DRYER OPERATION - START-UP

INITIAL SETUP PARAMETERS

Turn the control power switch to on. When the Boot Screen appears touch the START DRYER button. The computer will run a quick check of the system network after which the Operation Screen will appear.

TIMER AND DELAY SETTINGS

Setting the timers for the Vision Dryer is a simple procedure. To set the timers touch the 

button at the bottom of Operation Screen. A new screen will appear called the Select Timers to Modify screen (see page such and such for instructions on how to set the timer and delays).

SETTING THE TEMPERATURES

Setting the temperature setpoints for the dryer is a simple procedure. To adjust the temperture setpoints touch the 

button at the bottom of Operation Screen. A new screen will appear called the Select Temperature Setpoint to Modify screen (see page such and such for instructions on how to set the temperatures).

START-UP

Start-up Procedure

At the beginning of each harvest and before filling the dryer with grain make sure to inspect the dryer for rodent damage, proper belt and chain tension and missing or damaged safety shields. Test operate the dryer using the pre start check procedures.

1. Before attempting to operate the dryer make sure that all safety shields are in place, all plenum bottom closure panel doors are closed, all rear access doors are closed and all personnel are clear of the grain dryer and grain handling machinery.

2. Turn all selector switches on the control panel to the off position.

3. Turn on the electrical power supply to the dryer, and move the safety disconnect handle mounted on the dryer's upper power box to on.

4. Turn the control power switch to on. The switch will light up. The control computer will boot up. At this point the controller will lock out all other dryer functions. Once the boot screen appears, touch the Start Dryer button and the dryer will perform its safety circuit checks. If a fault is found the cause will be displayed on the Display screen (touch screen). If all safeties do not detect a problem the controller will allow the electronic fuel shutoff valve (Maxon) to be manually opened, if so equipped. The dryer is ready to be started.

5. Move the load auger switch to manual, and push the dryer start switch. The top auger will immediately start, and the load auger switch will light up. If additional loading equipment is wired to the dryer it will also start immediately.

6. When the dryer is full of grain the top auger will stop automatically, and any auxiliary loading equipment wired to the dryer will also stop.

DRYER OPERATION - BASIC MOISTURE CONTROL

CONTINUOUS FLOW DRYING MODE USING BASIC MOISTURE CONTROL

Full Heat-Continuous Flow Operation

This section begins with step 7 and it is assumed that steps 1 through 6 in the start-up procedure described on page 1 have been completed.

7. Touch the SETUP button at the bottom of the Dryer Operation screen. Once the Hardware Parameter screen is displayed touch the DRYING MODE button. When the Select Drying Mode window appears touch the CONTINUOUS FLOW button to select continuous flow drying mode. Then touch the EXIT button and return to the Hardware Parameter screen. Touch the M/C SETUP button. When the Moisture Control Selection window appears select the BASIC : REGULATION OF GRAIN TEMPERATURE : 2 MR SETPOINTS moisture control option. Touch the EXIT button and return to the Dryer Operation screen.

8. Make sure the UNLOAD switch is **OFF**.

9. Open the main fuel supply valve on the tank if using LP gas, or the valve in the fuel supply line if using natural gas. Turn on the Maxon electric shut off valve, if so equipped, or open the manual shut off valve to allow fuel flow to the dryer.

10. The dryer should already be filled with grain. Turn the LOAD AUGER switch to the **AUTO** position. In both the auto and manual positions, the dryer grain level switch will automatically keep the dryer full of grain. In the auto position the dryer will shut down after a preset time period using the out of grain timer.

11. Turn each FAN switch to **ON**. The fan will start, and the switch will light up when air pressure is detected.

12. Start each burner by turning the HEATER switch to **ON**. After purging for approximately 10 seconds the burner will fire, and the heater switch will light up. This indicates that the flame sensing circuit is sensing burner flame. For information concerning burner adjustment see the Dryer pre start checks section of this manual. Set the plenum temperature setpoints to 180 °F.

