DRYMAX
WOODRYER

USER MANUAL

MODEL: DWD-1200LMC

- 2012-

- Registration –

Thanks you for choosing Drymax dehumidifier. Please record important information before proceed to the rest of this manual

- Series number : .....
- Purchasing date :.....
- Commissioning date :.....
- Warrantee expiry date :.....
- Service company:……
- Hot service line:……

Content

1. About Drymax

Drymax wood dryers are products of NAAV Solutions Inc. (Canada) with its headquarter located at Vancouver, BC, Canada and manufacturing/assembly facilities located in North America and Vietnam to serve different markets.

2. Safety information

• This manual should be read and follow carefully to ensure correct operation and safety and this manual should always be accessible and kept close to the wood dryer.
• Only technician with adequate knowledge of this wood dryer should be allowed to operate and service it.
• Only personnel with authorization for electrical installations are allowed to make repair of electrical components.
• This wood dryer must not be installed in areas where explosion proof equipment is required.
• Disconnect this wood dryer from the mains prior to opening any service panel.
• Prior to servicing this wood dryer must be left to cool down for at least 15 minutes after operation.
• The service panels should remain closed except when servicing is carried out.
• This wood dryer can only be used for dehumidification of air at atmospheric pressure.
• Never use this wood dryer without the filters as the desiccant rotor can become contaminated and lose capacity.
• Signs and instructions on this wood dryer should not be removed or altered.
• All maintenance and control of this wood dryer should be as per the specified schedule.
• Use only genuine spare parts.

3. Application

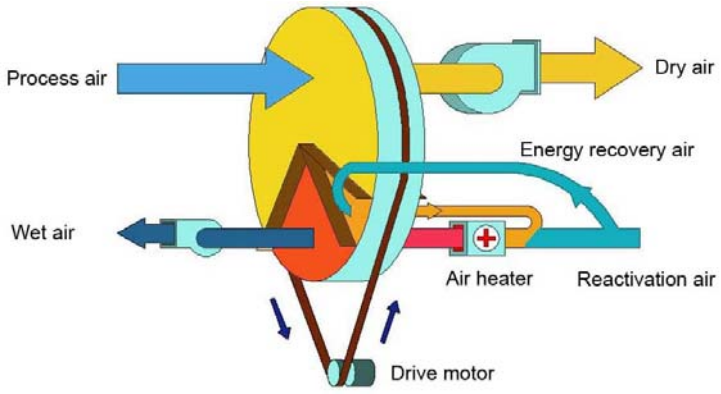
Drymax wood dryer is designed to efficiently dry wood down to as low MC as 4% at room or moderate temperature. This mild drying process ensures highest product quality, defect-free. The dryer is made by rugged formed metal body and access panels are produced from corrosion-free electrostatic powder coating.

The air to this wood dryer should be free from solvents or other explosive components, and should be free from pollution from solid particles and chemical substances (ex. acids, bases...)

The Drymax wood dryer is for indoor, stationary installations. Should not be placed in rooms with possibility for free water on the cabinet.

4. Principle of Operation

This wood dryer removes water from an airflow through, and the removed water is carried away from this wood dryer with the reactivation air (henceforward called reac.-air). Water adsorption and -extraction takes place in an rotor made of water resistant silica gel.



The airflows in this wood dryer divides the rotor in two parts : drying part and reac.-part.

Two separate air flows passes through the rotor:
- the return air (moist air inlet) goes through the drying part, and leaves this wood dryeras dry air
- the outdoor air passing the electric heater and leaves the heater with a temperature of between 120~135oC. This warm air goes through the rotor drying part and the energy is used for evaporation of the adsorbed water. This water vapour now leaves this wood dryer as exhaust air.

The two air flows are fixed and the rotor turns very slowly - this gives an automatic process of simultaneous water adsorption and water extraction

5. Product description

This wood dryer consists of the following main components:

Casing
This wood dryer as standard is made from surface treated mild steel. The bottom frame is rigid enough to allow this wood dryer to be handled with a fork lift on site.

