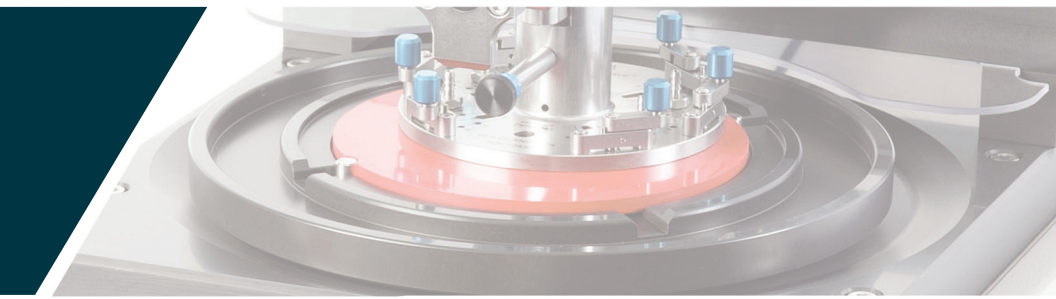
DOMAILLE ENGINEERING

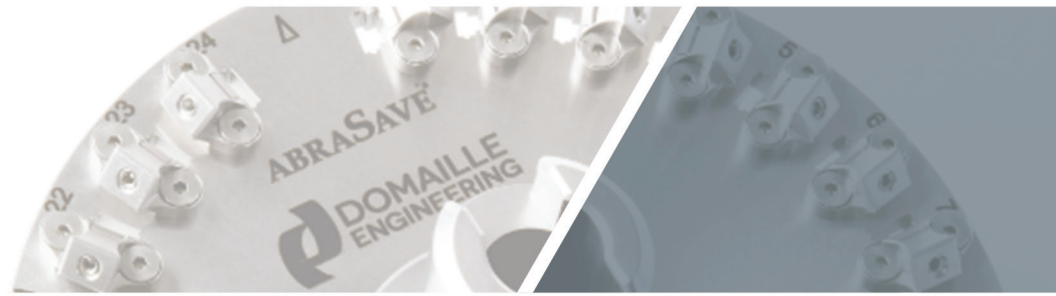
TECHNOLOGY FOR TOMORROW

APM-HDC-5300 Series

Fiber Optic Polishing Machine

User's Guide





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Printing History

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Welcome

Congratulations on selecting the APM-HDC-5300, the premier fiber optic connector polishing machine.

This User's Guide will assist you in the setup, operation, and maintenance of the APM-HDC-5300 machine to maximize the use and life of this equipment.

Overview

The APM-HDC-5300 is designed to address the need to efficiently polish a large volume of connectors while maintaining a consistent high level of quality.

The APM-HDC-5300 allows you to program processes through an easy-to-use touch-screen panel. The panel displays programmed settings for speed, time, pressure, polishing film used, lubricant type and pad durometer. Additional setting options include: language selection, ramp-up speed, ramp-up pressure, maintenance intervals and polishing film counters. Operators need minimal training to follow the touch-screen prompts of your programmed processes.

The number of processes that can be defined and stored within the APM-HDC-5300 machine is only limited by the amount of internal memory. Therefore hundreds of processes can be stored on a single machine. Additionally, the APM-HDC-5300 provides you with total flexibility in the number of steps you define within each of your polishing processes.

The APM-HDC-5300 provides the capability to store your processes in machine memory as well as on a USB storage device. A USB storage device can be used to back up your defined processes and to copy processes from one machine to another. This not only saves process setup time for each machine, but also ensures consistent process settings.

Getting Started

Unpacking & Setup

NOTE: Due to the weight of the APM-HDC-5300, it is recommended that two people lift it from the shipping case.

1. Remove all loose components from machine area in shipping case.

2. Remove the plastic bag from around the Overarm to provide access to the Overarm.

3. Use the Overarm as a lifting handle by grabbing as close to the Overarm pivot point as possible.

    a. Lift the machine straight up while firmly holding the case down on the outside edges. If the machine is lifted at an angle, it will cause binding in the case.
    b. Gently place the machine on a suitable, stable work surface.

4. Remove remaining plastic wrapping from machine and touch screen panel.

5. Inspect the machine for any damage that may have occurred in shipping.

6. Remove the **BLUE** Koby Air Filter from the shipping case. Remove plastic cap from air supply fitting on the back of the machine. Connect plastic airline provided by pushing line firmly into fitting. Connect other end of airline to **BLACK** capped end of Koby Air Filter.

7. Using the proper air supply fittings, connect the **RED** capped end of Koby Air Filter into your compressed air system. The inlet of the Koby Air Filter is ¼" NPT pipe thread. The compressed air requirements are: 90-120 pounds per square inch (6.2- 8.3 bar), clean, dry, oil-free air.

8. Connect Drain Hose provided to Drain Hose Fitting on back of machine. Route Drain Hose to a collection container below the bench.

9. In order to raise and lower the Overarm, you must release the Overarm locking mechanism. Press the Overarm Quick-Release button located at the front of the Overarm and lift up.

   Releasing the Quick-Release button will allow the Overarm to lock in one of the three (3) fixed positions.

10. Remove Drip Tray, Drip Tray Bracket and Splash Guard. The Drip Tray can be attached on either the right or left side of the machine. This diagram illustrates how the Drip Tray Bracket slides onto the back right corner of the machine (when facing machine). Place the bracket snug against the back corner and firmly tighten the bracket screw. Slide the Drip Tray rod into the bracket hole. Attach Splash Guard at desired position for the fixture with the Overarm in the up position.

Precautions

For safe, effective operation of the APM-HDC-5300 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 and slurry to Platen area.

- Do not use an air hose on or around the Platen. Damage caused by air hose use is not covered under warranty.

- Do not attempt to repair or service any components inside the APM-HDC-5300 machine. Contact Domaille Engineering, LLC if service is required.

