



**DOMAILLE  
ENGINEERING**

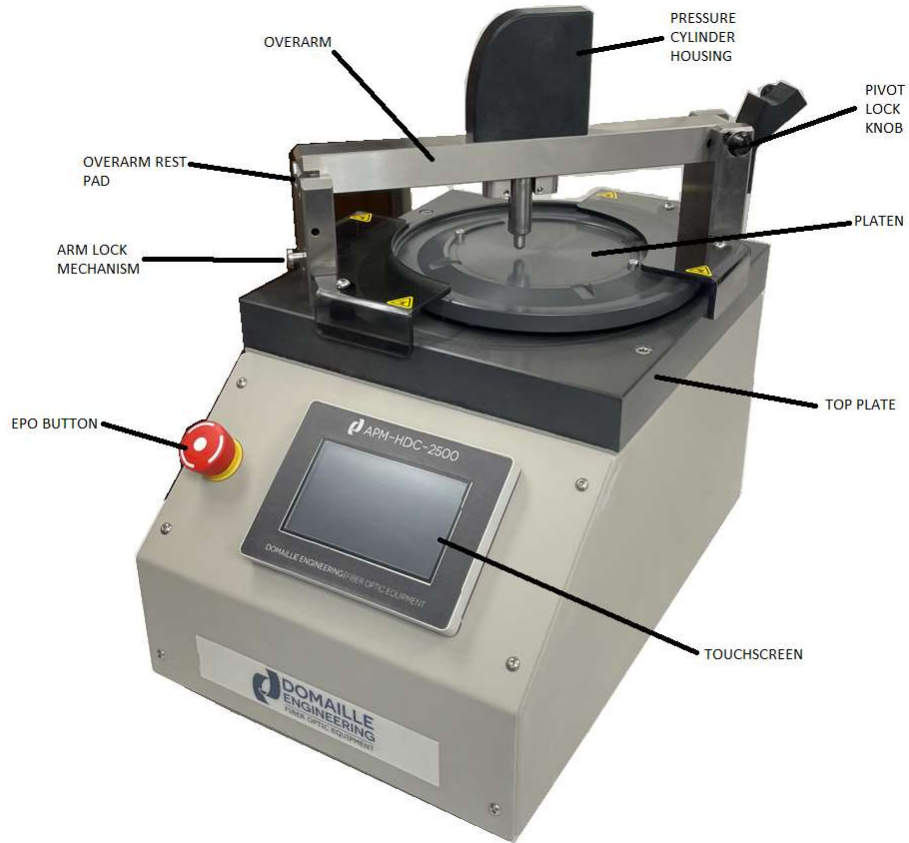
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FIBER OPTIC EQUIPMENT

**APM-HDC-2500 Series  
User's Guide**

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# Unpacking & Setup

**NOTE: Due to the weight of the APM HDC-2500, it is recommended that two people lift it from the shipping case.**

- Remove all loose components from machine area in shipping box foam insert.
- Remove top side foam insert.
- Remove the plastic bag from around the Overarm to provide access to the Overarm.
- Use the Overarm as a lifting handle.
- Lift the machine straight up while firmly holding the box down on the outside edges.
  - If the machine is lifted at an angle, it will cause binding in the box.
- Gently place the machine on a suitable work surface.
- Remove the rest of the plastic bag.
- Inspect the machine for any damage that may have occurred in shipping.
- Air Filter Setup:
  - Remove Air Filter from the shipping box.
  - Remove black cap from air supply fitting on back of machine.
  - Connect plastic airline provided securely to air supply fitting on back of machine.
  - Connect the other end of plastic airline to black capped end of Air Filter.
  - Using the proper air supply fittings, connect the Air Filter into your compressed air system.
    - The inlet of the Air Filter is ¼" pipe thread.
    - The compressed air requirements are: 80-100 pounds per square inch, clean, dry, oil-free air.
- Cable Management Setup:
  - Remove the Cable Management bracket located inside the compartment of shipping box.
  - Loosen the clamping screw on the back of the machine and attach the Cable Management device by sliding the post into the hole provided on the back of the machine.
  - Tighten the clamping screw to secure.
- Connect Drain Hose provided to the Drain Hose fitting on the back of the machine.
- Remove foam placed under the Overarm shaft by raising the Overarm to the vertical position and locking in place.
  - In order to raise and lower the Overarm, you must press the button on the arm locking mechanism.
  - Press the Overarm release button located at the front of the Overarm and lift up.