Rotor
This wood dryer uses rotor made from a desiccant material. The rotor has a matrix of corrugated heat resistant sheets which houses the Silica Gel desiccant agent. This matrix create a large number of axial flutes through the rotor, which together builds up an immense surface area for moisture adsorption in a small volume. The rotor is manufactured and processed to be able to withstand moisture saturated air without being damaged. This means the rotor can be used in conjunction with a pre-cooling coil. The rotor is incombustible and non flammable. This rotor is made by Proflute (Swedish) company.

Rotor drive system
The slow rotation of the rotor is achieved by an electrical gear motor and a belt drive. The belt sits on the outer rim of the rotor and is driven by a pulley on the drive motor. A belt tension device keeps the belt in place and maintains tension to prevent belt slip.

Rotor bearings
The centre hub of the rotor is equipped with ball bearings.

Rotor seals
The peripheral seals are of felt type and designed as self adjusting sliding seals, mounted on the rotor rim. The radial seals are self adjusting teflon seals.

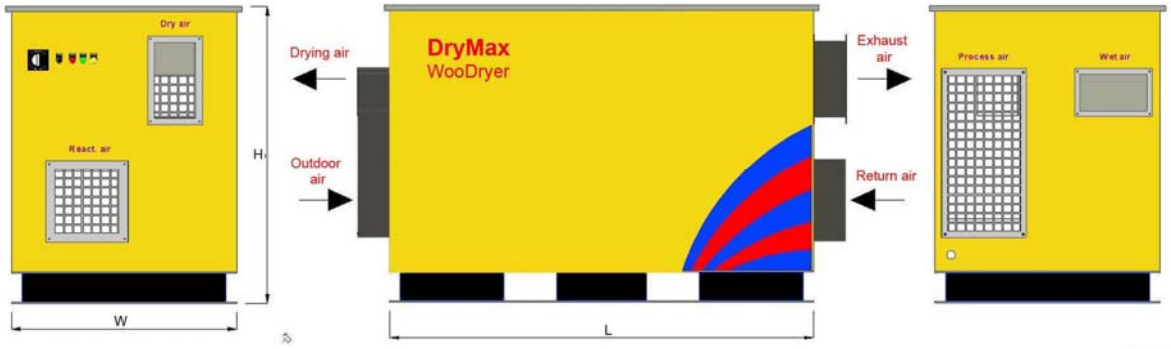
Filters
This wood dryer has two separate filter banks. One in the process air inlet, and one in the reactivation air inlet.

Fans for dry and exhaust air
The fans are direct driven radial fans with three phase standard motor class IP 55, ISO F. The fans are accessible for service after removing panels.

Heater for outdoor air
The electric outdoor heater is divided into 3 heater banks. As an option this wood dryer can be delivered with heater for steam, hot water.

Electrical panel
The electrical panel is located in a separate compartment at the front of the wood dryer. Switches and indications for operation are mounted at the front of the electrical panel.

6. Technical data



Description	DWD-1200LMC
Drying Capacity @t 20°C, 60%RH, kg/hr	8.35
Drying airflow (m³/h)	1200
Available static pressure (Pa)	300
Exhaust airflow (m³/h)	300
Available static pressure (Pa)	300
Total power consumption (kW)	15.49
Power source	380V/3P/50Hz
Max noise level unducted (dBA)	71dB (A)
Air filter, standard	G3
High temperature cut-out (ºC)	165
Dimension (W x L x H), mm	740 x 1550 x 1000
Weight, Kgs	317

7. Installation

This wood dryer should be installed indoors, placed on a horizontal basis. For service/repair this wood dryer should be placed where it has a free space of 1m around and over the cabinet.

The outside air is taken from the outside of the room, and the exhaust air outlet should lead back to the outside.

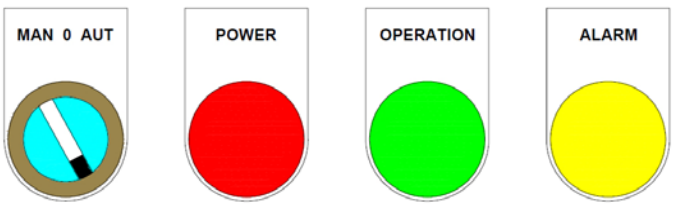
Outdoor air inlet should be fitted with damper.