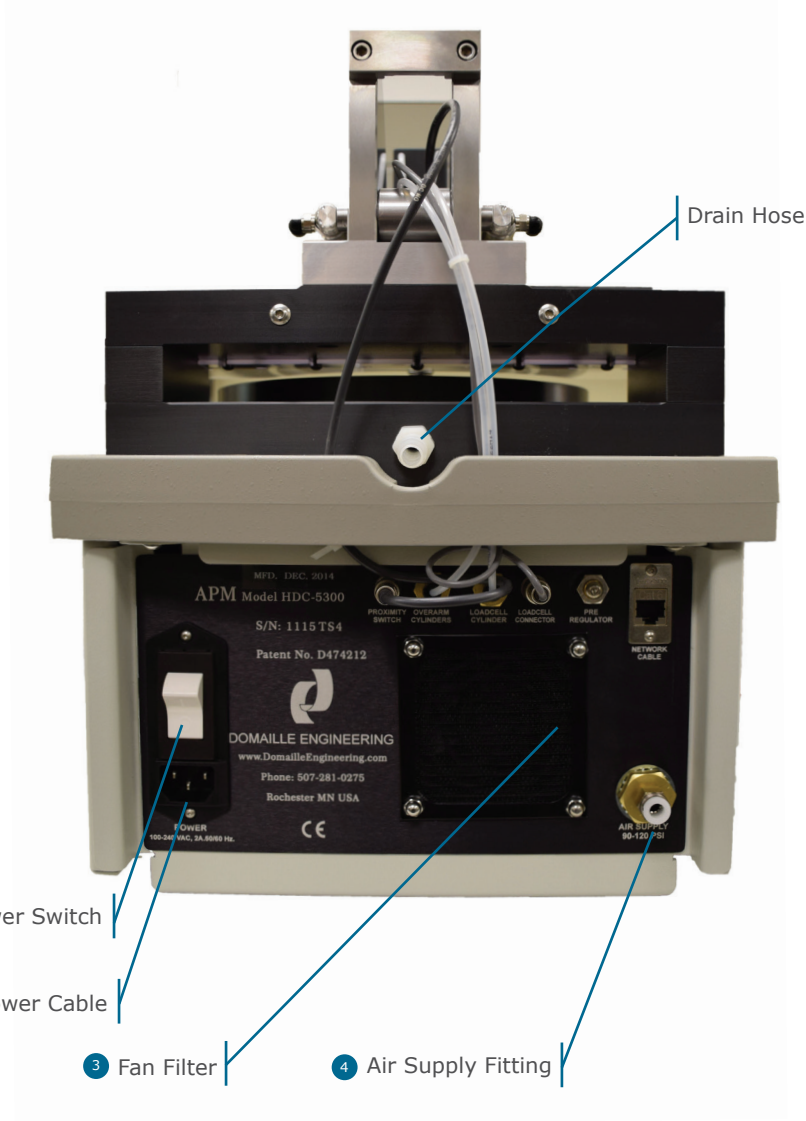
- Use only the stylus provided or fingers when touching screen panel. Do not use hard objects.

- **Warning:** Do not use an air hoses 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.**

Parts and Functions

1	Overarm Sensor	allows cycle start when arm is in the correct position
2	Pivoting Overarm	provides easy cleaning of fixtures between steps and quick change of fixtures
3	Standard 5” Platen with 8” Option	provides flexibility in fixture capacity and polishing film size
4	Password Protection	of system configuration, process configuration and process transfer modules
5	USB Slot	used for machine-to-machine process replication and process back up
6	Operator Step-by-Step Prompts	for film, pad type and lubricant
7	7” PC-Based, Full-Color Capacitive Touchscreen	programmable interface for defining and storing unlimited processes and for easy-to-use, error-free operation
8	Force, Speed and Time Displays	for feedback of process step-specific settings
9	Automatic Pressure Adjustment	accounts for a varying number of connectors inserted in the polishing fixture
10	Pneumatically Controlled Polishing Pressure	provides consistent polishing force

Parts and Functions



1	Power Switch	machine on or off
2	Power Cable	main source of power to machine
3	Fan Filter	collects large particulates such as dust from production. Please see "Machine Maintenance" for monthly cleaning requirement
4	Air Supply Fitting	provides connection between polishing machine and facility air supply
5	Drain Hose Fitting	provides path for excess liquid

Machine Setup

Initial Setup

Before operating the APM-HDC-5300, you must configure the system and define your processes.

Plug the power cord into the back of the machine and into a properly grounded outlet- 100-240 VAC, 50/60Hz. If your power cord is equipped with a large yellow plug, you MUST push the reset button on the plug to supply power to the machine.

1. Turn on power switch located at the back of the machine.
2. Lift screen cover (Note: screen cover should be down when machine is operating)
3. The touch screen will default to the "Home" tab screen. If the **RED** emergency screen is displayed, reset by turning "Emergency Stop" button CLOCKWISE.
4. Select desired language.
5. Press machine "Start" button.

Fig. 1

System Configuration

System Configuration allows you to set the following:

1. Load Cell Calibration
2. Process Variable Settings
3. User Rights and Settings
4. Maintenance Schedule
5. Motor Speed Calibration

Two (2) interface methods are available for entering system configuration data, (1) the touch screen keypad, or (2) a Windows Microsoft Compatible USB keyboard. If using a keyboard, plug the USB connection into the port on the left side of the machine **AFTER** the machine and program have powered up.

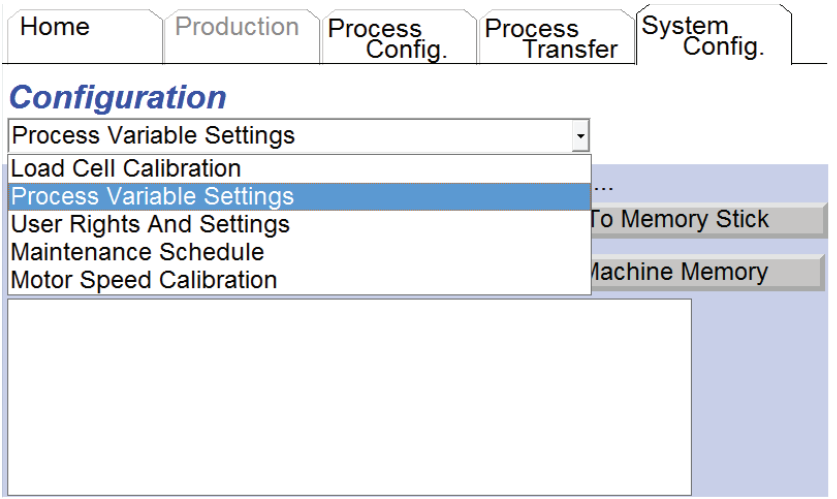


Fig. 2

Load Cell Calibration

The APM-HDC-5300 load cell has been calibrated at Domaille Engineering prior to shipment. Recalibration is not typically necessary. However, recalibration of the machine to your own master load cell can be done using the following steps:

1. Remove the polishing fixture from the Overarm and the rubber pad from the top of the Platen.

2. Clean top of Platen to remove any water, grit or dirt to ensure that the master load cell will be set on a clean, dry surface.