- Releasing the release button with the Overarm down will allow the Overarm to lock down in the fixed position.
- The black knob on the Overarm pivot block locks the Overarm in the up position.
  - Knob must be pulled out to lower arm or to raise to vertical position.

# Precautions

For safe, effective operation of the APM HDC-2500 Polishing Machine, please observe the following:

- Keep hands, jewelry, hair and loose clothing away from the rotating platen while the machine is in operation.
- Keep all surfaces of the machine clean at all times.
  - Confine water/slurry to platen area.
- **WARNING: Do not use an air hose on or around the platen.**
  - **This forces water and contaminants into the wear surfaces and mechanical drive unit potentially causing machine failure.**
    - **Damage caused by air hose use is not covered under warranty.**
- Contact Domaille Engineering, LLC if service is required.
  - Do not attempt to repair or conduct service inside the APM HDC-2500 electrical cabinet unless instructed by Domaille Engineering staff.
- **Due to the weight of the APM, it is recommended that two people move or lift the machine.**

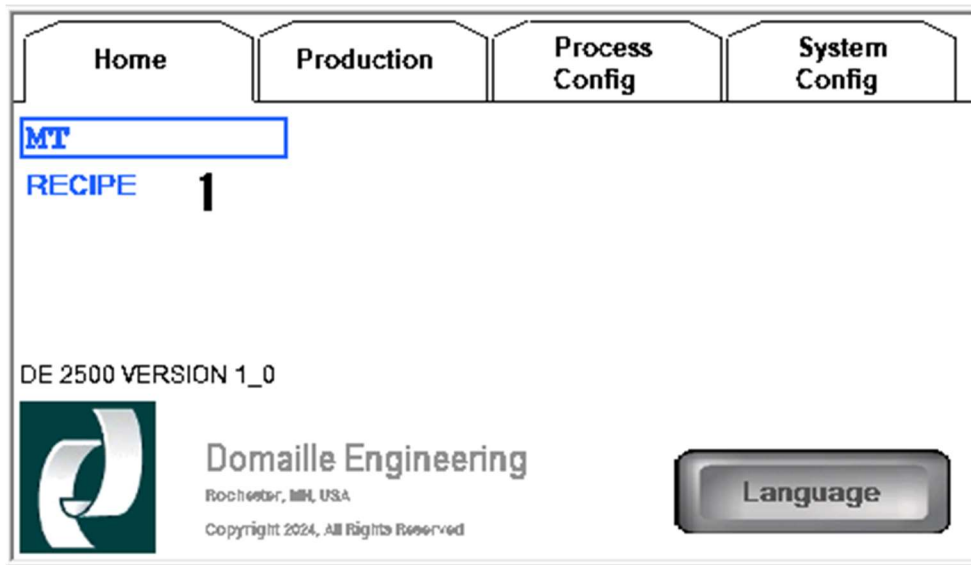
# General Safety

- The machine is not intended to be used in an ATEX environment.
- Equipment is not to be used with hazardous materials.
- The equipment is for indoor use only.
- Disposal and draining of cleaning fluids and waste products must be done in accordance with local regulations.
- If disposal of the equipment is needed, please return it to Domaille Engineering LLC under our normal SAF procedures.
- All users are recommended to wear safety glasses while operating the equipment.

