

# Wood-Mizer<sup>®</sup> Dry Kilns

## Installation & Operation Manual

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**MK20-2, MK20-4,  
MK40-2, MK40-4**

**Rev.B1.00  
Rev. B1.00**

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**Safety is our #1 concern!** Read and understand all safety information and instructions before operating, setting up or maintaining this machine.

*Form #1212*

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## SECTION 1 GENERAL INFORMATION

### 1.1 Introduction

Thank you for selecting our WMDK Kit series of kiln-dryers. This manual will assist you in assembling and operating the kiln. It will also guide you in how best to kiln-dry various types of lumber, and how to obtain the best results with the equipment.

The WMDK series is designed especially for meeting the needs of lumber processors, furniture manufacturers, interior designers and decorators, home builders, and hobbyists whose day-to-day quantity requirements may not be high, but yet must still have high-quality kiln-dried lumbers meeting both domestic as well as international standards.

All of our WMDK kilns are designed with the following features in mind:

- Easy to Install
- Easy to Operate
- Versatile
- Economical

To make the installation as simple as possible, we have designed the kiln in such a way that no special technical skills will be required to install or operate it. All the components that require welding and special tools for assembly have been put together at the factory. All the steps necessary for installing the kiln have been outlined in details and supported with easy-to-follow diagrams, drawings or pictures. All the equipment that is needed for operating the kiln (such as loading carts, and the electrical elements for providing the heating energy) are included. Once the kiln has been assembled, the only requirements is a power supply. Once it is connected, the kiln can be used to dry lumber immediately.

The easy-to-operate control system makes operation simple. You will find the easy to follow instructions in this manual. Kiln-drying schedules for most of the popular species have also been developed and are provided in section named "Kiln Drying Schedules".

Please read this manual carefully before starting installation.

## 1.2 Getting Service

Wood-Mizer is committed to providing you with the latest technology, best quality and strongest customer service available on the market today. We continually evaluate our customers' needs to ensure we're meeting current wood-processing demands. Your comments and suggestions are welcome.

### *General Contact Information*

The phone numbers are listed below for Poland.

#### **Poland**

**Sales** +48 63 26 26 000

**Service** +48 63 26 26 026

#### **Parts Hotline**

**Website** [www.woodmizer.pl](http://www.woodmizer.pl)

**E-mail** [recepca@woodmizer.pl](mailto:recepca@woodmizer.pl)

#### **European Headquarter Office Hours:**

<b>Monday - Friday</b>	<b>Saturday and Sunday</b>
7 a.m. to 4 p.m.	Closed

In the first-instance please contact your local distributor for assistance.

### 1.3 Specifications

See Table 1-1. Specifications for the kiln electric equipment are shown below.

Model No.	WMDK
Kiln Module Power	2.1 kW 4.1 kW (high power module)
Power Consumption (one module)	2.3 kW/h 4.3 kW/h (high power module)
Single Fan Power	65W
Exhaust Fan Power	145 W 290W (two fans required for high power modules)
Voltage Requirement	3x400V 50Hz <sup>1</sup>
Operating Temperatures	0°C - 60°C (32°F - 140°F)

TABLE 1-1

<sup>1</sup> **NOTE:** The WMDK Kiln System requires a 3x400V AC supply with a switched waterproof IP65 isolator with current rating shown in the table below.

See Table 1-2. For example for standard power specification 20' Chamber or Container Kiln see the table below.

Model No.	WMDK
No. of Fans	8 required for 20' Container/Chamber (4 modules)
Power Consumption (one module)	2.1 kW
Total Power Requirement	8,7 kW
Voltage Requirement	3x400V 50Hz <sup>1</sup>
Operating Temperatures	0°C - 60°C (32°F - 140°F)

TABLE 1-2

<sup>1</sup> **NOTE:** The WMDK Kiln System requires a 3x400V AC supply with a switched waterproof IP65 isolator with current rating shown in the table below.



**CAUTION!** The fans can work at temperatures not exceeding 60 °C

# 1 Introduction

## Specifications

See Table 1-3. Electrical Requirements are listed in the following table.

Number of Fan Modules	Current Rating for 2kW per Module kiln (Amps)	Current Rating for 4kW per Module kiln (Amps)
2	10A	20A
3	14A	27A
4	17A	34A
5	20A	41A
6	25A	50A

**TABLE 1-3**

See Table 1-4. The overall dimensions of the WMDK 20' and 40' container/chamber kiln are listed below.

Dimensions	External	Internal
<b>Length</b>	20' (6.09m) / 40' (12.19m)	19' 4" (5.89m) / 38'77" (11.78m)
<b>Width</b>	8' (2.43m)	7' 8" (2.35m)
<b>Height</b>	8.6' (2.59m)	7' 10" (2.38m)
<b>Weight</b>	20' 5291lbs. (2400kgs.) / 40' 10582 lbs. (4800kgs.)	

**TABLE 1-4**

See Table 1-5. Required number of fan modules depends on chamber length. One module adds 1,37 m

Lenght	number of module
20' (6m)	4
40' (12m)	9

**TABLE 1-5**

## SECTION 2 SAFETY

### 2.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.



**DANGER!** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING!** suggests a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION!** refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury or damage to equipment.



**IMPORTANT!** indicates vital information.

**NOTE:** gives helpful information.



Warning stripes are placed on areas where a single decal would be insufficient. To avoid serious injury, keep out of the path of any equipment marked with warning stripes.



## 2.2 Safety Instructions

**NOTE:** ONLY safety instructions regarding personal injury are listed in this section. Caution statements regarding only equipment damage appear where applicable throughout the manual.

### OBSERVE SAFETY INSTRUCTIONS



**IMPORTANT!** Read the entire Operator's Manual before operating the kiln. Take notice of all safety warnings throughout this manual and those posted on the machine. Keep this manual with this machine at all times, regardless of ownership.

Also read any additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions.

Only persons who have read and understood the entire operator's manual should operate the kiln. The kiln is not intended for use by or around children.

**IMPORTANT!** It is always the owner's responsibility to comply with all applicable federal, state and local laws, rules and regulations regarding the ownership, operation of your Wood-Mizer kiln. All Wood-Mizer kiln owners are encouraged to become thoroughly familiar with these applicable laws and comply with them fully while using the kiln.



## KEEP HANDS AWAY



**WARNING!** Always keep clear of exiting hot air through the exhaust system. Keep hands, feet and any other objects away from the exhaust when operating kiln. Failure to do so may result in serious injury.

## USE PROPER PROCEDURE WHEN CONDUCTING ELECTRICAL SAFETY CHECKS AND MAINTENANCE



**DANGER!** Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.

**DANGER!** Hazardous voltage inside the electric disconnect box, starter box, and at the fans can cause shock, burns, or death. Disconnect and lock out power supply before servicing! Keep all electrical component covers closed and securely fastened during kiln operation.



**WARNING!** Consider all electrical circuits energized and dangerous.

**WARNING!** Never assume or take the word of another person that the power is off; check it out and lock it out.

**WARNING!** Do not wear rings, watches, or other jewelry while working around an open electrical circuit.

**WARNING!** Voltage is still present in the condensing fans even when the fans are not running and in many places in the control cabinet such as the fuses when the control box is off.

**KEEP SAFETY LABELS IN GOOD CONDITION**

**IMPORTANT!** Always be sure that all safety decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call your Customer Service Representative to order more decals.



**IMPORTANT!** If replacing a component which has a safety decal affixed to it, make sure the new component also has the safety decal affixed.

**USE CAUTION WHEN WORKING WITH HEAVY BOARDS**

**WARNING!** Always make sure boards are clamped securely before drying. Failure to do so may result in serious injury or death.

## SECTION 3 INSTALLATION AND SETUP

### 3.1 Materials

Congratulations on the purchase of a Wood-Mizer® DK Modular Kiln! Enclosed are complete construction instructions for the kiln. This manual contains drawings and lists of materials required to construct the WMDK Kit. **Follow the instructions carefully, strictly heeding all special WARNINGS and NOTES.**



**IMPORTANT!** Before beginning construction, check your local building code authority to see if a building permit is required.

Open the box and identify all parts listed on the materials list for your kiln.

**See Table 3-1.** Required materials to be supplied by the customer for the WMDK Kit are listed below.

Material	Total Qty.
Drying chamber, insulated container or own build	1
Main Disconnect <sup>1</sup>	1

**TABLE 3-1**

<sup>1</sup> See Table 1-3. for amperage requirement

**See Table 3-2.** A list of recommended books concerning lumber drying is provided below.

Publication	Supplier
Wood Handbook	AH No. 72, USDA Forest Service, Forest Products Lab, Madison, WI, 1955; (608) 231-9200
Dry Kiln Operator's Manual	AH No. 188, E.F. Rasmussen, USDA Forest Service, Forest Products Lab, Madison, WI 1988 (Stock No. 001-000-04576-8); (202) 512-1800
Understanding Wood, A Craftsman's Guide to Wood Technology	R. Bruce Hoadley, available from Wood-Mizer (Part No. P05877)

**TABLE 3-2**

## 3.2 Installation Requirements

### *Tools*

Necessary tools and components that are required to install kiln:

- Bolts
- Screws
- Drills
- Silicones
- Hole Saw 60mm
- Hole Saw 102mm
- Rivet gun (if mounting the kiln in the container)
- Rivet gun for rivet nuts (if mounting the kiln in the container)
- Drills: 5.1 mm, 9mm, 11mm, 16mm (for steel, concrete or wood depends on application)
- Silicon sealant 310ml
- Foam sealant

### *Manpower*

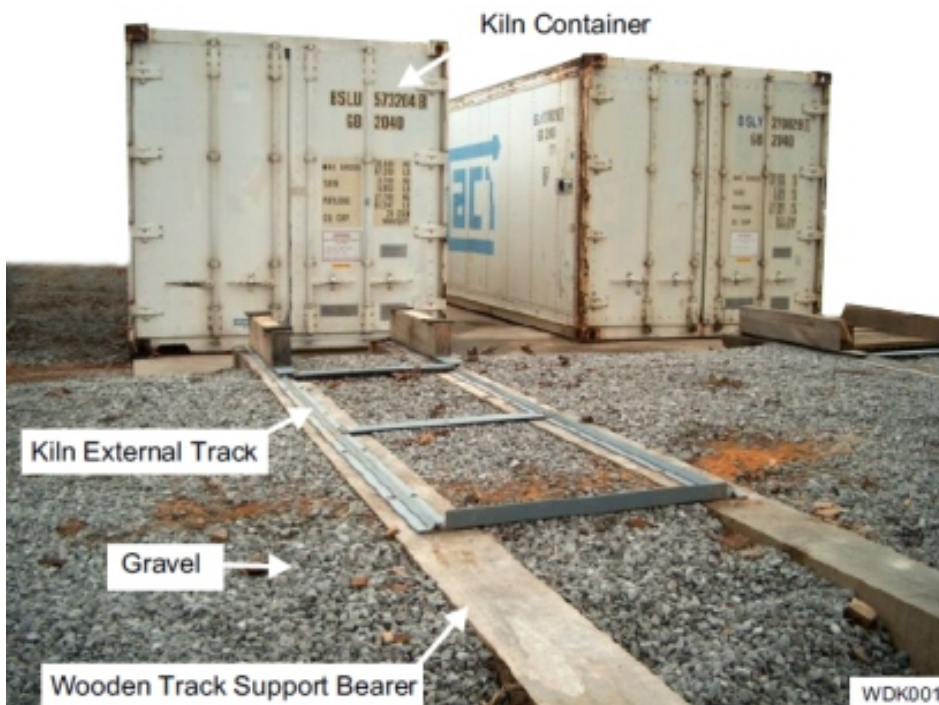
Although two people can put the kiln together, three people (adults) are recommended. Two people working together should be able to assemble the kiln within one day.

### 3.3 Chamber Location

The kiln chamber for the Modular Kiln system should be sited on level and firm ground taking into consideration access for handling equipment and loading/unloading the timber.

A concrete pad is not necessary if an insulated container<sup>1</sup> is used. However, wooden track support bearers, approximately 7" x 9" (18cm x 23cm), or a metal frame are required to secure the kiln external tracks needed for loading and unloading the lumber.

See Figure 3-1.



**FIG. 3-1**

Gravel can be added between the wooden bearers for ease of working around the loads.

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1. A room with good wall insulation also can be used.

### 3.4 Fan Module Installation

In this installation process we will describe the process for a 20' kiln with 4 modules.

**NOTE:** All references to right and left are as viewing the kiln chamber from the door end.



**CAUTION!** The fans can work at temperatures not exceeding 60 °C

The fan module has already been pre-assembled at the factory and no further assembly is required during the installation. [See Section 3.6](#) for instructions on how to connect the fan modules to the control box.

Four (4) fan module units are required for a 20' kiln.

First install the fourth module (marked "4" in the left bottom corner):

- Drill holes for the module mounting strip in the chamber roof. Use two people to do it. One person should place the module with bolted strip in the rear right hand corner of the chamber and hold it in this position and the other person should drill through the 5 holes into the roof. Remove the fan module and unbolt the module from the strip. Re-position the strip to the roof and rivet the strip using the holes already drilled. Now, position the fan module to the strip and bolt together. **NOTE:** You can also drill the holes for the mounting strip using the dimensions indicated in figure below.

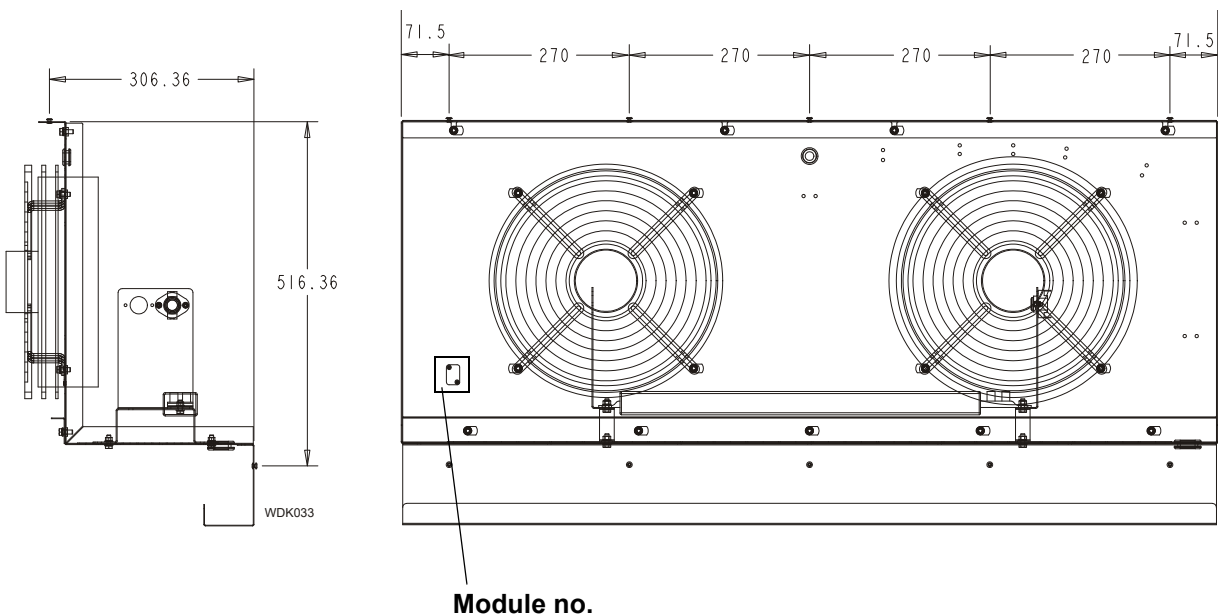


FIG. 3-2

**NOTE:** Mounting in the isothermal container is shown on the pictures below.

- Rivet the mounting strip in the remaining four holes.



**FIG. 3-3**

- Bolt the module to the mounting strip.



**FIG. 3-4**



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## Installation and Setup

### Fan Module Installation

- Drill the holes for the bottom rivets and rivet<sup>1</sup> the module to the side wall.



**FIG. 3-5**

**NOTE:** It is very important that the bottom part of the module is perpendicular to the side wall (where the fans are mounted). Use a triangle to ensure that it is perpendicular to the wall.

Use the same procedure as described above to mount the third, the second and the first modules.

