8. PLACEMENT OF EQUIPMENT
- 9. DIAGRAM
- 10. OPERATIONAL DESCRIPTION
- 14. INITIAL START-UP
- 15. SCREEN SELECTION
- 16. SCREEN CHART
- 17. GENERAL MAINTENANCE
- 18. YEAR END MAINTENANCE
- 19. LIMITED WARRANTY

GENERAL DESCRIPTION

1. The Magik Kleener is designed for total gravity flow operation, with multiple grain reversing for agitation.
2. Through the years of product testing, we have discovered the agitation of grain greatly enhances the efficiency of the screening process. The design of this machine makes this action happen without outside power requirements. Cleaning success rates have attained a 94% removal of available foreign material (F.M.) This is dependent on the product cleaned and the separation of any other grain contamination to be removed.
3. The increased efficiency of this product helps keep the initial cost of construction down. As the physical size and amount of construction materials are greatly reduced in comparison to other cleaners currently on the open market.
4. Magik Kleeners have a built-in flow regulator to regulate the material flow through the unit. This is included as a convenience to the costumer and to protect the unit from any unnecessary abuse.
5. The construction and design offer a natural means of product by-pass for blending and control of foreign material removed from the product being cleaned. (Over-flow By-Pass Optional) The over-flow type by-pass is designed primarily as a safety device to prevent associated equipment damage would any foreign objects enter the top of the cleaner and obstruct its flow. The by-pass would prevent plugging damage.
6. The screens in the cleaner are of high carbon construction and woven to maximize life expectancy. These screens are not bolted into place but are allowed to float in place to aid in keeping themselves clean. The material causes the screen material to resonate this action. Product movement coupled with the floating and resonating screen are the main ingredients in the success of this product.
7. The design also allows for minimum amount of labor to maintain the unit. Maintenance is minimal due to the fact there are no moving parts. Also, one person can change the screens in less than one-half the time required to change screens with two persons in a conventional screening unit.
8. Magik Kleener has the convenience of a total access latched, door to aid in inspection, service or change of screens. This door allows for this work to be done from one location.

9. The compact size allows for installation of this unit where other units could never fit. It's size in some cases would allow installation by fastening to leg trunking.
10. The largest designed unit is 60,000 BPH with the intention of using increased capacities as multiple unit design. Capacities can range from farm use to large industrial uses depending on application.

MATERIALS WITH WHICH THIS PRODUCT MAY BE USED

The following are some materials that may be screened in a Magik Kleener.

1. FARM: To clean the farm grain before going to market. Grain is all inclusive, the unit can be supplied with a large variety of screen material to accomplish practically any farm grain cleaning job.
2. ELEVATOR: The commercial grain elevator will make use of these cleaning devices as shipper requirements call for small amounts of foreign material or suffer substantial dock in potential earnings.
3. GRAIN TERMINALS: The export terminals would use these applications as they receive some damaged grain from shipping elevators. They also need to maintain a shipping quality to keep their overseas customers returning for their commodity.
4. FEED MILLS: This application would be valuable in two means, the removal of crumbs from pellets and the removal of fine particles from their graded flaked products for over-the-counter sale.
5. OTHER USES: The separating of sand and stone, the separation of ball bearings from large or small items of the same type. The ways this unit may be used are almost limitless.

USE APPLICATIONS

The following are some of the practical applications for the Magik unit.

1. Farm cleaning of grains.
2. Commercial elevator for commercial cleaning.
3. Terminal elevators for export shipping.
4. Food processors to separate and clean grains for human consumption (Stainless Steel).
5. Rock Quarries separate sands and stones, separation of large and small stones in a method more efficiently than is currently being used. This can be accomplished very easily as this unit uses the same type of screen material.
6. Industrial Ball Bearing separation is an example but does not include several other industrial applications.

PLACEMENT OF EQUIPMENT

NOTE: All Magik Kleeners should be installed with a minimum of 24” of straight down fall into the center of the opening on top of each cleaner to ensure proper distribution of grain into cleaner.