# Machine Operation

- Plug the power cord into a properly grounded outlet—100-240VAC, 50/60 Hz.
- Switch the power switch located in the rear of the machine to the “ON” position.
- Turn the red Emergency Power Off (EPO) button, located on the front control panel, in the direction of the arrows (clockwise).
  - This will release the button and the machine will start.
- Raise the Overarm to the vertical position and lock in place with the Overarm Pivot Lock Knob.
- SYSTEM CONFIG tab will allow change in force units from LB to KG. It will also allow users to rotate the platen when the JOG MOTOR button is pressed.
- The PROCESS CONFIG tab will allow the user to setup polishing recipes.
  - Select the Recipe 1 – 9 and then press the TIME, PRESSURE, and SPEED boxes in each step to bring up a numeric keypad.
    - Type in the correct setting, then press ENT. Process will be stored upon exit.
      - Up to nine recipes can be named, created, and stored.
- To lock the user from changing polishing cycles, go to SYSTEM CONFIG tab and press password lock button.
- To start the machine, go to PRODUCTION tab, press and hold PLAY button for two seconds.
- To STOP a cycle, press and hold reset for two seconds.
- To adjust the pressure calibration, go to SYSTEM CONFIG tab and press the calibrate force button.
  - The machine uses a two point calibration setup so a user can set the force for the lower pressure calibration point of 1 pound and the upper pressure calibration point of 20 pounds.
    - Force in between one pound and 20 pounds will be calculated as linear value between the user selected values of 1 and 20 pounds.

## HOME TAB



Use the HOME Screen to select the polishing recipe 1 thru 9 and also to change languages.

To select a recipe, press the number next to the word RECIPE on the screen. This brings up a keypad to allow the user to select a recipe number.

To select a language, press the language button in the bottom right hand corner. The screen that pops up will allow the user to select the language they want to use. The current machine will support English and Mandarin.

## SYSTEM CONFIG TAB

Home	Production	Process Config	System Config
<b>MANUAL MOTOR OPERATION</b>			
2321	A0_MOTOR_SPEED_CNT		Password Lock
<input type="radio"/> M_A1m_RST	JOG MOTOR		Calibrate Force
<input type="radio"/> Brake			Switch to Kg
<input type="radio"/> Mtr_Start			Set Force Warn Limits
<b>MANUAL AIR PRESSURE</b>			
0	A1_AIR_PRESSURE_CNT	LBS	
<b>MAX QTY</b>			
24	Reg List		

Use the SYSTEM CONFIG screen for the following:

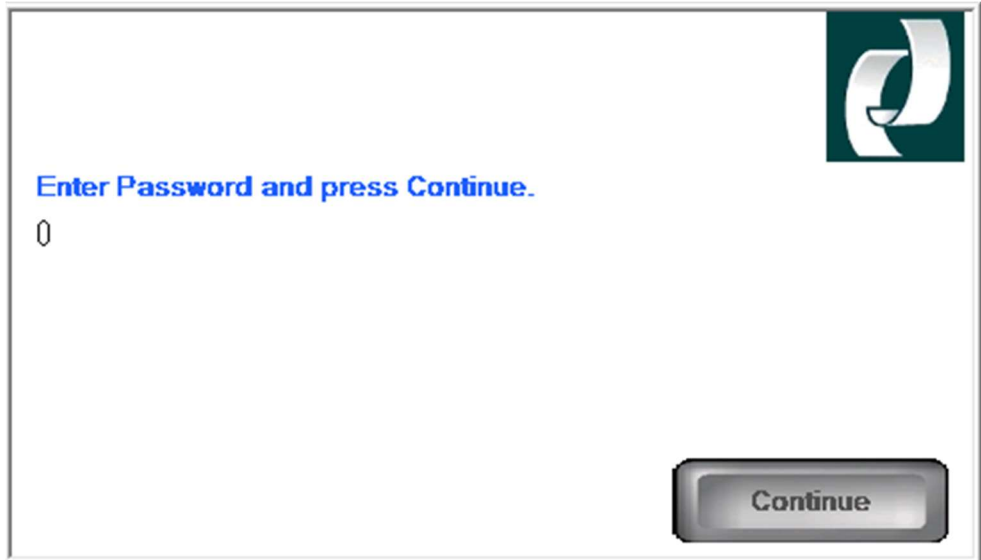
- Test the platen motor
- Password protect the process screen and the system settings
- Test and calibrate the pressure force of the polishing machine
- Switch to pounds or kilograms
- Enable force warning limits
- General machine debug

### Test Platen Motor:

To test the platen motor enter a value in the A0\_MOTOR\_SPEED\_CNT box between 0 and 16250 and then press JOG MOTOR BUTTON. This will start the platen motor. The higher the value entered the faster it will spin.