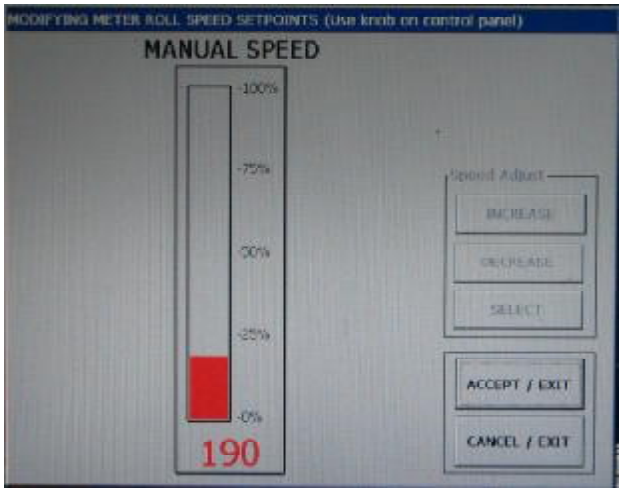
13. Look in the Drying Charts section starting on page 6 for the FULL HEAT chart settings that correspond to your model of dryer. You will see the settings for (Initial Moisture) (Moisture Removed) (Approx. Dry Time) (1 Speed) (2 Speed Low) (2 Speed High) pick the line that has your initial starting moisture. These are the settings we will be referring to during this start up procedure.

14. Run the fan(s) and heater(s) for about 10% longer than the (APPROX. DRYING TIME) required for the moisture you are trying to dry.

15. Take the remaining number of burners to be started, divide that into the total drying time required, working up, start each burner that many minutes apart. Run them about 10% longer than the (APPROX. DRYING TIME) total required for the moisture you are trying to dry.

16. Example: 10% removal would be about 54 minutes, 15% removal would be about 76 minutes and 20% removal would be about 100 minutes. Add 10 minutes to insure that the grain is dry.

17. After the time in step 14 turn the UNLOAD AUGER switch to MANUAL and set the METER ROLL SPEED, (MANUAL SPEED). To do this push on the Meter Roll Adjustment knob. When the Modify Meter Roll Setpoints window appears (see image below) turn the Meter Roll Adjustment knob until the speed indicator is set to the speed suggested for 1 SPEED. Grain should begin to run at this time. Run time for this is about 10% longer than the (APPROX. DRYING TIME) required for the moisture you are trying to dry. This allows the moisture in the dryer to reach an even gradient top to bottom without having any highs or lows in it. It will however, over dry some of the grain.

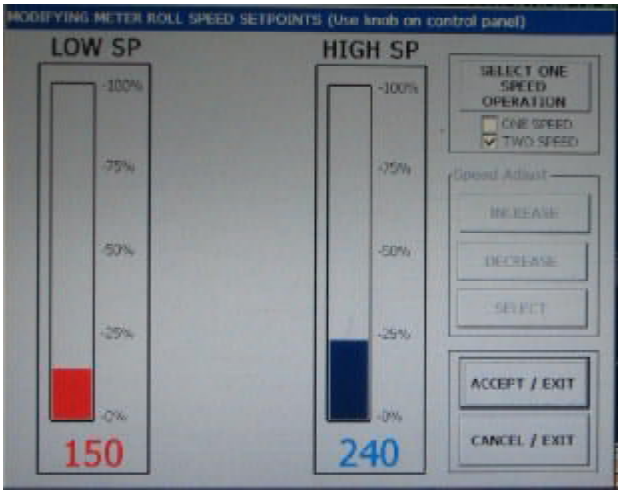


DRYER OPERATION - BASIC MOISTURE CONTROL

18. Increase the drying temperature to 190° F for single fans or for multiple fan dryers set the heat chambers 30 to 60 degrees apart. Hottest at the top, most cool at the bottom (see Setting Temperatures on page 14).

19. DO NOT TRY TO ADJUST THE DRYER FOR MOISTURE DURING THIS PROCESS OR YOU WILL ESTABLISH HIGH AND LOW SWINGS IN THE MOISTURE CONTROL. IT WILL TAKE SEVERAL HOURS TO WORK ITSELF OUT.

20. After the run time in step 17 you are ready to set up the moisture control. Turn the UNLOAD switch to AUTO. Push the Meter Roll Adjustment knob. When the Modify Meter Roll Setpoints window appears (see image at top of next page) check that Two Speed is selected. Set the low speed by pushing the Meter Roll Speed Adjustment knob until the Low Speed Indicator is red and then turn the knob to the desired low speed setting. When low speed is set push the Meter Roll Adjustment knob until the High Speed Indicator is red then turn knob to the desired high speed setting ***(IMPORTANT: THE HIGH SPEED SETTING MUST BE A HIGHER VALUE THAN THE LOW SPEED)***. Touch the ACCEPT/EXIT button and return to the Dryer Operation screen.