1. Elevator leg trunking (wet rec., dry leg, load out).
2. Elevator head house.
3. Under conveyors, mounted in quarry towers, etc.,
4. Atop a grain dryer.
5. Feed mills (grains, flaking & pellet operation),

ADVANTAGES OF THE MAGIK KLEENER

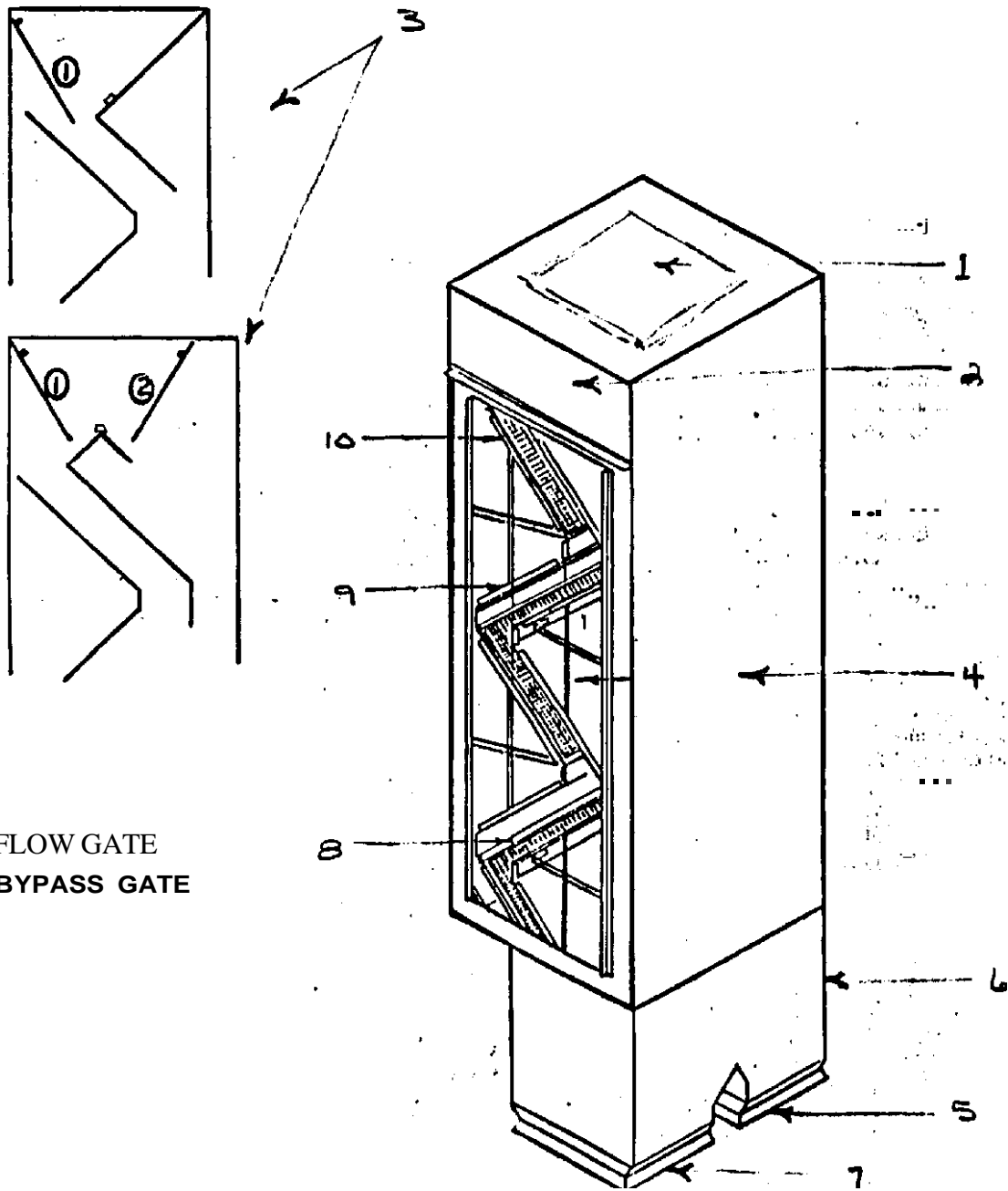
The Magik Kleener product offers the purchasing customer an inexpensive alternative to the high cost of completing a job that is important to his product existence.

The compact size will allow for improvements without a great outlay of unnecessary funds to cover installation cost of bulky and more expensive equipment.

Magik units from 1000 BPH (5) screen unit have a “Blend-Clean” By-Pass as standard equipment. This allows the cleaning while load-out is in progress.

In conjunction with the butterfly gates the by-pass can be controlled from the ground via cables (not supplied).

Operation is adjustable from full by-pass to full screen, enabling the unit to perform to almost any standard.



- 1. FLOW GATE
- 2. BYPASS GATE

OPERATIONAL DESCRIPTION

NOTE: All Magik Kleeners should be installed with a minimum of 24” of straight down fall into the center of the opening on top of each cleaner to ensure proper distribution of grain into cleaner.

