

BLACK DIAMOND

INSTRUCTION MANUAL

BDPM-20

20 Qt. Planetary Mixer

This manual contains important information regarding your Black Diamond unit. Please read this manual thoroughly prior to equipment set-up, operation and maintenance. Failure to comply with regular maintenance guidelines outlined in this manual may void the warranty.

WARNINGS

- Do not immerse unit, cord or plug in liquid at any time
- Unplug cord from outlet when not in use and before cleaning
- Plug only into a 3-hole grounded electrical outlet of appropriate voltage
- Do not operate unattended
- Do not use this unit for anything other than intended use
- Do not use outdoors
- Always use on a firm, dry and level surface at least 12" from walls or any other obstruction
- Do not use if unit has a damaged cord or plug, in the event the appliance malfunctions, or has been damaged in any manner
- Keep children and animals away from unit
- Any incorrect installation, alterations, adjustments and/or improper maintenance can lead to property loss and injury. All repairs should be done by authorized professionals only
- Ensure that the designated power supply is adequate for continual usage
- Do not hose down mixer
- Do not operate with wet hands
- Unplug from the electrical supply prior to any maintenance or repairs

TO INSTALL:

1. Remove unit from box and make sure all plastic, tape and packing materials are removed.
2. Place the unit on a flat, secure surface with at least 12" of open space around all sides.
3. Check to make sure the outlet of the correct voltage for this item (120V) is near. Do not use an extension cord, this item must be plugged directly into an outlet.

STANDARD ACCESSORIES - This mixer comes with one of each of the following accessories:



Flat Beater



Dough Hook



Wire Whip



Mixing Bowl

When mixing always use the correct agitator for the job. To install agitator raise into the mixing axle and rotate clockwise on the shaft until it locks into place. To remove an agitator, raise it on the shaft until it clears the lock and rotate counterclockwise and lower. All of the accessories are fitted to the mixing bowl for precise use.

Flat Beater - Used for mixing dry ingredients and can work on all speeds. Do not run for more than 15 minutes.

Dough Hook - Used for mixing dough and can work in low and medium speeds only. Do not use on high speed. Do not run for more than 20 minutes.

Wire Whip - Used for mixing liquids and soft ingredients and can work in all speeds. Do not run for more than 15 minutes.

NOTE: Always stop the machine first before changing speeds in order to avoid damage to the unit's gears. Always ensure that the bowl is fully lifted and the wire guard is closed when in use.

- Slow speed is the middle setting (Dough hook setting with the knob facing forward)
- Medium speed is the bottom setting (Flat beater setting with the knob facing down)
- High speed is the top setting (Wire Whip setting with the knob facing up)

MIXER CAPACITY CHART

Product	Agitator	Speed	Max Bowl Capacity (20 qt)
Bread and roll dough - 60% AR	Dough hook	1st only	25 lbs
Heavy bread dough - 55% AR	Dough hook	1st only	15 lbs
Pasta Basic Egg Noodle (max, mix time 5 min)	Dough hook	1st only	5 lbs
Pizza dough, thin - 40% AR (max, mix time 5 min)	Dough hook	1st only	9 lbs
Pizza dough, medium - 50% AR	Dough hook	1st only	10 lbs
Pizza dough, thick - 60% AR	Dough hook	1st only	20 lbs
Raised donut dough - 65% AR	Dough hook	1st and 2nd	9 lbs
Whole wheat dough - 70% AR	Dough hook	1st only	20 lbs
Mashed potatoes	Flat beater	2nd	15 lbs
Mayonnaise (Quarts of Oil)	Flat beater	2nd	8 qt
Waffle or pancake batter	Flat beater	2nd	8 qt
Egg whites	Wire whip	3rd	1 qt
Meringue (Qty. of water)	Wire whip	3rd	1.5 pts
Whipped cream	Wire whip	3rd	4 qt
Cake, Angel Food (8-10 oz. cake)	Wire whip	2nd	15 lbs
Cake, Box or Slab	Flat beater	2nd	20 lbs
Cake, Cup	Flat beater	2nd	20 lbs
Cake, Layer	Flat beater	2nd	20 lbs
Cake, Pound	Flat beater	2nd	21 lbs
Cake Short (Sponge)	Wire whip	3rd	15 lbs
Cake Sponge	Wire whip	3rd	12 lbs
Cookies, Sugar	Flat beater	2nd	15 lbs
Pie dough	Flat beater	2nd	18 lbs
Eggs & Sugar for Sponge Cake	Flat beater	2nd	8 lbs
Icing, Fondant	Flat beater	2nd	12 lbs
Icing, Marshmallow	Wire whip	2nd	2 lbs
Shorting & Sugar, Creamed	Flat beater	2nd	9.5 lbs