### Password Protection:

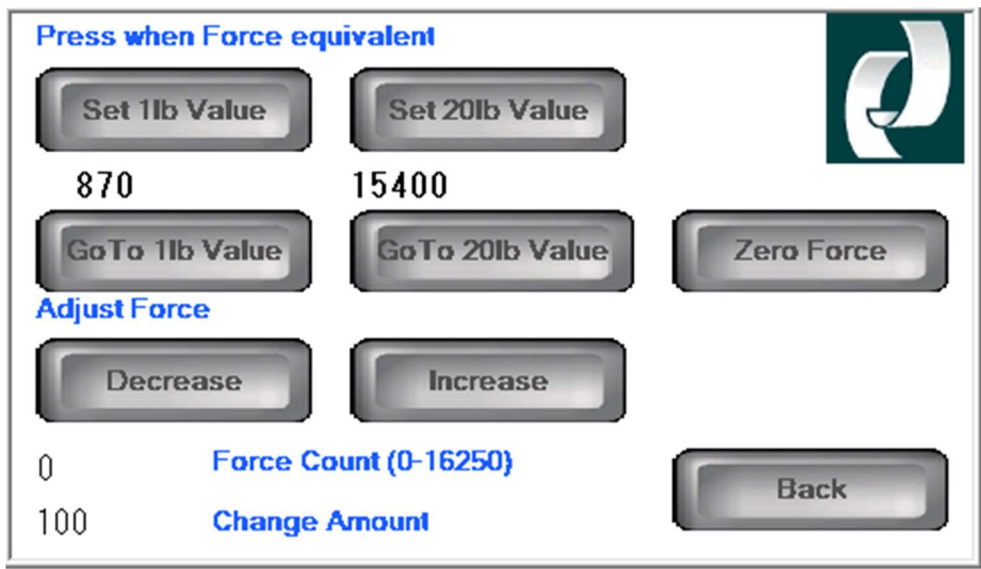
To enable password protection, press the PASSWORD LOCK button. Enter a password on the screen that pops-up.



Press continue once the password has been entered. Make sure to note this password somewhere safe as it will now be required to get back into the process config or system config screens.

**Calibration:**

To calibrate the force of the machine, press the CALIBRATE FORCE button. This brings up the force calibration screen.



To use this screen the user must have an external loadcell like the MK15300 Domaille EZCAL loadcell.

First connect the offline loadcell to a laptop computer and put it under the plunger of the polishing machine arm so pressure can be read.

Next, change the number in the field next to Force Count on the polisher until the pressure from the load cell says 1.00 pounds. This number can be quickly increased up and down using the Decrease and Increase buttons above the field. The value next to Change Amount is the amount that the Increase and Decrease will increment the number.

Once the user finds the value that is needed for one pound of force press the Set 1lb Value button to store the number in memory.

Next, repeat the process for the 20lb Value and press the Set 20lb Value button to store the value.

The last check to make is to go between 1lb, 20lbs, and zero force by using the three buttons in the middle of the screen labeled "Go To 1lb Value", "Go To 20lb Value", and "Zero Force" Verify the machine moves easily between the three values of force using these buttons.

Once this process is complete the machine is calibrated.



## Pounds to Kilograms

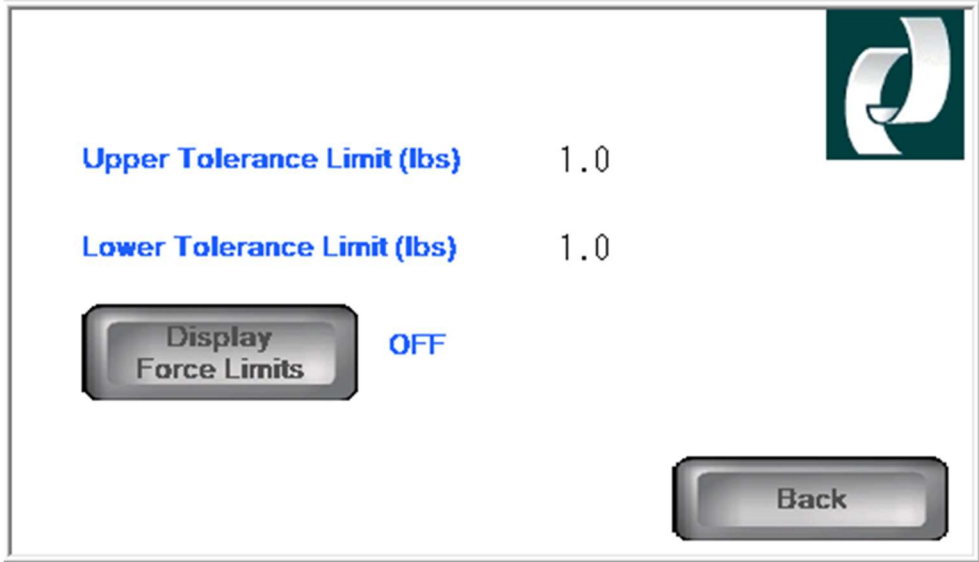
To switch between pounds and kilograms press the Switch to LBS/KGs