3. Place the master load cell on the Platen and center it under the Overarm plunger.

4. On the touch screen, select the "System Config." tab, then select "Load Cell Calibration" in the "Configuration" box, using the **DOWN** arrow as necessary.

5. Raise the Overarm just enough for plunger to clear the master load cell, press the "Tare" button on the touch screen, checking to see if master load cell meter is at 0.

6. Lower Overarm onto master load cell, release lock button and press "Apply Pressure" button on the touch screen to apply a test pressure of 16.00 pounds. Press the "Increase" or "Decrease" button on the touch screen until the master load cell meter reads 16.00 pounds or matches the pressure readout on the touch screen.

7. Recalibration is complete. Press the "Span" button on the touch screen to the **SAVE** the calibration.

If you wish to cancel the calibration at any time during the setup, press the "Cancel" button on the touch screen.

A "Default Calibration" button appears if the factory calibration has been changed. Pressing this button will reload factory calibration.

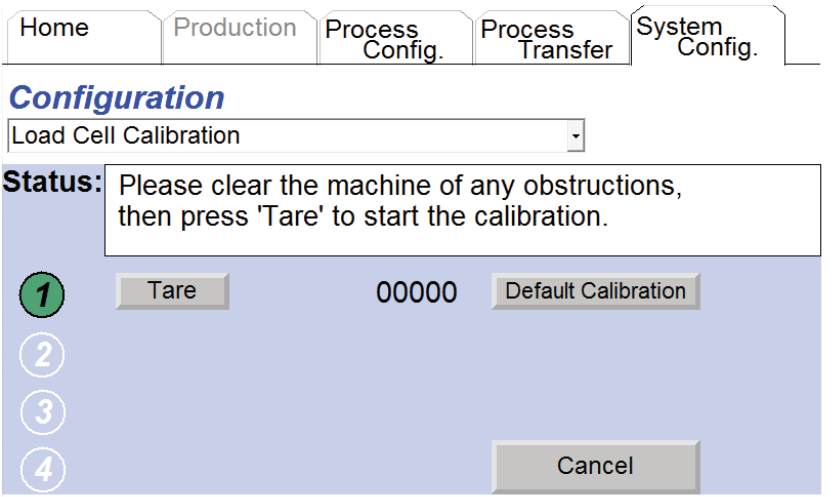


Fig. 3

Process Variables: Setting & Copying/Backup Procedures

The APM-HDC-5300 allows you to define valid variables that can be used in the definition of your polishing processes. These variables include (1) a list of polishing films, (2) a list of types of polishing pads, and (3) a list of lubricants that can be defined for polishing processes.

A maximum quantity of connectors (Max. Quantity) setting is displayed, but not modifiable at this time.

To **MODIFY** process variables, first select the "System Config." tab, then select "Process Variable Settings" in the "Configuration" box, using the **DOWN** arrow as necessary.

Maximum Quantity Setting:

This variable has been preset to 72 and is not modifiable at this time.

Film Settings:

1. Select "Film" in the "Selecting Setting" box, using the **DOWN** arrow as necessary.
2. Touch the "New" button to access the keypad.
3. Type in a film name for your polishing processes. The film name can be up to 16 characters in length.
4. Select "OK".
5. Repeat the above for all films used in all polishing processes.

To **DELETE** a film name, highlight the name, then touch the "Delete" button.

Pad Settings:

1. Select "Pad" in the "Select Setting" box, using the **DOWN** arrow as necessary.
2. Touch the "New" button to access the keypad.
3. Type in a pad name for use in your polishing processes. The pad name can be up to 16 characters in length.
4. Select "OK".
5. Repeat the above for all pad types used in all polishing processes.

To **DELETE** a pad name, highlight the name, then touch the "Delete" button.

Lubricant Settings:

1. Select "Lubricant", using the down arrow in the "Select Setting" box as necessary.
2. Touch the "New" button to access the keypad.
3. Type in a lubricant name for use in your polishing processes. The lubricant name can be up to 16 characters in length.
4. Select "OK."
5. Repeat the above for all lubricant types used in all polishing processes.

To **DELETE** a lubricant name, highlight the name, then touch the "Delete" button.

Copy/Backup Procedure

Once your variable settings have been established, they can be copied to a USB memory stick. This allows "Process Variable Data" to be transferred to other APM-HDC-5300 machines as well as providing backup and retrieval capability.

A USB memory stick has been included with the shipment of your APM-HDC-5300.

To **SAVE** process variable data to a USB:

1. Insert USB storage device into USB slot on the lower left side of the machine.
2. Select "System Config." tab, then select "Process Variable Settings".
3. Copy settings by selecting "Machine Memory to Memory Stick". You will be prompted, if "Process Variable Data" already exists on the USB memory stick.

NOTE: If the USB memory stick already contains variable data, copying the "Machine Memory to Memory Stick" will overwrite the variable settings on the stick.

To add "Process Variable Data" to an already existing file on a USB storage device, use the following procedure:

1. **BEFORE** defining "Process Variable Data" in the machine memory, copy "Memory Stick to Machine Memory" so that all of your USB storage settings are contained in the machine memory.