Specifications

Model	BDPM-20
Unit Dimensions (in)	21.65" × 19.6" × 30.66"
Bowl Capacity	20 Quart
Max Flour Capacity	141.1 oz (4 kg)
Max Dough Capacity	225.75 oz (6.4 kg)
Max Water Ratio	60%
Motor	1.1 kW
Electrical	120V ~ 60Hz
Cord Length	64"
Plug Type	NEMA type 5-15P
Product Weight	189 lbs (86 kg)
Shipping Weight	246 lbs (112 kg)
Included Components	Bowl, Attachments: Beater, Whip, Dough Hook

Stirring Shaft Speeds (RPM)

Speed Level	BDPM-20
1st Speed	108
2nd Speed	199
3rd Speed	382

Helpful measurements for calculating the correct size mixer for your application

8.3 lbs = 1 gallon of water - 2.08 lbs = 1 Quart

When mixing dough (Pizza, bread or bagels), remember to check your "AR" absorption ratio. Absorption ratio is water weight divided by flour weight. The above capacities are based on 12% flour moisture at 70 °F water temperature. If a high gluten flour is used, reduce above dough batch size by 10%.

Example: if a recipe calls for 5 lbs of water and 10 lbs of flour then $5 \text{ divided by } 10 = 0.50 \times 100 = 50\% \text{ AR}$.

NOTES:

- 2nd speed should never be used on mixtures with less than 50% AR
- Do not use attachments on the #12 hub while mixing

TO USE:

1. Plug the unit into an outlet of the appropriate voltage.
2. With unit turned off insert the mixing bowl into the holder in the down position and align on the pins. Once bowl is securely aligned on pins, lock into place with the side clips.
3. Insert the desired **agitator** onto the mixing axle and turn to lock into place as directed on page 2.
4. Once the bowl and **agitator** are locked into place, add ingredients to the bowl and raise the bowl by pulling the bowl lift handle towards you until it hits its full raised position.
5. Adjust your speed setting for the correct application by turning the knob to the correct position as described on page 2.
6. Set the timer for the desired mixing time. The timer has two settings; turn the dial to the left for manual run or you can turn the dial to the right to a desired set time for mixing. Once the timer goes off the machine will shut down. The timer must be set to one of these settings or the machine will not operate.
7. With bowl in the fully raised position, the **agitator** locked into place and the correct speed setting selected, close the wire guard over the bowl, set the timer and press the green power button to start mixing. The wire guard must be closed fully for machine to operate.
8. Once mixing is completed, press the red stop button to stop the **agitator**.
9. Open the wire guard and lower the bowl to its lowest setting. If more mixing is needed repeat step 7.

NOTE: Always stop the machine before changing speeds.

Meat Grinder Attachment:

- The Meat Grinder should only be used for purposes intended
- Please remove bones, skins and any other foreign materials before grinding
- Meats and other food should be defrosted and not used when frozen
- For best results, cut the meat into smaller size pieces to fit easily through the feed tube
- If not in use, please remove the meat grinder attachment from the unit
- Do not run the grinder for longer periods of time than necessary

CLEANING - NOTE: To maintain cleanliness and increase service life, this item should be cleaned daily. Do not immerse the unit in water or any other liquid, if liquid enters the electrical compartment it may cause a short circuit or electrical shock.