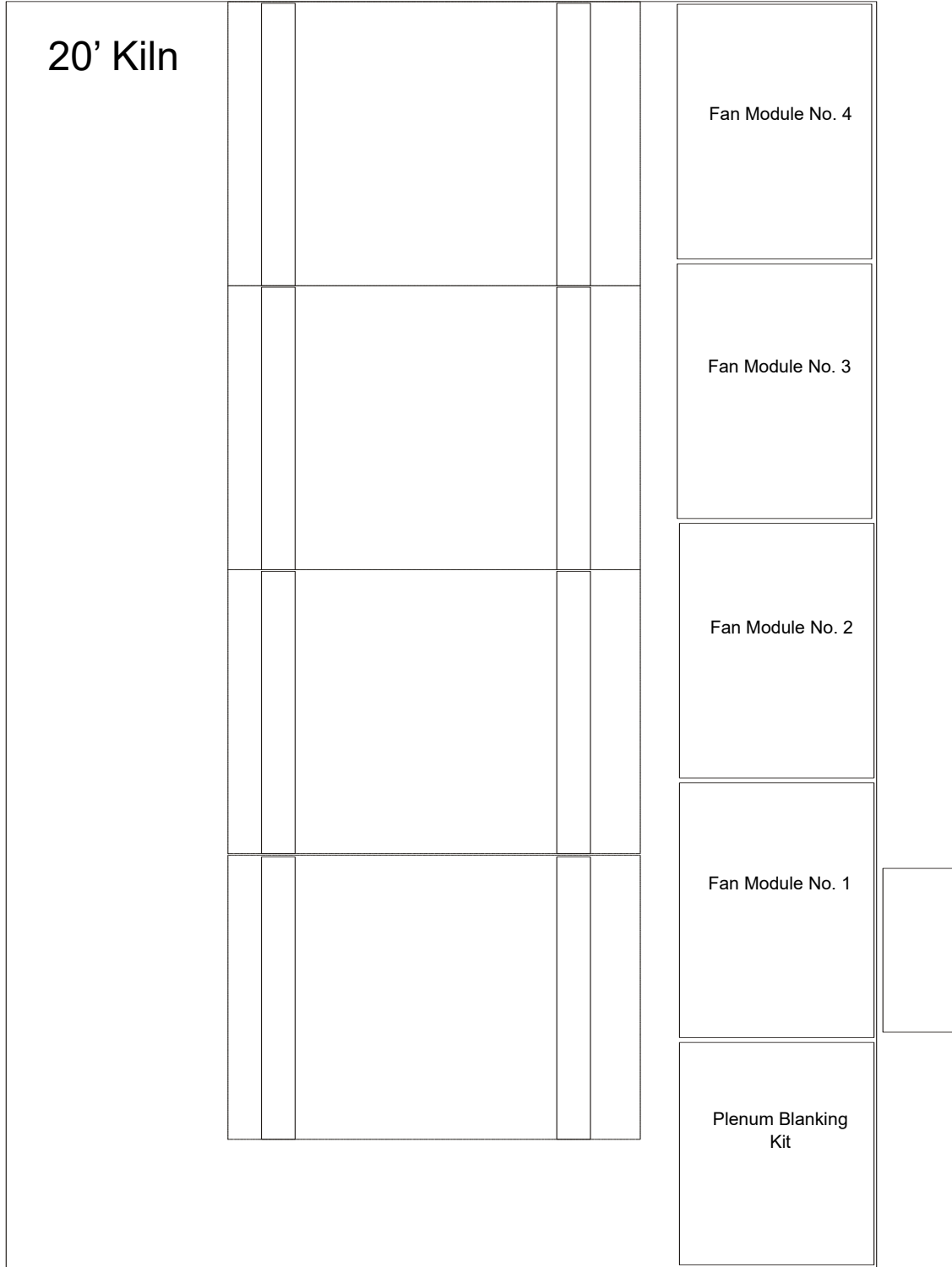
Place the fan module cables on the support trays properly. All the fan modules cables need to be later connected to the outside control box.

There may be a length of clear wall between the last fan module and the inside face of the closed kiln door. If so, it will be necessary to use a Plenum Blanking Kit to fill this gap. [See Section 3.5](#) for plenum blanking kit installation instructions.

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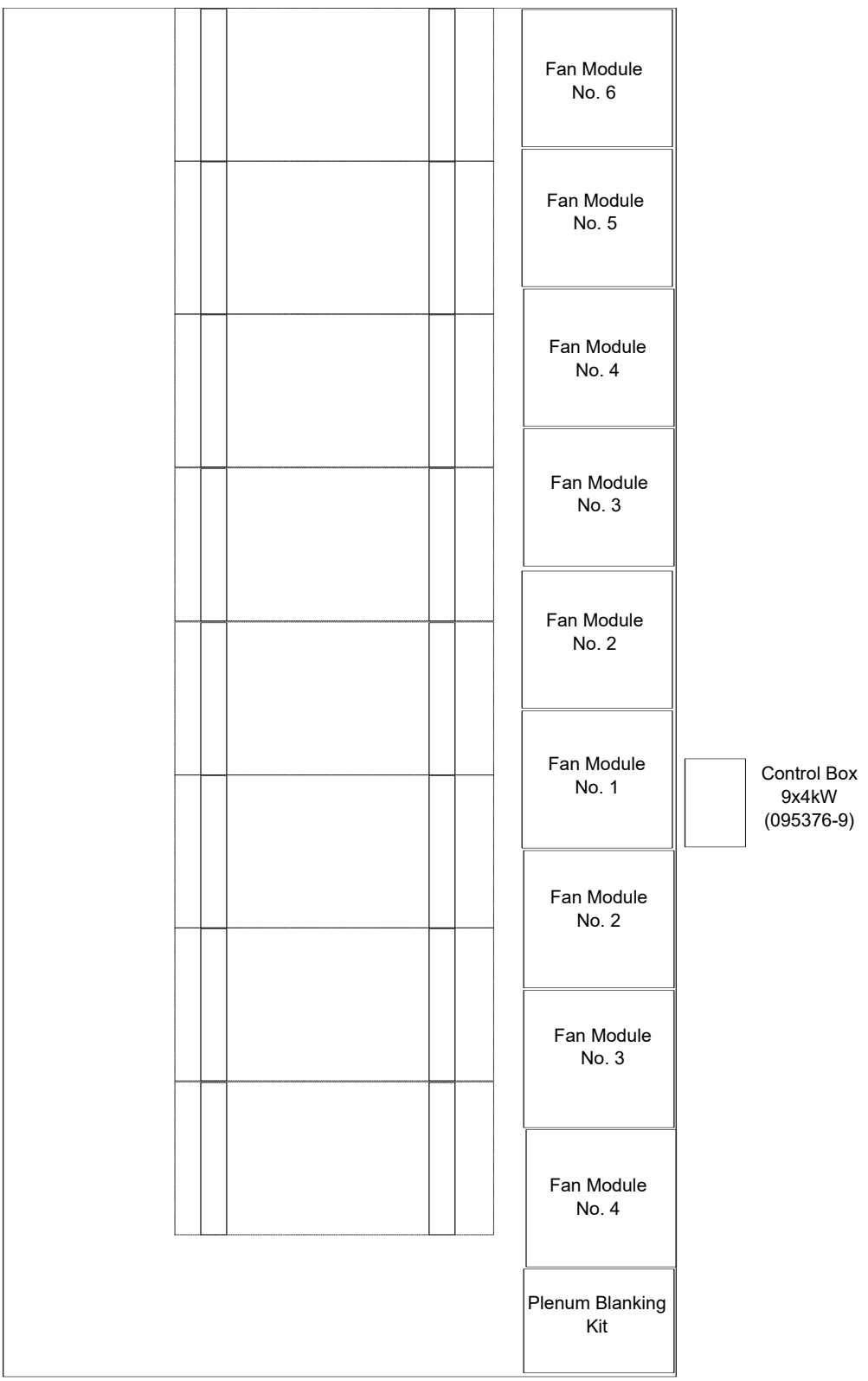
1.If you are installing in a room other than a container, use wood screws or concrete mounting dowels.

3.4.1 Fan Modules Layout for 20' and 40' WMDK Kit.



**3** **Installation and Setup**  
*Fan Modules Layout for 20' and 40' WMDK Kit.*

40' Kiln



### 3.5 Plenum Blanking Kit Installation

Position the blanking section against the last fan module. Mark, centre punch and drill pilot holes for mounting screws. Cut the blanking section to length using a jig saw.

See Figure 3-6.



**FIG. 3-6**

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## Installation and Setup

### *Plenum Blanking Kit Installation*

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The blanking section must fill the gap between the last fan module and the door when closed. Rivet the blanking section to the kiln body.

See Figure 3-7.



**FIG. 3-7**

Cut the tarp baffle to the same width and use the tie wraps to connect it to the adjacent tarp section. [See Section 3.10](#) for tarp baffles installation instructions.

### 3.6 Control Box Installation



**DANGER!** Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with EN 60204 Standard.

**NOTE:** Mounting in the isothermal container is shown on the pictures below.

The control box must be installed on the outside wall of the kiln chamber on the right hand side from the door, at least 1250mm from the front chamber edge (which will prevent the chamber door from hitting the electric box) and about 1200mm above the ground (the display should be at the operator's eye level).

To install the control box to the kiln, position the electric box as described above and then mark and drill the control box mounting holes. Drill only through the outer skin of the kiln using the 11 mm drill bit provided. Next, install the M8 rivet nuts using the rivet gun provided (the squeeze size on the riveter indicator should be set at 1 mm).



**FIG. 3-7**

# 3

## Installation and Setup

### Control Box Installation

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- Next, bolt the control box to the rivet nuts<sup>1</sup>.



**FIG. 3-8**

- Drill a hole for mounting the cable protection conduit using the 60mm hole saw.



**FIG. 3-9**

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1.If you are installing in room other than a container, use wood screws or concrete mounting dowels.

- Insert the cable protection conduit into the hole. Next, from the inside of the chamber, drill holes through the protection conduit and the kiln wall and rivet the protection conduit.



**FIG. 3-10**

- Cut out a gap in the first module support tray above the protection conduit. The gap should be about 90 mm wide. Secure the tray edges with the provided anti-chafe strip. Lay the cables in the tray and route through the gap.



**FIG. 3-11**



# 3

## Installation and Setup

### Control Box Installation

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- Next, route the fan module wires through the protection conduit.



FIG. 3-12



**IMPORTANT!** When starting the kiln for the first time, check that fan motor rotation direction is as indicated by the arrow located on the motor body (fan guard). If the rotation direction is incorrect, change phases in electrical box. Setting the phases in the phase inverter correctly will ensure correct rotation directions of all kiln motors. Check if all phases are present.

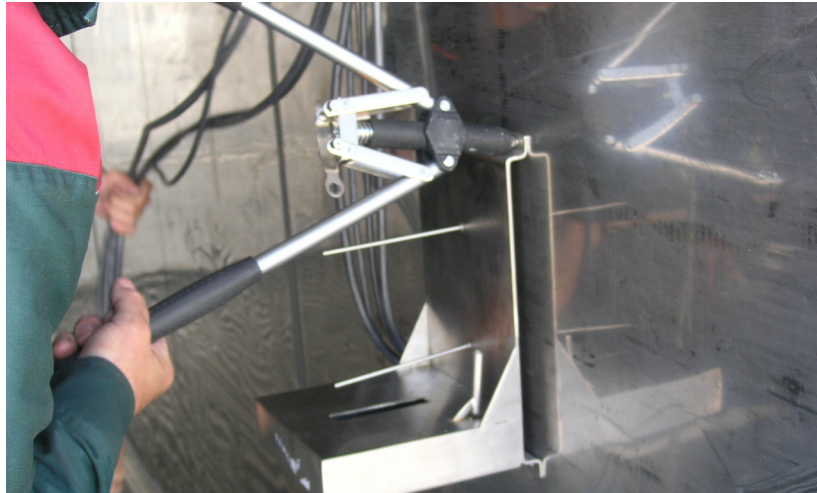


**DANGER!** It is recommended that a 30mA Ground Fault Interrupter (GFI) be used.

### 3.7 Thermometer Assembly Installation

**NOTE:** Mounting in the isothermal container is shown on the pictures below.

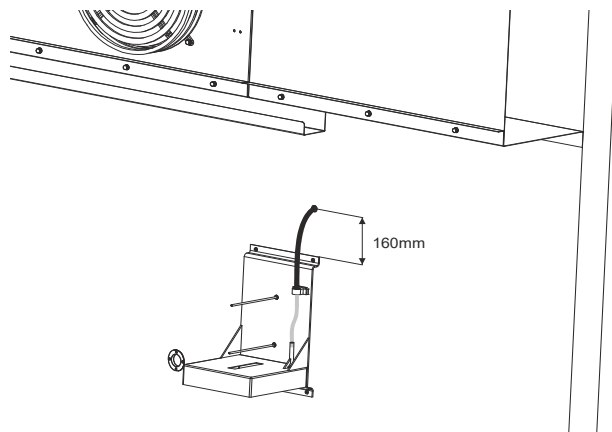
- Mount the thermometer assembly on the right hand side of the cable protection conduit, about 900mm above the floor.



**FIG. 3-13 THE PICTURE ABOVE SHOWS INSTALLATION IN A CONTAINER <sup>1</sup>.**

<sup>1</sup> If you are installing in a room other than a container, use wood screws or concrete mounting dowels.

- Drill a hole for the water tube ( $\varnothing$  16mm). Next, pass the pipe through the hole and insert it onto the flexible hose and next the hose onto the metal pipe protruding from the thermometer. From the outside of the chamber, mount the tube connector and plug.



**FIG. 3-14**

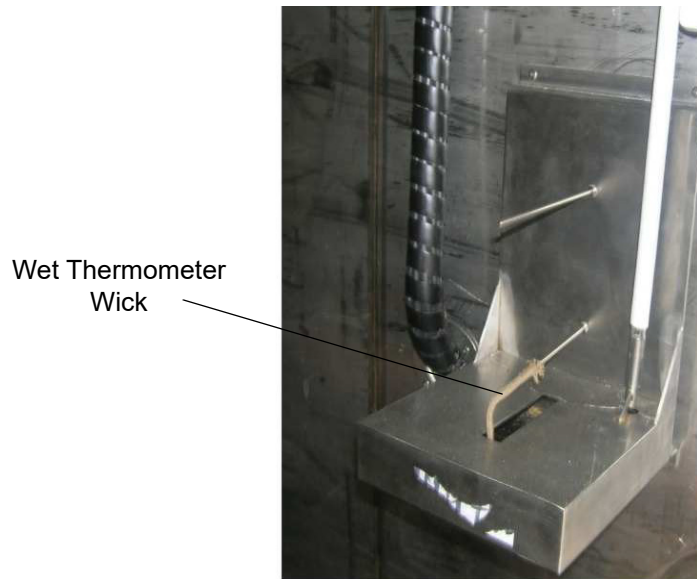
# 3

## Installation and Setup

### *Thermometer Assembly Installation*

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- Route the thermometer wires (marked P1 - for dry thermometer and P2 - for wet thermometer) through the protection conduit. Next, pull the wick over the wet bulb thermometer.



**FIG. 3-15**

### 3.8 Exhaust Module Installation

- Drill a hole ( $\varnothing$  102mm) for the exhaust fan through the wall of the kiln. Mount the sliding exhaust valve to the outside chamber wall. To do that, position the valve on the chamber wall, mark and drill the mounting holes. Drill only through the outer skin of the kiln using a 11 mm drill bit. Next, install the rivet nuts (the squeeze size on the riveter indicator should be set at 1 mm). Position the valve once more and check if the Exhaust Vent Hole Liner length fit the chamber wall thickness (the hole liner should not protrude from the hole in the chamber wall. If the hole liner is too long cut it to the proper length. Apply a silicone sealant to the hole liner and insert into the hole from the outside of the kiln.

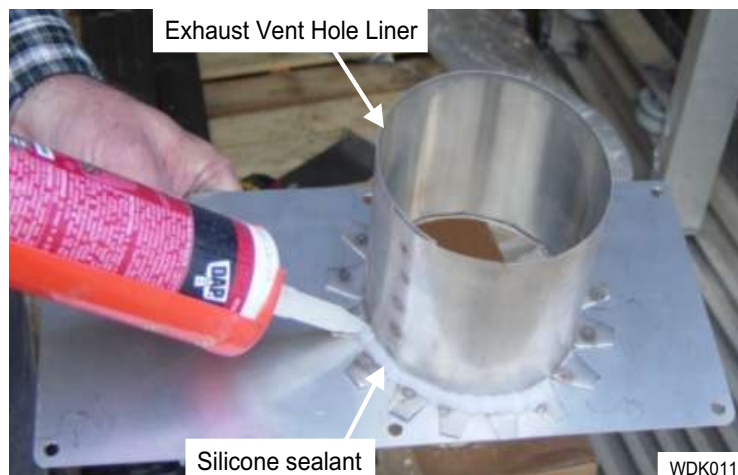


FIG. 3-16

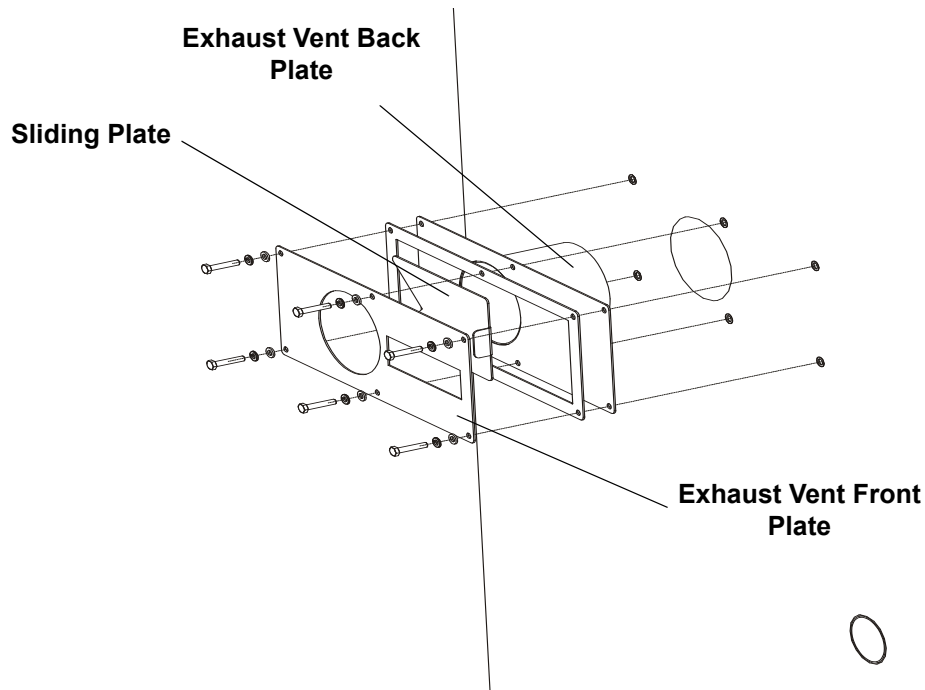
# 3

## Installation and Setup

### *Exhaust Module Installation*

Create a sandwich of the vent back plate, the sliding plate and the front plate and screw the completed assembly to the outside of the kiln. Tighten enough to allow the sliding plate to move freely.