2. Add additional “Process Variable Settings” as required.
3. Copy from “Machine Memory to Memory Stick”.

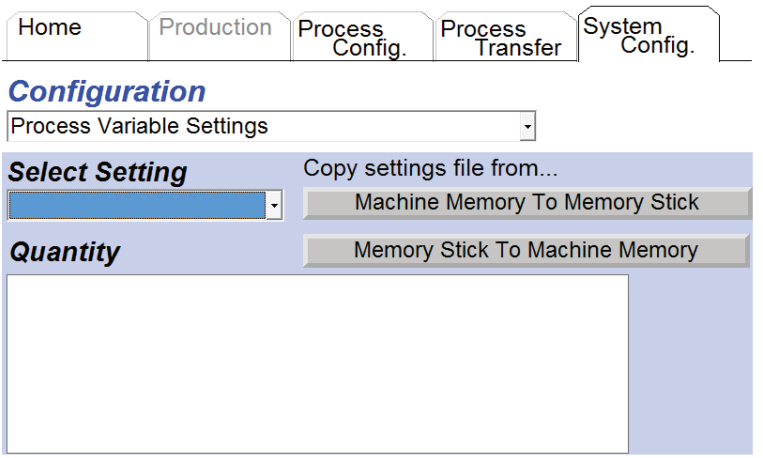


Fig. 4

User Rights & Settings

The “User Rights & Settings” screen allows you to define six (6) machine specific parameters, including:

(1) a password
(2) enablement of connector quantity adjustment by the operator
(3) enablement of process step selection by the operator
(4) enable film count
(5) display of pressure in pounds or kilograms
(6) zero speed

To **MODIFY** “User Rights & Settings”, touch the “System Config.” tab, then select “User Rights & Settings” in the “Configuration” box, using the **DOWN** arrow as necessary.

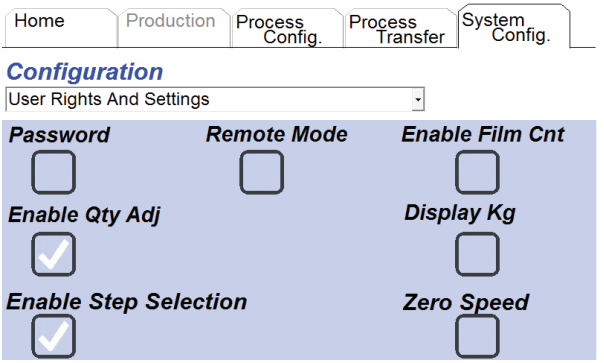


Fig. 5

Password Setting

A one (1) to four (4) digit password can be used to password protect the "Process Configuration", "Process Transfer" and "System Configuration" tabs. One password can be activated per machine.

When the "Password" box is blank, no password protection is in effect. To activate "Password Protection" and reset the password:

1. Touch "Password" box until large checkmark appears. Current password will be in the box to the right.

2. Touch the box with current password in it to access the keypad.

3. Type in a one(1) to four(4) character password.

4. Select "OK".

To **DISABLE** "Password Protection" touch "Password" box to un-checkmark box.

Enable Quantity Adjustment

Checking the "Enable Quantity Adjustment" box allows the machine operator to change the QTY value on the "Production" tab screen. When this value changes, the APM-HDC-5300 adjusts the pressure in proportion to the original process pressure value to account for the change in the number of connectors being polished.

For example, if the original process pressure is set at 1.00lb with the default number of connectors for that process set at 12, and the operator only loads 8 connectors into the polishing fixture and sets the QTY value on the "Production" tab screen to 8, the pressure will automatically be adjusted to 0.67lbs.

This pressure adjustment due to the change in the QTY value is maintained for one complete run of the process and then returns back to the original process definition setting. The change in QTY and Pressure is noted by the **YELLOW** highlight of these values on the "Production" tab screen.

Touch the "Enable Quantity Adjustment" box to enable and disable this function.

Enable Step Selection

Checking the "Enable Step Selection" box allows the machine operator to start polishing at a step other than the first step in the process or to run process steps out of sequence. If the "Enable Step Selection" box is unchecked, the program requires that all process steps be run sequentially.

Touch the "Enable Step Selection" box to enable and disable this function.

Pounds or Kilograms

Pressure can be displayed in either pounds (lb) or Kilograms (kg). Touch the "Display Kilograms" box to toggle between these units. A **CHECKED** box will display pressure in kilograms and an **UNCHECKED** box will display pressure in pounds.

Maintenance Schedule

The "Maintenance" screen allows you to define specific maintenance parameters including Platen Grease, Fan Filter, Lubricate Lock Pins, Replace Koby Filer, Replace Rubber Pad and Annual Maintenance. This section is also used to reset values after set parameters are reached.

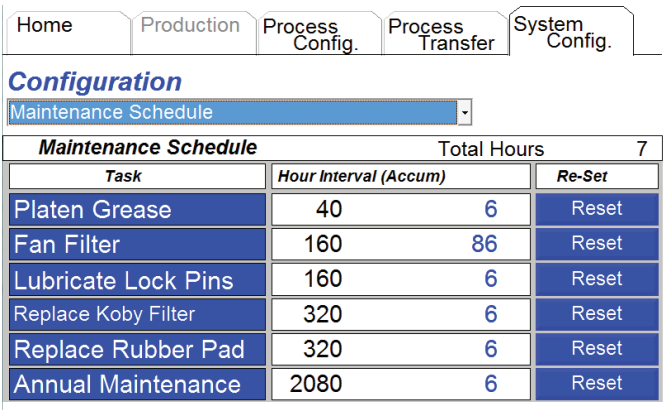


Fig. 6

Setting Platen Grease Maintenance Schedule

The Platen Grease maintenance is tied to the amount of hours the Platen is rotating. To set the Platen Grease Maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before changing Platen Grease. The recommended interval is 40 hours. This can be modified as needed.

Setting Fan Filter Maintenance Schedule

The Fan Filter maintenance is tied to the amount of hours the machine is powered on. To set the Fan Filter maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before cleaning the Fan Filter. The recommended interval is 160 hours. This can be modified as needed based on actual working conditions.

Setting Lubricate Lock Pins Maintenance Schedule

The Lubricate Lock Pins maintenance is tied to the amount of hours the Platen is rotating. To set the Lubricate Lock Pins maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before lubricating the Lock Pins. The recommended interval is 160 hours. This can be modified as needed based on actual working conditions.

Setting Replace Koby Filter Maintenance Schedule

The Replace Koby Filter maintenance is tied to the amount of hours the Platen is rotating. To set the replace Koby Filter maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before replacing the Koby Filter. The recommended interval is 2080 hours. This can be modified as needed based on actual working conditions.

Setting Replace Rubber Pad Maintenance Schedule

Replacing the Rubber Pad maintenance is tied to the amount of hours the Platen is rotating. To set the replace Rubber Pad maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before replacing the Rubber Pad. The recommended interval is 320 hours. This can be modified as needed based on actual working conditions.

