



MKD BELTING b.v.b.a

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MKD - Aerators Installation & Operation Manual



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SAFETY SYMBOLS



WARNING:

IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS INJURY. RISK OF ELECTRICAL SHOCK.



CAUTION:

IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS DAMAGE OR FAILURE OF THE EQUIPMENT.



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MKD - Aerators

I. HANDLING AND STORAGE

SAVE THESE INSTRUCTIONS

INSPECTION AND HANDLING

Do not dispose of the carton or packing materials.

Each package should be inspected upon receipt for damage that may have occurred due to mishandling during shipping. If the unit is received damaged, notify the carrier or the factory for instructions. Failure to do so may void your warranty.

DISPOSAL AND RECYCLING

This product can be recycled by specialized companies and must not be disposed of in a municipal collection site.

STORAGE

If the product is not scheduled for immediate installation following delivery, the following steps should be observed:

1. Following inspection, repackage the unit into its original packaging.
2. Select a clean dry site, free of vibration, shock and impact hazards.
3. If storage will be extended longer than 30 days, the unit must be stored at temperatures between -40 and 70° C in non-condensing atmosphere with humidity less than 85%.



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II. GENERAL SAFETY

AUTHORIZED PERSONNEL

All instructions described in the document must be performed by authorized and qualified service personnel only. Before installing the unit, please read these instructions and familiarize yourself with the requirements and functions of the device. The required personal protective equipment must always be worn when servicing this device.

USE

The device is solely intended for use as described in this manual. Reliable operation is ensured only if the instrument is used according to the specifications described in this document. For safety and warranty reasons, use of accessory equipment not recommended by the manufacturer or modification of this device is explicitly forbidden. All servicing of this equipment must be performed by qualified service personnel only. This device should be mounted in locations where it will not be subject to tampering by unauthorized personnel.

MISUSE

Improper use or installation of this device may cause the following:

- Personal injury or harm
- Application specific hazards such as vessel overfill
- Damage to the device or system



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III. PRODUCT DESCRIPTION

FUNCTION

The MKD - aerator is a simple and efficient means of introducing low pressure air into any dry finely ground material. The air is equally distributed in controlled quantities to give the material the ability to flow by gravity from bins, hoppers or chutes. MKD - aerators incorporate non-clogging diffusers, an integral orifice and construction features which assure long, maintenance-free life.

FEATURES

Simple Installation

- Can be installed from inside or outside the bin

Integral Orifice

- Controls air consumption at any recommended pressure

Non-clogging Diffuser

- Provides equal distribution of air and will not clog when air is on even with the finest materials

SPECIFICATIONS

Tank Nipple and Locknut	"L" Series - 1/8" (3 mm) brass "LL" Series - 1/4" (6 mm) plated steel
Spacer Washers	Nickel plated steel
Diffuser	Up to 180° F (82° C) cotton (canvas) Up to 600° F (316° C) fiberglass
Diffuser Frame	Galvanized steel 16 mesh or stainless steel mesh type 316
Body	Zinc plated steel or stainless steel
Shipping Weight	"L" Series - .75 lb ea "LL" Series - 1.75 lb ea

"LL" Series has a diffusion area approximately 2½ times that of "L" Series. When installed in larger bins, it will reduce the number of aerators and the amount of piping required.



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IV. INSTALLATION

L SERIES - INTERNAL

Drill $\frac{7}{16}$ " hole through the bin wall or mounting surface at the center of each MKD - aerator location. Insert the tank nipple (short tapered thread end) in the aerator and place the unit inside the bin, inserting the tank nipple through the drilled hole in the bin wall.

Place the gasket on the nipple next to the outside of the bin wall together with sufficient space washers and lock securely in place with the locknut.

Install piping to the MKD - aerators and complete connection to the air supply.

LL SERIES - INTERNAL

Drill $\frac{9}{16}$ " hole through the bin wall at the center of each MKD - aerator location and proceed as above.

AIR SUPPLY PIPING

Piping of adequate size to carry the required volume of low pressure air must be provided to assure reliable operation of the MKD - aerator. As a general guide the following minimum pipe sizes should be used for the manifolds to which the aerators are attached. In all cases the number of pipe fittings should be held to a minimum.