ITEM 1 **Transition hopper center, this is a marker for spout center.** For commercial and some farm users, this should be considered as an important reference. This location will center the grain spout over the throat opening of the cleaner. Centering in this manner will insure there is an equal product flow to the top screen ie; (total coverage).

If the unit is to be used primarily on the farm and is to be fed as a free-standing unit and used with an auger this entire cover maybe removed exposing the transition hopper.

ITEM 2 Transition, its primary function is to provide a collection area and allow the product to be screened the opportunity to spread across the transition for 100% screen coverage.

ITEM 3 Butterfly Gate, the gate’s function is to provide the user with the option of:

- (a) being able to clean smaller amounts of product than the rated capacity. This is done by opening or closing the gate allowing product to spread across the transition hopper for 100% screen coverage.
- (b) If the gate is properly set for cleaner operation, it will protect the unit from an operation over-load. If the capacity of the cleaner is exceeded the efficiency will decrease.
- (c) At year end, the gate may be closed to prevent any unnecessary flow through of product or exposure of the screens to moisture.

ITEM 4 The Cleaner body:

This section houses the entire screen network.

- (a) The Kleener body provides a full access to the screen area via hinged door.
- (b) All internal bracing and/or internal mechanics are exposed.
- (c) The construction of the Kleener body is of a weld together nature and is constructed to be solid. This construction however does not lend itself to mistreatment.

ITEM 5 F.M. (Foreign Material) discard area. This space is made primarily of vertical chutes, one (1) each side and slides under each screen connecting to each vertical chute.

- (a) As F.M. is removed from the product being screened it falls to the F.M. slide and is transferred to the vertical chute.
- (b) The two (2) vertical chutes are merged in item 7 (hopper section) to one common discharge spout.
- (c) If scalping small grains through the unit, the operation of the screener is reversed. The small grains (wheat or milo, for example) follow the same path as F.M. in item 6; paragraph b.
- (d) Scalping & screening grains of different sizes, (1) large product ie: corn and (1) small product - wheat, both discharges in the hopper section will discharge grain. Again, the small grain will take the path of the previously mentioned F.M.

ITEM 6 The Hopper Section, this section merges all sections of the screener together for discharge from the unit. The clean grain to one side and the F.M. to the opposite discharge opening.

ITEM 7 Discharge Chute - All of the cleaners have square discharge openings. Each discharge is flanged with angle iron.

- (a) All models currently have two (2) discharge openings, this for the convenience of the end user and his installer.
- (b) Variations may be made in some cases, so please consult the company concerning any changes.

ITEM 8 “Screen Deflector Shield”, is one of the most critical points within the Magik Kleener.

- (a) The deflector should be close to, or in contact with the screen, otherwise this may lead to an unnecessary leaking problem.

PLEASE NOTE! Not all screens are the same gauge or thickness.

- (b) All deflector shields are checked for setting and tolerance at the factory. Any change of screens should be taken into consideration and the deflector shield setting checked.

ITEM 9 Internal Bracing and Sealer Plates. These are each essential to the Kleener operation.

- (a) Vertical and horizontal bracing maintain a given operation area for the cleaner.
- (b) Maintain proper screen level.
- (c) Maintain proper spacing of screen table and door openings for easy screen removal.
- (d) Sealer plates are for the proper operation of the unit as grain products vary in size. It also provides a forgiving seal if the screener is suffering from abuse.

ITEM 10 The screen. These are and should be considered the heart of the cleaner. The information following and the attached illustrations are very important.

- (a) The screen material used in the Magik Kleener is of very high quality and unless abused, should last in a typical grain operation for several years.
- (b) Some grain products shorten the life span of the screen material. Such are considered a high abrasive commodity as are soybeans and barley.
- (c) These two (2) particular products may shorten the life span.
- (d) For the farm application one can expect several years of service from his screens.
- (e) In the commercial markets, depending of course on the grain volumes handled and the variety for the grains, the life of the material can be expected to shorten. Soybeans and barley can greatly reduce screen life depending on the rate of use.
- (f) Less abrasive products as corn, offer a greatly extended life span barring any abuse.
- (g) All Magik Kleener screens are of high-quality material for service.