## Tolerance Settings

To set some warning limits based on theoretical air pressure convert to force press the Set Force warning limits button.

This allows the user to turn on force limit warnings and also set a value above or below setpoint for the warning to be displayed.



Set Force Warn Limits Screen

**Debug Screen:**

The Reg List button takes the user to a debug screen to check the IO system of the polisher.



Register List Screen

## PROCESS CONFIG TAB

To set up new recipes for the polishing machine press the process config tab.

This takes you to a screen showing parameters for TIME, SPEED, and PRESSURE for one of nine recipes that the polishing machine keeps in memory.

Home	Production	Process Config	System Config			
MT		QTY 24				
RECIPE	1	STEP #				
		1	2	3	4	5
TIME(SEC)	50	0	0	0	0	0
FORCE(LBS)	2.0	0.0	0.0	0.0	0.0	0.0
SPEED(RPM)	100	0	0	0	0	0

To select the recipe number, press the number to the right of the word RECIPE.

This brings up a numeric keypad to activate the desired recipe number.

Min: 1					!
Max: 9					
1	2	3	4	5	ENT
6	7	8	9	0	
.	Cancel	CLR	DEL	BS	

After selecting the desired recipe, the user can press any of the fifteen boxes in the recipe screen to adjust TIME, SPEED, or PRESSURE for the step selected.

Each parameter, when selected, will bring up a numeric keypad entry dialog box displaying limits on the parameters. Enter the desired value then press enter.

**Note:** The one exception is the platen speed will display 0-200 and realistically the slowest the platen should be set is 20RPM.

Zero RPM is OK to use for calibration. (set as recipe 9 as default)

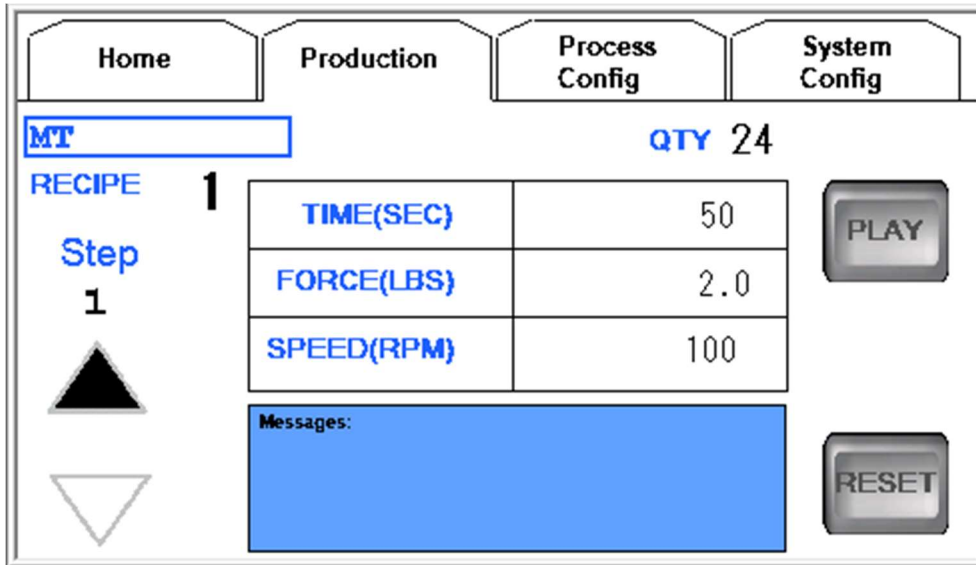
If the user does not want to use some of the steps leave the TIME value as zero and the machine will not try to run that step during production.