Check two speed operation

21. Now that the UNLOAD AUGER switch is in the AUTO position the moisture control is active. Now touch the M/C button at the bottom of the Dryer Operation screen. When the Modify Temperature Setpoint window appears set the temperature to about 105° F (see image below). Let the dryer run on these settings before trying to adjust moisture or meter roll settings. These settings will not have your grain moisture adjusted exactly where you want it, but will be a good place to start initially. A little different moisture at the bottom of the storage bin is not usually a problem as long as you have full floor aeration.

M/C button

22. After the run time in step 21 you are ready to adjust the moisture control, and the meter roll speeds if required. Each time you make an adjustment to the moisture control it will take about the time shown in the drying charts to see the results of this adjustment. For every 5 degrees change in temperature, moisture will change by 1 point.

DRYER OPERATION - BASIC MOISTURE CONTROL

Dry and Cool-Continuous Flow Operation

This section begins with step 7 and it is assumed that steps 1 through 6 in the start-up procedure described on page 22 have been completed.

7. Touch the SETUP button at the bottom of the Dryer Operation screen. Once the Hardware Parameter screen is displayed touch the DRYING MODE button. When the Select Drying Mode window appears touch the CONTINUOUS FLOW button to select continuous flow drying mode. Then touch the EXIT button and return to the Hardware Parameter screen. Touch the M/C SETUP button. When the Moisture Control Selection window appears select the BASIC : REGULATION OF GRAIN TEMPERATURE : 2 MR SETPOINTS moisture control option. Touch the EXIT button and return to the Dryer Operation screen.

8. Make sure the UNLOAD switch is OFF.

9. Open the main fuel supply valve on the tank if using LP gas, or open the fuel supply line if using natural gas. Turn on the Maxon electric shut off valve, if so equipped, or open the manual shut off valve to allow fuel flow to the dryer.

10. The dryer should already be filled with grain. Turn the LOAD AUGER switch to the AUTO position. In both the auto and manual positions, the dryer grain level switch will automatically keep the dryer full of grain. In the auto position the dryer will shut down after a preset time period on the out of grain timer.

11. Turn each FAN switch to ON. The fan will start, and the switch will light up when air pressure is detected.

12. Start each burner by turning the HEATER switch to ON. After purging for approximately 10 seconds the burner will fire, and the heater switch will light up. This indicates that the flame sensing circuit is sensing burner flame. For information concerning burner adjustment see the Dryer pre start checks section of this manual. Set the plenum temperature setpoints to 180 ^{o}F.

13. Look in the Drying Charts section starting on page 6 for the DRY AND COOL chart settings that correspond to your model of dryer. You will see the settings for (Initial Moisture) (Moisture Removed) (Approx. Dry Time) (1 Speed) (2 Speed Low) (2 Speed High) pick the line that has your initial starting moisture. These are the settings we will be referring to during this start up procedure.

14. Run the bottom fan(s) and heater(s) (to be used for cooling later) for about 20 minutes. This will start the bottom drying so we can cool it before we begin to discharge grain.

15. Take the remaining number of burners to be started, divide that into the total drying time required, working up, start each burner that many minutes apart. Run them about 10% longer than the (APPROX. DRYING TIME) total required for the moisture you are trying to dry.

16. Example: 10% removal would be about 60 minutes, 15% removal would be about 85 minutes, and 20% removal would be about 110 minutes. Add 10 minutes to insure that the grain is dry.