Setting Annual Maintenance schedule

The Annual Maintenance is tied to the amount of hours the platen is rotating. To set the Annual Maintenance interval:

1. Use stylus to press the number located under "Hour Interval" tab. This will access the key pad for data entry.

2. Use key pad to set hours of use before replacing the Annual Maintenance. The recommended interval is 2080 hours. This can be modified as needed based on actual working conditions.

To Reset a Maintenance Schedule

Once a maintenance task has reached it set interval, an alarm will appear on display on the production screen. The "Maintenance OK" button will turn from **BLUE** to **RED**. The user will be able to continue polishing even if the maintenance is not reset. To reset the maintenance:

1. Go to "System Config." tab in the Menu system.

2. Select "Maintenance Schedule" from "Configuration" drop down box.

3. All maintenance intervals needing reset will be highlighted in **RED**.

4. Perform the maintenance items.

5. With stylus, **PRESS** the **RED** "Reset" tab.

6. The "Reset" tab will change from **RED** to **BLUE**. The hours accumulated (Accum) will revert to zero hours upon a successful reset.

Motor Speed Calibration

Motor Speed can be calibrated by clearing the machine of any obstructions and then pressing the "Enable Motor" button to start the calibration.

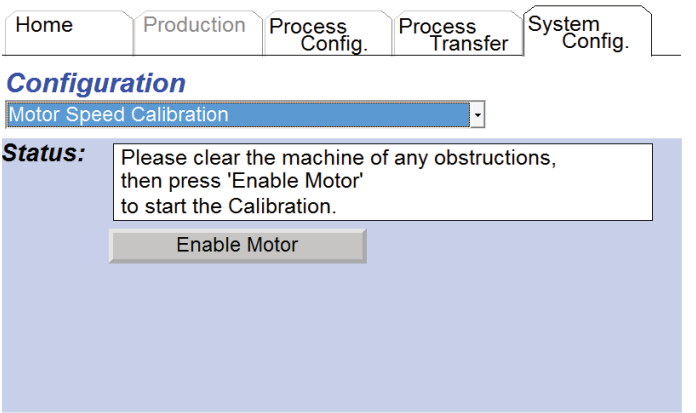


Fig. 7

Process Setup

The number of processes that can be defined and stored on the APM-HDC-5300 is only limited by the amount of internal memory. Hundreds of processes can be stored on a single machine. Additional processes can be stored on a USB memory stick, thus allowing an unlimited number of processes to be pre-defined and readily available for use.

To Define a Process:

1. Select the "Process Config." tab.

2. A new process can be setup in two ways.
    a. Select the "New" button to define a process from scratch.
    b. To begin with a copy of an existing process, select the process you want to copy using the **DOWN** arrow in the "Process" selection box to display a list of processes stored in machine memory. Select the desired process to copy and then touch the "Duplicate" button.

3. Enter a new process name as prompted. The process name can include up to 16 alphanumeric characters and **WILL NOT** allow spaces, dashes and punctuation. Select "OK".

4. Select the quantity (QTY) of connectors that will be polished for this process using the down arrow to display a valid range of numbers. If you have chosen to allow the machine operator to change the quantity on the "Production" screen (based on the number of connectors actually loaded into the fixture), the maximum connectors the operator can select is based on the number selected on this screen.

NOTE: Processes can only be deleted under the "Process Transfer" tab.

Defining Steps within a Process:

Index tab "A" allows you to define Time, Speed, Speed Ramp Up, Pressure and Pressure Ramp Up for each step in the process. Index tab "B" allows you to select Pad, Lubricant, Film, Film Change Interval and Step Notes for each step.

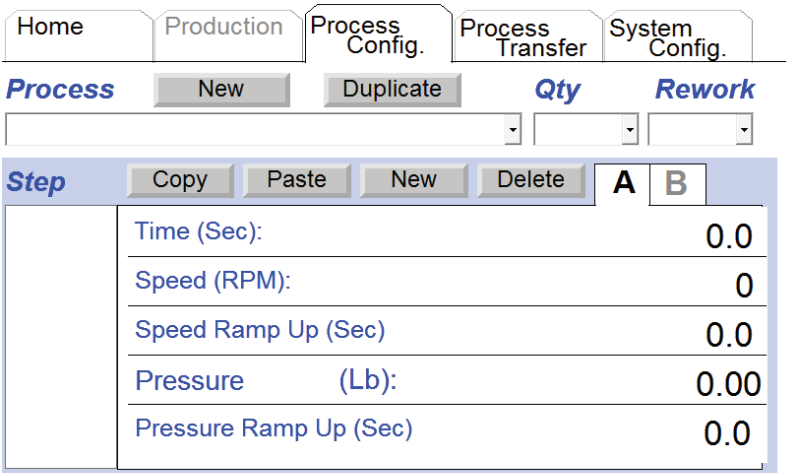


Fig. 8

1. Select tab "A".

2. Touch the "Time" box to access the keypad. Enter the number of seconds to run this step. Select "OK".

3. Touch the "Speed" box to access the keypad. Enter the RPM's desired in this step. Select "OK".

4. Touch the "Speed Ramp Up (Sec)" box to access the keypad. This feature will slow start the Platen. Enter the number of seconds desired from zero RPM to programmed speed. The maximum value is 20 seconds. Select "OK".

5. Touch the "Pressure" box to access the keypad. Enter the pressure in pounds or kilograms, depending on the unit selected in "System Config." and displayed in the box. Select "OK".

6. Touch "Pressure Ramp Up" box to access keypad. This feature will slow start the pressure. Enter the number of seconds desired to go from zero pressure to programmed pressure. The maximum value is 20 seconds. Select "OK".

Fig. 9

1. Select tab "B". The parameters under tab "B" are used to communicate to the operator the pad, lubricant, film, film change interval and step notes.

2. Touch the "pad" **DOWN** arrow. Select the desired pad for this step in the process.

3. Touch the "lubricant" **DOWN** arrow. Select the desired lubricant for this step in the process.

4. Touch the "film" **DOWN** arrow. Select the desired film for this step in the process.

5. Touch "Film Change Interval" box to access keypad. Enter the numeric value for the number of cycles the film is used for that polishing step. The APM-HDC-5300 will track the number of uses of the film and send an alarm message when the film needs to be reset. The maximum numeric input for the film change interval is 99. Select "OK".