Exhaust air outlet should be made draining against the outlet, to allow condensate to run free. If this is not possible, drill an Ø4 hole on the lowest part of the duct for drain.

Return air is normally taken from the room, through the return filter on the backside of the wood dryer. The filter cassette can be replaced by opening the cover on top of the wood dryer, and can therefore be replaced without removing the duct system.

8. Commisioning

8.1 Electric operation



Before starting-up the wood dryer, check that all electric connections are made correctly and the unit are properly earth.

If this is OK, turn the selector switch to the position you want:

"MAN" = continuous operation
"AUTO" = automatic operation
"0" = switched off

The position "AUTO" is to be used when operated by an external humidistat or other external control equipment.

Pos "AUTO":

If it does not start-up, it can be caused by the humidistat. If the actual %RH is lower than wanted, the humidistat is broken.

This can be checked like this:
- adjust the humidistat to 10 %RH, and this wood dryer should then be operating
- adjust the humidistat to 95 %RH, and this wood dryer should stop operating

8.2 Air flows

Air flows should be adjusted.

The dry air flow should be adjusted to achieve optimal operation and system balance.

Outdoor air flow always has to be adjusted to achieve temperature after heater between 120oC~135oC. The damper installed in the outdoor air inlet duct system is for this purpose. With the electrical settings and air flows adjusted, this wood dryer will then operate automatically by means of the internal control- and safety functions - controlled by an external humidistat

9. Maintenance

Drymax wood dryers only needs a minimum of maintenance. All components are service free, which means no lubrication or adjustment.

Only three things should be checked during normal operation:
- air filters should be checked at least every 1 months, cleaned and changed if necessary.
- the exhaust air temperature during operation should be checked once a month (exhaust air is within 40^{o}C-60^{o}C, depending on inlet condition.

***) Filter for return air:** use standard filter cassette

We nevertheless recommend some periodic verification of the entire wood dryer, to see if all internal functions are ok and checking of gaskets and moving parts for wear and tear.

This will ensure that the capacity is on its maximum, and thus won`t waste any energy

10. Troubleshooting

10.1 If the power lamp is not illuminated, electricity supply could be cut-off to the wood dryer. Check the external fuses for the wood dryer, and check the internal fuse. It could also be the lamp itself has burnt.

10.2 If this wood dryer is not operating even if the power and operation lamp are on, it is probably the external humidistat which has broken. This is a normal situation when the desired humidity is obtained.

To check : adjust the humidistat for 10 %RH, and this wood dryer should start operating. Adjust again for the desired humidity.

Also check the selector switch, for operation the position must be "AUTO" or "MAN".

10.3 If the desired humidity is not obtained, the problem can be this wood dryer - or the other parts in the total installation (room tightness, humidistat...).

To verify this, check:
- rotation of rotor
- the dry air should be 15-20^{o}C warmer than the return air. If it is cold it could indicate that the rotor is not turning caused by broken drive belts or the motor has stopped.
- By hand feel the surface temperature of the exhaust air outlet duct. For correct operation the temperature should be 40-60^{o}C. If it is cold, the thermostatic switch might have broken. Manual reset on the red button placed close to the green neon on the cabinet. If it is very hot it indicates that the rotor has stopped