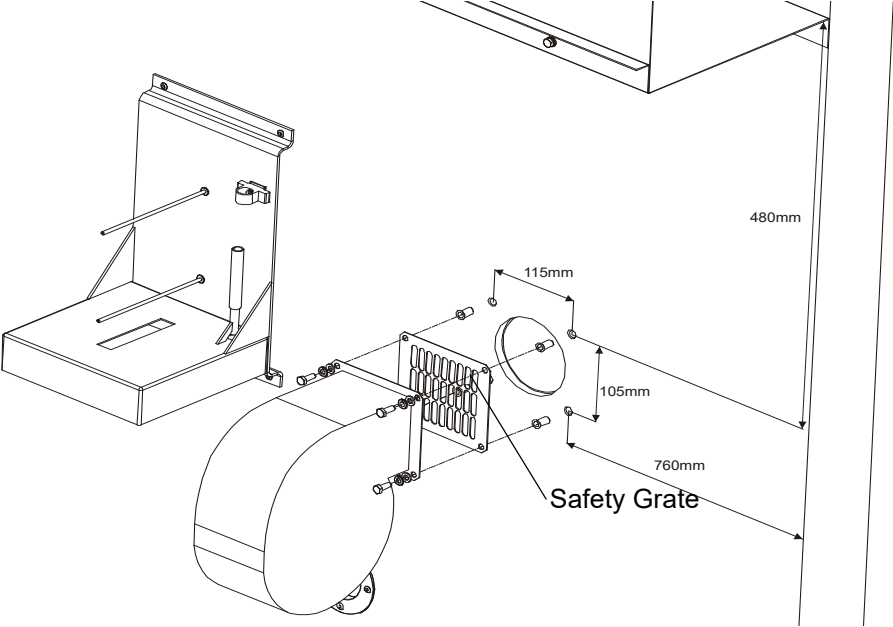
This type of mounting is for 20ft container, but for different types might be different



**FIG. 3-17**

- Mount the exhaust fan to the chamber wall. To do that, position the fan on the inside chamber wall, mark and pre-drill the mounting holes. Drill only through the inner skin of the kiln using a 11 mm drill bit. Next, install the rivet nuts (the squeeze size on the riveter indicator should be set at 1 mm). Bolt the fan to the rivet nuts. Be sure

to install the safety grate. Route the fan wires through the protection conduit.



**FIG. 3-18**

# 3

## Installation and Setup

### *Exhaust Module Installation*

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- Mount the exhaust fan cable box. Connect the exhaust fan using the cable box according to the electric diagram.



**FIG. 3-19**

- Secure the wires inside the chamber using a cable braid.



**FIG. 3-20**

- Secure the wires in the protection conduit using a silicone sealant.



**FIG. 3-21**

- Connect the fan modules and the exhaust fan to the electric box in accordance with the electric diagram.



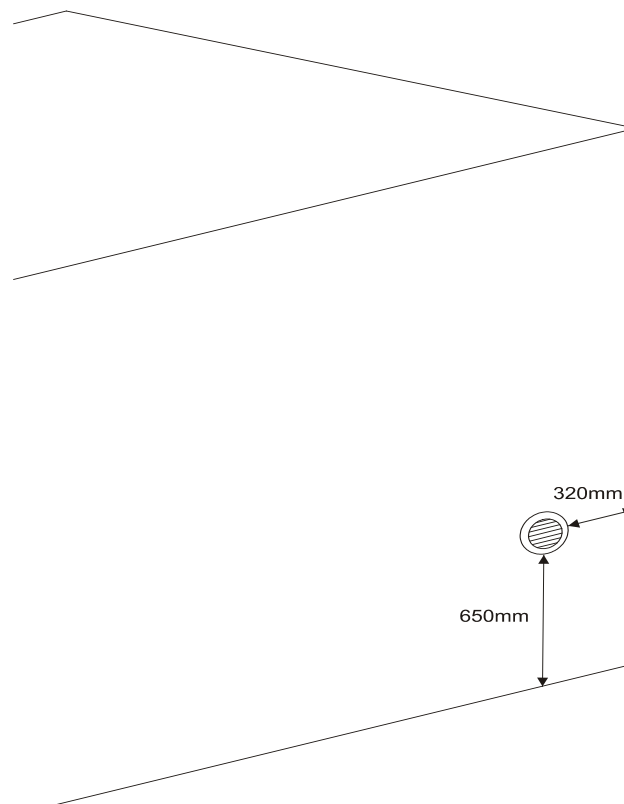
## 3 Installation and Setup

### *Air Intake Installation*

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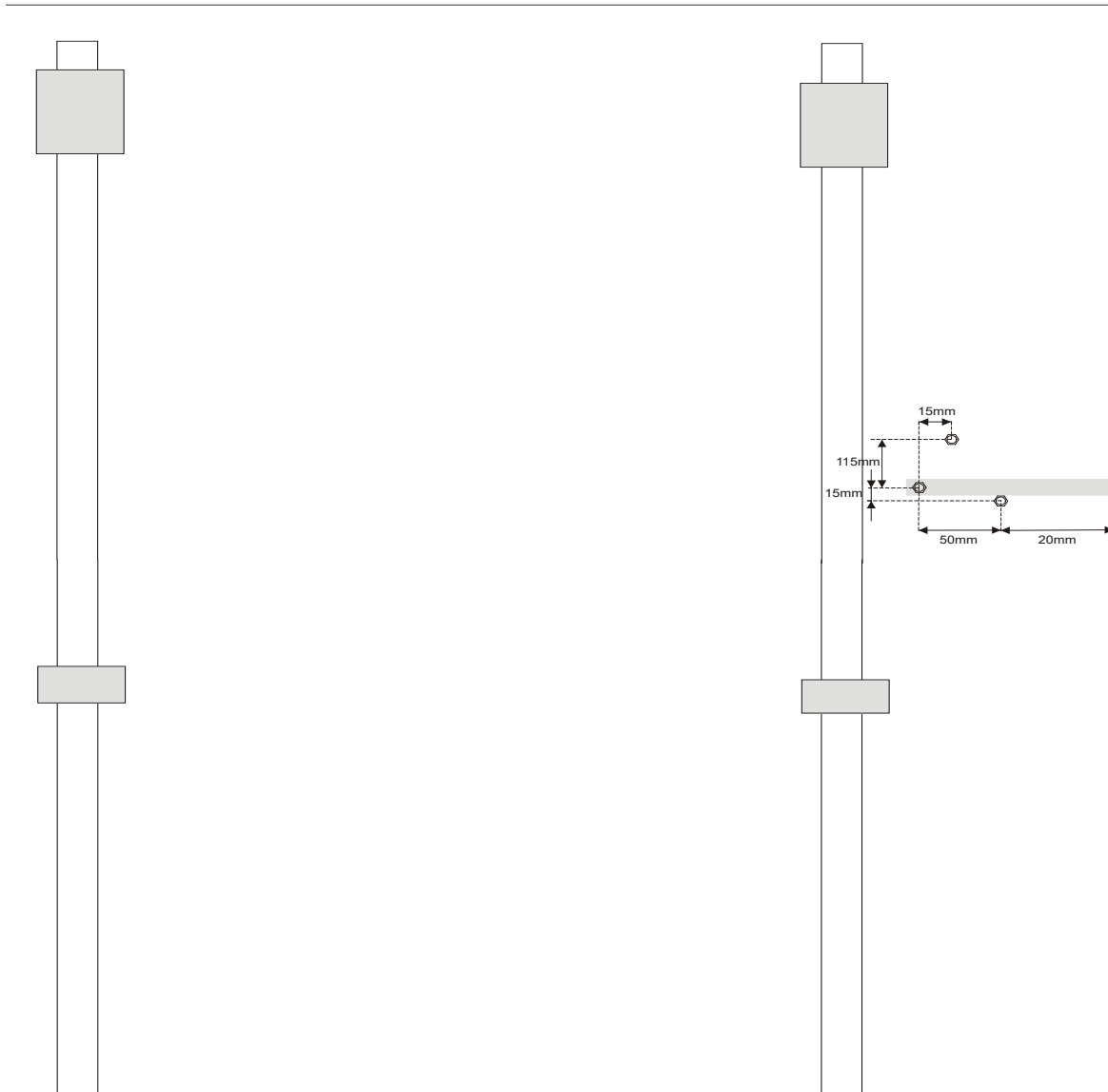
### 3.9 Air Intake Installation

- Drill a hole ( $\varnothing$  102mm) for the air intake. Next, mount the air intake to the right side wall of the kiln, at the back of the kiln. Seal the air intake using a silicone sealant.



**FIG. 3-22**

- Next, mount the safety bar. The bar prevents the kiln operator from locking him/herself in the kiln chamber. To do that, mark and drill the mounting holes as shown on the drawing 3-23. Drill only through the outer skin of the kiln using a 11 mm drill bit. Next, install the rivet nuts (the squeeze size on the riveter indicator should be set at 1 mm). Bolt the safety bar to the chamber wall and mount the safety bar stop bolt as shown on the picture 3-24.



**FIG. 3-23**

### **3** Installation and Setup

#### *Air Intake Installation*

- Stick the exhaust valve scale and the EMC chart.



**Exhaust Valve Scale**



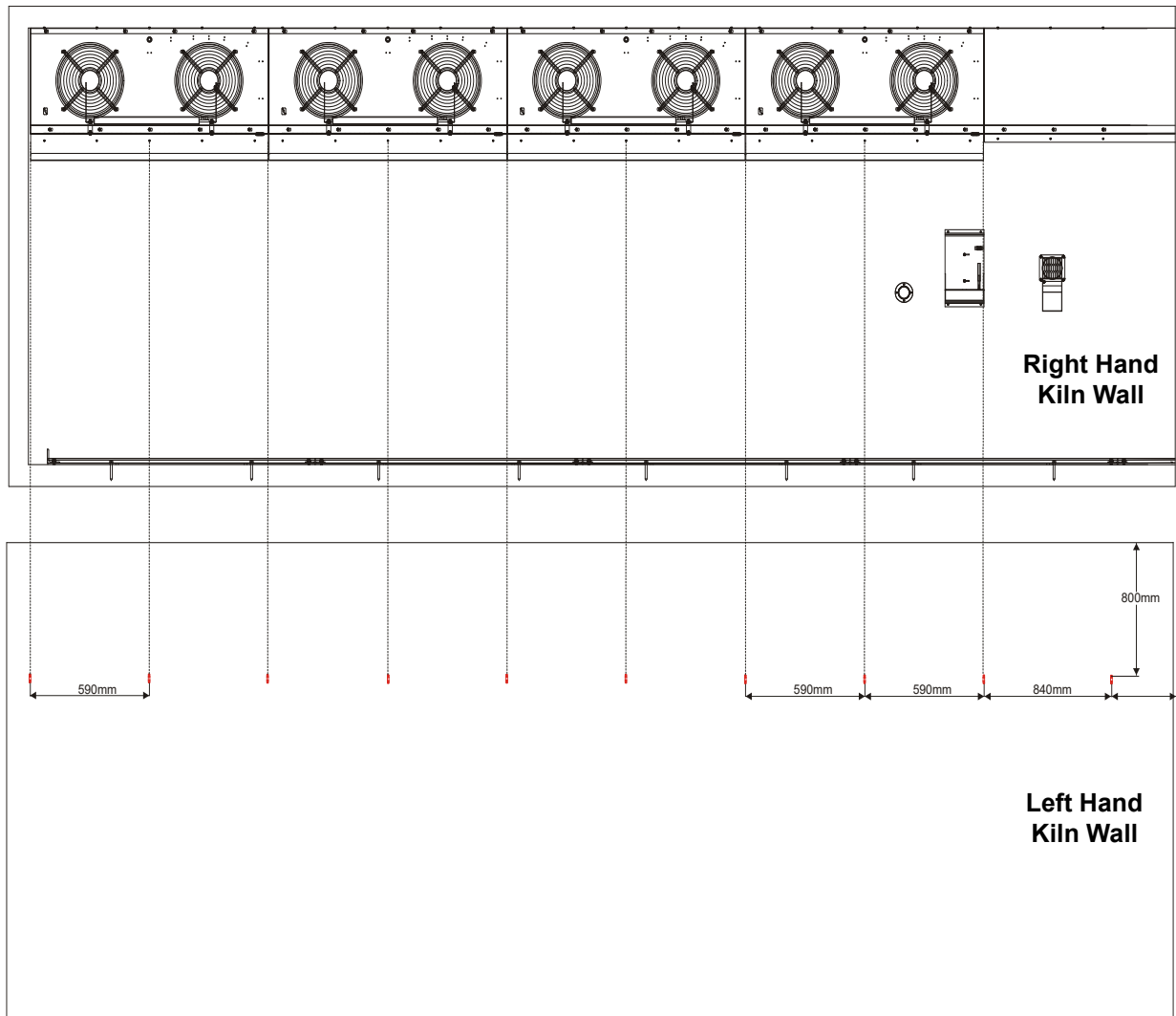
**EMC Chart**

**FIG. 3-24**

### 3.10 Plenum Baffle

Each fan module unit and plenum blanking kit is supplied with a tarp baffle. Each tarp baffle has eyelets on three sides. The side without the eyelets is attached to the fan module using the pre-drilled pinch strip supplied.

1. Mark, centre punch and drill pilot holes in the left chamber wall for the baffle brackets as shown in the figure below.



**FIG. 3-25**

# 3

## Installation and Setup

### Plenum Baffle

2. Fasten the brackets to the left chamber wall using the rivets provided.

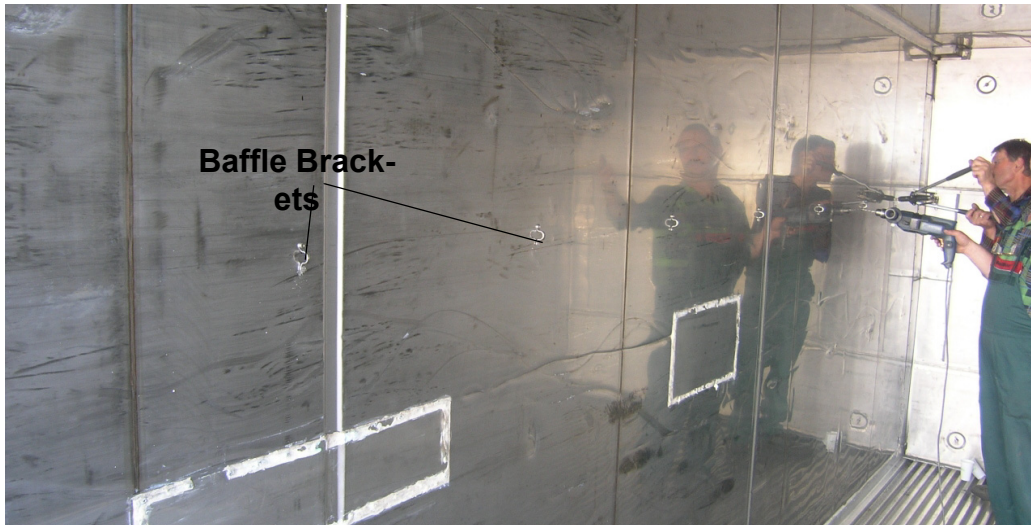


FIG. 3-26

3. Using a sharp spike, make holes necessary for mounting the baffles to the panel's mounting strip. Use the strip as a template. Make the holes in each baffle.

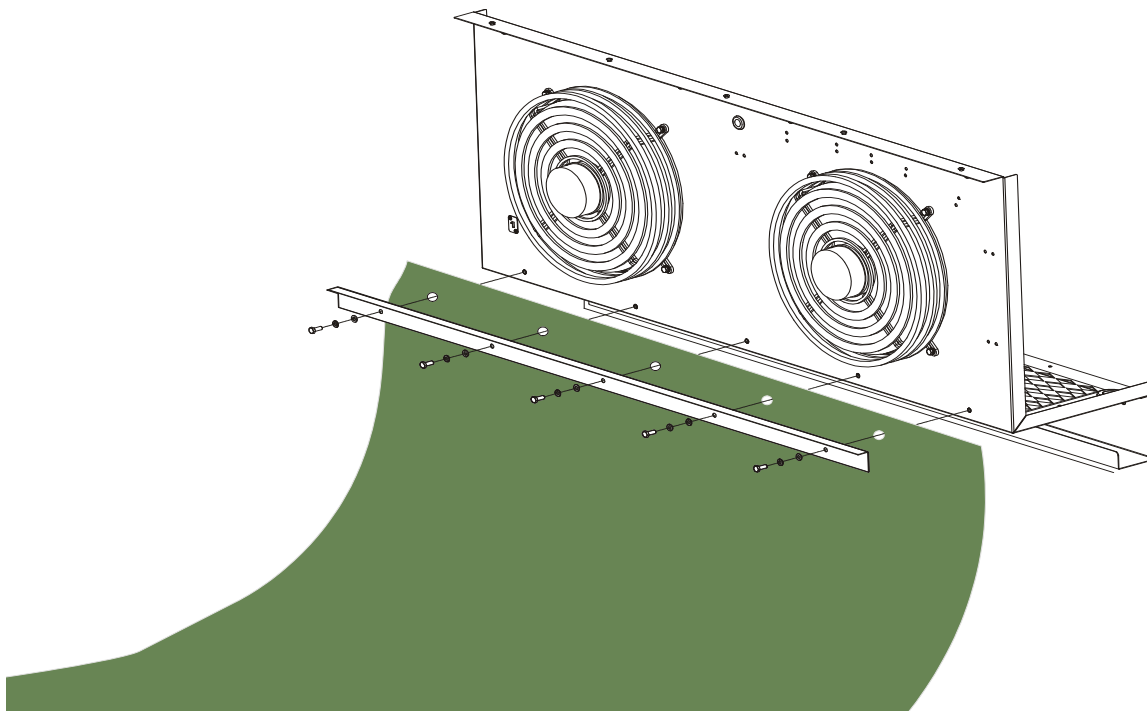


FIG. 3-27

4. Bolt the strip to the fan module.



FIG. 3-28

5. Connect the baffles together using the tie wraps shown in the figure below.
6. Attach the securing ropes to each eyelet at the bottom of the baffles.