L SERIES		LL SERIES	
Pipe Size	No. of MKD - Aerators	Pipe Size	No. of MKD - Aerators
$\frac{3}{4}$ " (19 mm)	1 - 5	1" (25.4 mm)	1 - 5
1" (25.4 mm)	6 - 9	$1\frac{1}{4}$ " (32 mm)	6 - 8
$1\frac{1}{4}$ " (32 mm)	10 - 12	$1\frac{1}{2}$ " (38 mm)	9 - 11



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AIR SUPPLY

A continuous air supply must be maintained at all times to insure a proper operation of the MKD - aerators. Lack of air supply will cause the material to build up on the aerators and result in damage to the aerators.

The best and usually most economical air supply is from a positive displacement low pressure blower. For test applications or applications involving less than 30 CFM, compressors may be used in conjunction with a pressure reducing regulator and filter or moisture trap on the low pressure side.

The following table shows the volume of air one MKD - aerator (uncovered) will use at various operating pressures. Check the pressure near the most distant MKD - aerators with the bin empty.

Air Pressure PSI	Air Consumption per MKD - Aerator - in Cubic Feet per Minute	
	L Series	LL Series
1/2	2.7	6.0
1	4.2	7.5
1 1/2	5.0	9.1
2	5.7	10.5
2 1/2	6.1	11.7
*3	6.5	12.7
3 1/2	6.9	13.8
4	7.1	14.7
4 1/2	7.4	15.6
5	7.6	16.4
5 1/2	8.0	17.2
6	8.2	18.3
6 1/2	8.4	19.2
7	8.7	20.2
7 1/2	8.9	21.1
8	9.1	22.0
8 1/2	9.3	23.0
9	9.6	23.8
9 1/2	9.8	24.7
10	10.0	25.6
10 1/2	10.2	26.5
11	10.4	27.4
11 1/2	10.7	28.4
12	10.9	29.2
12 1/2	11.1	30.1
13	11.3	30.9
13 1/2	11.6	31.9
14	11.8	32.9
14 1/2	12.0	33.8
15	12.2	35.1

*3 PSI is recommended and used on most applications.
15 PSI is the maximum pressure.



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HOW MANY MKD - AERATORS PER ROW?

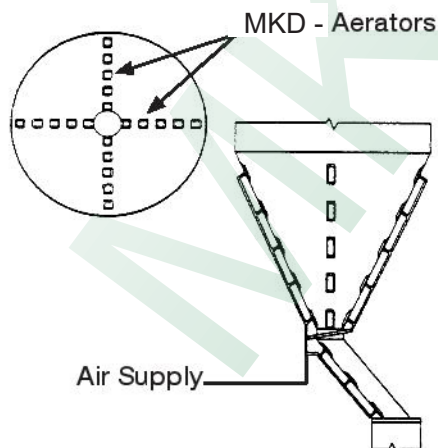
To determine the number of MKD - aerators required for each row, measure the length of the sloping side of the hopper on which the aerators are to be installed. Refer to the table below, select the model to be used (L Series or LL Series) and the spacing of the units. Read down the column until the approximate length of slope is reached. The number of aerators required is shown at the right.

Example: The 6'11" slope will require 6 model L aerators mounted on 15" centers.

Number of Aeration Pads per Row	L Series Mounted On		LL Series Mounted On	
	12" Centers	15" Centers	20" Centers	24" Centers
2	1' 8" (50.8 cm)	1' 11" (50.8 cm)	2' 8" (81 cm)	3' 0" (91 cm)
3	2' 8" (81 cm)	3' 2" (81 cm)	4' 4" (132 cm)	5' 0" (152 cm)
4	3' 8" (112 cm)	4' 5" (112 cm)	6' 0" (183 cm)	7' 0" (213 cm)
5	4' 8" (142 cm)	5' 8" (142 cm)	7' 8" (234 cm)	9' 0" (274 cm)
6	5' 8" (173 cm)	6' 11" (173 cm)	9' 4" (284 cm)	11' 0" (335 cm)
7	6' 8" (203 cm)	8' 2" (203 cm)	11' 0" (335 cm)	13' 0" (396 cm)
8	7' 8" (234 cm)	9' 5" (234 cm)	12' 8" (386 cm)	15' 0" (457 cm)
9	8' 8" (264 cm)	10' 8" (264 cm)	14' 4" (437 cm)	17' 0" (518 cm)
10	9' 8" (295 cm)	11' 11" (295 cm)	16' 0" (488 cm)	19' 0" (579 cm)