6. Touch "Step Notes" box to access key pad. The text box is used to convey process information to the users. Enter in pertinent information as needed. Select "OK".

7. Select "New" or "Copy" in the "Step Definition" area to define the next step. Repeat the above instructions for all steps in a process. See "Copy" function below to begin a new step based on a previously defined step within the same process.

Testing During Process Setup: To test a process step while in "Process Config." mode, select the step and **PRESS** the "Step Start" button. This allows you to run and test an individual step without having to access the process under the "Production" tab.

Rework: The "Rework" box allows an operator to restart the polishing process from a predefined point. The number selected is the step in the process where rework will begin. The "Rework" program will then execute this step plus all remaining steps. Upon completion, the program will return to step #1.

Inter-Machine Process Transfer

The APM-HDC-5300 is equipped with a USB data storage slot. This feature allows machine-stored processes to be copied onto a USB data storage device, thus allowing duplication of process definitions across multiple APM-HDC-5300 machines. This feature significantly reduces multiple machine set up time and assures consistency in the definition of polishing processes.

The "Process Transfer" feature can also be used as a backup and retrieval tool.

To Copy From Machine Memory to a USB Memory Stick:

1. Insert USB memory stick into the USB slot.

2. Select "Process Transfer" tab.

3. Highlight the process name on the "Machine Memory" list that you want to copy to the memory stick.

4. Touch the "<" button to copy the USB memory stick.
   All processes in machine memory can be copied to the USB memory stick by selecting the "<All" button.

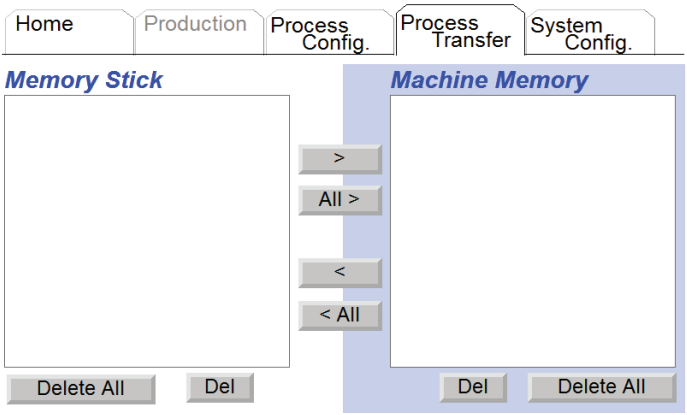


Fig. 10

To Copy From a USB Memory Stick to Machine Memory:

1. Insert USB memory stick into the USB slot on the lower front left of the machine.

2. Select "Process Transfer" tab.

3. Highlight the process name on the "Memory Stick" list that you want to copy to machine memory.

4. Touch the ">" button to copy to machine memory.

All processes on the USB memory stick can be copied to machine memory by selecting the ">All" button.

To **COPY** "Process Variable Settings" refer to the "System Configuration" section in this guide (page 8).
The "Process Variables Settings" reside in a separate file.

Deleting Processes

Processes in machine memory and/or residing on a USB memory stick can be deleted on the "Process Transfer" screen.

To delete processes in machine memory:

1. Select "Process Transfer" tab.

2. Highlight the name of the process in the "Machine Memory" list that you want to delete.

3. Select "Del" button under "Machine Memory" list.

4. Touch "Yes" button when prompted to delete.

To **DELETE** all processes in machine memory, select "Delete All" button under "Machine Memory" list and then touch "Yes" when prompted.

To delete processes on a USB memory stick:

1. Select "Process Transfer" tab.

2. Highlight the name of the process in the "Machine Stick" list that you want to delete.

3. Select "Del" button under "Machine Stick" list.

4. Touch "Yes" button when prompted to delete.

To **DELETE** all processes on a USB memory stick, select "Delete All" button under "Memory Stick" list and then touch "Yes" when prompted.

Machine Operation

Polishing Fixture Installation

This procedure should not be performed when a cycle is running or the Platen is moving.

To install a polishing fixture on the Overarm shaft follow these steps:

1. Raise the Overarm to the full vertical position, locking the Overarm in place. See Unpacking & Setup instructions on page 3, Step 10, for raising Overarm. You must have the compressed air hose connected to the back of the machine to raise and lower Overarm.

2. Ensure Overarm shaft and fixture bore are clean before proceeding.

3. With a "Fixture Retaining Screw" or "Spring Clamp" on the fixture attach the fixture to the Overarm. The screw allows the fixture to slide on the shaft without falling off.

4. Lower and lock the Overarm into the full horizontal position by pushing and holding the "Quick Release" button and holding the fixture up against the anti-rotational keys as you lower the Overarm. Release button and slowly lower fixture onto Platen. This technique should be used whenever moving the Overarm with a fixture in place to protect both the fixture and the Platen.

Polishing Pad and Film Placement

Polishing films must be placed on rubber pads, glass or ceramic plates. To place polishing film:

1. Raise Overarm (See Unpacking & Setup instructions on page 3, Step 10, for raising Overarm. You must have compressed air connected to raise and lower Overarm.)

2. Place polishing film on rubber pad, glass or ceramic plate by following the manufacturer's recommendation regarding applying film.

3. Place polishing pad or plate on the Platen, ensure the locking pins on the Platen are lined up with the notches.

4. Lower the Overarm to the full horizontal positon. See section titled "Polishing Fixture Installation" on page 25, Step 4, for instructions on lowering Overarm.

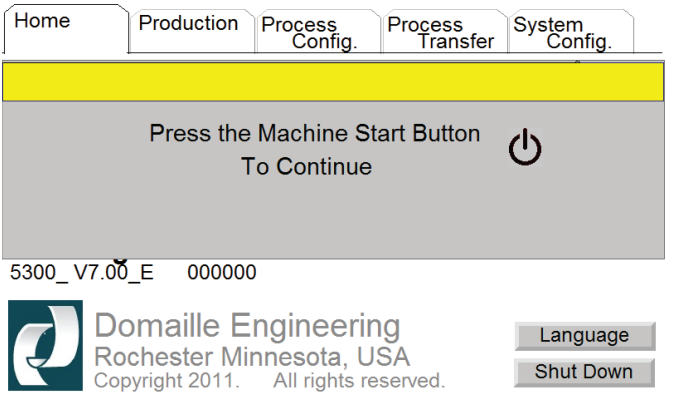


Fig. 11

Power Up

If the machine has not been powered up, check that the following steps have been completed:

1. Plug the power cord into the back of the machine and into a properly grounded outlet, 100-240VAC 50/60Hz. If your power cord is equipped with a GFCI Style plug, you MUST push the "Reset" button on the plug to supply power to the machine.