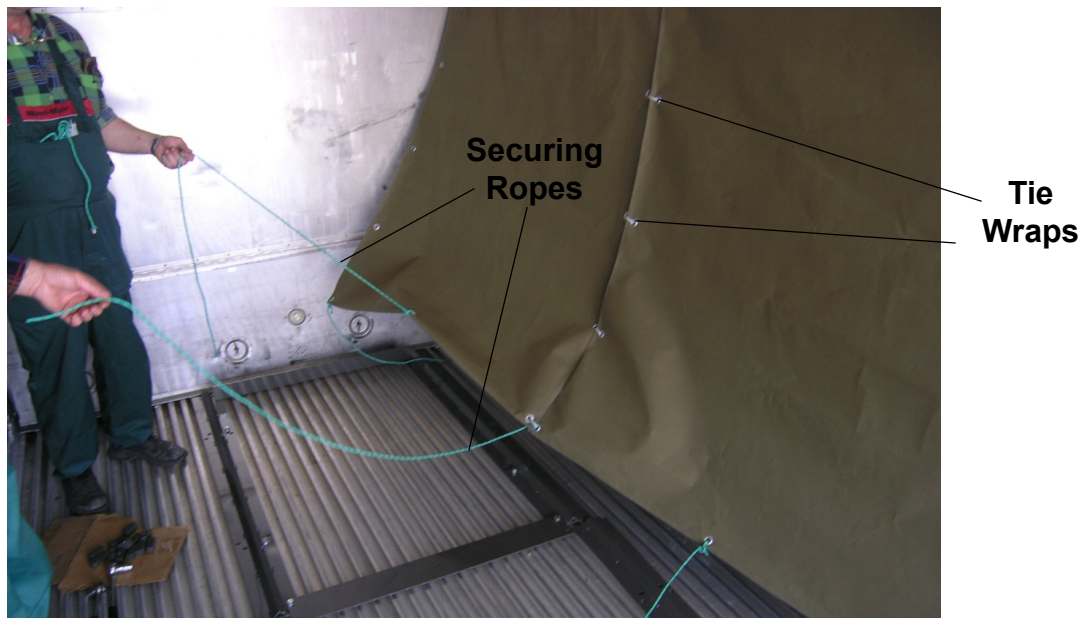
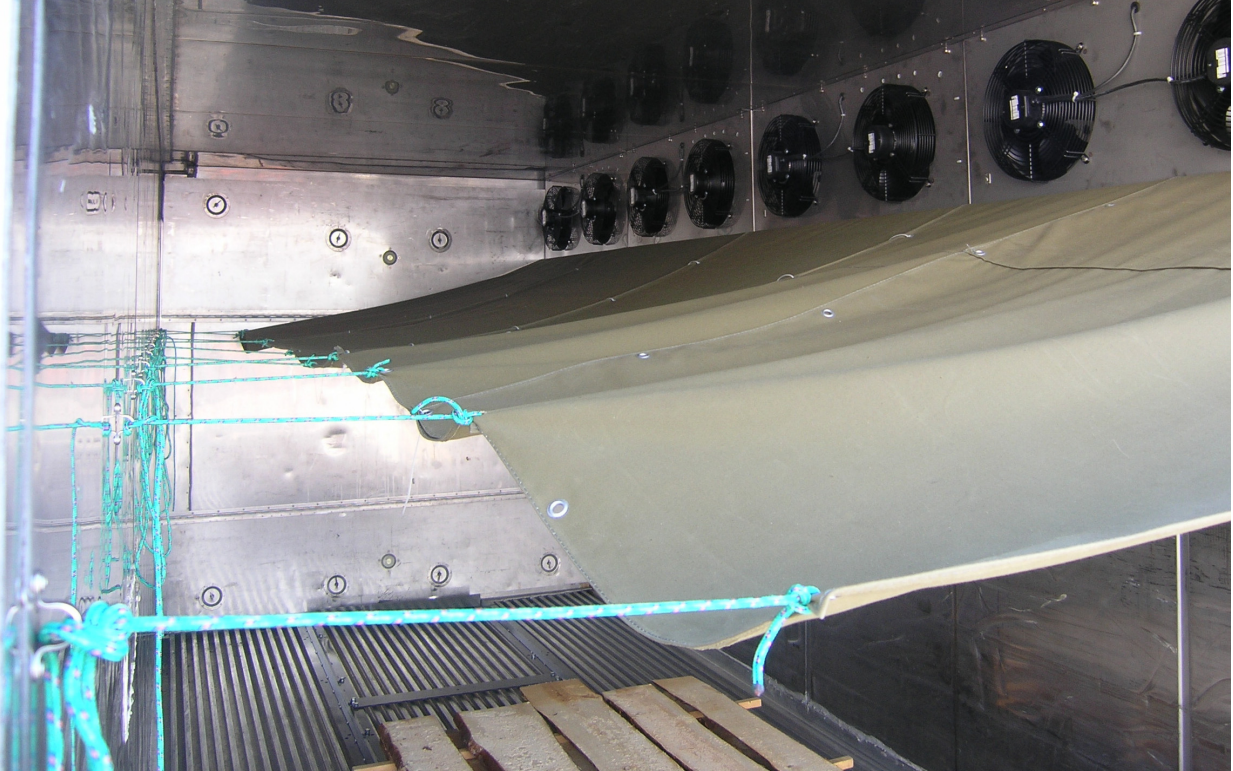


FIG. 3-29

### **3** Installation and Setup

#### *Plenum Baffle*

7. Tie the securing ropes to the baffle brackets.



**FIG. 3-30**

### 3.11 Internal Track Assembly (optional equipment)

**IMPORTANT!** Make sure to align the tracks in the kiln chamber and those outside. Failure to ensure that the inner and outer tracks are aligned and level may result in difficulty in loading and unloading the kiln.

Place internal track modules starting inside the doorway at 310mm from the door opening. This will ensure the doors will close when the removable connecting track is removed.

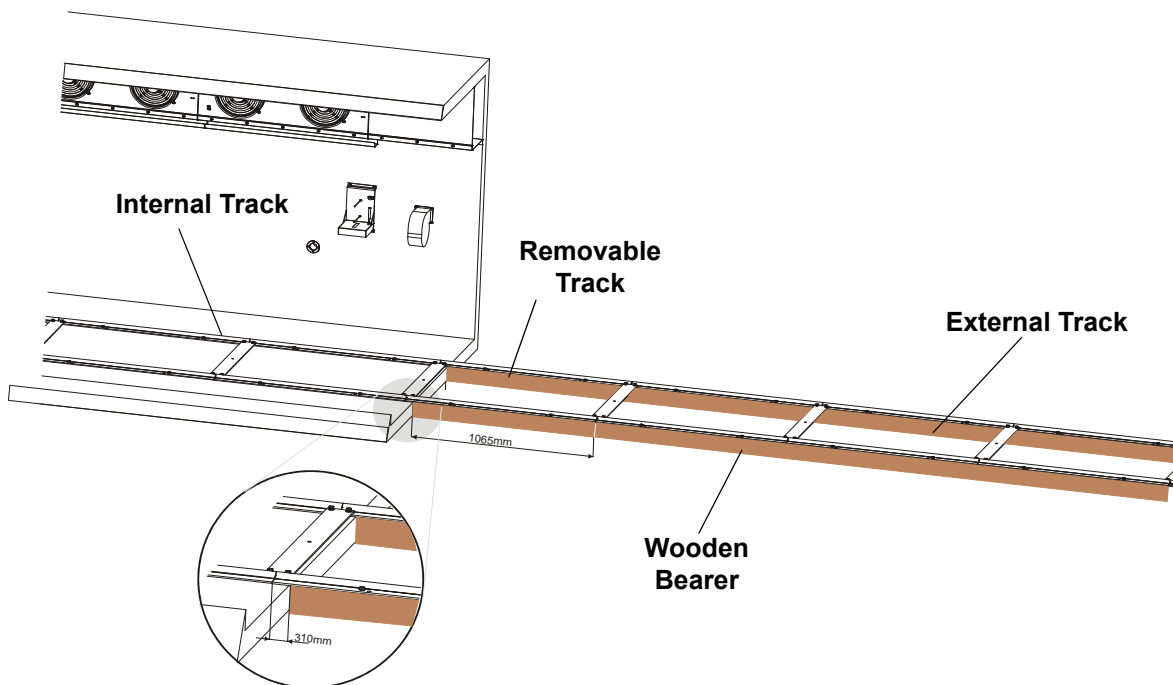


FIG. 3-30

Lay the tracks to the back of the kiln. Place the flat cross ties in position. Bolt the cross ties to the tracks using the M10x16 bolts supplied, starting at the door (front) end of the kiln.

There is no tie bar closest to the door.

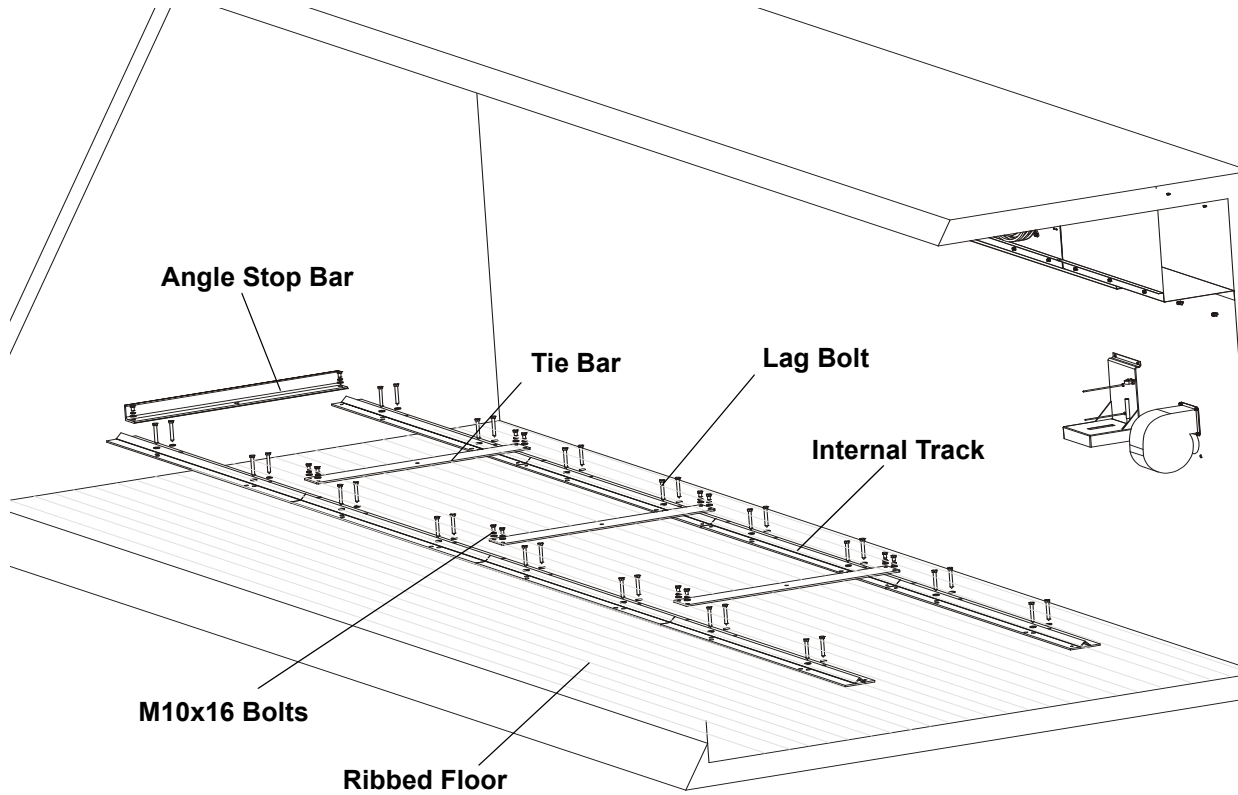
If necessary, cut the last track assembly to match the length of the kiln chamber.

The last tie bar is an angle stop bar closest to the back wall.



### **3** Installation and Setup

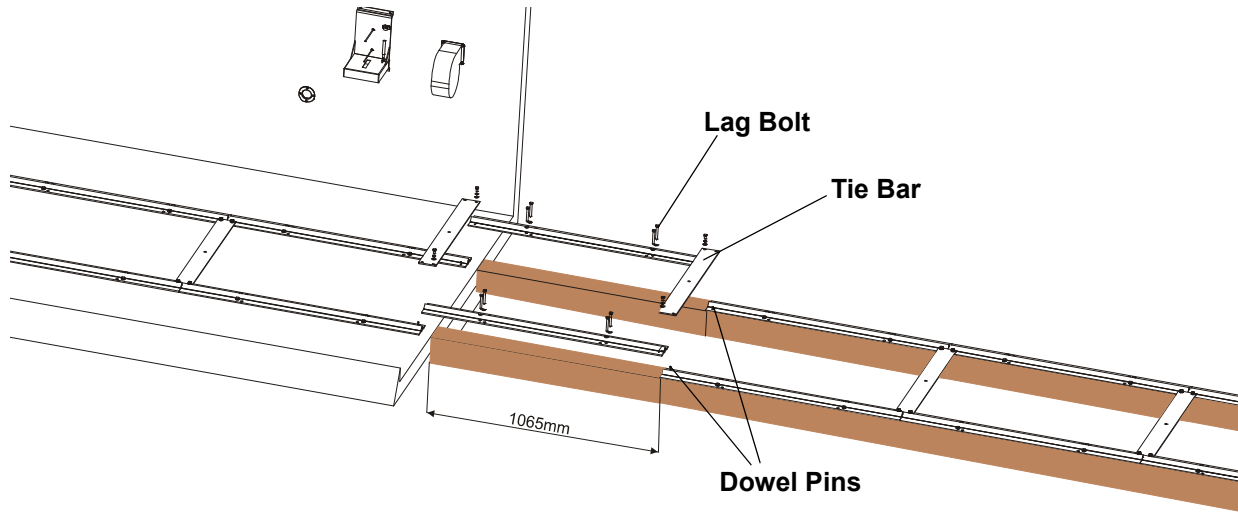
*Internal Track Assembly (optional equipment)*



**FIG. 3-30**

Use the threaded anchor bolts to secure the track to the ribbed floor.

The removable connecting section should be made by bolting one section with the tie bars to the timbers as shown. The timbers should have correct dimension to ensure a flat and even connect between the inner and outer tracks.



**FIG. 3-30**

## **3** Installation and Setup

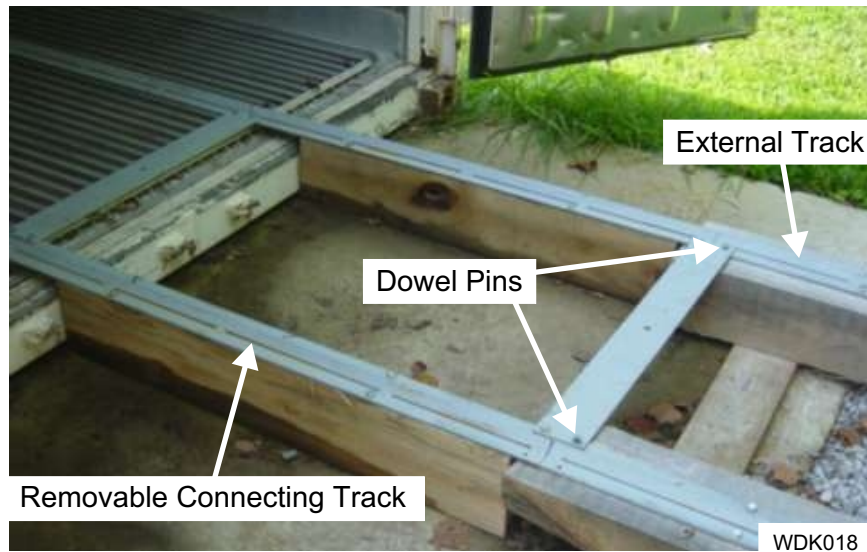
### *External Track Assembly*

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### **3.12 External Track Assembly**

Assemble the external track onto a frame or wooden bearers to suit the installation. Follow the same procedure as for the internal track, except that the extended threaded dowel pins should be located in end of the external track closest to the door.

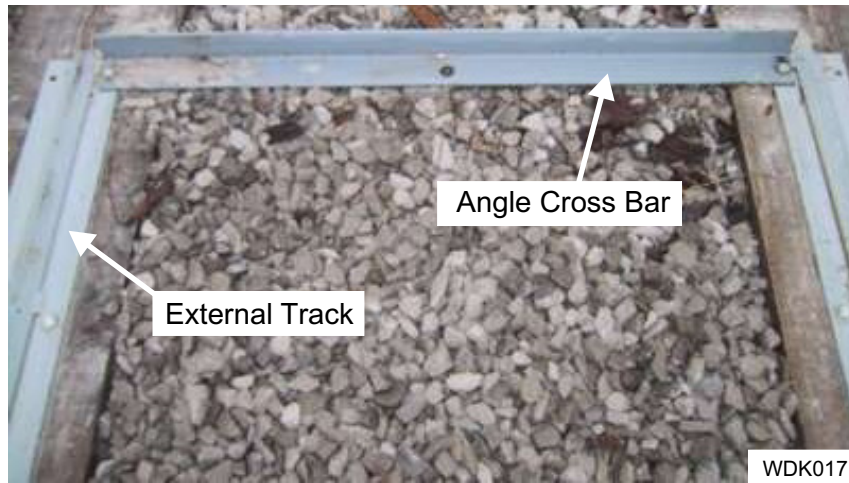
See Figure 3-31.