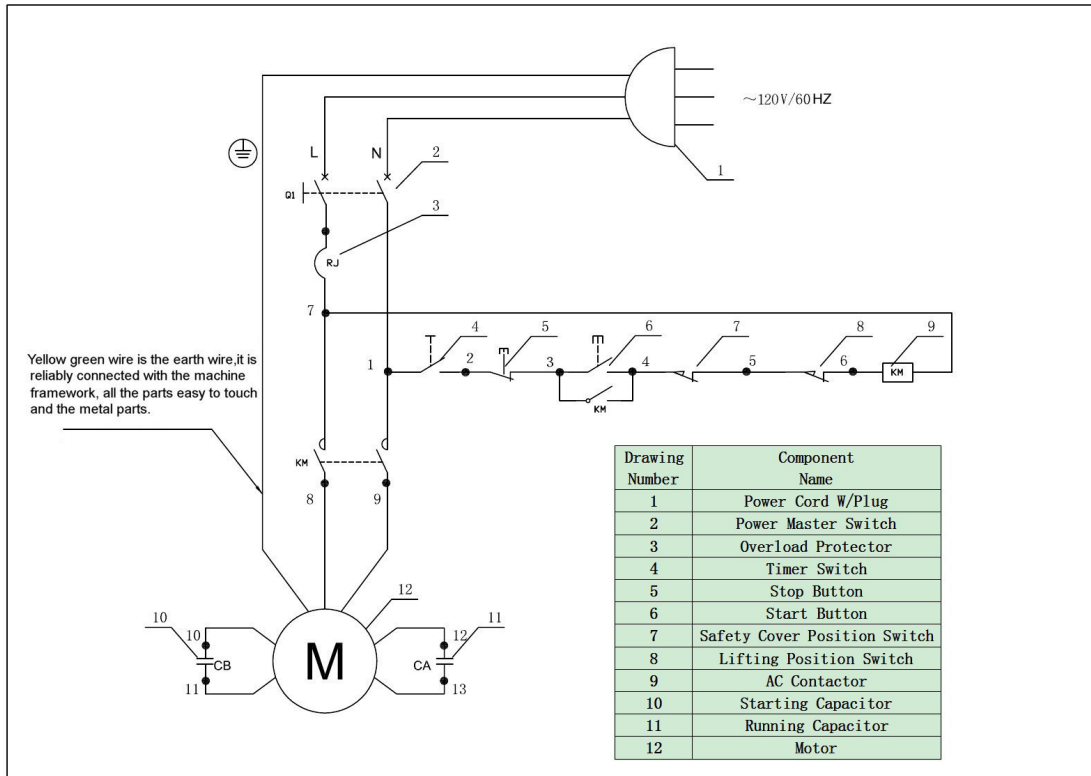
1. Before cleaning or attempting to move this item always turn off and unplug.
2. Wipe the entire unit with a clean soft cloth until it is completely dry.
3. To avoid damage to the unit, do not use abrasive cleaners or scouring pads.
4. If soap or chemical cleaners are used, be sure they are completely rinsed away with clean water immediately after cleaning. Chemical residue could damage or corrode the surfaces of the unit.
5. After using of the machine, please remove the flat beater, dough hook, wire whip and meat grinder from the machine and wash these parts thoroughly in hot, soapy water to prevent the growth of bacteria.
6. When clean and maintain the inside of the protective cover and swivel mount, please loosen the screw around the protective cover and take off the protective cover. If there is no sign of oil leak, no need to take off the swivel mount. Clean the swivel mount with a wet cloth, the protective cover can be cleaned by detergent and washed under the water supply tap. After washing by clean water, use dry cloth to wipe out the water and make it dry.

To avoid serious injury or damage, never attempt to repair or replace a damaged power cord yourself. Contact a professional repair service.