To add a name to the recipe press the box above the word recipe and an alpha-numeric keypad dialog box will appear allowing for a name to be entered.

## PRODUCTION TAB

To run the machine in production mode, press the production tab.

This will bring up the production screen which allows for the polishing machine to run the current recipe from step one thru the end step.



To start the step, press and **hold** PLAY for two seconds.

If the user wants to stop and reset the step then press and **hold** the RESET button for two seconds.

After the step completes the machine will increment to the next step.

To skip ahead or back on steps the user can use the up and down arrows under the step box.

Some status messages will appear in the messages box which will alert the user to the status of the machine.

## Polishing Fixture Installation

- **NOTE: This process should not be performed when a recipe is running!**
- To install a polishing fixture on the Overarm shaft, raise and lock the Overarm in the vertical position.
- Ensure Overarm shaft and fixture bore are clean and free of debris before proceeding.
- With the Fixture Retaining screw facing upward, place the fixture on the shaft and slide it up into the Anti-Rotational Keys.
- Tighten the Fixture Retaining screw. This screw allows the fixture to slide on the shaft without falling off.
- In order to raise and lower the Overarm, you must press the button on the arm locking mechanism. Press the Overarm release button located at the front of the Overarm and lift up. Releasing the release button with the Overarm down will allow the Overarm to lock down in the fixed position.
- The black Overarm Pivot Lock knob on the Overarm pivot block locks the Overarm in the up position. The Knob must be pulled out to lower the arm or to raise it to the vertical position.
- Drape cables extending from fixture over Cable Management bracket.

## Polishing Pad & Film

- Abrasive polishing films must be placed on rubber pads, glass or ceramic plates.
- To install a pad or plate, raise Overarm, place polishing pad or plate on the platen.
- Place the appropriate polishing film on the pad following manufacturer recommendations regarding adhesive backing.
- Lower arm to the horizontal position using the technique detailed under Fixture Installation.

## Operation

- Once the cycles are set, the polishing fixture has been installed, and pads and polishing film are in place, then the polishing sequence can begin.

# Machine Maintenance

Gentle handling of the polishing fixtures and machine is critical to maintain polishing accuracy.

If the platen or polishing fixture are damaged in any way, contact Domaille Engineering, LLC for repair.

## Daily or more often as required:

- **Disconnect from power source before servicing platen.**
- The polishing fixtures are made of stainless steel. These are rust resistant, not rust proof and as such, it is recommended that all traces of water and slurry be removed after each use.
- Clean the top of the Platen, Overarm rest pad and bottom/sides of Overarm.
  - **The accuracy of this machine is dependent on keeping these areas clean.**
- Clean all residue, water and slurry from the entire top of the machine and from the front control panel.
- Do not contaminate switches on the control panel.

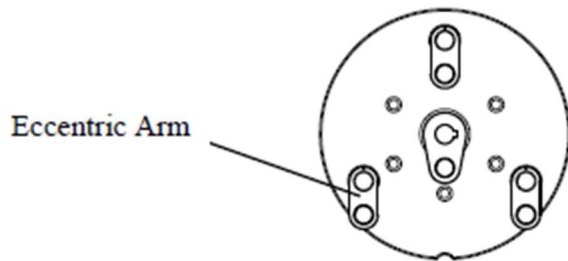
## Monthly:

### Platen:

- The Platen should be removed and greased at least once a month.
  - If the machine is heavily used, more frequent greasing is required.
- Do not use any tools (pry bars, screwdrivers, etc.) to remove platen as the platen and plastic wear ring under the platen may be damaged.
- After the Platen is removed, clean all of the old grease and contamination from the bottom of the Platen and from the plastic Wear Ring.
  - Clean with alcohol and a clean lint-free tissue or cloth so that surfaces are perfectly clean.
- Do not put grease on the Platen bearings. They are pre-lubricated and sealed, therefore lubrication is not required.
- Wipe any grit off the O-rings and apply a drop of light oil on each O-ring. This helps protect and lubricate the O-rings, making it easier to replace the Platen.
- Fill the screw holes in Wear Ring with grease. Put a small bead of grease on the Wear Ring, between holes.
  - Always use Domaille Engineering tested and provided Super Lube grease, Domaille part number PM12649.
- Reinstall the Platen by lining up the eccentric arms to all point in the same direction. Then, by moving to eye level with the Platen area of machine,

slowly lower the Platen down on top of pins in eccentric arms. Line up the pins with Platen bearings holes. When the pins are lined up, the Platen will slide on the pins about 1/2 way. At that point, then push straight down on the top of the Platen to seat it on the Wear Ring.

- Check that the Platen is level before operating.
- When fitted properly, no light will be visible between platen and wearing.



## Sealed Screws:

**Do not remove sealed screws. There are no user serviceable parts inside the case. Evidence of tampering will void any product warranty.**

## Lubricants and Oils:

- For general use lubrication between metal surface on the Overarm, use Domaille Engineering approved Tri-Flow Super Lubricant. Domaille part number TRIFLOW 2OZ.
- For lubrication on the Platen Wear Ring, use Domaille Engineering tested Super Lube grease. Domaille part number PM12649.
- For general cleaning anywhere on the machine, use Isopropyl Alcohol.

**NOTE:** All users must review individual SDS sheets for all chemicals used in conjunction with this equipment.

# Product Specifications

Machine Height: 16"

Machine Width: 11"

Overall Width (including drip tray): 14"

Machine Depth: 18"

Machine Weight: 50 lbs.

Shipping Weight: 75 lbs.

Power Requirements: 2 amps; 100VAC-240VAC; 50/60 Hz.

Air Requirements: 80-100 psi clean, dry air

Platen Speed Range: 0, 20-200 rpm

Pressure Range: 0-20 lbs force

The APM HDC-2500 operates between air temperatures of 41° F and 104° F (5°C and 40°C) and at a maximum altitude of 6000 feet (1828M) above sea level.

Noise emitted by the APM HDC-2500 is less than 70.0dBA.

If power converters are needed, contact Domaille Engineering, LLC.

# Safety Information Labels

Hand and finger crush warning



Protective Earth Grounding point



Ground Connection point



Lock out Electrical power label



Read operator manual before use



# Service & Support

Domaille Engineering, LLC is a micro-precision manufacturer distinguished by the accuracy of our products and services. One of our critical goals is to provide excellent customer service.

Please contact us for service, support or input on how we can improve our service to you.

***Domaille Engineering, LLC***

***7100 Dresser Drive NE***

***Rochester, MN 55906***

***(507) 281-0275***

***[www.DomailleEngineering.com](http://www.DomailleEngineering.com)***

# Electrical Description & Maintenance

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	PM32011	2500_CHASSIS W/ FEET	1
2	PM32087	FRONT PANEL	1
3	PM30026	BACK PLATE	1
4	PM22372	AC INLET CIRCUIT BREAKER	1
5	PM22333	Proportional Pressure Control Valve	1
6	PM25109	PCB CARD STACK ASSEMBLY	1
7	PA12082	24VDC, Samp Power Supply	1
8	PM32095	EPO Cable w/ Females	1
9	PM12645	DRIVER, ORIENTAL MOTOR	1
10	PM22049	ROHS Din Rail	1
11	PM32090 Rev A	4 IN WIDE HMI, GP PRO	1
12	PM22800	SCREEN DECAL 5.4"x3.9"	1
13	PM22334	Pneumatic Muffler, Ø4mm Tube	1
14	PM32083	TRAY, ELECTRICAL CABINET, APM-HDC-2500	1
15	PM12557	BULKHEAD FITTING, 1/8" NPT	1
16	PM12539	BULKHEAD FITTING, 10-32 UNF	1
17	PM22801	Decal, 2500 DEFOE	1
18	BHC5-S-8-32X1/4	#8-32 UNC X 1/4 BHC5, SS	6
19	THM5-S-4-40X7/8	#4-40 X 7/8" SS TRUSS Head Phillips Screw	2
20	WASHER#4	#4 Washer	2
21	PM22338	#8-32 SS Narrow Nut	2
22	BHC5-S-4-40X3/8	#4-40 X 3/8 SS BHC5	2
23	WASH-8-32EXSTAR	WASHER 8-32 EXTERNAL STAR	4
24	WASHER-S-10-32	#10 SS WASHER	2
25	NUT-S-4-40	4-40 HEX NUT	2
26	SHCS-S-4-40X5/8	#4-40 X 5/8" SS SHCS	4
27	PM22057	Fitting, Air Line PC1/4"-NIU	1
28	PM12584	Fitting, Air Line	1
29	PM22264	AIR FITTING ELBOW, #10-32 X 5/32 TUBE	1
30	PM22326	Coupler, 1/8" NPT X 5/32 Tube	1
31	PZ12111	CABLE TIE MOUNT, BLACK	1
32	PM12654	1/2"W x 1/8"THK Foam-Gray 3.5R	1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	Production Release	11/7/2024	JMG