**FIG. 3-31**

Place the angle cross bar at the end of the external track furthest from the kiln door. This angle cross bar acts as a stop to avoid the timber cart falling off the end of the bearer assembly.

**See Figure 3-32.**



**FIG. 3-32**

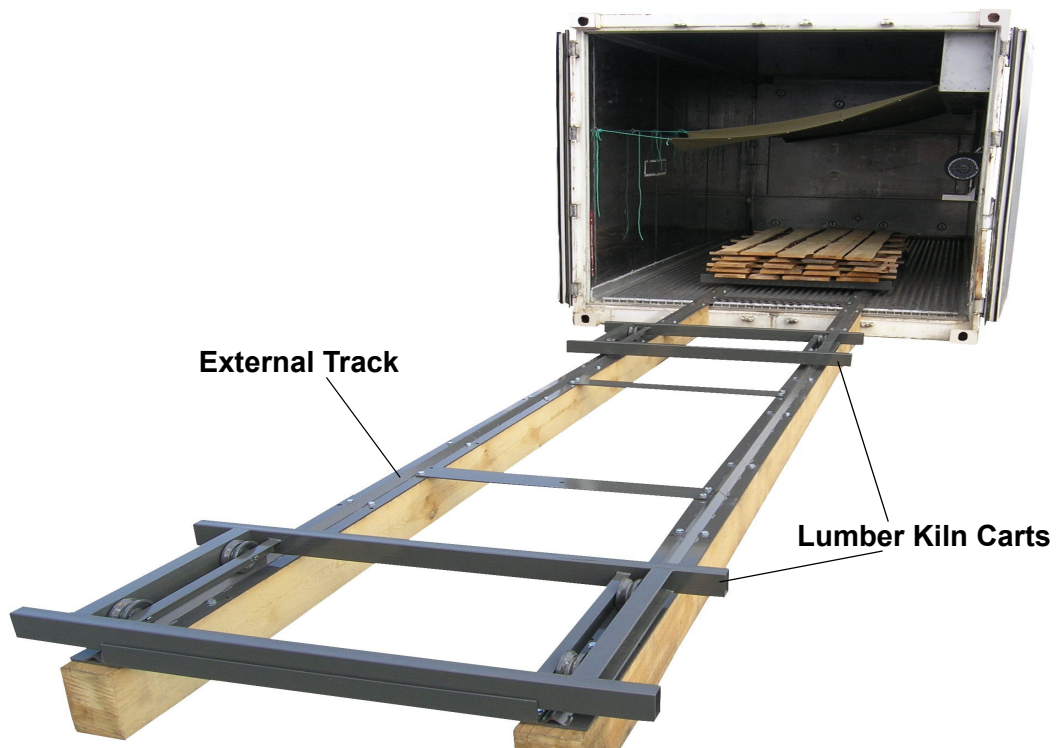
### **3** Installation and Setup

*External Track Assembly*

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Place the provided kiln lumber carts on the external track for the lumber to be loaded into the kiln.

See Figure 3-33.



**FIG. 3-33**

## SECTION 4 OPERATION

### 4.1 Timber Preparation

Preparing timber to be placed in the kiln is one of the most important phases of the kiln drying process. If the following procedures are taken, the first step toward high quality, kiln dried timber will have been taken.

Timber must be sawn or planed to a uniform thickness. A variation in thickness causes:

- Timber to warp because thin boards between two thicker boards are not held flat;
- Thin boards to overdry, while thicker boards may still have high moisture, unless the kiln charge is equalized for a longer period of time;
- Unnecessary and valuable kiln space to be used as opposed to more volume of properly sized timber to be dried at the same cost and time;
- Sticks to be broken or cracked rendering them unusable;
- Packages which are stacked high to lean or fall over.

## 4.2 Stickering The Timber

Stickers must be sawn or planed to a uniform thickness in order for even pressure to be applied to each sticker which allows the timber to dry straight.

Stickers should be placed directly over each other so that the weight transfer is straight down.

**NOTE:** A green board is very susceptible to bowing under weight when a sticker is just 20mm out of line, and will retain that bow if it is dried in that position.

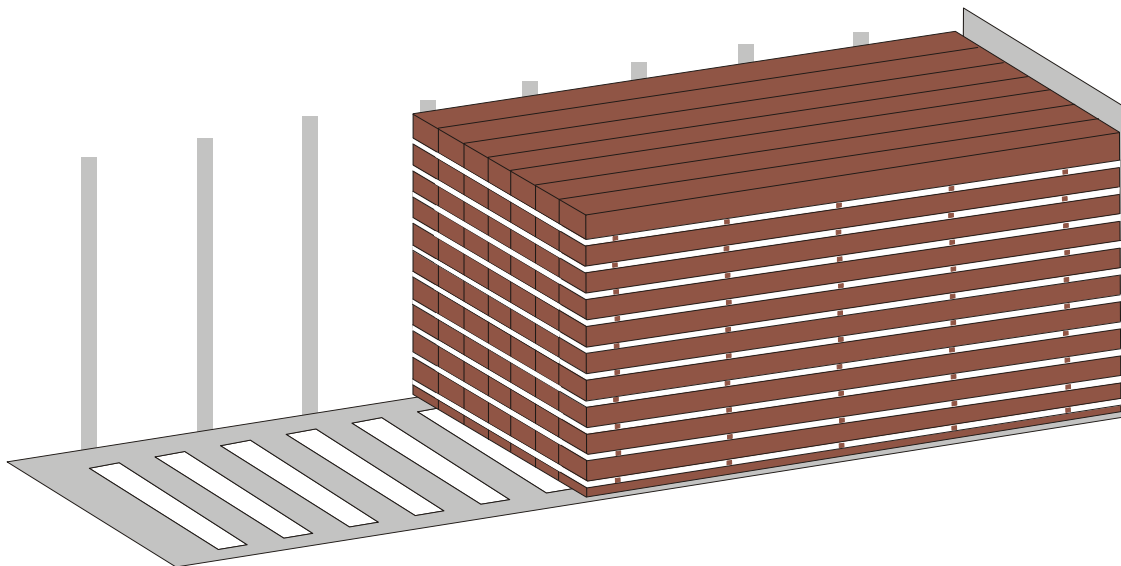
Stickers should be placed as close to the end of the board as possible.

Stickers should be 12mm thick to allow enough air to pass through a 1200mm wide package of Oak. 24mm stickers can be used for faster drying species such as Pine or Ash.

If packages are dried side by side, an additional 4mm thickness sticker should be used for each 1220mm in width.

More than a 12mm sticker in a 1200mm package takes up space in the kiln. There should be a sticker placed at least every 600mm.

It is recommended to use a jig to ensure that packets are stickered in the same way every time.



**FIG. 4-1**

### 4.3 Hold-down System

After the timber has been properly put on stickers, weight (for ex. concrete or other heavy material) should be placed directly above each row of sticks. These weights will hold the top layers of timber flat as well as letting a little air flow between the top layer of timber and the plenum baffle which lays over the timber.



## 4.4 Loading The Kiln

The loading carts should be positioned on the external track with a 2 ft. (600mm) space between each cart so that the pack stickers bear exactly over each cart bearer.

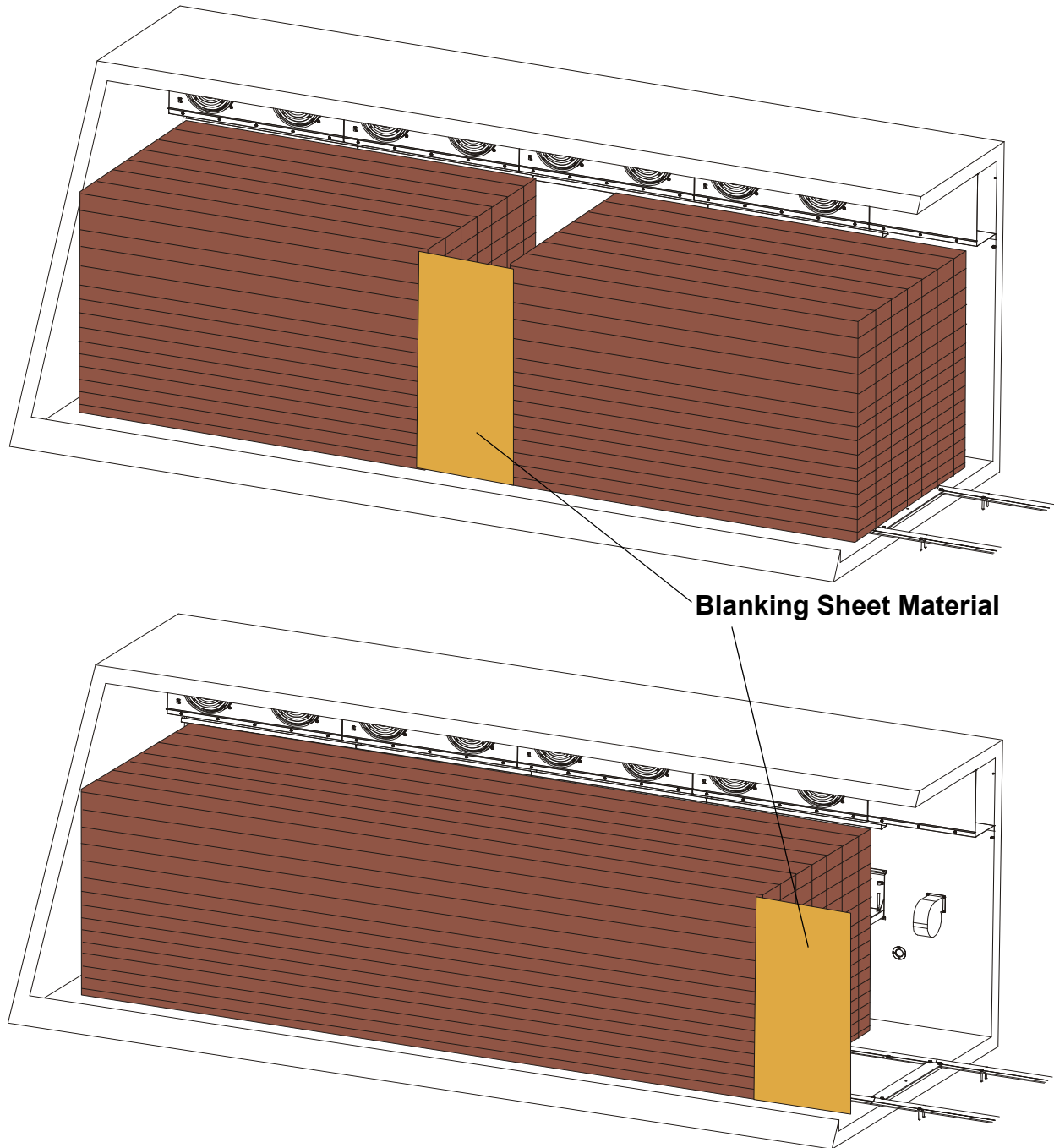
It is important that the end of the pack which will be against the back wall when loaded should be the “fair end” or square end of the pack.

The maximum height of the kiln charge should not exceed 1,7 meters. This will allow sufficient airflow in the roof of the kiln to provide appropriate airflow through every part of the pack(s).

If the kiln charge comprises of several packs stacked one on the other with bearers between it is important that the horizontal gap created by the bearers is blanked off along its entire length. This is to ensure that the air flow through the packs is controlled properly.

When pushing the packs into the kiln it is most important that the charge bears flat against the back wall. If the front of the charge (door end) does not completely fill the available space it is important to blank off the space between the pack and the door using a piece of sheet material.

See Figure 4-2.



**FIG. 4-2**

**4****Operation***Loading The Kiln*

See Figure 4-3.



**FIG. 4-3 LEFT HAND KILN SHOWN**

The Plenum baffle is then placed over the top of the charge and secured to the wall cleats using the tie ropes supplied. The baffle must be tied down so that it is taut and does not block the airflow into the upper layers of the charge.

## 4.5 Kiln Operation

Refer to the appropriate schedule for the timber species and thickness being dried, which will give you the initial temperature and vent settings to start the process.

WMDK has listed most domestic species and thicknesses under the schedule we feel will give the best quality drying; however, after using the kilns for a while, you may wish to alter the schedule depending on the quality of the drying desired.

If the surface of the timber has snow/ice on it, the exhaust should be fully opened with all the fans and heat on; regardless of the schedule used, until you have a 1-degree depression. Then resume the normal schedule.

Before the kiln is switched on the Kiln record sheet should be filled out with the full details of the load, together with the schedule being used.

This is your record of the drying progress and will ensure that the correct rate of drying and final Moisture Content are achieved according to the schedule.

This record sheet can also serve as a useful after-sales support tool. The Wood-Mizer branch staff will be able to use it to advise if you are unsure of the progress of your load.

Please note that if you have purchased the 4kW option for drying fast drying species and wish to dry a slow drying species such as oak, you must set the initial temperature to half the initial recommended temperature to avoid damage caused by heating the timber up too quickly.

## 4.6 Temperature Controller

See Figure 4-4. The kiln temperature controller is shown below.



FIG. 4-4

### 1. Temperature Setting

- Press the **S** key and hold it until "**SP1**" appears on the display;
- Release the **S** key; the set temperature value will be shown;
- Using the **UP** and **DOWN** key, set the desired temperature value;
- To finish setting and store the change, press the **S** key.

### 2. Keyboard Locking

To prevent the controller from any undesirable setting change:

- Simultaneously press the UP and DOWN keys for 5 seconds;
- Set the **HP** parameter to 1;
- To finish locking the keys, wait 30 seconds without pressing any key.

When the keys are locked and you try to modify any controller parameter, "**PA**" is shown on the display.

### 3. Keyboard Unlocking

- Simultaneously press the **UP** and **DOWN** keys for 5 seconds;
- Press the **S** key;

- Set the value to **95**;
- Press the **S** key again.

## 4.7 Checking The Depression

When the kiln is in operation the chamber temperature and depression should be checked each day.



**IMPORTANT!** Before starting the kiln you should to completely fill up with distilled water the thermometer tank. When the kiln is in operation you should refill about 100 ml of distilled water each day 5 minutes before checking the temperature and the depression.

Read the dry bulb temperature and make a note of this reading on the Kiln Record Sheet. Then press and hold the “DRY BULB TEMP/WET BULB TEMP” button. Once the temperature has stabilized this is the wet bulb reading. Make a note of this reading.

The Depression is the difference between the dry bulb temperature and wet bulb temperature. (for ex. if dry bulb temperature reading is 60° and wet temperature reading is 55° it means that the depression = 5°)

## 4.8 Preconditioning For Well Air Dried Stock

For customers who are drying well air-dried stock, i.e. less than 25% MC a preconditioning cycle is advised. This will help to de-stress the timber before the kiln drying process begins.

There can be as much as an 8% to 10% moisture gradient in well air-dried stock. In the schedules section of this manual, SCHEDULE #8 is the recommended step for this preconditioning cycle.

Preconditioning will cause a high humidity condition inside the chamber. Condensation may occur on the floor. This is natural and nothing to worry about. Once the process has begun, and at least a 1.5 to 3 degree depression is reached, venting at a rate 1/2 of what the normal schedule for the species calls for can begin.

**EXAMPLE:** Schedule #3 for 8m<sup>3</sup> of 24mm Oak

Set vent only at a setting of 10% (1/2 of the normal 20). Run that entire schedule at 10% instead of the 20% for green Oak.

**See Table 4-1.** The preconditioning cycle for schedule #8 for well air dried timber with less than 25% MC is shown below.

Thickness	Time		
24mm	12 to 24 hours	0	44
32mm	24 to 36 hours	0	44
38mm	36 to 48 hours	0	44
50mm	48 to 72 hours	0	44

**TABLE 4-1**



## 4.9 Conditioning Process

We refer to the conditioning process as the point where the exhaust valve is totally shut. At that point, core moisture migrates to the exterior of the board and to the surrounding air inside the chamber. This moist air is not allowed to be vented out of the chamber and now acts as our conditioning agent, and therefore continues to be circulated throughout the timber. Any stress due to casehardening is then relieved by this circulating moist air.

1. When the 11° depression is achieved and the exhaust vent closed, the conditioning process should be maintained for at least 24 hours. The following day, expect a drop in the depression. By relieving the core moisture and not allowing venting to occur, the relative humidity in the chamber will go up, which will reduce the depression reading. How much will depend on the severity of the stress or casehardening.
2. If the depression drops from 11° to 8° in 24 hours, the timber has equalized to approximately 10%.
3. It is important to maintain these conditions (exhaust closed and kiln running), for at least another 4 hours to make sure the depression has bottomed out.
4. If after 4 hours you still maintain an 8° depression or higher, your charge is fully conditioned and dried to approximately 10% MC. If not, go to step 5.
5. If after 24 hours of conditioning, the depression dropped below 8°, then that would indicate that more moisture should be vented from the chamber. It also indicates that the drying process has been too rapid at some time during the drying cycle and changes in exhaust settings should be made for like material in future charges.
6. Opening the exhaust to 5% will vent this extra moisture slowly. The depression will then increase and must do so back up to 11°. Closing the exhaust again for 24 hours and repeating the conditioning process (steps 1 to 4) is then required.

**NOTE:** CONDITIONING - A good "rule of thumb" to follow is to condition at least one (1) hour for every one (1) day the kiln has run, but never less than six (6) hours.

Always remember, longer conditioning cycles never hurt, but always help maintain stress free timber.

## SECTION 5 DRYING SCHEDULE

### 5.1 Kiln Drying Schedule

See Table 5-1. The WMDK drying schedules for various species of wood are shown below.