2. Turn on power switch located at the back of the machine.

3. Lift screen cover. (Note: screen cover should be down when machine is operating.)

4. The touch screen should default to the "Home" tab screen. If the **RED** "Emergency" screen is displayed, reset by turning the "Emergency Stop" button **CLOCKWISE**.

5. Select desired language.

6. Press "Machine Start" Button.

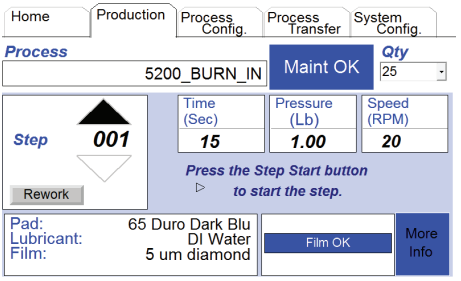


Fig. 12

Polishing Process Selection and Polishing Procedure

1. At "Home" tab, select the desired polishing process definition by touching the DOWN arrow in the "Process Selection" box and then touching the desired process.

2. Select "Production" tab.

3. In the lower section of the screen, refer to the pad, lubricant, and film boxes for pre-defined variables for this process. Place specified pad and film on Platen. See section titled "Polishing Pad and Film Placement" (page 26), for instructions on placing pad and film on Platen.

4. Pressing the **BLUE** "More Info" box in the lower right corner will access Pressure Ramp Time (Sec), Pressure Ramp Remaining (Sec), Speed Ramp Time (Sec), Speed Ramp Remaining (Sec) and Step Notes. Press the "Return to Production" screen tab to toggle back to the "Production Data" screen.

5. Ensure proper polishing fixture has been installed and that connectors have been properly seated. See section titled "Polishing Fixture Installation" (page 25), for instructions.

6. Press the "Step Start" button to begin polishing.

7. When step has completed, the screen will load pad, lubricant, and film data, as well as time, speed, and pressure for the next step in the process. Load indicated pad and film and use lubricant as indicated for the next step in the process.

8. F.C.I. is Film Change Interval. When enabled (see section titled "System Configuration" on page 11 for instructions), the numeric value to the right is the programmed interval for this process step. The F.C.I. count is the actual number of times the current step film has been used. The film use will be highlighted in **BLUE** with "Film OK" until F.C.I. count matches F.C.I. limit.

9. When F.C.I. count reaches the programmed F.C.I. interval, the box will change to flashing **RED** with "Change Film". **THIS WILL STOP THE MACHINE FROM POLSIHING THE NEXT STEP**. After changing the polishing film, press the **BLUE** "Reset" directly below the "Change Film." This will reset F.C.I. count to zero, change to **BLUE** "Film OK" and allow the machine to polish next step.

10. The **BLUE** "Maint. OK" box will change to a **RED** "Maint. needed" when the programmed maintenance values are reached. THIS WILL NOT STOP THE MACHINE FROM POLISHING THE NEXT STEP.

11. After performing the required maintenance, reset the scheduled maintenance by pressing the "System Config." tab at the top of the screen. Select "Maintenance Schedule" from the drop down box. Press the **RED** "Reset" button. This will change the (Accum) hours to zero and change "Reset" to **BLUE**. The "Production" screen will change from **RED** "Maint. needed" to **BLUE** "Maint. OK."

12. Repeat steps 6 and 7 until final step has been completed.

13. When the final step is complete, the screen will reset back to the first step in the process.

Predefined Rework Start Step

If rework is required after the polishing process is complete, press the "Rework" button in the "Step box." The polishing process will automatically take you to the predefined rework start step and continue through each step until final step in the process is complete. Upon completion, the program will return to step #1.

Pause Step

Step Pause Button

If there is a need to stop the process mid-step, press the "Step Pause" button on the right side of the front panel. This will temporarily release the pressure, stop the rotation of the Platen, and pause the time.

To restart the step at the exact point it was paused, press the "Step Start" button.

Reset Step

Step Reset Button

While a process step is running or while the machine is paused mid-step, the "Step Reset" button can be pressed to cancel the timer and return to the step's original time value. You can now restart the step by pressing the "Step Start" button.

Select Step

The Up and Down arrows positioned above and below the step number in the "Step Box" allow the operator to run any step in the process at any time. Refer to "Machine Setup/System Configuration/User Rights & Settings/Enable Step" Selection on page 7.

Cancel Polishing Process

To cancel a polishing process and select another, press the "Home" tab to return to the "Process Selection" box. From the "Home" screen you can now select another process or shut down the machine.

Checking the "Zero Speed" box will enable Zero Speed.

Machine Shut Down

The following procedure should be used to shut down the APM-HDC-5300. Using the power off switch before using this shut down procedure may result in loss of data.

To Shut Down the Machine:

1. Select the "Home" tab.

2. In the lower right corner of the "Home" screen, press the "Shut Down" button.

3. Press the "Yes" button when prompted.

4. Turn off the power.

Machine Maintenance

Proper care and handling of the polishing fixtures and APM-HDC-5300 machine is critical to maintain polishing accuracy. If the machine or polishing fixtures are damaged in any way, contact Domaille Engineering for advice or repair.

There are no user serviceable parts inside the machine cabinet. Do not remove sealed screws. Evidence of tapering will void warranty.

Daily or More Often as Required

Polishing Fixtures

Although polishing fixtures manufactured by Domaille Engineering are made of stainless steel, all traces of water and slurry should be removed after each step in the polishing process. This will ensure that the next step in the process is not contaminated by elements in the previous process.

Polishing Machine

1. Clean top of Platen, Overarm Top Plate, Overarm Rest Pad and bottom of Overarm. ***The accuracy of this machine is dependent on keeping these areas clean.***

2. Clean all residue, water and slurry from top of entire machine and from touch screen panel cover. ***Do not contaminate touch screen area.***

WARNING: Do not use an air hose on or around the Platen. This forces water and contaminates into the wear surfaces and mechanical drive unit, potentially causing machine failure. Damage caused by air hose use is not covered under warranty.