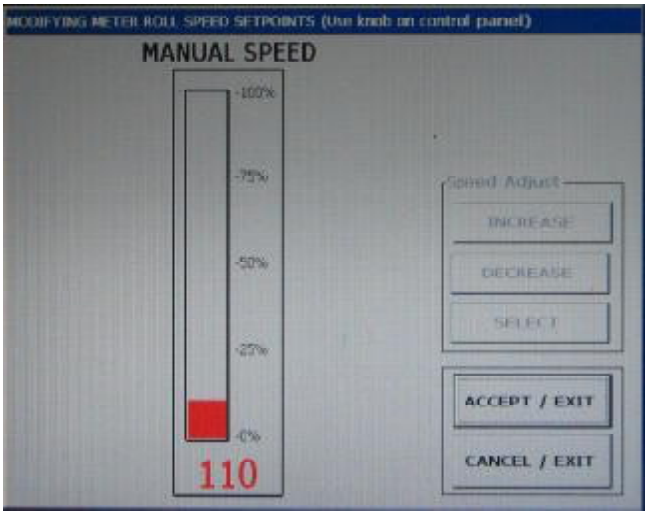
17. 20 minutes before the required drying time is finished turn the bottom heater OFF but let the fan run and cool this section for about . Set the upper plenum thermostats to the decreed temperature (190°-230°F).

18. Turn the UNLOAD AUGER switch to MANUAL and set the METER ROLL SPEED, (MANUAL SPEED). To do this push on the Meter Roll Adjustment knob. When the Modify Meter Roll Setpoints window appears turn the Meter Roll Adjustment knob until the speed indicator is set to the speed suggested for 1 SPEED (see image below). Grain should begin to run at this time. Run time for this is about 10% longer than the (APPROX. DRYING TIME) required for the moisture you are trying to dry. This allows the moisture in the dryer to reach an even gradient top to bottom without having any highs or lows in it. It will however, over dry some of the grain a little.

19. DO NOT TRY TO ADJUST THE DRYER FOR MOISTURE DURING THIS PROCESS OR YOU WILL ESTABLISH HIGH AND LOW SWINGS IN THE MOISTURE CONTROL. IT WILL TAKE SEVERAL HOURS TO WORK ITSELF OUT.

DRYER OPERATION - BASIC MOISTURE CONTROL

20. After the run time in step 18 you are ready to set up the moisture control. Turn the UNLOAD switch to AUTO. Push the Meter Roll Adjustment knob. When the Modify Meter Roll Setpoints window appears check that Two Speed is selected (see image below). Set the low speed by pushing the Meter Roll Speed Adjustment knob until the Low Speed Indicator turns red and then turning the knob to the desired low speed setting. When low speed is set push the Meter Roll Adjustment knob until the High Speed Indicator turns red then turn knob to the desired high speed setting ***(IMPORTANT: THE HIGH SPEED SETTING MUST BE A HIGHER VALUE THAN THE LOW SPEED)***. Touch the ACCEPT/EXIT button and return to the Dryer Operation screen.



21. Now that the UNLOAD AUGER switch is in the AUTO position the moisture control is active. Now touch the M/C button at the bottom of the Dryer Operation screen. When the Modify Temperature Setpoint window appears set the temperature to about 130° F (see image below). Let the dryer run on these settings before trying to adjust moisture or meter roll settings. These settings will not have your grain moisture adjusted exactly where you want it, but will be a good place to start initially. A little different moisture at the bottom of the storage bin is not usually a problem as long as you have full floor aeration.

22. After the run time in step 21, you are ready to adjust the moisture control and the meter roll speeds if required. Each time you make an adjustment to the moisture control it will take about the time shown in drying charts to see the results of this adjustment. For every 5 degrees change in temperature, moisture will change by 1 point.

1100/1200 Series Continuous Flow Full Heat

Initial Moisture	Moisture Removed	Approx. Dry Time	1 Speed	2 Speed Low	2 Speed High
17%	2 pts.	16 min.	625	317	875
18%	3 pts.	21 min.	476	270	775
19%	4 pts.	26 min.	385	241	675
20%	5 pts.	31.5 min.	317	213	575
21%	6 pts.	37 min.	270	196	476
22%	7 pts.	41.5 min.	241	185	385
23%	8 pts.	47 min.	213	172	317
24%	9 pts.	51 min.	196	161	270
25%	10 pts.	54 min.	185	150	241
26%	11 pts.	58 min.	172	140	213
27%	12 pts.	62 min.	161	132	296
28%	13 pts.	66.5 min.	150	123	285
29%	14 pts.	71.5 min.	140	116	172
30%	15 pts.	76 min.	132	110	161
31%	16 pts.	81 min.	123	104	150
32%	17 pts.	86 min.	116	100	140
33%	18 pts.	91 min.	110	96	132
34%	19 pts.	96 min.	104	87	123
35%	20 pts.	100 min.	100	82	116