Species	Thickness	Schedule #	Species	Thickness	Schedule #
ASH	25mm	5	HICKORY	38mm	5
ASH	32mm	5	HICKORY	50mm	5
ASH	38mm	4	LARCH (Larix decidua/leptolepis)	25mm	6
ASH	50mm	4	LARCH	32mm	6
ASPEN	25mm	7	LARCH	38mm	5
ASPEN	32mm	7	LARCH	50mm	5
ASPEN	38mm	6	MAGNOLIA	25mm	6
ASPEN	50mm	6	MAGNOLIA	32mm	6
BASS	25mm	7	MAGNOLIA	38mm	5
BASS	32mm	7	MAGNOLIA	50mm	5
BASS	38mm	6	MAHOGANY	25mm	4
BASS	50mm	6	MAHOGANY	32mm	4
BEECH	25mm	5	MAHOGANY	38mm	3
BEECH	32mm	5	MAHOGANY	50mm	3
BEECH	38mm	4	MAPLE	25mm	5
BEECH	50mm	4	MAPLE	32mm	5
BIRCH	25mm	5	MAPLE	38mm	4
BIRCH	32mm	5	MAPLE	50mm	4
BIRCH	38mm	4	PINE (Pinus sylvestris)	25mm	7
BIRCH	50mm	4	PINE	32mm	7
BLACK GUM	25mm	7	PINE	38mm	7
BLACK GUM	32mm	7	PINE	50mm	7
BLACK GUM	38mm	6	POPLAR	25mm	7
BLACK GUM	50mm	5	POPLAR	32mm	7
CEDAR	25mm	5	POPLAR	38mm	6
CEDAR	32mm	5	POPLAR	50mm	5
CEDAR	38mm	5	RED GUM	25mm	5

**TABLE 5-1**

## 5 **Drying Schedule** *Kiln Drying Schedule*

CEDAR	50mm	4	RED GUM	32mm	5
CHERRY	25mm	5	RED GUM	38mm	4
CHERRY	32mm	5	RED GUM	50mm	4
CHERRY	38mm	4	OAK(Quercus robur)	25mm	3
CHERRY	50mm	4	OAK	32mm	2
COTTONWOOD	25mm	7	OAK	38mm	2
COTTONWOOD	32mm	7	OAK	50mm	1
COTTONWOOD	38mm	6	SAP GUM	25mm	7
COTTONWOOD	50mm	6	SAP GUM	32mm	7
ELM	25mm	5	SAP GUM	38mm	6
ELM	32mm	5	SAP GUM	50mm	6
ELM	38mm	4	SPRUCE (Picea sitch- ensis/excelsa)	25mm	7
ELM	50mm	4	SPRUCE	32mm	7
FIR	25mm	7	SPRUCE	38mm	7
FIR	32mm	7	SPRUCE	50mm	7
FIR	38mm	7	WALNUT	25mm	4
FIR	50mm	7	WALNUT	32mm	4
HICKORY	25mm	6	WALNUT	38mm	3
HICKORY	32mm	6	WALNUT	50mm	3

**TABLE 5-1**

The schedules shown below will dry your timber to approximately 10%. For other end moisture contents you should follow the following process:

1. Select the appropriate schedule for the species and timber to be dried
2. Follow the schedule until you reach a depression that is the equivalent of 2% MC lower than the desired end MC (refer to the EMC Chart).
3. Close the vent and condition the charge at the appropriate temperature.

See **Table 5-2**. Schedule #1 is shown below.

Schedule #1	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	32	50	75	100	125 <sup>1</sup>	150
1° Depression	38	4	6	8	10	12
3° Depression	44	4	6	8	10	12
5.5° Depression	50	4	6	8	10	12
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

**TABLE 5-2**

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

See **Table 5-3**. Schedule #2 is shown below.

Schedule #2	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	32	50	75	100	125 <sup>1</sup>	150
1° Depression	38	6	9	12	15	18
3° Depression	44	6	9	12	15	18
5.5° Depression	50	6	9	12	15	18
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

**TABLE 5-3**

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

# 5 Drying Schedule

## Kiln Drying Schedule

See Table 5-4. Schedule #3 is shown below.

Schedule #3	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	32	50	75	100	125 <sup>1</sup>	150
1° Depression	44	10	15	20	25	30
5.5° Depression	50	10	15	20	25	30
8° Depression	60	10	15	20	25	30
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

TABLE 5-4

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

See Table 5-5. Schedule #4 is shown below.

Schedule #4	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	44	50	75	100	125 <sup>1</sup>	150
1.5° Depression	50	20	30	40	50	60
8° Depression	60	10	15	20	25	30
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

TABLE 5-5

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

See Table 5-6. Schedule #5 is shown below.

Schedule #5	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	44	50	75	100	125 <sup>1</sup>	150
1.5° Depression	50	24	36	50	62	74
8° Depression	60	20	30	40	50	60
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

TABLE 5-6

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

See Table 5-7. Schedule #6 is shown below.

Schedule #6	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	50	50	75	100	125 <sup>1</sup>	150
3° Depression	55	30	45	60	75	90
8° Depression	60	20	30	40	50	60
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

**TABLE 5-7**

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

See Table 5-8. Schedule #7 is shown below.

Schedule #7	Temperature °C	4m <sup>3</sup> load	6m <sup>3</sup> load	8m <sup>3</sup> load	10m <sup>3</sup> load	12m <sup>3</sup> load
Initial	60	50	75	100	125 <sup>1</sup>	150
8.5° Depression	60	30	45	60	75	90
11° Depression	60	0	0	0	0	0
8° Depression	OFF	0	0	0	0	0

**TABLE 5-8**

<sup>1</sup> 125 means there are two outlet valves, one is 100% open (100 on the scale) and the second is 25% open (25 on the scale)

## SECTION 6 GLOSSARY

**DEPRESSION** - Temperature Depression is a term used to describe the Relative Humidity of air in the kiln chamber. Air that is 100% humid cannot absorb any more moisture. For example on a misty day washing will not dry outside. The amount of water that air can absorb depends on its temperature. In the WMDK system the drying process is controlled by monitoring the humidity and temperature of the air in the kiln. This is done using a wet/dry bulb thermometer. This is an ordinary thermometer that has an absorbent gauze on the sensor end. When the gauze is dry the thermometer will show the “dry bulb” reading. Once the gauze is wetted the moisture on the gauze will begin to evaporate- this evaporation causes cooling and the thermometer will therefore show a lower reading – the “wet bulb” reading. The rate of evaporation on the gauze, and therefore the amount of cooling of the thermometer is determined by the humidity and temperature of the air in the kiln. The drier the air is in the kiln, the larger the difference between the wet and dry bulb readings will be. The difference between the wet and dry bulb readings is called the “Depression”.

**MOISTURE GRADIENT** - The difference in moisture content that exists between the centre of a board and the outside of the board. When the difference in moisture content between the inside and outside is too great, surface checking and casehardening will result. Therefore, the moisture gradient is one of the things to watch when drying timber. The lower the gradient is at the finish, the better the timber will work.

**SURFACE CHECKS** - Caused by the moisture gradient becoming too great. This usually occurs when the timber is drying from the green stage down to 20% moisture content. However, it cannot always be detected in air-dried timber until the timber is placed in the kiln and the drying begins. Almost all air-dried oak, especially that stock cut in hot, dry weather, will contain surface checks. It also frequently occurs in the heartwood of other species.

**CASEHARDENING** - Caused by a steep moisture gradient, but frequently cannot be detected until the centre of the board begins to dry. The outside of the board becomes dry in an expanded or stretched condition - due to being dried too rapidly - while the centre of the board is of much higher moisture content. It can be relieved by a higher humidity treatment which softens the surface and allows it to take its normal shrinkage.

**HONEYCOMB OR HOLLOWHORNING** - Follows severe casehardening which has not been relieved before the centre of the board becomes fully dry.

**WARP AND TWIST** - Sometimes caused by improper sticking and in some cases by drying the timber at too low of a humidity.

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**EMC or EQUILIBRIUM MOISTURE CONTENT** - The moisture content that the timber will come to and will remain indefinitely if left under any constant temperature and humidity. This is important for sheds or rooms where dry timber is to be stored for a long period of time.

**RELATIVE HUMIDITY** - The amount of moisture that is in the air in relation to what it will hold at any given temperature. It is expressed as a percentage.



## SECTION 7 IMPORTANT INFORMATION

The drying schedules in this manual are to be used when drying timber in the WMDK Modular Kiln System

The schedules outlined are a general guide. However, many kiln operators use more severe drying conditions than those in the schedules while others dry at a more conservative rate.

For faster drying and best results - the species, thicknesses, and moisture content of the timber which take the same schedule should be segregated into (1) kiln whenever possible.

If it is necessary to dry various species and thicknesses of timber in the same kiln, always operate the kiln according to the greenest, thickest, and most difficult to dry species.

The kiln should always be full, or near full, when using schedules specified for species and thickness being dried. If the chamber is partly filled, the exhaust should be cut back in equal proportions.

Some boards within the same specie and thickness retain moisture more than others. When this happens, it usually shows up as a low depression on the final setting and will require longer equalizing time. At this point the vent may need to be reopened to vent the extra moisture.

Pieces which are square, or nearly so, or in dowel form in cross section, will dry more quickly than wider pieces of the same thickness.

Wide timber, i.e. timber exceeding 300mm in width, is more apt to caseharden and surface check than narrower boards. For this reason, we suggest that when a large portion of the load is wide boards, that it be dried at a slower rate than narrow stock.

Under no circumstances should any of the fans or exhaust blower be shut off during the drying period of a charge of timber. If the fans or exhaust blower are turned OFF during drying they will be cool and thus become condensers for water vapor, allowing possible damage to the motors. The exhaust blowers must be allowed to run continuously even when the exhaust valve is closed.

The exhaust valve should never be closed entirely except for conditioning of the timber in the final stages of drying or for preconditioning well air-dried stock

Quarter sawn timber requires a longer time for drying than plain-sawn timber of the same thickness and species.

If mould occurs on the timber, open the exhaust valve to reduce humidity. Mould thrives

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on near 100% humidity and temperatures between 18C and 38C.

Do not open the door unnecessarily. When the doors are open, you are upsetting the drying conditions and are also wasting heat. In the conditioning stage, it is especially necessary for the door to remain closed to contain the moisture vapor necessary for equalization. If for some reason the door must be opened during equalization, remember to open the exhaust valve slightly afterward to re-establish the negative pressure. Then immediately shut it after your door seals properly.

Keep the kiln neat in appearance and in proper working order. Do preventative maintenance every time the kilns are unloaded and prior to re-loading. The life expectancy of the kiln will be affected if regular maintenance is not carried out.

Dimension stock of all sizes when dried as a dimension should be end-coated immediately after it is cut from the green slab or bolt. We especially recommend this for green oak, walnut, hickory, sycamore, and large hard maple dimension stock.

# SECTION 8 EMC CHART

WMDK MODULAR KILN  
COMBINED EMC (Equilibrium Moisture Content) / RH (Relative Humidity) CHART

Dry Bulb Temperature in Degrees C		Wet Bulb Depression in degrees C (Dry bulb reading minus Wet Bulb Reading)																																															
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	18	18.5	19	19.5									
32	93	94	87	83	80	76	73	71	68	65	61	58	55	53	50	48	47	44	41	39	36	34	32	29	26	25	24	22	19	17																			
36	21.3	21.3	18.1	16.1	15.3	14.2	13.5	12.8	12.0	11.4	10.7	10.2	9.7	9.4	9.0	8.7	8.4	8.0	7.6	7.2	6.8	6.5	6.2	5.7	5.3	5.1	4.9	4.6	4.2	3.8																			
38	93	91	87	84	81	78	77	73	70	68	65	63	61	57	55	52	51	49	46	44	41	39	38	34	33	31	30	28	26	24	22																		
44	21.3	20.0	18.2	16.8	15.5	14.5	13.9	13.1	12.4	11.8	11.2	10.7	10.3	9.8	9.4	9.1	8.9	8.5	8.1	7.8	7.4	7.0	6.8	6.2	6.1	5.9	5.7	5.4	5.2	4.9	4.6																		
50	93	91	88	85	81	79	78	75	73	70	67	66	63	61	58	56	55	52	50	48	46	45	43	41	38	37	36	34	32	30	28	26																	
55	21.3	19.0	18.3	16.8	15.6	14.6	14.1	13.4	12.7	12.1	11.5	11.0	10.7	10.2	9.8	9.6	9.4	9.0	8.7	8.3	7.9	7.7	7.5	7.2	7.0	6.8	6.6	6.3	6.1	5.8	5.6	5.4	5.2	5.0	4.8														
60	94	92	90	87	84	82	81	78	76	73	71	70	68	65	63	61	60	58	56	54	52	50	49	47	46	44	43	41	40	38	37	35	33	32	31	30	29												
60	95	93	90	88	84	83	82	79	77	75	73	70	69	67	65	63	62	60	58	56	54	53	52	49	47	47	46	44	43	41	40	39	36	34	33	32	31	30	29										
60	20.7	19.7	18.0	16.3	14.8	14.3	13.8	13.2	12.5	11.9	11.4	10.9	10.6	10.2	9.8	9.6	9.4	9.0	8.7	8.4	8.0	7.8	7.5	7.3	7.2	7.1	6.9	6.6	6.4	6.2	6.0	5.9	5.6	5.5	5.4	5.2	5.1	4.8											
60.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	18	18.5	19	19.5											

RH shown in Black  
EMC shown in Red

# SECTION 9 WMUK MODULAR KILN RECORD SHEET

Date			Kiln number		
Species			Schedule number		
Thickness			Initial MC	Over 30%	
Load m <sup>3</sup>				Under 30%	
Day	Dry Bulb	Wet Bulb	Depression	Vent	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Day	Dry Bulb	Wet Bulb	Depression	Vent	Remarks
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
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51					
52					
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55					
56					
57					
58					
59					
60					

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## SECTION 10 REPLACEMENT PARTS

### 10.1 How To Use The Parts List

- Use the table of contents or index to locate the assembly that contains the part you need.
- Go to the appropriate section and locate the part in the illustration.
- Use the number pointing to the part to locate the correct part number and description in the table.
- Parts shown indented under another part are included with that part.
- Parts marked with a diamond (◆) are only available in the assembly listed above the part.

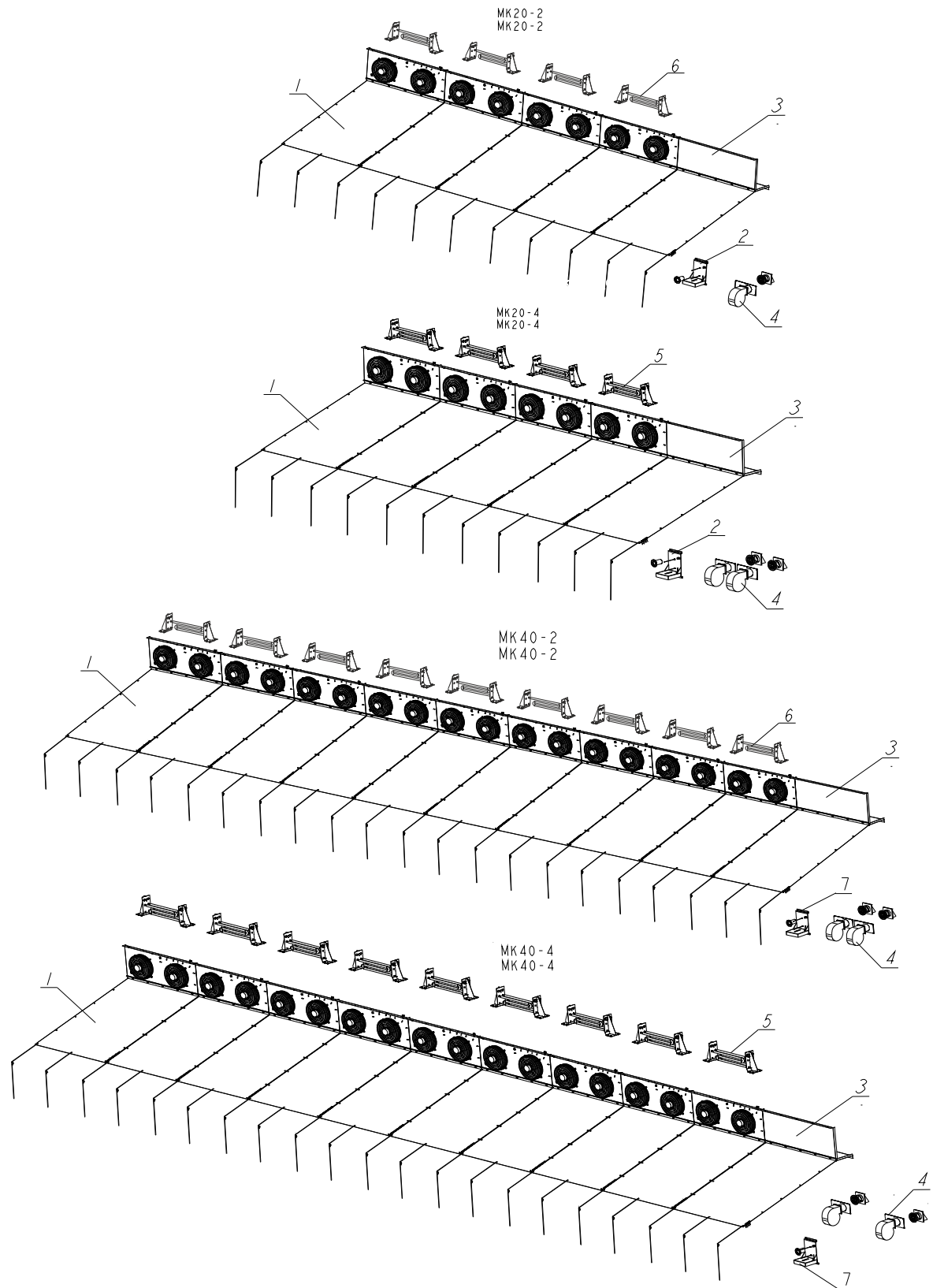
See the sample table below. Sample Part #A01111 includes part F02222-2 and subassembly A03333. Subassembly A03333 includes part S04444-4 and subassembly K05555. The diamond (◆) indicates that S04444-4 is not available except in subassembly A03333. Subassembly K05555 includes parts M06666 and F07777-77. The diamond (◆) indicates M06666 is not available except in subassembly K05555.