INITIAL START-UP

The first-time operation, or start-up each year, should be done at a reduced capacity flow. Each year, there may be prior-year material remaining in the screens, whether it be a farm or commercial unit/product. The screens of the cleaning unit may become:

- (a) Very dusty from lack of use. If high moisture is experienced through this period, the dust will absorb it and become pasty. Even if the dust has dried it will still impair the capacity of a spout of a grain cleaner (gravity type) as there is no power mechanism to clean them out.
- (b) If dust is not a problem, then moisture may have a rusting effect on gates, screens, etc. similar to equipment sending grain into the cleaning unit.
- (c) Grain processed through the cleaner should be done so at a reduced capacity until it has a chance to shine-up and become slick again for maximum material transfer.

***This is a general statement realized by most operators however, it sometimes serves as a good reminder. Screeners new or old suffer operational symptoms consistent with all equipment.

When equipment is ready for use, these steps should be followed:

NOTE: The screen gates are one of the most important parts of the Magik Kleener.

When used correctly, the gates can prolong the wear on the Kleener, by cushioning the grain as it enters the Kleener, grain on grain. The gates allow the grain to spread and flow over the entire screen in a column of grain the same depth as the gate opening all the way through the Kleener. This cushioning and even distribution of the grain ensures the best cleaning performance by the Kleener.

- (a) CHECK THE COLUMN GATE(S) OPERATING OPENING. **SET THE OPENING AT APPROXIMATELY 1 1/2" for Low Profile (LP) models and 2" to 2 1/2" for Standard (STD) models.**
- (b) Select the screen for product to be cleaned.
- (c) Operate slowly until unit is shined-up or until at least 1,000 bu, has been through (This is for initial startup).
- (d) Begin full capacity operation.
- (e) As products change in maturity, dust content and F.M., Periodic checks should be made inspecting the screens. We recommend cleaning every eight hours. Some will have to be cleaned more often, some not as frequent. This is due to screen selection and product being cleaned.
- (f) The operator will soon know the cleaning schedule local products will require.

SCREEN SELECTION

As the Magik Kleener is more aggressive than most other units, due mainly to design, we still suffer from some of the same problems. The most common problem with any Kleener is improper screen selections. Attached are ref. charts to help you in your selections.

Some important facts to remember:

1. In selecting a screen to do a particular job, ask yourself, have I received the information concerning this particular crop? If selecting screens is done over the telephone, you must have information.
2. Some of the answers are very important for proper screen selection.
3. Is this crop irrigated or dryland?
4. Is this crop variety large, medium, or small kernel?
5. If it's wheat - is it Winter or Spring wheat? Is it Durham wheat? All of these vary in size.
6. Soybeans - Beans vary greatly in size, according to variety. Are they large, medium, or small?
7. Barley - Screen only for malt barley application.
8. Corn - Will also vary by variety and is subject to the same problems as other grains.
9. Everyone should be aware that each crop has immature kernels. Quite often this small yet whole kernel is smaller than the fines being removed and are going to be lost in the screening process.
10. Improper screen selection can cause blinding or plugging of the screens as the cracked kernel may be close to the opening in the screen.
11. Also, it is important to remember we have a place in areas other than agricultural. For maximum results, ask questions

Screen Selection Chart

<u>Screen Opening</u>	<u>Fractional Opening</u>	<u>Commodity</u>
0.050	3/64"	Canola, Rape seed
0.065	1/16"	Rye, Millet
0.086	3/32"	Small Wheat
0.096	3/32"	Wheat, Oat, Barley, Rice
0.108	7/64"	Large Wheat, Rice, Milo, Oat, Barley
0.118	7/64"+	Large Wheat, Rice, Milo, Oat, Barley
0.125	1/8"	Large Wheat, Rice, Milo, Oat, Barley
0.156	5/32"	Beans, Peas, Lentils, Sunflower
0.188	3/16"	Small Corn, Large Beans
0.218	7/32"	Corn, Large Sunflowers
0.234	15/64"	Corn, Large Sunflowers
0.250	1/4"	Large Corn

NOTE:

**** These are only suggestions. Commodities vary according to the area and conditions.**

**** We can get any size opening you may need if you let us know when quoting.**

**** These are square openings wire mesh made of High Carbon Steel.**

GENERAL MAINTENANCE

- 1) Inspect the screens and gate openings at regular intervals.
- 2) Check the F.M. slides and Hopper area for dust build up.
- 3) If either of the above need attention, take the steps necessary to check out the unit.
- 4) If a leaking problem is discovered check:
 - a. Is the screen in proper location?
 - b. Is the diverter plate close to or in contact with the screen?
 - c. Check the door fit.
- 5) These periodic inspections will help the end user determine the frequency of follow-up inspections.
- 6) Door latches should be inspected for operation. Remember all latches should be latched during operation.