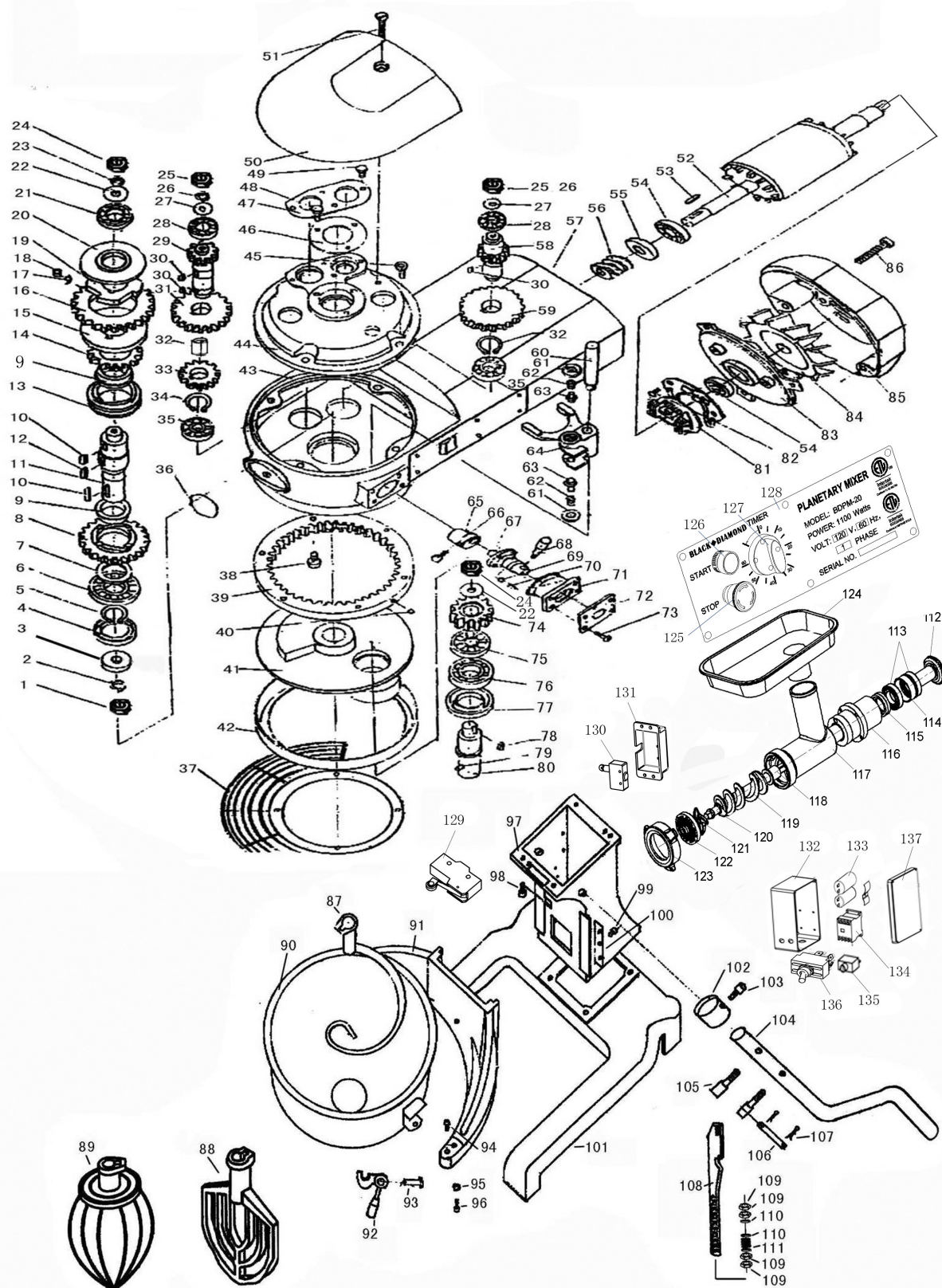
TROUBLESHOOTING

Problem	Possible Causes	Solution
The axles don't work when operating the machine	Electrical connection is not good	Check the plug in the outlet
Leaking oil	oil gaskets are worn out or damaged	Replace the oil gasket(s)
Difficult to raise or lower the bowl	Either the slideway is corroded, or the lead screw, bevel gear or hand wheel shaft is dried out	Clean and oil the dried out parts
Motor is overheating and speed has decreased	The voltage is not enough, incorrect speed is set or there is too much food in the bowl	Check the voltage or adjust the speed to a better setting. If the bowl is overloaded, remove some of the food to lighten the load
Item is making too much noise and overheating	Poor lubrication	Add or replace oil
Agitator touches bowl	Either the bowl or agitator is deformed	Repair or replace deformed part
Mixing bowl is out of position	Moving direction is not correct	Adjust position

