# AIRSTREAM GRAIN CONDITIONING SYSTEMS

# SALES MANUAL







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# What the customer needs to know before purchasing a dryer.

The customer has determined a need or been approached by a sales representative to purchase a portable dryer. Several items must be addressed to assist in the decision to purchase the correct dryer model. The type of grain to be dried, the quantity of grain to be dried, electrical and fuel services, site space, auxiliary equipment, and dryer options will need to be known in the dryer selection process. The sales representative must help the customer evaluate these items and postulate any future items that may arise. The following questions are tools to use in the customer survey.

# **Drying Needs**

- What type of grains will be dried today?
- Will other types of grain be dried in the future?
- How much grain will be dried on a daily basis?
- Are there any special considerations associated with the grains to be dried?

# **Dryer Location**

- How much space is available for the dryer and auxiliary equipment?
- If the dryer is placed between or near bins, is there enough open area around the dryer?

- Are there any height restrictions?
- How much ground clearance is desired?
- How much ground clearance is required for unloading system?
- Does the dryer need to be orientated so noise is projected away from work areas?
- Will there be enough room for future expansion in the stackable series?
- Are there any special considerations associated with the dryer location?

# **Auxiliary Handling Equipment**

- What type of auxiliary handling equipment is available?
- Will auxiliary handling equipment capacities match what will be needed for the increased capacity of a drying system?
- Will auxiliary equipment handle increased capacities from 2-3 point removal drying?
- Are there any special considerations associated with the auxiliary handling system?
- Size of auxiliary motors for sizing of contactors and overloads

# **Electrical Service**

- What is the phase and voltage of electrical service currently available?
- What is the capacity (amperage) of electrical service currently available?
- Are there any special considerations associated with the current electrical service?
- Is 110 volt control voltage available?

# **Fuel Service**

- What is the type of fuel service currently available?
- What is the capacity of fuel service currently avail able?
- Are there any special considerations associated with the current fuel service?

# **Dryer Options**

• Are there any options desired to enhance the drying system?

After the basic questions of the customer survey have been answered, the sales representative and customer can begin the dryer selection process. Dryer model selection is made based on type of dryer desired, capacity to be dried, electrical service, fuel service, and space available. Auxiliary equipment must be taken into account during the selection process to size electrical and installation options correctly. Dryer accessories can also be determined at this time.

Make the dryer model selection based on the following criteria:

Capacity

Crop Type Verify the crop type to be dried. B. Volume

Verify the volume of grain to be dried in a one hour time period. Match the volume of grain to be dried with a dryer model of the same capacity. The capacities listed for all dryer types in the specification pages are for corn. Other crop capacities can be found using the following chart for the corresponding crop.

	Dryer Capacity Conversion Chart for Various Crop Types.						
Crop to be Dried	Plenum Temperature Setting	Conversion Formula (bu)	Conversion to Metric Tons				
(Common Types)	Drying Rates Calculated on this Recommended Plenum Temperature Setting	Corn Production Rate Conversion to New Crop Production Rate	Conversion of Crop Production Rate from bushels/hour to Metric Tons/hour				
Canola	160° F	(corn dryer capacity) x 0.90	1 Metric Ton (@ 56 lb / bu) = 39 bu				
Corn	210° F	rated capacity given in specs.	1 Metric Ton (@ 56 lb / bu) = 39 bu				
Milo / Sorghum	160° F	(corn dryer capacity) x 0.90	1 Metric Ton (@ 56 lb / bu) = 39 bu				
Rice	130° F	(dryer holding capacity) x 2.5	1 Metric Ton (@ 45 lb / bu) = 49 bu				
Soybean	150° F	(corn dryer capacity) x 0.90	1 Metric Ton (@ 60 lb / bu) = 36.75 bu				
Sunflower	140° F	(corn dryer capacity) x 1.75	1 Metric Ton (@ 32 lb / bu) = 68.9 bu				
Wheat	160° F	(corn dryer capacity) x 0.90	1 Metric Ton (@ 60 lb / bu) = 36.75 bu				
Example 1: Wh	neat Capacity Calculation for 1220 :	590 bu/hr (10 point corn) x 0.90 =	531 bu/hr				
Example 2: Whea	t Capacity in Metric Tons for 1220 :	531 bu/hr ÷ 36.75 bu/MT = 14.5 M	IT/hr				
Note: It is recommer	nded that canola be dried in a batcl	h mode only.					

A.

#### **Dryer Options**

Determine which dryer options are needed for the customer's drying needs and are desired by the customer.

Examples of options available for the portable dryer.

- Phase and voltage type
- Fuel type
- Controls type
- Drying basket screen type (galvanized or stainless)
- Top auger type (standard or wet bin)
- Fill location (front or rear)
- Discharge location (front or rear)

See pages on dryer options for complete list and pricing.

#### **Dryer Accessories**

Determine which dryer accessories would enhance the customer's drying needs or are desired by the customer.

Examples of accessories available for the portable dryer.

- Leg Stands
- Trash pan
- Aspirator
- Heat reclaimer
- Noise Suppresser

See pages on dryer accessories for complete list and pricing.

#### Site Requirements

A. Space

Match the dryer dimensional requirements for proper operation with the space available. If the dryer is too large to fit into the given space, another dryer must be selected.

B. Electrical

Verify the electrical service available. Compare phase, voltage, and amperage required with the values listed in the specifications pages. If single phase is not available or amperage exceeds current service, another dryer must be selected or alternatives for phase and voltage must be considered.

C. Fuel

Verify the fuel service available.

Compare the fuel requirements with the values listed in the specification pages. If sufficient fuel is not available, the customer must evaluate his service with fuel supplier or consider other fuel type.

#### **Auxiliary Equipment**

A. Capacity

Verify the capacity of the loading and unloading equipment. Compare the auxiliary equipment capacities to the maximum values for the dryer. The auxiliary equipment <u>must</u> be able to handle the input and output requirements of the dryer.

B. Electrical

Verify the type of phase, voltage, amperage, and horsepower of the auxiliary equipment. If the dryer is to control the operation of the auxiliary equipment, values for the electrical requirements of this equipment must be taken into account when ordering the components of the dryer control system.

#### **Electrical Service**

C. Drying Method

Determine the method of drying the desired crop. Drying methods are dependent upon the handling, storage, and conditioning apparatus of the customer, but these methods influence the capacities of the dryer model selected.

Methods of drying in GSI Portable Dryers.

- *Full Heat Continuous Flow:* Grain flows through the dryer at a constant rate, is heated continuously, and is discharged hot from the dryer at desired moisture percentage.
- *Dry and Cool Continuous Flow:* Grain flows through the dryer at a constant rate, is heated and cooled continuously at different levels, and is discharged near ambient air temperature and at desired moisture percentage.
- *Staged Batch:* The dryer operates in stages at timed rates for loading, heating, cooling, and unloading. Grain can be discharged hot or cooled from the dryer as needed.

#### **Dryer Models**

Choose the type of dryer desired from the capacity requirements above.

The four model number series of the GSI portable dryer line.

- *Competitor*: Single fan dryers with metering rolls capable of staged batch or continuous flow operation utilizing the Series 2000 control. Model number is a three digit number signifying number of fans and length of drying basket. *example*: 116; 1 fan , 16 feet long.
- *C-Series*: Single and multiple fan dryers with metering rolls capable of staged batch or continuous flow operation utilizing the Electronic Monitoring Control System. Model number is a four digit number signifying number of modules, number of fans, and length of drying basket.
   *example*: 1216; 1 module, 2 fans, 16 feet long.
- S-Series: Single and two fan dryers of the "C-Series" that are integrated with parts for future expansion into multi-module dryers. Model number is the same as the "C-Series" followed by the suffix "S" for stackable. *example*: 1216S; 1 module, 2 fans, 16 feet long, stackable
- *AB-Series*: Single and two fan dryers designed for batch drying utilizing the Series 2000 control. Model number is a three digit number following by the "AB" suffix. *example*: 210AB

See dryer features and comparison pages for more information on dryer model types.

#### Capacity

- What type of grain is to be dried?
- What volume of grain is to be dried in a one hour time period?
- •What drying method will be used?

\_\_\_\_ Full Heat Continuous Flow

\_\_\_\_Yes \_\_\_\_No (select again)

\_\_\_\_ Yes \_\_\_\_ No (consider alternatives)

\_\_\_\_ Yes \_\_\_\_ No (consider alternatives)

- \_\_\_ Dry and Cool Continuous Flow
- \_\_\_ Staged Batch

#### **Dryer Models**

• Which dryer model matches the hourly capacity for the given method chosen? (*may be more than one*)

#### **Site Requirements**

- Will the dryer fit into the site chosen?
- Is the electrical service adequate for the dryer?
- Is the fuel service adequated for the dryer?

#### **Auxiliary Equipment**

- What is the capacity of the loading and unloading equipment?
- What is the maximum input and output of the dryer chosen?
- Compare the two capacities. Will auxiliary equipment handle the maximum requirements of the dryer?
- What are the these values for the auxiliary load auger?

\_\_\_\_ Yes \_\_\_\_ No (consider alternatives)

- \_\_\_\_Horsepower
- \_\_\_\_Phase
- \_\_\_\_\_Voltage
- \_\_\_\_\_Amperage
- What are the these values for the auxiliary unload auger?
- \_\_\_\_Horsepower Phase
  - \_\_\_\_\_ Voltage
- \_\_\_\_\_ Voltage
- \_\_\_\_\_Amperage

• Are auxiliary components larger than standard dryer components? If so, larger components must be added to dryer at additional cost. \_\_\_ Yes (call for quote) \_\_\_\_ No

Dryer Options (required for production)	
• Select geographic type.	Domestic
	Canadian
	Export
• Indicate electrical service.	Phase
	Voltage
• Indicate fuel type.	
• Select drying basket screen type.	<ul> <li>Galvanized (standard)</li> <li>Galvanized Small Grain</li> <li>Stainless Steel - Outside Complete</li> </ul>
	Stainless Steel - Top Only
	Stainless Steel - Top and Sides
	Stainless Steel - Stack Partial
	Stainless Steel - Inside and Outside
	Stainless Steel - 0.078" Perf. for Rice
• Select top auger type.	Standard Top
(see pricing pages for standard setup)	Wet Bin Top
	Stainless Steel Wet Bin Top
• Indicate fill location.	Rear Fill (standard)
	Front Fill (optional)
• Indicate discharge location.	Rear Discharge (standard)
	Front Discharge (optional)
List dryer accessories desired for dryer.	
(see pricing pages for examples)	

#### All screens, augers, bearings and sheet metal parts are the same as the 1100 Series dryers. Only the electronic controls are different.

Competitor Series 2000 System	Externally adjustable vaporizers				
Full heat continuous flow or auto batch	Low speed vane axial fans with				
Dry and cool auto batch					
Full safety control system	cleanout				
See through control panel door	Heavy duty meter rolls and drive				
Load and unload auxiliary starters	Solid dividers, every two feet				
Waterproof controls	Galvanized fan housing, control				
Solid state ignition					



Model	<b>Electrical Power</b>			List Price	Approx.	Full Heat		Dry & Cool	
Number	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
			Εqι	ipped With A S	tandard Top	**			
108	1 or 3	220V	LP	\$21,500.00	4,300 lbs.	190	310	120	155
	1 or 3	220V	NG	\$22,800.00	4,300 lbs.	190	105	120	155
110	1 or 3	220V	LP	\$24,700.00	5,000 lbs.	240	385	150	200
	1 or 3	220V	NG	\$26,200.00	5,000 lbs.	240	385	150	200
112	1 or 3	220V	LP	\$30,700.00	6,300 lbs.	335	525	205	270
	1 or 3	220V	NG	\$32,100.00	6,300 lbs.	335	525	205	270
114	1 or 3	220V	LP	\$39,400.00	7,000 lbs.	390	610	245	320
	1 or 3	220V	NG	\$40,300.00	7,000 lbs.	390	610	245	320

#### Equipped With A Perforated Wet Bin

116	1 or 3 1 or 3	220V 220V	LP NG	\$45,300.00 \$46,600.00	7,500 lbs. 7,500 lbs.	440 440	710 710	280 280	370 370
118	3	220V 220V	LP NG	\$47,900.00 \$48,500.00	8,000 lbs. 8,000 lbs.	505 505	815 815	320 320	430 430
120	3	220V 220V	LP NG	\$52,000.00 \$53,300.00	8,700 lbs. 8,700 lbs.	560 560	905 905	360 360	475 475
122	3	220V 220V	LP NG	\$55,600.00 \$57,200.00	9,500 lbs. 9,500 lbs.	610 610	990 990	390 390	520 520
126	3	220V 220V	LP NG	\$62,300.00 \$63,700.00	11,000 lbs. 11,000 lbs.	715 715	1,155 1,155	455 455	605 605

\*\*See page 40 for wet bin pricing, if needed.



For CGA approval on above models add \$1000. list For 575V-same as 440V

For 208V-same as 220V

100 Series

For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

Full heat continuous flow or auto batch	Low speed vane axial fans with Blue Burn System			
Dry and cool auto batch	Solid state ignition			
Electronic Monitoring Control System	Externally adjustable vaporizers			
Full safety control system	Internal and external meter roll			
Remote capable control center	cleanout			
See through control panel door	Heavy duty meter rolls and drive			
Load and unload auxiliary starters	Solid dividers, every two feet			
Galvanized fan housing, control	Perforated wet bin standard			
cability and augor housing	Waterproof controls			



Model	<b>Electrical Power</b>			List Price	Approx.	Full Heat		Dry & Cool	
Number	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
1108	1 or 3 1 or 3	220V 220V	LP NG	\$29,900.00 \$31,200.00	4,300 lbs. 4300 lbs.	205 205	335 335	130 130	170 170
1110	1 or 3 1 or 3	220V 220V	LP NG	\$32,200.00 \$33,400.00	5,000 lbs. 5,000 lbs.	260 260	420 420	165 165	220 220
1112	1 or 3 1 or 3	220V 220V	LP NG	\$37,300.00 \$38,800.00	6,300 lbs. 6,300 lbs.	345 345	560 560	220 220	290 290
1114	1 or 3 1 or 3	220V 220V	LP NG	\$44,000.00 \$45,500.00	7,000 lbs. 7,000 lbs.	405 405	650 650	260 260	340 340
1116	1 or 3 1 or 3	220V 220V	LP NG	\$48,800.00 \$49,300.00	7,500 lbs. 7,500 lbs.	440 440	710 710	280 280	370 370
1118	3	220V 220V	LP NG	\$52,400.00 \$53,800.00	8,000 lbs. 8,000 lbs.	505 505	815 815	320 320	430 430
1120	3	220V 220V	LP NG	\$56,500.00 \$57,900.00	8,700 lbs. 8,700 lbs.	560 560	905 905	360 360	475 475
1122	3	220V 220V	LP NG	\$60,300.00 \$61,700.00	9,500 lbs. 9,500 lbs.	610 610	990 990	390 390	520 520
1126	3	220V 220V	LP NG	\$67,400.00 \$68,800.00	11,000 lbs. 11,000 lbs.	715 715	1,155 1,155	455 455	605 605



For CGA approval on above models add \$1000. list

For 575V-same as 440V

For 208V-same as 220V

1100 Series

For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

December 1,1997

Full heat continuous flow or staged batch

Dry and cool continuous flow or staged batch

Electronic Monitoring Control System

Full safety control system

Remote capable control center

See through control panel door

Load and unload auxiliary starters

Galvanized fan housing, control cabinet and auger housing

Low speed vane axial fans with Blue Burn System

Solid state ignition

Externally adjustable vaporizers

Internal and external meter roll cleanout

Heavy duty meter rolls and drive

Solid dividers, every two feet

Perforated wet bin standard

Waterproof controls

For CGA approval on 1200 Series add \$2000. list

For 575V-same as 440V

For 208V-same as 220V







1200 Series

1200H Series

# **TWO FAN MODELS**

Model Electrical Power			List Price	Approx.	Full H	leat	Dry &	Cool	
Number	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
1214	1 or 3	220V or 440V	LP or NG	\$47,500.00	7,600 lbs.	415	680	250	400
1216	1 or 3	220V or 440V	LP or NG	\$51,100.00	8,200 lbs.	475	795	290	465
1218	1 or 3	220V or 440V	LP or NG	\$54,700.00	9,000 lbs.	520	840	315	505
1220	1 or 3	220V or 440V	LP or NG	\$60,800.00	9,800 lbs.	590	950	345	560
1222	3	220V or 440V	LP or NG	\$67,200.00	10,500 lbs.	650	1,055	395	640
1226	3	220V or 440V	LP or NG	\$73,600.00	12,000 lbs.	730	1,180	450	725

# TWO FAN MODELS (50/50 PLENUM)

Model	Stackable	Ele	ctrical Power	werList Price		Approx.	Full H	leat	Dry & Cool	
Number	Units	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
1214H	1	1 or 3	220V or 440V	LP or NG	\$50,800.00	7,600 lbs.	430	700	200	325
1218H	1	1 or 3	220V or 440V	LP or NG	\$58,500.00	9,200 lbs.	535	860	240	385
1220H	1	1 or 3	220V or 440V	LP or NG	\$65,000.00	11,500 lbs.	600	970	280	445
1222H	1	1 or 3	220V or 440V	LP or NG	\$71,900.00	12,500 lbs.	670	1,080	300	485
1226H	1	1 or 3	220V or 440V	LP or NG	\$78,800.00	15,000 lbs.	775	1,255	375	600

For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

#### **Portable Dryer Sales Manual**

# **C-Series & H-Series 2 Fan Pricing**

Full heat continuous flow or staged batch

Dry and cool continuous flow or staged batch

Electronic Monitoring Control System

Full safety control system

Remote capable control center

See through control panel door

Load and unload auxiliary starters

Galvanized fan housing, control cabinet and auger housing

Low speed vane axial fans with Blue Burn System

Solid state ignition

Externally adjustable vaporizers

Internal and external meter roll cleanout

Heavy duty meter rolls and drive

Solid dividers, every two feet

Perforated wet bin standard

Waterproof controls

For CGA approval on 1300 Series add \$3000. list

For 575V-same as 440V

For 208V-same as 220V





1300 Series

#### **THREE FAN MODELS**

Model	Ele	ctrical Power		List Price	Approx.	Full Heat		Dry & Cool	
Number	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
1314	1 or 3	220V or 440V	LP or NG	\$55,000.00	8,000 lbs.	435	710	265	425
1318	1 or 3	220V or 440V	LP or NG	\$60,700.00	9,400 lbs.	520	840	315	505
1322	1 or 3	220V or 440V	LP or NG	\$69,600.00	10,750 Ibs.	650	1,055	395	640

# **Stackable Series Pricing**

Full heat continuous flow or staged	Crane lifting brackets	
batch	Solid state ignition	
Dry and cool continuous flow or staged batch	Externally adjustable vaporizers	
etagea saten		
Electronic Monitoring Control System	Internal and external meter roll	
Full safety control system		
	Heavy duty meter rolls and drive	
Remote capable control center	• • • • • • • • •	
	Solid dividers, every two feet	
See through control panel door	Perforated wet hin standard	
Load and unload auxiliary starters	r enorated wet bin standard	
Load and amoud advinary stations	S-Series Features	
Waterproof controls	Controls contain components for 2	
<b>.</b>	additional fans	
Galvanized fan housing, control	Chiffeners have and first module	
cabinet and auger nousing	stiffeners included	
I ow speed vane axial fans with Blue	simeners included	
Burn System	Stack ladders included	

Model	Stackable	Elect	rical Power		List Price	Approx.	Full	Heat	Dry &	Cool	
Number	Units	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*	
1112S	1	1 or 3	220V or 440V	LP or NG	\$44,200.00	8,000 lbs.	345	560	220	290	
1114S	1	1 or 3	220V or 440V	LP or NG	\$51,900.00	9,200 lbs.	405	650	260	340	
1118S	1	3	220V or 440V	LP or NG	\$61,300.00	11,200 lbs.	505	815	320	430	
1120S	1	3	220V or 440V	LP or NG	\$66,000.00	12,000 lbs.	560	905	360	475	
1122S	1	3	220V or 440V	LP or NG	\$70,300.00	13,000 lbs.	610	990	390	520	
1126S	1	3	220V or 440V	LP or NG	\$78,400.00	14,500 lbs.	715	1,155	455	605	
1214S	1	1 or 3	220V or 440V	LP or NG	\$54,100.00	9,500 lbs.	430	700	200	325	
1218S	1	1 or 3	220V or 440V	LP or NG	\$62,400.00	11,500 lbs.	535	860	240	385	
1220S	1	1 or 3	220V or 440V	LP or NG	\$69,300.00	14,500 lbs.	600	970	280	445	
1222S	1	1 or 3	220V or 440V	LP or NG	\$76,600.00	15,500 lbs.	670	1,080	300	485	
1226S	1	1 or 3	220V or 440V	LP or NG	\$83,900.00	18,500 lbs.	775	1,255	375	600	

For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

Model	Stackable	tackableElectrical Pow			List Price	Approx.	Full Heat		Dry & Cool	
Number	Units	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
2212	2	3	220V or 440V	LP or NG	\$67,700.00	14,000 lbs.	700	1,135	330	525
2214	2	3	220V or 440V	LP or NG	\$79,000.00	16,000 lbs.	820	1,325	380	615
2218	2	3	220V or 440V	LP or NG	\$96,700.00	18,500 lbs.	1,025	1,655	480	775
2220	2	3	220V or 440V	LP or NG	\$103,000.00	20,500 lbs.	1,135	1,840	530	855
2222	2	3	220V or 440V	LP or NG	\$109,400.00	22,500 lbs.	1,245	2,015	580	935
2226	2	3	220V or 440V	LP or NG	\$122,700.00	24,500 lbs.	1,490	2,410	695	1,120
2314	2	3	220V or 440V	LP or NG	\$83,300.00	16,000 lbs.	900	1,455	615	995
2318	2	3	220V or 440V	LP or NG	\$101,600.00	19,000 lbs.	1,120	1,805	770	1,235
2320	2	3	220V or 440V	LP or NG	\$107,200.00	21,000 lbs.	1,245	2,010	850	1,375
2322	2	3	220V or 440V	LP or NG	\$113,700.00	22,500 lbs.	1,355	2,195	930	1,500
2326	2	3	220V or 440V	LP or NG	\$126,900.00	25,000 lbs.	1,670	2,700	1,130	1,835

Pedestal Bases for Stack Stiffener Supports *included* in List Price of dryer.

Standard with all stack dryers. D01-1100\*\* LEG-036\*\*\*

Available for all stack dryers. D01-1104\*\* LEG-018\*\*\*

\*\* 6 required for 12' & 14' series.
8 required for 18' series.
10 required for 20' & 22' series.
12 required for 26' series.

36" Base Unit 36" Tall Leg

18" Base Unit
18" Tall Leg
\*\*\* 4 required for 14', 18', 22' & 26' series.
2 required for 12' & 20' series.

For CGA approval on 1220S Series add \$2000. list. \$2000. for 2200 Series, \$3000. for 2300 Series.

For 575V-same as 440V. For 208V-same as 220V

Model	Stackable	<b>Electrical Power</b>			List Price	Approx.	Full Heat		Dry & Cool	
Number	Units	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
2414	2	1 or 3	220V or 440V	LP or NG	\$89,600.00	16,500 lbs.	900	1,455	615	995
2418	2	1 or 3	220V or 440V	LP or NG	\$108,600.00	19,500 lbs.	1,120	1,805	770	1,235
2420	2	3	220V or 440V	LP or NG	\$114,300.00	21,500 lbs.	1,245	2,010	850	1,375
2422	2	3	220V or 440V	LP or NG	\$121,200.00	23,500 lbs.	1,355	2,195	930	1,500
2426	2	3	220V or 440V	LP or NG	\$143,800.00	26,000 lbs.	1,670	2,700	1,130	1,835
3312	3	1 or 3	220V or 440V	LP or NG	\$98,700.00	22,000 lbs.	1,045	1,690	640	1,035
3314	3	1 or 3	220V or 440V	LP or NG	\$107,900.00	23,000 lbs.	1,355	2,190	840	1,340
3318	3	3	220V or 440V	LP or NG	\$128,300.00	28,500 lbs.	1,680	2,720	1,035	1,665
3320	3	3	220V or 440V	LP or NG	\$140,400.00	28,500 lbs.	1,825	2,950	1,120	1,800
3322	3	3	220V or 440V	LP or NG	\$148,700.00	30,000 lbs.	2,040	3,300	1,250	2,015
3326	3	3	220V or 440V	LP or NG	\$167,200.00	34,000 lbs.	2,475	4,000	1,520	2,445
*Mogeura	ad in huchald	s nor hou	ır (RPH)							

'Measured in bushels per hour (BPH)

For CGA approval on stacked dryers add \$4000. for 2400 Series, \$3000. for 3300 Series