<p>UNLESS OTHERWISE NOTED:</p> <p>CONVENTIONAL AND GEOMETRIC TOLERANCING TO BE INTERPRETED PER OPER3006</p> <p>DOMALLE BY-OR-SEEING WORKMANSHIP STANDARD.</p> <p>MATERIAL:</p> <p>FINISH:</p> <p>DIMENSIONS ARE IN INCHES</p>	<p>NAME:</p> <p>DATE:</p> <p>DRAWN BY:</p> <p>DATE:</p> <p>PROPRIETARY AND CONFIDENTIAL</p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF DOMALLE ENGINEERING, LLC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF DOMALLE ENGINEERING, LLC IS PROHIBITED.</p>	<p style="text-align: center;"><b>ADDMAN</b> PRECISION</p> <p>DESCRIPTION:</p> <p style="text-align: center;"><b>APM-2500</b> Electrical Cabinet</p> <p>SIZE: DWG. NO. APM-2500 ELEC CAB-M01    REV. A</p> <p>PART NO. APM-2500 ELEC CAB</p> <p>SCALE: 1:16    WEIGHT:    SHEET 1 OF 1</p>
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# Limited Warranty

Domaille Engineering, LLC ("Domaille") products are warranted by Domaille to be free from defects in workmanship and materials for a period of one-year from the original purchase date. This warranty covers defects in materials or workmanship only and does not include damage due to abuse, misuse, problems with electrical power, problems with compressed air supply, servicing not authorized by Domaille, failure to properly care for and maintain the products, or normal wear and tear. In addition, use of parts, components, or accessories not supplied or approved by Domaille will void this warranty. Domaille's sole liability arising from any use of its products and this warranty is limited to repair or, at Domaille's sole discretion, replacement of defective products or defective component parts thereof. To request warranty service, you must contact Domaille Engineering at 7100 Dresser Dr. N.E., Rochester, MN 55906, USA. If warranty service is required, Domaille will issue a Return Material Authorization Number (RMA#). You must ship the products back to Domaille in their original or equivalent packaging, pre-pay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. Along with your RMA # include your name, telephone number, return address, proof of original purchase date, and a description of the claimed defect. If shipping the APM HDC-5000 for warranty repair, back up process data to the memory card, referring to User's Guide for process transfer instructions. Remove and retain memory card, as Domaille will not accept liability for lost data. If the defect is covered by this limited warranty, Domaille will repair or replace (at its option) the product or the defective component part(s) and ship them freight prepaid to an address in the continental U.S. Shipments to locations outside of the U.S. that are not the original shipped to location will be made freight collect or will be shipped to the original shipped to location, at the discretion of Domaille.

NO WARRANTY OTHER THAN THE ABOVE LIMITED WARRANTY IS MADE, EITHER EXPRESS OR IMPLIED. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ONE YEAR LIMITED WARRANTY PERIOD. DOMAILLE SHALL HAVE NO LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RELATING TO ITS PRODUCTS. SOME STATES (OR JURISDICTIONS) DO NOT ALLOW LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES, OR EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CERTAIN PURCHASERS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION).