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 - INTERMEDIATE MOISTURE CONTROL

CONTINUOUS FLOW DRYING MODE USING INTERMEDIATE MOISTURE CONTROL

Full Heat-Continuous Flow Operation

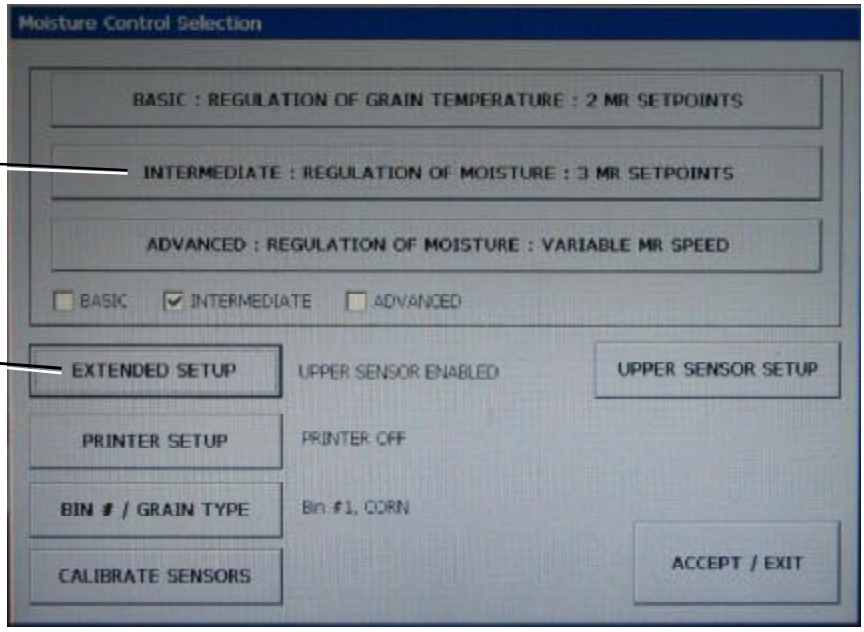
This section begins with step 7 and it is assumed that steps 1 through 6 in the start-up procedure described on page 1 have been completed.

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.

8. Touch the M/C SETUP button. When the Moisture Control Selection window appears select the INTERMEDIATE : REGULATION OF MOISTURE : 3 SPEED moisture control option. Now touch the EXTENDED SETUP button. When the Set Unload Rate Limits window appears set the MAXIMUM Unloading Rate to a value lower than the rated BPH of any auxiliary unloading equipment connected to the dryer. Next set the MINIMUM Unloading Rate. The minimum unloading rate is used so that any auxiliary unloading equipment does run empty. By setting a minimum unloading rate the dryer unloading system will never completely stop. This saves wear and tear on any auxiliary unloading equipment. Once the values have been changed to the desired rate, press the "ACCEPT" button.

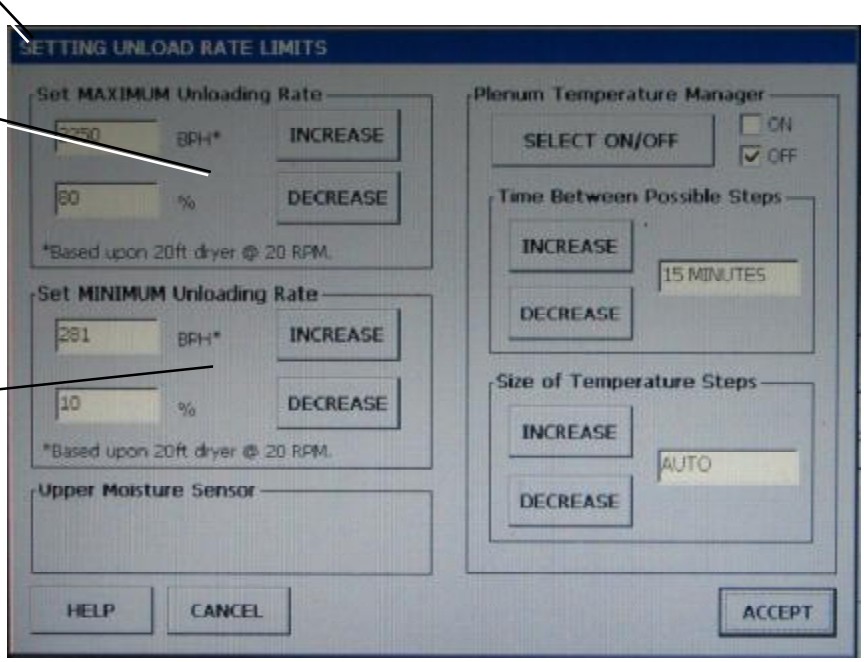
Intermediate: Regulation of Moisture: 3 MR Setpoints button

Extended Setup button: Touching this button will bring up the SETTING UNLOAD RATE LIMITS window



Set Max. Unload Rate

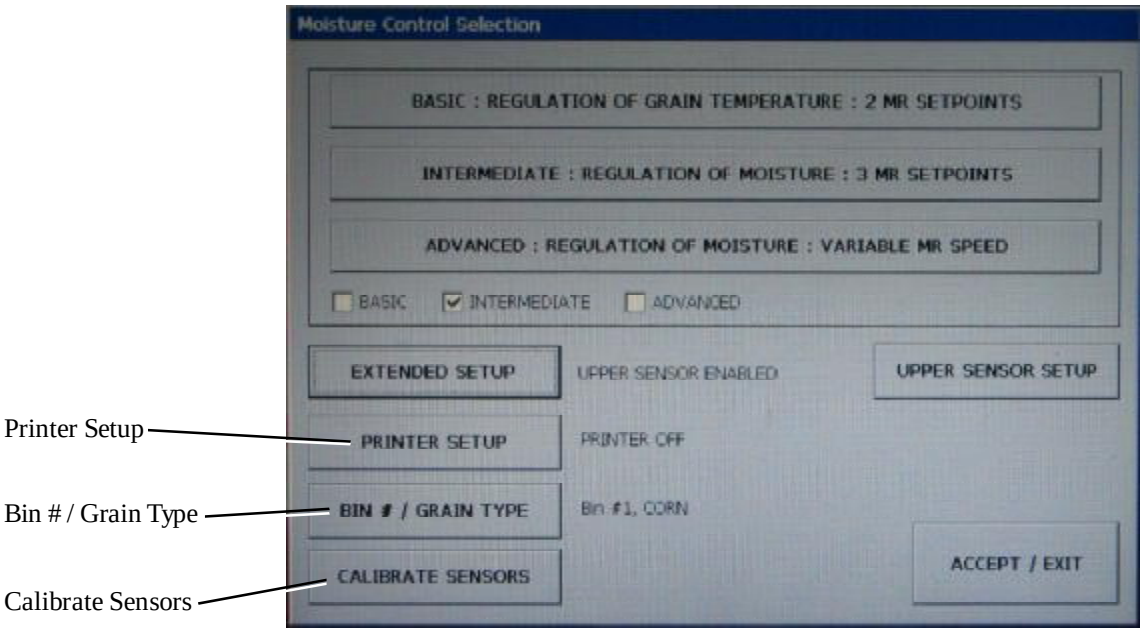
Set Min. Unload Rate



DRYER OPERATION - INTERMEDIATE MOISTURE CONTROL

9. You should now be back in the Moisture Control Selection window. Touch the BIN # / GRAIN TYPE button. When the Storage Parameters window appears select the type of grain that is to be dried and select the storage bin to be used (The bin number is for reference only and has nothing to do with the control of moisture). Then touch the EXIT button and return to the Moisture Control Selection window.

10. The printer can also be enabled or disabled by touching the PRINTER SETUP button. After you have made your selection, press the exit button to accept and exit.



11. You will also see a button to calibrate the moisture sensors. Do not calibrate the sensors at this time.

12. Now press the exit button at the bottom of the screen and return to the Dryer Operation screen.

The setup is almost complete and you are now ready to begin drying using the Intermediate moisture control system. The following steps start the flow of grain through your dryer, and finish setting up the moisture control.

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

14. 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.

15. 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.

16. 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.

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

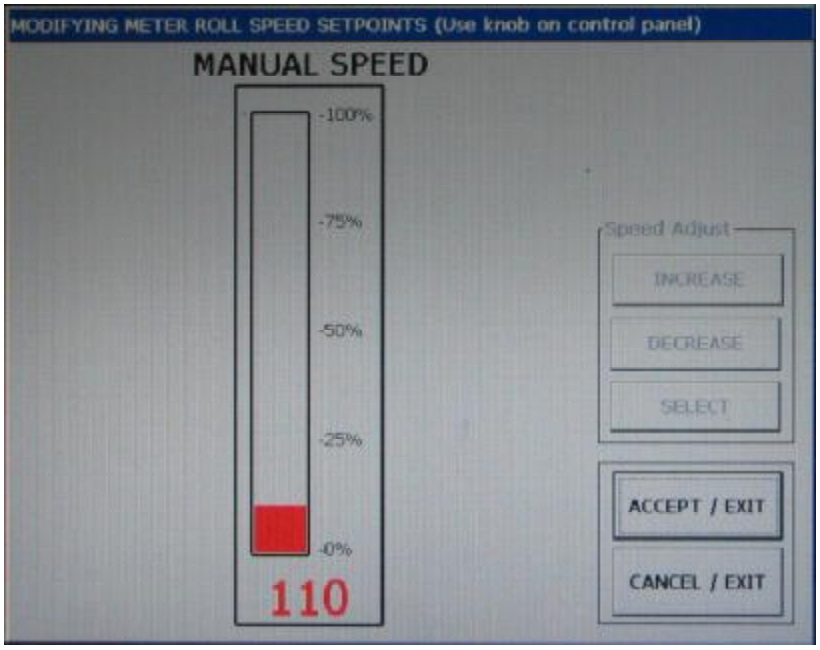
18. Start each burner by turning the HEATER switch to **ON**. After purging for approximately 10 seconds the burner will fire, and the heater switch will light up. This indicates that the flame sensing circuit is sensing burner flame. For information concerning burner adjustment see the Dryer pre start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

DRYER OPERATION - INTERMEDIATE MOISTURE CONTROL

19. 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.

20. 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.

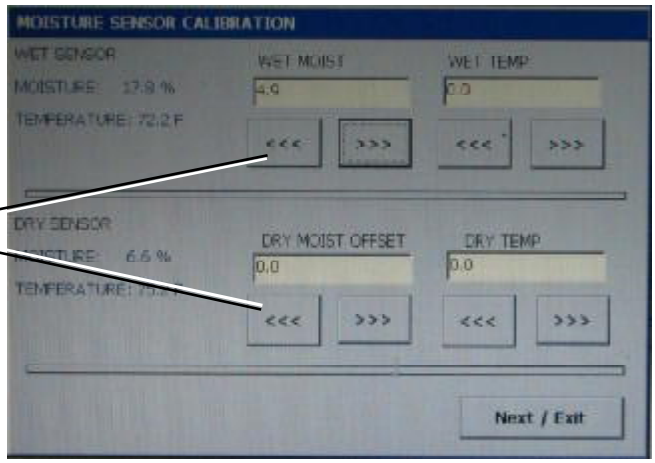
21. After the time in step 19 turn the UNLOAD AUGER switch to MANUAL. and set the METER ROLL SPEED, (MANUAL SPEED). Remember that Manual is a true Manual operation, with no moisture control. The meter rolls will run at the speed that you select using the Meter Roll Speed Encoder. To do this push on the 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. 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.



22. After the run time in step 21 begin to test the moisture content with a Moisture Tester you consider to be accurate. Test at least 3 samples for accuracy. Having determined the average discharge moisture, you may now calibrate the incoming and outgoing moisture sensors on the dryer. To do this you will need to press the SETUP button again and return to the Hardware Parameter screen. Press the M/C SETUP button and then press the CALIBRATE MOISTURE SENSORS button. The Moisture Sensor Calibration window will appear (see image below). Follow the example below to adjust the dryer to your moisture tester.