Wiring Diagram for the Planetary Mixer



Parts Diagram and Replacement Parts for the Planetary Mixer



Replacement Parts for the Planetary Mixer

Drawing Number	Part Description
1	Nut
2	Spring Washer
3	Flat Washer
4	Skeleton Oil Seal
5	Shaft Circlip
6	Bearing
7	Upper Sleeve For Lower Bearging
8	Clutch Lower Gear
9	Output Shaft Gear Sleeve
10	Flat Key
11	Output Shaft
12	Flat Key
13	Output Shaft Clutch
14	Clutch Upper Gear
15	Driving Bevel Gear
16	Outer Ring Gear
17	Roller Spring
18	Roller
19	Internal Star Wheel
20	Ratchet Upper Cover
21	Bearing
22	Flat Washer
23	Spring Washer
24	Nut
25	Nut
26	Spring Washer
27	Flat Washer
28	Bearing
29	Intermediate Bridge Shaft
30	Flat Key
31	Intermediate Shaft Large Gear
32	Intermediate Shaft Long Sleeve
33	Intermediate Shaft Small Gear
34	Shaft Circlip
35	Bearing
36	Circular plate
37	Movable Protective Cover
38	Inner Hexagon Screw
39	Internal Gear
40	Button-headed Screw
41	Swivel Mount
42	Protective Cover Mount
43	Box
44	Bearing Mount
45	Inner Hexagon Screw
46	Single Bearing Cover
47	Duplex Bearing Cover
48	Inner Hexagon Screw
49	Button-headed Screw
50	Upper Cover

Drawing Number	Part Description
51	Button-headed Screw
52	Motor Rotor
53	Flat Key
54	Bearing
55	Skeleton Oil Seal
56	Motor Threaded Rod
57	Motor Stator
58	Input Axis
59	Worm Wheel
60	Shifting Fork Guide Rod
61	Shifting Fork Nut
62	Shifting Fork Spring
63	Shifting Fork Top Latch
64	Shifting Fork
65	Eccentric Bushing
66	Taper Pin
67	Variable Speed Mandrel
68	Variable Speed Handle
69	Position Limit Steel Ball
70	Position Limit Spring
71	Variable Speed Base
72	Gear Panel
73	Button-headed Screw
74	Planetary Gear
75	Bearing
76	Bearing
77	Skeleton Oil Seal
78	Flat Key
79	Taper Pin
80	Planeatry Shaft
81	Centrifugal Switch Rotor Plate
82	Centrifugal Switch Static Plate
83	Motor End Shield
84	Fan
85	Box Rear Cover
86	Inner Hexagon Screw
87	Hook
88	Beater
89	Whip
90	Bowl
91	Bowl Mount
92	Bowl Tight Pressing Handle
93	Handle Pin
94	Bowl Alignment Pin
95	Spring Washer
96	Nut
97	Support Pillar
98	Inner Hexagon Socket Head Cap Screw
99	Outer Hexagon Screw
100	Pressplate

Replacement Parts for the Planetary Mixer

Drawing Number	Part Description
101	Base
102	Locking Sleeve
103	Inner Hexagon Socket Head Cap Screw
104	Reversal Handle
105	Support Bar
106	Pin With Hole Ends
107	Splitpin
108	Lifting Up and Down Rod
109	Nut
110	Enlarged Flat Washer
111	Compression Spring
112	Passive Bevel Gear
113	Bearing
114	Distance Sleeve of Axletree
115	Oil Seal
116	Bevel Gear Base
117	Meat Grinder Casing
118	Casing Bushing
119	Auger
120	Mandrel
121	Cross Knife
122	Pore Plate
123	Hand Wheel
124	Tray
125	Stop Button
126	Start Button
127	Timer
128	Switch Panel
129	Micro Switch
130	Position Switch
131	Position Switch Box
132	Electric Box
133	Capacitor
134	Contacto
135	Overload Protector
136	Power Switch
137	Electric Box Cover

1 YEAR LIMITED WARRANTY

Ice Bins • Oven Accessories • Proofing and Hot Holding Cabinets • Planetary Mixers • Gas: Charbroilers, Cooktops, Griddles, Ovens, Ranges

ONE (1) YEAR LIMITED WARRANTY ON PARTS AND APPROVED STRAIGHT-TIME LABOR

(subject to limitations below)

The Legacy Companies (the "Company") warrants this product (the "Product") will be free from defects in material and workmanship under normal use and service as specified by the Company for duration of:

- One (1) Year Limited Warranty on Parts and Approved Straight-Time Labor

This Limited Warranty is non-transferable.