11. Components list

Part code	Description	Specification	Made	Q'ty
1200-001	Rotor	PPS Ø450/200	Proflute	01
1200-002	Rotor drive motor	40W/380V/50Hz-1375rph	M-5IK40N-S	01
1200-003	Gear transmission	Ratio 1: 10	G-5N10X-K	01
1200-004	Gear transmission	Ration 1:100	G-5N100-K	01
1200-005	Pulley	D70 x 20,Cast alu,type H	Viet Nam	01
1200-006	Drive belt	660H-20mm	Korea	01
1200-007	Heating element W270-1.15	1.15 kW-380V/50Hz	Sea Material	12
1200-008	CB for process fan	BH-D6 C20	Mitsubishi	01
1200-008	CB for reac. Fan, gear motor	BH-D6 C20	Mitsubishi	02
1200-009	CB for 1st heating stage	BH-D6-C20	Mitsubishi	01
1200-009	CB for 2nd heating stage	BH-D6-C20	Mitsubishi	01
1200-010	CB for auxiliary heating	BH-D6 C20	Mitsubishi	01
1200-011	phase protection	600PSR	SELEC	01
1200-012	Contactor for process fan , reac.fan and gear motor	SN 10	Mitsubishi	03
1200-013	Contactor for heating stage 1 & 2	SN 25	Mitsubishi	02
1200-014	Over current relay for process fan	TH N12 (2.5A)	Mitsubishi	01
1200-015	Over current relay for reac.fan	TH N12 (1.3A)	Mitsubishi	01
1200-016	over current relay for gear motor	TH N12 (0.5A)	Mitsubishi	01
1200-017	Auxiliary relay	KH-103-2C	Japan	02
1200-018	Thermostat control	MT-72	FOTEK	01
1200-019	Overheat protection	160oC = Cut-off	Viet nam	01
1200-020	Process fan	BSB225/CM	Krugger	01
1200-021	Reac. fan	BSB200/CM	Krugger	01
1200-022	Process filter (G3)	380(W) x 380(H) x 35(D)mm	VAF	01
1200-023	Reac. filter (G3)	480(W) x 180(H) x 35(D)mm	VAF	01
1200-024	Silicon ring	50mm x 1550mm		02
1200-025	Rotor dividing silicon	50mm x 225mm		04