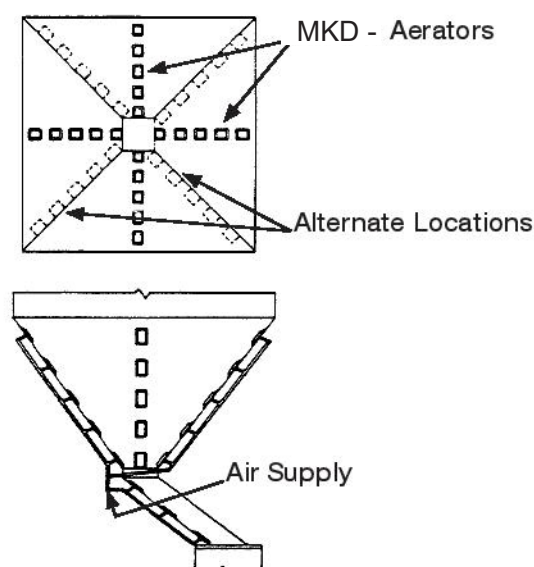
CONICAL HOPPER

In a conical hopper four rows of MKD - aerators, located as shown, are normally required. The L Series should be used in small cones as the smaller aerator adapts better to the curved surface. To prevent clogging of material in discharge pipe or chute, install one row of aerators on the under side of the slope as shown.



PYRAMIDAL HOPPER

In a pyramidal hopper, four rows of MKD - aerators centered on the sloping sides usually assures full and uniform flow. For minimum retention of material in the corners, an alternate location in the valleys is suggested. To prevent clogging of material in discharge pipe or chute, install one row of aerators on the underside of the slope as shown.





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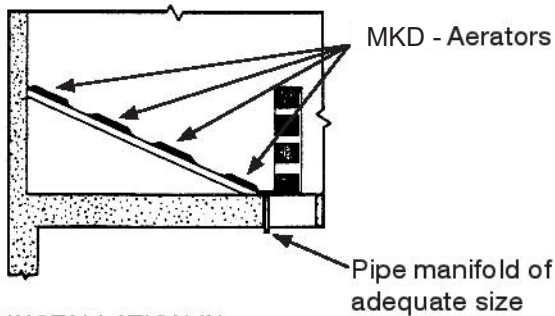
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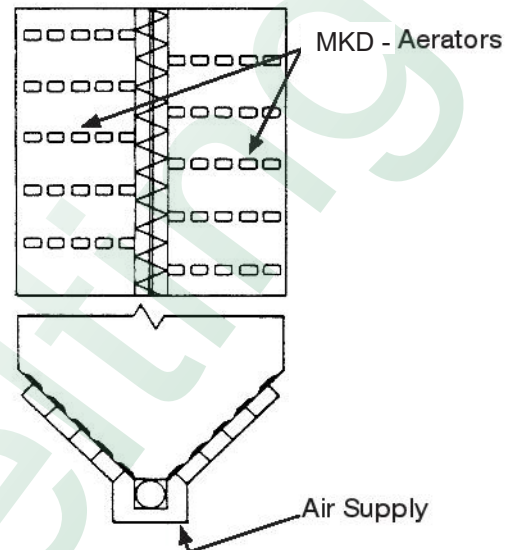
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V-BOTTOM BIN

This arrangement may be used in bins emptied by screw conveyor, belt conveyor or other means where the discharge opening runs the entire length of the bin. It provides full and uniform flow to the discharge opening without bridging over the outlet. Number of rows of MKD - aerators required and spacing will depend upon the size of the bin as well as the material being handled.



INSTALLATION IN
FLAT BOTTOM



V. DIMENSIONAL DRAWINGS

	L Series	LL Series
A	3 3/4" (95.25 mm)	6" (152.39 mm)
B	7 1/2" (190.5 mm)	12" (304.8 mm)
C	7/16" (11.09 mm)	1 1/16" (17.46 mm)
D	1/8" Pipe x 2" Long OD = 0.405 (10.29mm x 50.8mm)	1/4" Pipe x 2" Long OD = 0.540 (13.72mm x 50.8mm)