<b>Sample Assembly</b>				
REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
	<b>SAMPLE ASSEMBLY, COMPLETE (INCLUDES ALL INDENTED PARTS BELOW)</b>	A01111	1	
1	Sample Part	F02222-22	1	
	Sample Subassembly (Includes All Indented Parts Below)	A03333	1	
2	Sample Part (◆ Indicates Part Is Only Available With A03333)	S04444-4	1	◆
	Sample Subassembly (Includes All Indented Parts Below)	K05555	1	
3	Sample Part (◆ Indicates Part Is Only Available With K05555)	M06666	2	◆
4	Sample Part	F07777-77	1	

#### To Order Parts:

- From Europe call our European Headquarters and Manufacturing Facility in Kolo, Poland at **+48-63-2626000**. From the continental U.S., call our toll-free Parts hotline at **1-800-448-7881**. Have your customer number, vehicle identification number, and part numbers ready when you call.
- From other international locations, contact the Wood-Mizer distributor in your area for parts.

## 10.2 Fan Module Assembly

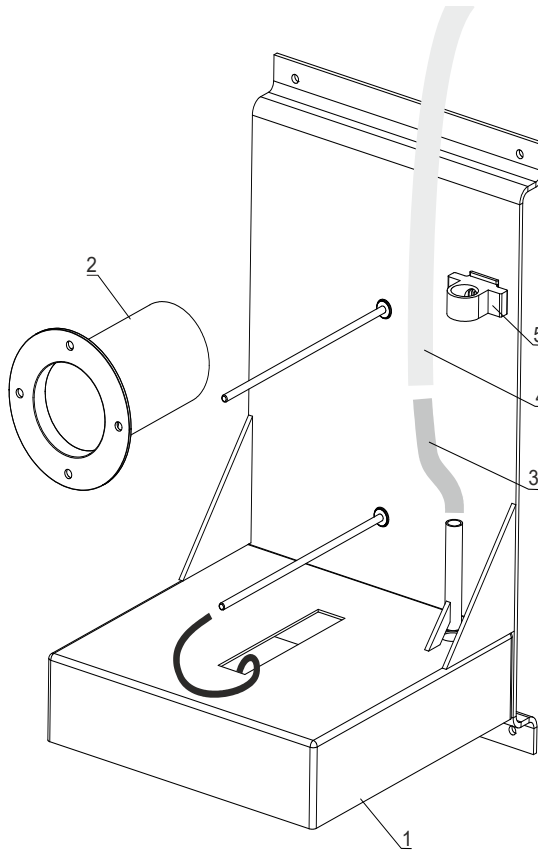


REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
1	FAN MODULE ASSEMBLY, DRY KILN	555491		
2	WET THERMOMETER ASSEMBLY, DRY KILN MK20	578606		
3	PLENUM BLANKING KIT	095379		
4	FAN ASSEMBLY, EXHAUST	095143		
5	HEATER ASSEMBLY, 4 KW DRY KILN	555493		
6	HEATER ASSEMBLY, 2 KW DRY KILN	555492		
7	WET THERMOMETER ASSEMBLY, DRY KILN MK40	578607		



### 10.3 Wet Thermometer Assembly

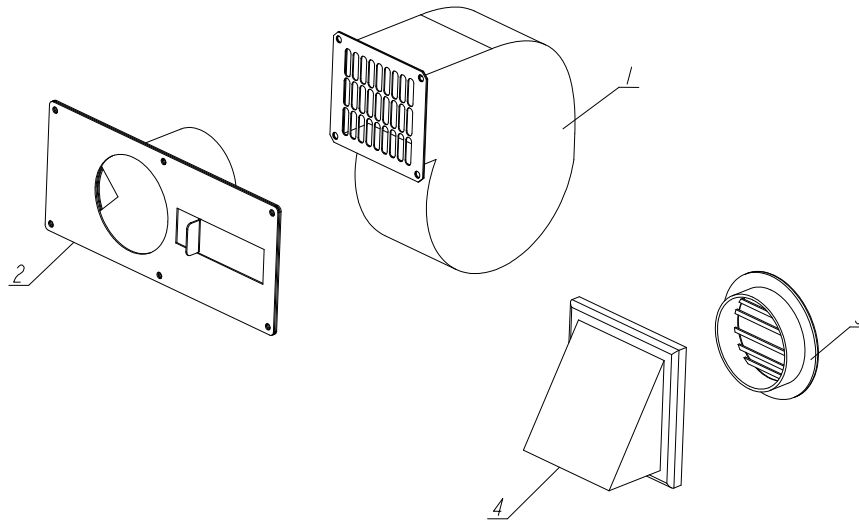
544790\_001A  
 544790\_MANUAL



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
-	<b>WET THERMOMETER ASSEMBLY, MK20</b> <b>WET THERMOMETER ASSEMBLY, MK40</b>	578606 578607	1	
1	WET THERMOMETER KIT, KILN	095147	1	
2	GROMMET, CABLE	094731	1	
3	FLEXIBLE TUBE, Ø 12	R01885	0,5m	
4	PEX PIPE, Ø 16, 1m.	095145	1	
5	SNAP FASTENER, 1/2"	095347	1	
6	WIG	095347	1	

## 10.4 Exhaust Fan Assembly

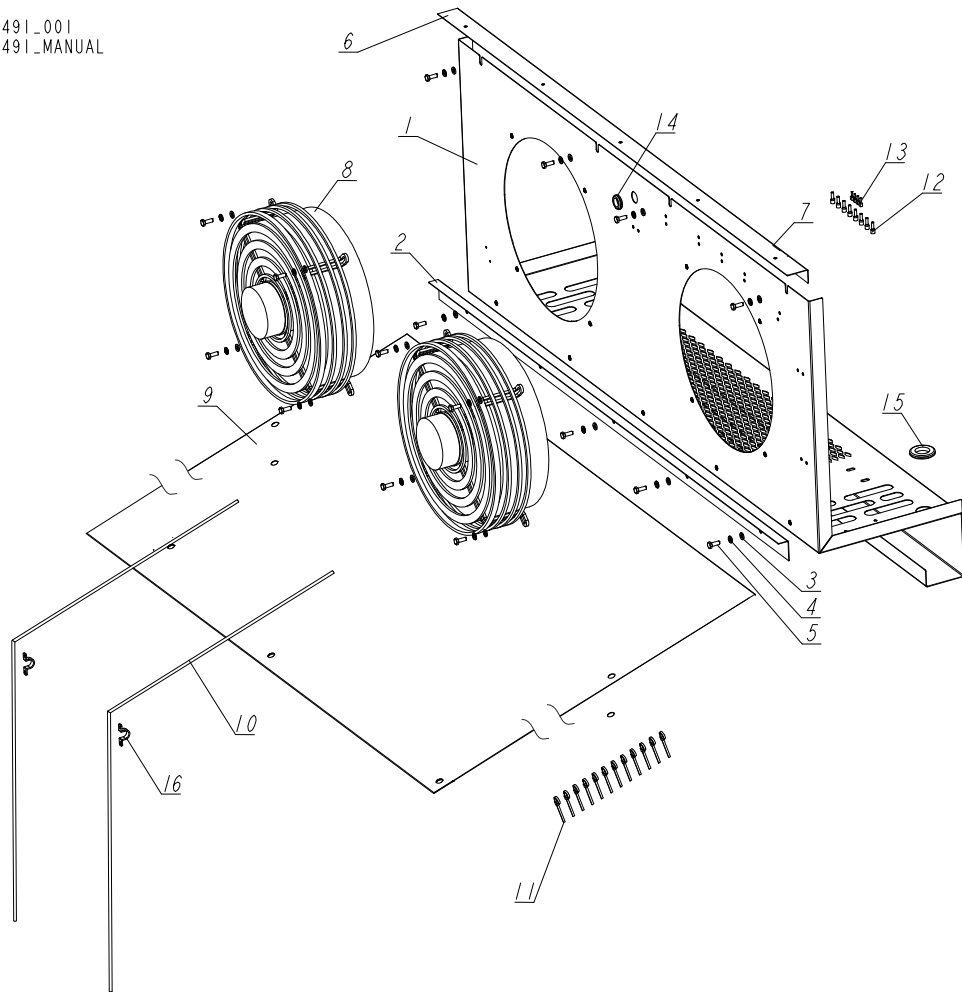
095143\_001  
095143\_MANUAL



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
-	<b>FAN ASSEMBLY, EXHAUST</b>	095143	1	
1	FAN, SEM-2C-146/062 CENTRIFUGAL	094914	1	
2	VALVE ASSEMBLY, OUTLET	094686	1	
3	AIR INTAKE, OUTER KRD/B100 DOSPEL	095206	1	
4	AIR INTAKE, INNER KRO/B100 DOSPEL	095095	1	

### 10.5 Fan Module

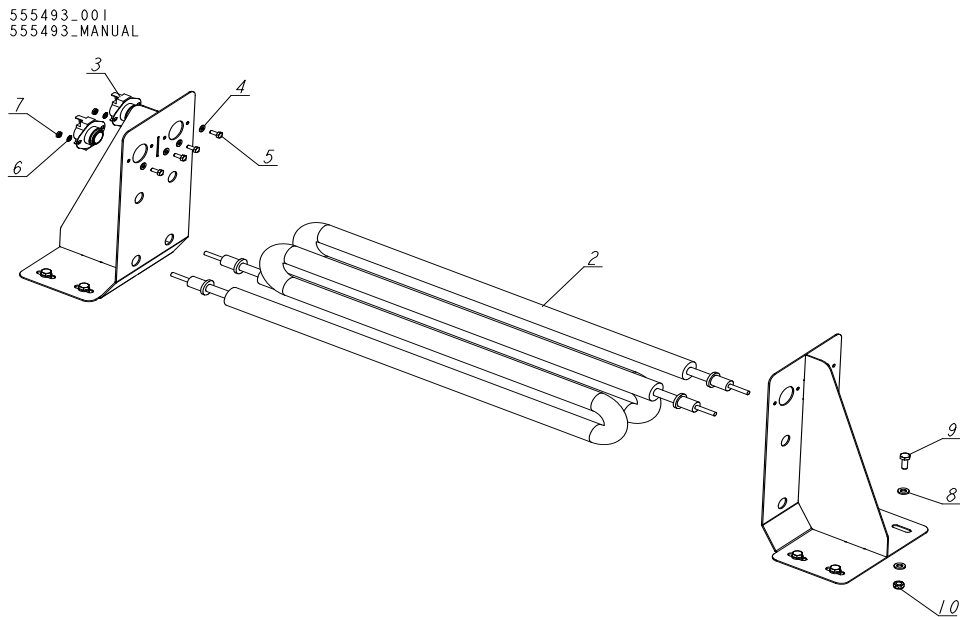
555491\_001  
555491\_MANUAL



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
-	<b>FAN MODULE, DRY KILN</b>	555491	1
-	BRACKET, FAN MOUNT	532529	1
1	PLATE, FAN MOUNT BRACKET	532530	1
2	BRACKET, PLENUN BAFFLE MOUNT	094674	1
3	WASHER, 6.4 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81053-5	17
4	WASHER, 6.1 DIN 127 (A2-304) STAINLESS STEEL SPLIT LOCK	F81053-4	17
5	BOLT, M6X16 DIN 933 (A2) STAINLESS STEEL	F81001-39	17
-	BRACKET WELDMENT, FAN MODULE UPPER MOUNT	094915	1
6	BRACKET, FAN MODULE UPPER MOUNT	094876	1
7	NUT, M6 STAINLESS STEEL WELDED	F81031-7	4
8	FAN, FSS300	543306	2
9	BAFFLE, PLENUM	095089	1
10	ROPE, 5 DIA. NYLON	095126	2
11	WRAP, TKUV 20/5 TIE	F05089-1	12
12	TERMINAL, HI 1/6 CABLE END	F81083-3	8

REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
13	TERMINAL, HI 2X1 CABLE END	F81083-31	4	
14	GROMMET, 5/8 ID RUBBER	P11764	1	
15	GROMMET, 1" ID RUBBER	P11765	2	
16	BRACKET, 5M PLENUM BAFFLE ROPE (ACID-RESISTANT)	095090	2	

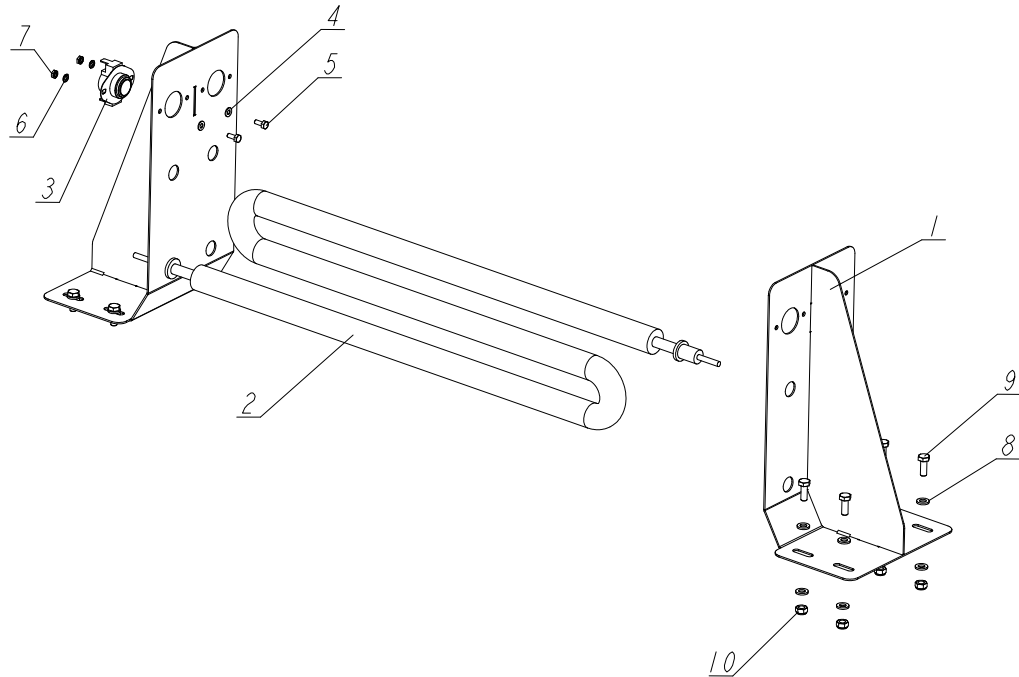
## 10.6 4kW Heater Assembly



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
-	HEATER ASSEMBLY, 4kW DRY KILN	555493	1	
-	HEATER ASSEMBLY, 4kW 230V DRY KILN	555493-2	1	
1	BRACKET WELDMENT, HEATER	533720	2	
2	HEATER, SINKOPLEX 2kW CE	528463	2	
2	HEATER, SINKOPLEX 2kW 230V CE	528463-2	2	
3	CONTROL, TEMP. LIMIT 180-40F	051921	2	
4	WASHER, 4.3 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81051-3	4	
5	BOLT, M4X10 DIN 933/ISO 4017 (A2) STAINLESS STEEL	F81000-27	4	
6	WASHER, 4.1 DIN 127 (A2-304) STAINLESS STEEL SPLIT LOCK	F81051-4	4	
7	NUT, M4 DIN 934/ISO 4032 (A2-304) STAINLESS STEEL	F81029-3	4	
8	WASHER, 6.4 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81053-5	16	
9	BOLT, M6X16 DIN 933 (A2) STAINLESS STEEL	F81001-39	8	
10	NUT, M6-8-B HEX NYLON ZINC LOCK	F81031-2	8	