Drymax are product of

NAAV SOLUTIONS INC.
3665 Kingsway
Vancouver, BC V5R 5W2
Canada

PERSONAL NOTE

APPENDIX

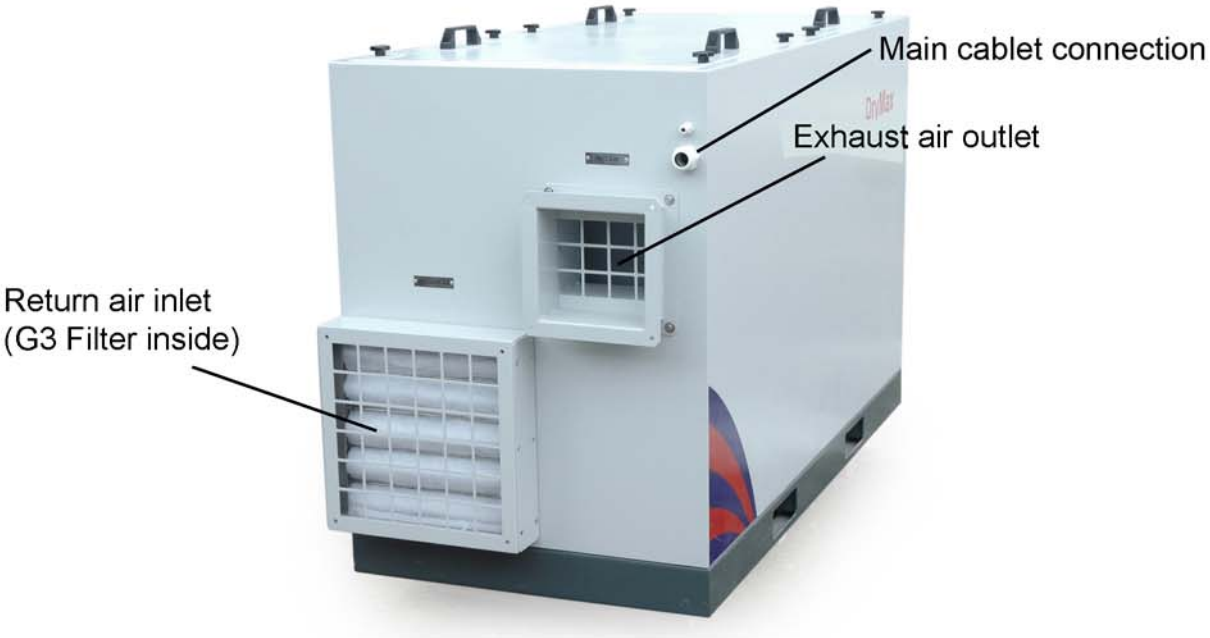
Components Identification

Installation Instruction

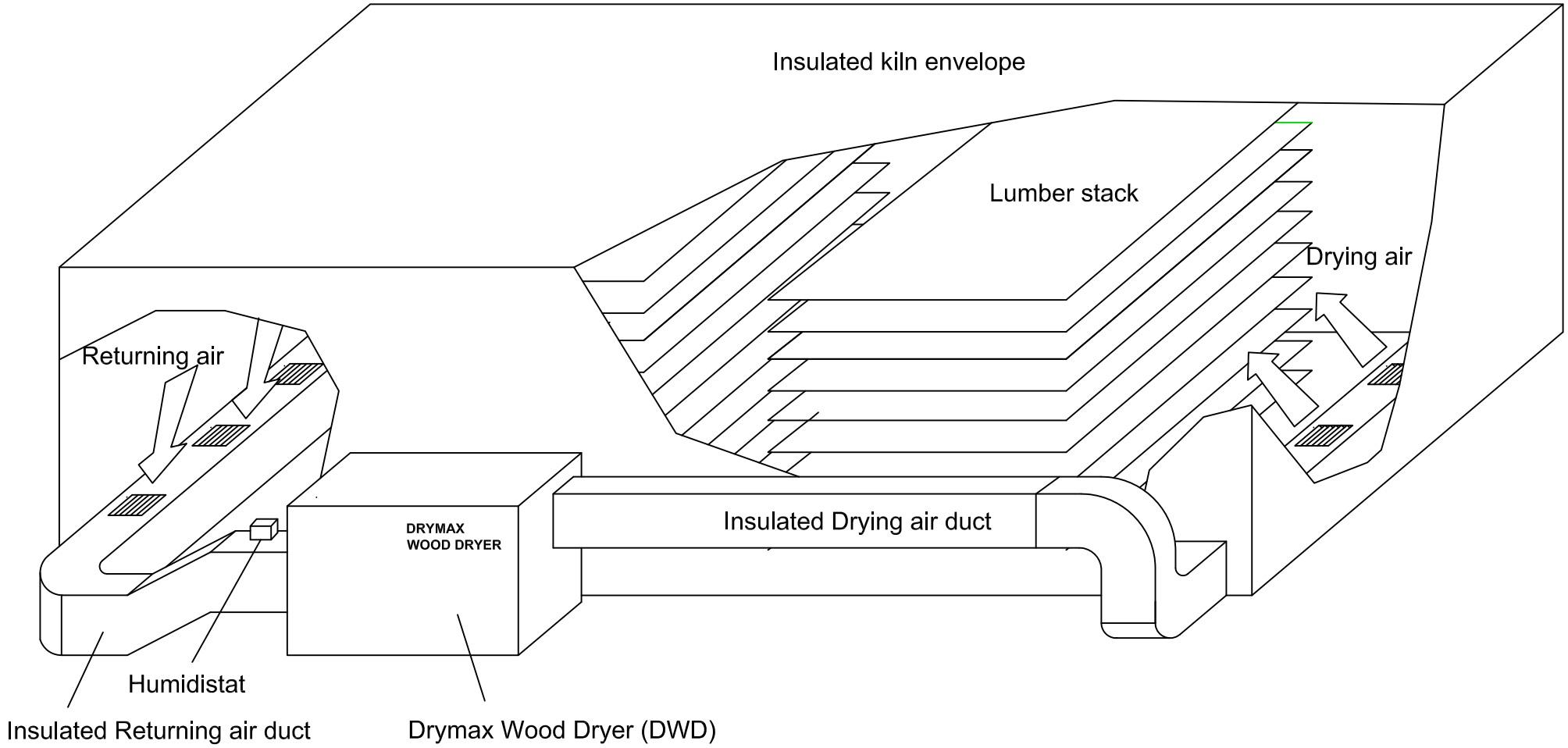
Dimension

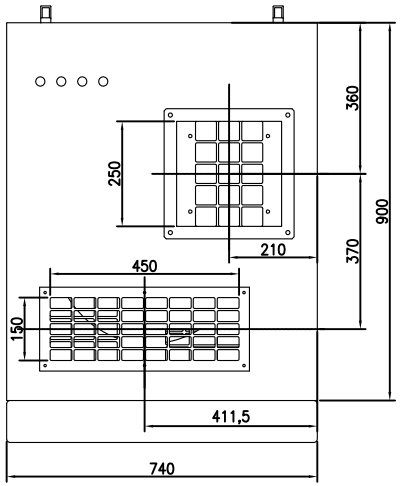
Electrical drawing

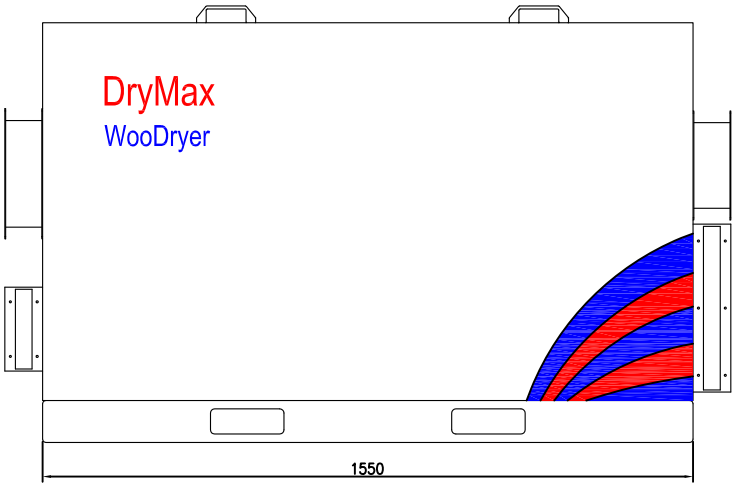
COMPONENT IDENTIFICATION