During the Warranty Period, your exclusive remedy is repair or replacement without charge of the Product or any component found to be defective at the Company's discretion. If the Product or any component is no longer available, the Company will replace it with a similar one of equal or greater value.

The Warranty Period begins on the earliest of: (a) documented installation date; (b) date of purchase; or (c) date of shipment from the Company. In all cases, the Warranty Period shall not begin later than six (6) months after shipment.

The obligation of the Company under this warranty is limited to the repair or replacement, at the Company's sole discretion, of defective parts or assemblies that are reported during the Warranty Period and determined by the Company to be defective but excluding all labor charges (except as provided in the next paragraph).

The Company will cover approved straight-time labor only, performed during normal business hours, for covered defects reported within the applicable labor warranty period. Labor coverage excludes overtime, premium rates, travel exceeding one hundred (100) miles round-trip, multiple service trips, and access delays.

Costs expressly excluded from this warranty include, but are not limited to:

- Adjustments
- Cleaning and/or sanitizing
- Consumable/wearable items, such as gaskets, filters, light bulbs, legs, casters, hinges, non-stick cooking surfaces, etc.
- Labor to remove and/or install replacement equipment
- Disposal of defective equipment
- Improper or inadequate utility connections, including but not limited to:
 - * Voltage outside of data plate specifications
 - * Improper gas pressure
 - * Improper gas supply
 - * Water pressure outside of specified range
 - * Poor water quality
 - * Non-use or incorrect use of water filtration system
- External drain malfunction.
- Adverse operating conditions as set forth in the owner/user manual for the product.
- Non-authorized modification of the product.
- Improper installation of the product, including installation in a hostile environment
- Improper maintenance, abuse or misuse of the product.
- Causes beyond the reasonable control of the Company, including without limitation fires, freezing, floods and other natural disasters.
- Damage during transit.

No warranty shall apply to any product on which the model or serial number has been altered or removed. Adjustments or modifications to any equipment manufactured by the Company are not covered by this warranty.

This Warranty only extends to the original owner/end user and is not transferable or applicable to products sold through unauthorized channels.

This Warranty covers installations for Commercial use only. Installation or use in any residential or non-commercial setting voids all warranty coverage.

This warranty applies to the original installation location only.

IMPORTANT INSTALLATION NOTICE: Equipment installed outdoors or in mobile or non-permanent environments (including food trucks, trailers, RVs, or boats) is limited to a thirty (30) day warranty unless expressly approved in writing by the Company.

All warranty requests are to be made through the Company's Warranty and Technical Service team. All warranty requests shall include the product model and serial number, original installation date and/or Proof of Purchase, photo of the equipment serial number data plate and complete customer identification and location.

Replacement parts may be new or rebuilt at the Company's discretion and are warranted for the longer of ninety (90) days or the remaining original Warranty Period. Company and its agents are expressly permitted to specify rebuilt parts as suitable replacement parts. All replacement parts must be approved Company parts obtained through the Company or a Company approved parts distributor.

THIS WARRANTY IS IN LIEU OF ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, PERFORMANCE, OR OTHERWISE, WHICH ARE HEREBY EXCLUDED. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY DAMAGES, WHETHER DIRECT, INDIRECT, INCIDENTAL, FORESEEABLE, CONSEQUENTIAL, OR SPECIAL ARISING OUT OF OR IN CONNECTION WITH THIS PRODUCT INCLUDING DAMAGES ARISING FOR LOSS OF PROFIT, FOOD OR BEVERAGE SPOilage CLAIMS, OR OTHER COMMERCIAL LOSS.

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