1100/1200 Series Continuous Flow Dry & Cool

Initial Moisture	Moisture Removed	Approx. Dry Time	1 Speed	2 Speed Low	2 Speed High
17%	2 pts.	18 min.	363	187	650
18%	3 pts.	24 min.	272	163	550
19%	4 pts.	30 min.	218	145	450
20%	5 pts.	35 min.	187	131	363
21%	6 pts.	40 min.	163	119	272
22%	7 pts.	45 min.	145	109	218
23%	8 pts.	50 min.	131	101	187
24%	9 pts.	55 min.	119	93	163
25%	10 pts.	60 min.	109	87	145
26%	11 pts.	65 min.	101	82	131
27%	12 pts.	70 min.	93	77	119
28%	13 pts.	75 min.	87	73	109
29%	14 pts.	80 min.	82	69	101
30%	15 pts.	85 min.	77	65	93
31%	16 pts.	90 min.	73	61	87
32%	17 pts.	95 min.	69	57	82
33%	18 pts.	100 min.	65	53	77
34%	19 pts.	105 min.	62	49	73
35%	20 pts.	110 min.	59	45	69

1100/1200 Series Staged Batch

Full Heat — Fan & Burner Switches on Manual						Dry & Cool — Fans on Manual, Burners on Auto			
Approx. Dry Time	Dry	Cool	Unload	Initial Moist	Approx. Dry	Approx. Dry	Dry	Cool	Unload
16 min.	6 min.	0	10 min.	17 %	2 pts.	18 min.	18 min.	18 min.	10 min.
21 min.	11 min.	0	10 min.	18 %	3 pts.	24 min.	24 min.	18 min.	10 min.
26 min.	16 min.	0	10 min.	19 %	4 pts.	30 min.	30 min.	18 min.	10 min.
31.5 min.	21.5 min.	0	10 min.	20 %	5 pts.	35 min.	35 min.	18 min.	10 min.
37 min.	27 min.	0	10 min.	21 %	6 pts.	40 min.	40 min.	18 min.	10 min.
41.5 min.	31.5 min.	0	10 min.	22 %	7 pts.	45 min.	45 min.	18 min.	10 min.
47 min.	37 min.	0	10 min.	23 %	8 pts.	50 min.	50 min.	18 min.	10 min.
51 min.	47 min.	0	10 min.	24 %	9 pts.	55 min.	55 min.	18 min.	10 min.
54 min.	44 min.	0	10 min.	25 %	10 pts.	60 min.	60 min.	18 min.	10 min.
58 min.	48 min.	0	10 min.	26 %	11 pts.	65 min.	65 min.	18 min.	10 min.
62 min.	52 min.	0	10 min.	27 %	12 pts.	70 min.	70 min.	18 min.	10 min.
66.5 min.	56.5 min.	0	10 min.	28 %	13 pts.	75 min.	75 min.	18 min.	10 min.
71.5 min.	61.5 min.	0	10 min.	29 %	14 pts.	80 min.	80 min.	18 min.	10 min.
76 min.	66 min.	0	10 min.	30 %	15 pts.	85 min.	85 min.	18 min.	10 min.
81 min.	71 min.	0	10 min.	21 %	16 pts.	90 min.	90 min.	18 min.	10 min.
86 min.	76 min.	0	10 min.	32 %	17 pts.	95 min.	95 min.	18 min.	10 min.
91 min.	81 min.	0	10 min.	33 %	18 pts.	100 min.	100 min.	18 min.	10 min.
96 min.	86 min.	0	10 min.	34 %	19 pts.	105 min.	105 min.	18 min.	10 min.
100 min.	90 min.	0	10 min.	35 %	20 pts.	110 min.	110 min.	18 min.	10 min.