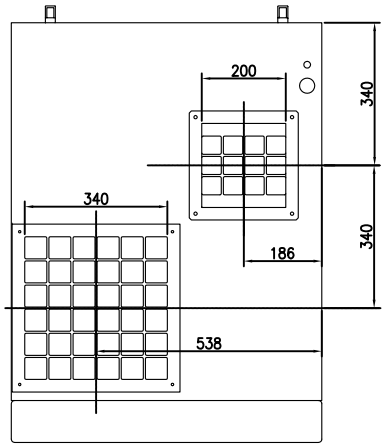


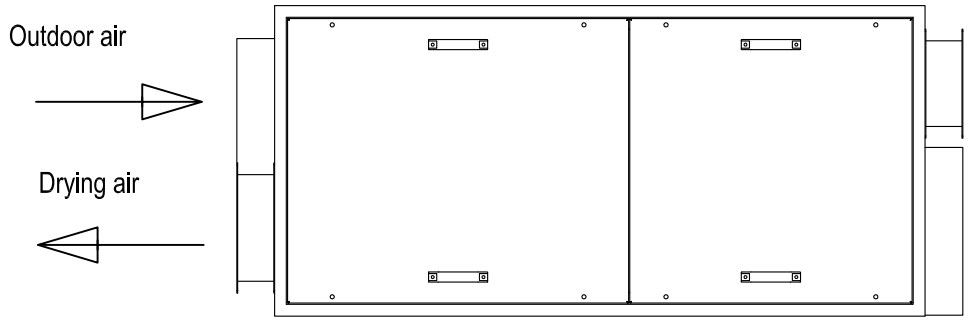
INSTALLATION OF DRYMAX WOOD DRYER



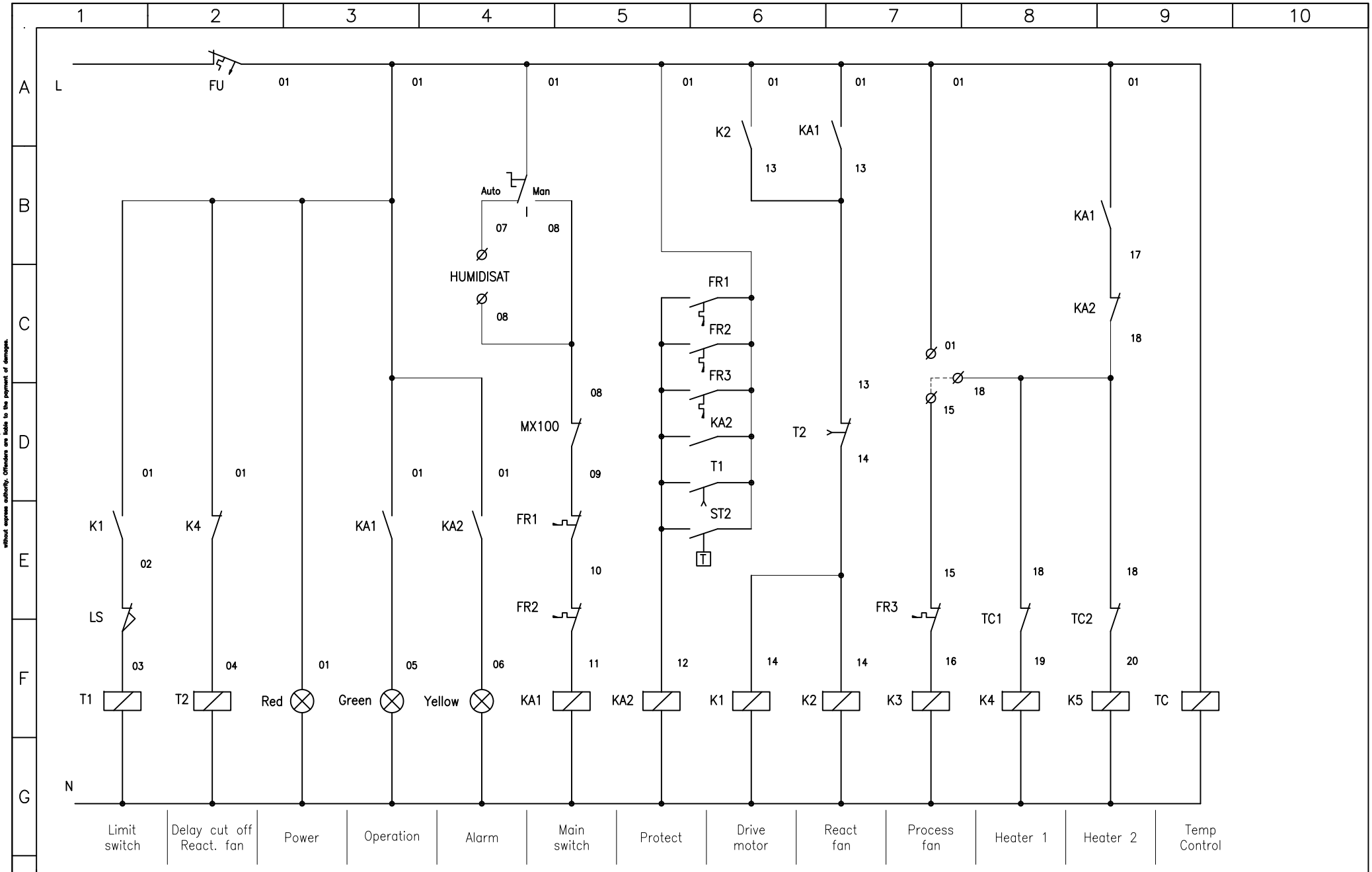








NAAV SOLUTIONS INC #300-3665 Kingsway Vancouver, BC V5R 5W2 CANADA	DESCRIPTION : DRYMAX WOODRYER DWD1200LMC REMARKS : proflute 450x200	DRAWN BY : Kevin McHale APPROVED BY : DATE : 09/27/12	GENERAL TOLERANCES : 0.5 – 50 : ±0.30 51 – 100 : ±0.50 100 – 500 : ±1.00 501 – 1000 : ±2.00 1001 – 2000 : ±3.00 2001 AND ABOVE : ±4.00	REV NO : 03 NEW DWG DIMENSION IN MM SCALE : N.T.S. PAGE : 1 OF 1 PRODUCT CODE : NAAV12002012–03



NAAV SOLUTIONS INC
#300-3665 Kingsway
Vancouver, BC V5R 5W2
CANADA

DESCRIPTION : DRYMAX WOODRYER DWD1200LMC

REMARKS : proflute 450x200

DRAWN BY : Kevin McHale

APPROVED BY :

DATE : 09/27/12

GENERAL TOLERANCES :