Monthly

Disconnect the polishing machine from the power source before doing any maintenance work.

Polishing Machine Fan Filter

Inspect Fan Filter on back of machine. Vacuum to clean or remove and clean with compressed air.

Polishing Machine Platen

The Platen should be removed and greased at least once a month. If the machine is heavily used, more frequent greasing is required.

To Maintain Platen:

1. The Platen can be removed by placing your fingers around the underside of the Platen. Gently break the seal between the Platen and the machine. Pull straight up.

Do not use any tools (pry bars, screwdrivers, etc.) to remove Platen as the Platen and Wear Ring under the Platen may be damaged.

2. Clean all of the old grease and contaminants from the bottom of the Platen and from the Wear Ring. Clean both Platen and Wear Ring with alcohol and a clean, lint-free tissue or cloth to remove any trace of grease.

Do not grease the Platen bearings. They are pre-lubricated and sealed; therefore, lubrication is not required.

3. Wipe any grit off the o-rings and eccentric guide, 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.

4. Fill holes in Wear Ring with grease. Put a small bead of grease on Wear Ring between holes. Use Platen grease supplied with APM-HDC-5300 machine or call Domaille Engineering at 507-281-0275 for purchasing information.

5. Reinstall Platen by lining up the eccentric arms to point in the same direction as shown in Figure 13. By moving to eye level with the Platen area of machine, place Platen on top of pins in eccentric arms.

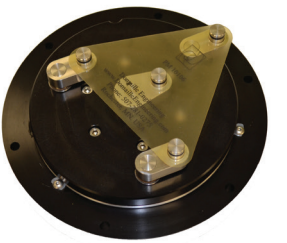


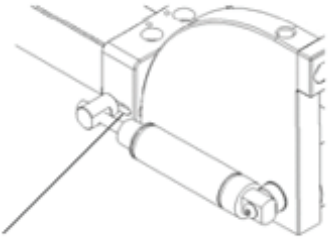
Fig. 13

6. Line up pins with holes in bearings in bottom of Platen. When pins are lined up, Platen will slide on pins about ½ way. Push straight down to seat Platen on Wear Ring. Verify the Platen is level before turning on machine. When fitted properly, no light will be visible between the Platen and Wear Ring.

Polishing Machine Overarm Lock Pins

Lock Pins are located on either side of the Overarm near the support bracket. These pins lock the Overarm in one of three positions: vertical, horizontal, or at 45-degrees.

Using light machine oil, lubricate lock pins on both sides of the Overarm, placing a drop in each slot as shown below.



Lubricate Here

Right Side View

Service & Support

Machine Height:	17.25 inches (438 mm)
Machine Width:	12.00 inches (305 mm)
Overall Width (with Drip tray):	14.50 inches (368 mm)
Machine Depth:	21.50 inches (546 mm)
Power Requirements:	2 amps; 100-240VAC; 50/60 Hz.
Air Requirements:	90-120 psi clean, dry air (6.2-8.3 bar)
Machine Weight:	70 lbs (31.75 kg)
Shipping Weight:	120 lbs (54.43 kg)
Speed Range:	20-200 rpm
Pressure Range:	0-16 lbs Force (0-4.54 kg)
Temperature Range:	41°F-104°F (5°C-40°C)
Maximum Altitude	6000 feet above sea level (1828M)
Maximum Humidity	20-85% non-condensing
Noise Emission level	Less than 70.0dBA

When maintenance is required beyond the steps documented in this manual, service must be done by a qualified Domaille Engineering technician. There are no user serviceable parts inside the cabinet case. Do not remove sealed screws. Evidence of tampering will void the warranty. For assistance, contact Domaille Engineering, LLC USA.

USA (type B), UK (type G), China (type I) and European (type E) standard power cords sets are available from Domaille Engineering, LLC. Please contact our office if an additional set is needed.

CE Notice (European Union)

EMC Test Standard:
EMC Directive 2004/108/EC
EN 61000-6-4:2007 + A1:2011
EN 61000-6-1:2007
EN 61000-4-2:2009
EN 61000-4-3:2006 + Amendments A1:2008 + A2:2010
EN 61000-4-4:2004 + Corrigendum AC:2006 + A1:2010
EN 61000-4-5:2006
EN 61000-4-6:2009
EN 61000-4-8:2010
EN 61000-4-11 Second Edition:2004
EN 61000-3-2:2006 + Amendments A1:2009 + A2:2009
EN 61000-3-3:2013

Safety:
IEC 60204-1 (FIFTH EDITION) + A1:2009
EN 60204-1:2006 +A1:2009

Year of CE Marking: 2014

EU representative:
Fiber Optic Center, Erwin Gelderblom,
Lopikerhof 42871 PV Schoonhoven Netherlands

Tests performed by:

EMC test report 1	TUV	NC1407751.1
EMC test report 2	TUV	NC1407751.2
EMC test report 3	TUV	NC1407751.3
Safety test report	TUV	092—1101099-100

Company Information:

Domaille Engineering's mission is to provide our customer with the highest quality solution through the innovative use of technology that allows our customers to gain a competitive edge. Our core competencies in engineering and precision manufacturing provide OEM's and fiber optic customers effective and cost efficient solutions.

From our world renowned APM-HDC-5300 polishing machine to our patented MT EZ AbraSave® fixtures, Domaille Engineering equipment provides the highest yields and throughput in the fiber optic industry.

The Domaille APM-HDC-5300 interface allows user to program a soft ramp of pressure and speed. This feature along with accurate force, speed, and time enables customers to consistently meet the most demanding fiber optic polishing specifications.

Our patented AbraSave® fixture line utilizes Unique Path Technology which reduces polishing time and polishing film costs. The AbraSave® technology delivers the greatest consistent fiber protrusion for the best polishing results in the fiber optic industry.

Domaille Engineering proudly offers our OptiSpec® product line of fiber optic microscopes. Our OptiSpec® microscope line offers customers high quality fiber optic inspection capabilities for both production and laboratory settings.

View all of our products, including the Universal Cure Oven and Air Cleanse System, at www.DomailleEngineering.com.

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Rochester, MN 55906

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Fax: 507-281-8277
info@domailleengineering.com

www.DomailleEngineering.com

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 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-5300 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.

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