1200S Series Continuous Flow Full Heat

Initial Moisture	Moisture Removed	Approx. Dry Time	1 Speed	2 Speed Low	2 Speed High
17%	2 pts.	16 min.	655	333	850
18%	3 pts.	21 min.	499	283	760
19%	4 pts.	26 min.	403	252	670
20%	5 pts.	31.5 min.	333	223	580
21%	6 pts.	37 min.	283	205	499
22%	7 pts.	41.5 min.	252	194	403
23%	8 pts.	47 min.	223	181	333
24%	9 pts.	51 min.	205	170	283
25%	10 pts.	54 min.	194	158	252
26%	11 pts.	58 min.	181	147	223
27%	12 pts.	62 min.	170	138	205
28%	13 pts.	66.5 min.	158	129	194
29%	14 pts.	71.5 min.	147	122	181
30%	15 pts.	76 min.	138	115	170
31%	16 pts.	81 min.	129	109	158
32%	17 pts.	86 min.	122	105	147
33%	18 pts.	91 min.	115	99	138
34%	19 pts.	96 min.	109	93	129
35%	20 pts.	100 min.	105	87	122

1200S Series Continuous Flow Dry & Cool

Initial Moisture	Moisture Removed	Approx. Dry Time	1 Speed	2 Speed Low	2 Speed High
17%	2 pts.	18 min.	293	151	420
18%	3 pts.	24 min.	220	132	370
19%	4 pts.	30 min.	176	117	320
20%	5 pts.	35 min.	151	106	270
21%	6 pts.	40 min.	132	96	220
22%	7 pts.	45 min.	117	88	176
23%	8 pts.	50 min.	106	81	151
24%	9 pts.	55 min.	96	75	132
25%	10 pts.	60 min.	88	70	117
26%	11 pts.	65 min.	81	66	106
27%	12 pts.	70 min.	75	62	96
28%	13 pts.	75 min.	70	59	88
29%	14 pts.	80 min.	66	56	81
30%	15 pts.	85 min.	62	53	75
31%	16 pts.	90 min.	59	50	70
32%	17 pts.	95 min.	56	48	66
33%	18 pts.	100 min.	53	45	62
34%	19 pts.	105 min.	50	42	59
35%	20 pts.	110 min.	48	39	56

1200S Series Staged Batch

Full Heat — Fan & Burner Switches on Manual						Dry & Cool — Fans on Manual, Burners on Auto			
Approx. Dry Time	Dry	Cool	Unload	Initial Moist	Approx. Dry	Approx. Dry	Dry	Cool	Unload
16 min.	6 min.	0	10 min.	17 %	2 pts.	18 min.	18 min.	18 min.	10 min.
21 min.	11 min.	0	10 min.	18 %	3 pts.	24 min.	24 min.	18 min.	10 min.
26 min.	16 min.	0	10 min.	19 %	4 pts.	30 min.	30 min.	18 min.	10 min.
31.5 min.	21.5 min.	0	10 min.	20 %	5 pts.	35 min.	35 min.	18 min.	10 min.
37 min.	27 min.	0	10 min.	21 %	6 pts.	40 min.	40 min.	18 min.	10 min.
41.5 min.	31.5 min.	0	10 min.	22 %	7 pts.	45 min.	45 min.	18 min.	10 min.
47 min.	37 min.	0	10 min.	23 %	8 pts.	50 min.	50 min.	18 min.	10 min.
51 min.	47 min.	0	10 min.	24 %	9 pts.	55 min.	55 min.	18 min.	10 min.
54 min.	44 min.	0	10 min.	25 %	10 pts.	60 min.	60 min.	18 min.	10 min.
58 min.	48 min.	0	10 min.	26 %	11 pts.	65 min.	65 min.	18 min.	10 min.
62 min.	52 min.	0	10 min.	27 %	12 pts.	70 min.	70 min.	18 min.	10 min.
66.5 min.	56.5 min.	0	10 min.	28 %	13 pts.	75 min.	75 min.	18 min.	10 min.
71.5 min.	61.5 min.	0	10 min.	29 %	14 pts.	80 min.	80 min.	18 min.	10 min.
76 min.	66 min.	0	10 min.	30 %	15 pts.	85 min.	85 min.	18 min.	10 min.
81 min.	71 min.	0	10 min.	21 %	16 pts.	90 min.	90 min.	18 min.	10 min.
86 min.	76 min.	0	10 min.	32 %	17 pts.	95 min.	95 min.	18 min.	10 min.
91 min.	81 min.	0	10 min.	33 %	18 pts.	100 min.	100 min.	18 min.	10 min.
96 min.	86 min.	0	10 min.	34 %	19 pts.	105 min.	105 min.	18 min.	10 min.
100 min.	90 min.	0	10 min.	35 %	20 pts.	110 min.	110 min.	18 min.	10 min.