0.5 – 50	: ±0.30
51 – 100	: ±0.50
100 – 500	: ±1.00
501 – 1000	: ±2.00
1001 – 2000	: ±3.00
2001 AND ABOVE	: ±4.00

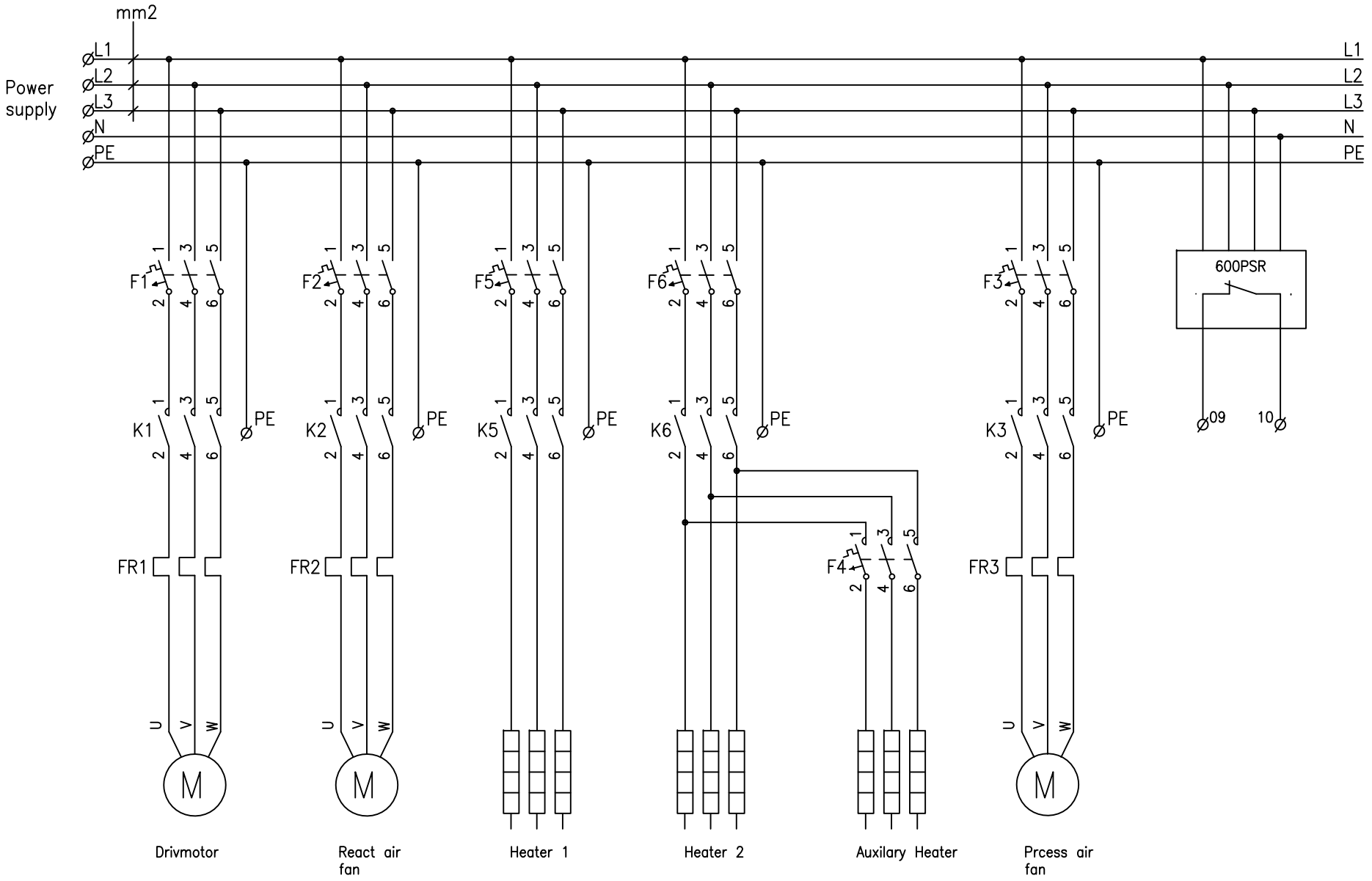
REV NO : 02 NEW DWG

DIMENSION IN MM

SCALE : N.T.S.

PAGE : 1 OF 1

PRODUCT CODE : NAAV12002012-01



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