## 10.7 2 kW Heater Assembly

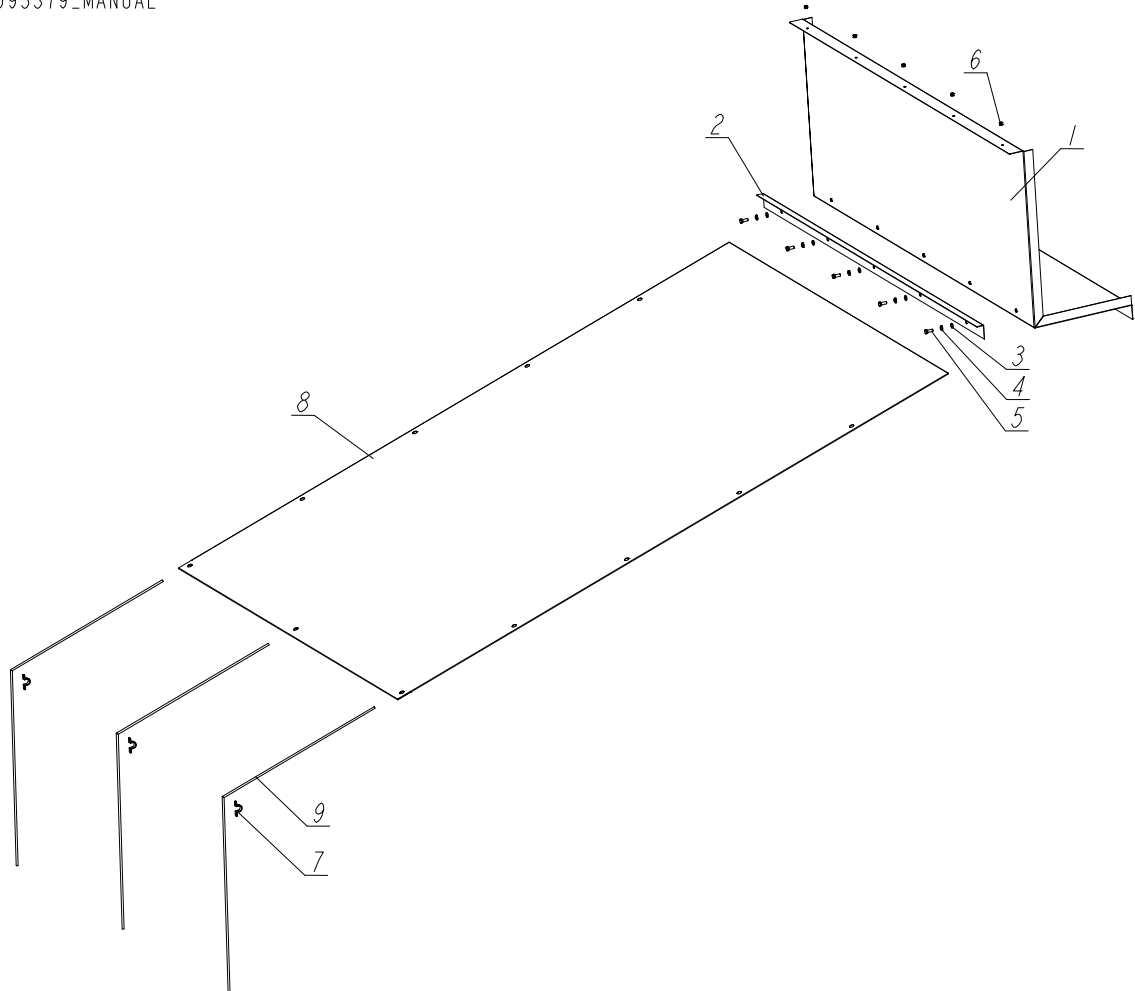
555492\_001  
555492\_MANUAL



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
-	HEATER ASSEMBLY, 2kW DRY KILN	555492	1
-	HEATER ASSEMBLY, 2kW 230V DRY KILN	555492-2	1
1	BRACKET WELDMENT, HEATER	533720	2
2	HEATER, SINKOPLEX 2KW CE	528463	1
	HEATER, SINKOPLEX 2KW CE 230V	528463-2	1
3	CONTROL, TEMP. LIMIT 180-40F	051921	1
4	WASHER, 4.3 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81051-3	2
5	BOLT, M4X10 DIN 933/ISO 4017 (A2) STAINLESS STEEL	F81000-27	2
6	WASHER, 4.1 DIN 127 (A2-304) STAINLESS STEEL SPLIT LOCK	F81051-4	2
7	NUT, M4 DIN 934/ISO 4032 (A2-304) STAINLESS STEEL	F81029-3	2
8	WASHER, 6.4 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81053-5	16
9	BOLT, M6X16 DIN 933 (A2) STAINLESS STEEL	F81001-39	8
10	NUT, M6-8-B HEX NYLON ZINC LOCK	F81031-2	8

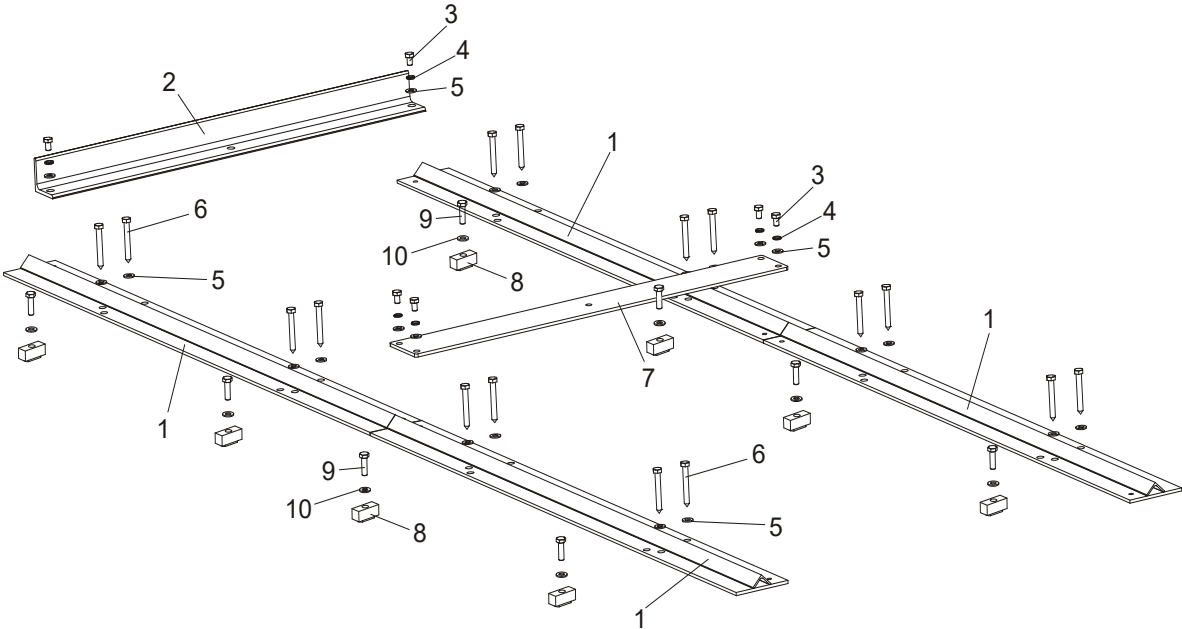
### 10.8 Plenum Blanking Kit

095379\_001  
095379\_MANUAL



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
-	<b>PLENUM BLANKING KIT</b>	095379	1
-	BLANKING SECTION	095138	1
-	BLANKING SECTION WELDMENT	095137	1
1	PROFILE, BLANKING SECTION	094675	1
2	BRACKET, PLENUM BAFFLE MOUNT	094674	1
3	WASHER, 6.4 DIN 125/ISO 7089 (A2-304) STAINLESS STEEL	F81053-5	5
4	WASHER, 6.1 DIN 127 (A2-304) STAINLESS STEEL SPLIT LOCK	F81053-4	5
5	BOLT, M6X16 DIN 933 (A2) STAINLESS STEEL	F81001-39	5
6	RIVET, 5.0X8 A2/A2 SS BREAK MANDREL BLIND	F81021-3	10
7	BRACKET, 5M PLENUM BAFFLE ROPE (ACID-RESISTANT)	095090	3
8	BAFFLE, PLENUM	095089	1
9	ROPE, 5 DIA. NYLON	095126	3

10.9 Track (Optional)



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
	END MODULE, TRACK - KILN	095154	1
	SECTION, TRACK END - KILN	094784	2
1	TRACK WELDMENT, DRY KILN	094775-1	2
2	ANGLE STOP BAR - KILN	094785-1	1
3	BOLT, M10x16-8.8 HEX HEAD FULL THREAD ZINC	F81003-13	2
4	WASHER, 10.2 SPLIT LOCK ZINC	F81055-2	2
5	WASHER, 10.5 FLAT ZINC	F81055-1	2
	DOWEL, 14x100mm EB88238 EXPANSION	F05015-37	16
	BEAM, CROSS	094773-1	1
	SCREW, M10X20 SET	F81003-74	4
5	<b>WASHER, 10.5 FLAT ZINC</b>	F81055-1	16
6	<b>SCREW, 10X80 HEX HEAD WOOD</b>	F81003-75	16
	TRACK SECTION, COMPLETE - KILN	095155	6
	TRACK SECTION - KILN	094774	6
1	TRACK WELDMENT, DRY KILN	094775-1	2
3	BOLT, M10x16-8.8 HEX HEAD FULL THREAD ZINC	F81003-13	2
4	WASHER, 10.2 SPLIT LOCK ZINC	F81055-2	2
5	WASHER, 10.5 FLAT ZINC	F81055-1	2
7	TIE BAR - KILN	094773-1	1
3	BOLT, M10x16-8.8 HEX HEAD FULL THREAD ZINC	F81003-13	2
4	WASHER, 10.2 SPLIT LOCK ZINC	F81055-2	2
5	WASHER, 10.5 FLAT ZINC	F81055-1	2
6	SCREW, 10X80 HEX HEAD WOOD	F81003-75	8
	ANCHOR - KILN	095150	4
8	ANCHOR WELDMENT, DRY KILN	095149	1



# 10

## Replacement Parts

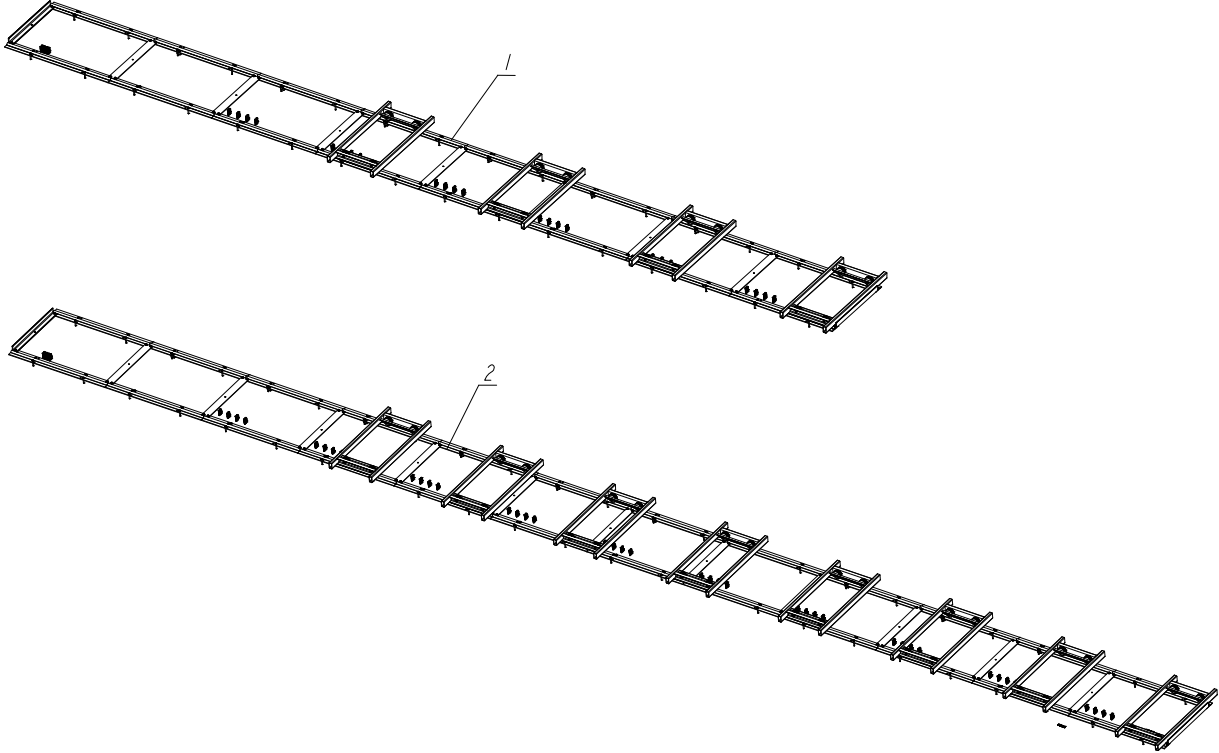
*Track (Optional)*

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9	BOLT, M10x35-8.8 HEX HEAD FULL THREAD ZINC	F81003-17	1	
10	WASHER, 10.5 FLAT ZINC	F81055-1	1	
	LUMBER CART	094770 <sup>1</sup>	4	

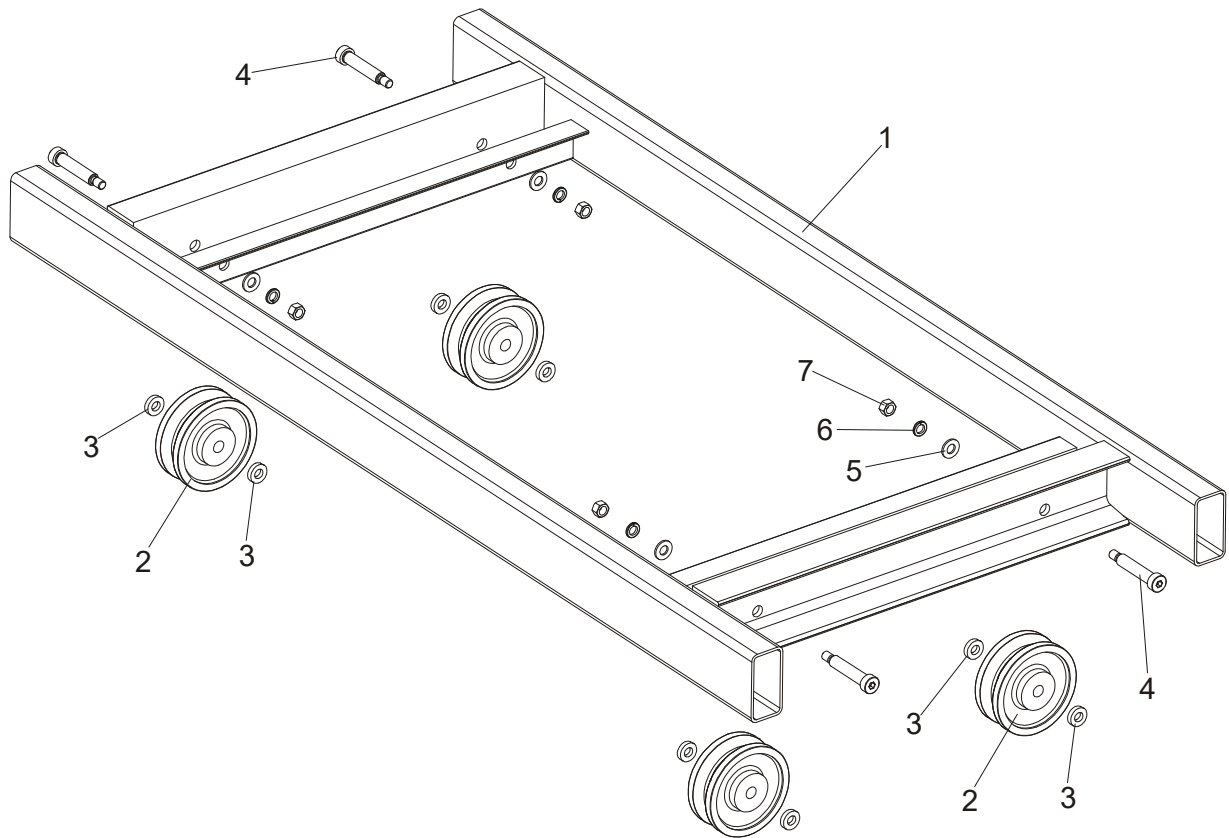
<sup>1</sup> Section 10.11

10.10 Track (Optional)



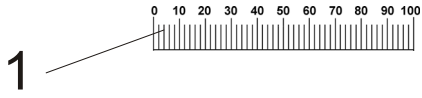
REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY	
1	TRACK, MK20 (20') DRY KILN	555494		
2	TRACK, MK40 (40') DRY KILN	555495		

### 10.11 Lumber Cart

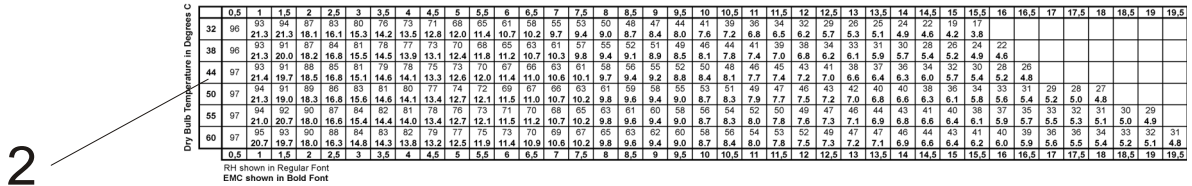


REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
	<b>LUMBER CART - COMPLETE</b>	<b>094770</b>	<b>1</b>
1	FRAME, LUMBER CART	094767-1	1
2	ROLLER, COMPLETE	101064	4
3	BUSHING, SPACER	101063-1	8
4	BOLT, 12/M10X55 12.9 ISO7379 BOSSARD	F81003-92	4
5	WASHER, 10.5 FLAT ZINC	F81055-1	4
6	WASHER, 10.2 SPLIT LOCK ZINC	F81055-2	4
7	NUT, M10-8-B-FE HEX	F81033-3	4

## 10.12 Decals



WMDK MODULAR KILN  
COMBINED EMC (Equilibrium Moisture Content) / RH (Relative Humidity) CHART  
Wet Bulb Depression in Degrees C (Dry bulb reading minus Wet Bulb Reading)



REF.	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY
1	DECAL, EXHAUST VALVE SCALE	098367	1
2	DECAL, EMCCHART	098368	1



## EC declaration of conformity according to EC Machinery Directive 2006/42/EC, Annex II, 1.A

**Manufacturer:**

Wood-Mizer Industries sp. z o.o.  
Nagórna 114, 62-600 Koło; Poland  
Tel. +48 63 26 26 000

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Following machine in our delivered version complies with the appropriate essential safety and health requirements of the EC Machinery Directive 2006/42/EC based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed by us, this declaration is no longer valid.

**We, the undersigned herewith declare, that:**

Designation of the machine: **Modular Kiln**  
Model: MK/MWK  
TYPE: .....  
No. of manufacturer: .....

**Is in conformity with the following EC directives:**  
EC Machinery Directive 2006/42/EC  
EC Electromagnetic Compatibility Directive 2014/30/EU

**And is in conformity with the following Harmonized Standards:**  
PN-EN ISO 13849-1:2016-02  
PN-EN 60204-1:2018-12

Responsible for Technical Documentation: Piotr Adamiec / Engineering Manager  
Wood-Mizer Industries Sp. z o.o.  
62-600 Koło, Nagórna 114, Poland  
Tel. +48 63 26 26 000

Place/Date/Authorized Signature: Koło, 29.12.2009 

Title: Engineering Manager

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