YEAR END

1. The unit should be cleaned of all dust and foreign material.
2. The screens may be left in place.
3. Be sure the door is closed and latched.
4. Closing the gate at the top is optional. If the gate is left open, the unit should be cleaned prior to its next use.
5. If the gate is closed, a reminder should be left with or attached to the unit reminding the operator to open the gate before operation.

Limited Warranty

Gunner Ridge Companies, LLC (a.k.a. "Magik Kleener"). hereinafter referred to as "Seller." warrants each Magik Kleener product to be free from defects in material or workmanship under normal use and service conditions. Seller's warranty is limited to defects in material or workmanship which occur and are reported to Seller within twelve (12) months from the date of shipment.

1. This Limited Warranty is made expressly IN LIEU OF ALL OTHER WARRANTIES. WHETHER MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF SELLER. Customer's rights and remedies are governed exclusively by the terms and conditions of this Limited Warranty and customer expressly waives, or himself and any purchaser from customer, any claim based upon contract, tort, strict liability or otherwise.
2. Seller's obligation under this warranty is exclusively limited, at Seller's option to either:
 - a. Repair or replacement of any products or part found to be defected due to breach of the limited warranty, such repair or replacement to be at Seller's factory, customer to pay any shipping charges: or
 - b. Return of the goods to Seller, at customer's expense, and refund of the actual purchase price paid by customer, exclusive of shipping charges, with respect to any failure of product due to defects in materials or workmanship.
3. Seller shall not be liable for any consequential damages including without limitation, expenses of disconnecting or removing the products, losses or damages resulting to the equipment or structure in which Seller's products have been installed, loss of use of such equipment or structure, of loss of grain or profits.
4. Seller is not responsible for installation of the product and is not liable for any loss or damage attribute to improper installation.
5. All claims are to be made within sixty days of the problem arising, in writing, addressed to Seller at 2904 12th Street, Harlan, Iowa 51537, or all rights to customer's claim shall be deemed waived and unenforced.
6. Customer acknowledges that customer is knowledgeable concerning the goods being purchased; that customer has reviewed the Limited Warranty: and that the remedies provided are adequate and acceptable to customer. Customer represents that the goods are not being purchased for consumer use. Seller is not responsible or liable for any claim of personal injury or death.
7. Seller neither assumes nor authorizes any person to assume for Seller, any other liabilities in connection with the sale of its products. This warranty shall not apply to product that has been subjected to misuse, neglect, accident, or operated other than in accordance with the specifications of Seller.

8. Customer agrees to incorporate the terms of this Limited Warranty into any subsequent sale or transfer of these goods to a third party such that Seller's liability shall be expressed limited to the terms and conditions of this Limited Warranty, as well as the choice of law and choice of jurisdiction provisions of this agreement. If any party brings an action against Seller for a remedy other than those set forth in this Limited Warranty, customer agrees to defend Seller against such claims at customer's expense, including attorney's fees, and to indemnify and hold Seller harmless against any such claims or judgments thereon. In no event shall Seller's liability extend beyond the term of the warranty provided to Seller's original customer.
9. Customer agrees that customer's rights and responsibilities in regard to this transaction shall be governed by the law of the state of Iowa shall be the exclusive jurisdiction for bringing any disputes in regard to this transaction.
10. This writing constitutes the entire representations, or warranties, oral or written, express or implied, statutory or otherwise. This Limited Warranty may be modified only in writing, signed by Seller, at its office in Harlan, Iowa.

Gate Opening Indicators

There is an indicator placed directly below the inspection door on the front of the cleaner.

The indicator tells how far the grain flow-through (cleaning) gates are open.

When the pin is on:

- 0 – The gate(s) are completely Closed
- 1 – The gate(s) are open 1.5 inch
- 2 – The gate(s) are open 2.5 inch
- 3 – The gate(s) are completely open

** (typical setting used is between 1 and 2)

This can vary based on the capacity flowing through the cleaner.

The desired setting spreads the grain across the screen for proper cleaning; while meeting your capacity needs.

Note:

- The indicator is for reference only and not for operating the actual gate. Gate operation is controlled by the lever on the back of the cleaner
- The pin does not need to be directly on a certain number and can be placed anywhere.
- When trying to determine the best opening for your set up it is best to move the gates in small intervals and not necessarily from number to number (1 to 2 or 2 to 3)