Example: Your moisture tester gives you an average moisture of 17% but the moisture sensor on the dryer is reading 18.3%. You would then calibrate the dryers moisture sensor (-1.3%), that would make the moisture screen read 17% the same as your moisture tester.

Calibrate sensors by touching the arrow buttons.

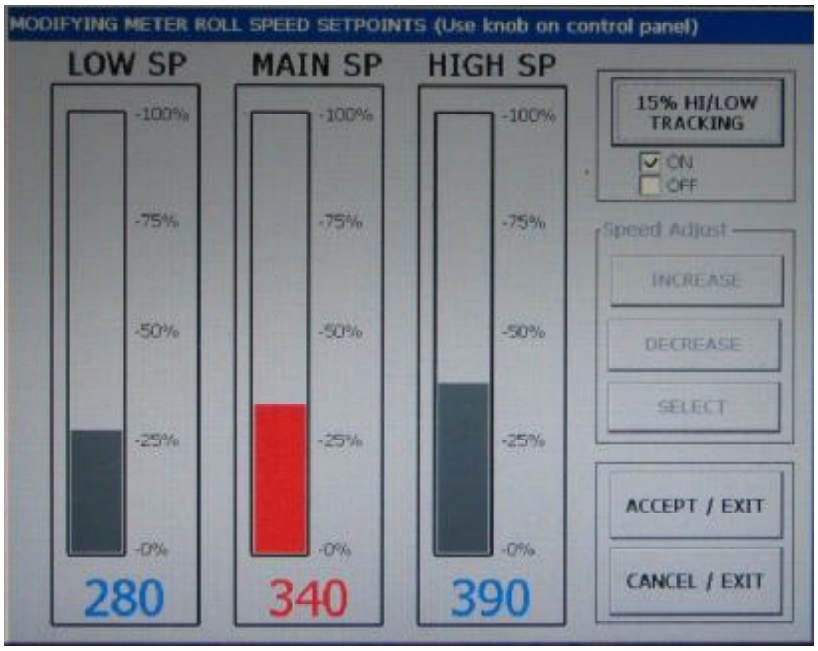


DRYER OPERATION - INTERMEDIATE MOISTURE CONTROL

23. Once the moisture reading at the discharge is where you want it to be, turn the UNLOAD switch to AUTO.

24. Now that the UNLOAD AUGER switch is in the AUTO position the INTERMEDIATE MOISTURE CONTROL is active. Now touch the M/C button at the bottom right of the Dryer Operation screen. When the Moisture Setpoint window appears set the moisture setpoint to the output moisture you desire. Let the dryer run on these settings before trying to adjust moisture or meter roll settings.

25. The dryer will immediately switch to the intermediate 3 speed moisture control. If you press the meter roll knob you will now notice that there are three different meter roll speeds. The computer has automatically set the low and high speed setpoints to 15% above and below the middle speed. The middle speed is the same as the manual speed that you had entered when staging the grain for the correct exiting moisture content.



How the Intermediate Moisture Control Works

The controller continuously monitors the moisture coming in and out of the dryer, and the column grain temperature at the end of the drying section. However, the control action is based on the dry sensor at the outlet of the dryer. If the moisture coming out of the dryer is not right at the target, the controller will speed up or slow down the unload accordingly. How the meter rolls react depends on the setpoint and the actual moisture coming out of the dryer. So long as the outgoing moisture is 3 tenths above or below the setpoint, the meter rolls run on the middle speed. Once the moisture begins to drift from the setpoint by over 3 tenths above or below the setpoint, the speed will automatically switch between middle and low, or middle and high speed. This is a very fast response and will bring grain back towards the set point quickly.

The controller does not have enough information of the grain in the dryer in the first pass after the dryer is started. It controls the dryer by using the manual speed setting as the starting point. In other words, the manual speed setting is most responsible for the first pass of drying. Therefore, set the manual unloading speed as close as it should be for the grain currently in the dryer before switching to moisture control mode. The manual speed setting does not have to be adjusted after the moisture control is activated.

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.