For 575V-same as 440V

For 208V-same as 220V





3300 Series

For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

Model Stackable		Electrical Power			List Price	Approx.	Full Heat		Dry & Cool	
Number	· Units	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	10 pt.*	5 pt.*	10 pt.*	5 pt.*
3414	3	1 or 3	220V or 440V	LP or NG	\$112,100.00	23,000 lbs.	1,355	2,190	840	1,340
3418	3	3	220V or 440V	LP or NG	\$133,200.00	26,000 lbs.	1,680	2,720	1,035	1,665
3420	3	3	220V or 440V	LP or NG	\$144,700.00	29,000 lbs.	1,825	2,950	1,120	1,800
3422	3	3	220V or 440V	LP or NG	\$153,100.00	30,000 lbs.	2,040	3,300	1,250	2,015
3426	3	3	220V or 440V	LP or NG	\$172,000.00	35,000 lbs.	2,475	4,000	1,520	2,445
3614	3	1 or 3	220V or 440V	LP or NG	\$120,000.00	24,000 lbs.	1,355	2,190	840	1,340
3618	3	1 or 3	220V or 440V	LP or NG	\$141,700.00	28,000 lbs.	1,680	2,720	1,035	1,665
3620	3	1 or 3	220V or 440V	LP or NG	\$158,400.00	31,000 lbs.	1,825	2,950	1,120	1,800
3622	3	1 or 3	220V or 440V	LP or NG	\$166,300.00	33,000 lbs.	2,040	3,300	1,250	2,015
3626	3	3	220V or 440V	LP or NG	\$197,500.00	38,000 lbs.	2,475	4,000	1,520	2,445

For CGA approval on stacked dryers add \$4000. for 3400 Series, \$6000. for 3600 Series

For 575V-same as 440V

For 208V-same as 220V



For small grain perforations (0.050") add 2% to list price of dryer. \*Measured in bushels per hour (BPH). Prices and specifications subject to change without notice. All items F. O. B. Assumption, Illinois

Full heat or dry and cool auto batch	Remote capable control center	Solid state ignition
Electronic Monitoring Control System	See through control panel door	Externally adjustable vaporizers
Low speed vane axial fans with Blue Burn System	Load and unload auxiliary starters	Solid dividers, every two feet
Full safety control system	Galvanized fan housing, control cabinet and auger housing	Waterproof controls

Model	<b>Electrical Power</b>		List Price Approx.		Full Heat		Dry & Cool		
Number	Phase	Voltage	Fuel	Less Transport	Dryer Wt.	l0 pt.	5 pt.	10 pt.	5 pt.
				One Fan Mo	dels				
160AB	1 or 3	220V or 440V	LP	\$17,000.00	3,500 lbs.	160	312	114	178
	1 or 3	220V or 440V	NG	\$18,300.00	3,500 lbs.	160	312	114	178
210AB	1 or 3	220V or 440V	LP	\$20,500.00	4,000 lbs.	208	415	150	237
	1 or 3	220V or 440V	NG	\$21,800.00	4,000 lbs.	208	415	150	237
300AB	1 or 3	220V or 440V	LP	\$24,800.00	4,800 lbs.	295	590	214	337
	1 or 3	220V or 440V	NG	\$26,200.00	4,800 lbs.	295	590	214	337
375AB	1 or 3	220V or 440V	LP	\$28,200.00	5,700 lbs.	350	700	230	400
	1 or 3	220V or 440V	NG	\$29,600.00	5,700 lbs.	350	700	230	400
400AB	1 or 3	220V or 440V	LP	\$32,500.00	6,200 lbs.	400	800	275	450
	1 or 3	220V or 440V	NG	\$33,900.00	6,200 lbs.	400	800	275	450
				Two Fan Moo	dels				
415AB	1 or 3	220V or 440V	LP	\$36,900,00	6.700 lbs.	415	828	300	472
	1 or 3	220V or 440V	NG	\$38,100.00	6,700 lbs.	415	828	300	472
600AB	1 or 3	220V or 440V	LP	\$48,700.00	7,800 lbs.	591	1,182	430	675
	1 or 3	220V or 440V	NG	\$50,200.00	7,800 lbs.	591		430	675

For CGA approval on above models add \$1000. list

For 575V-same as 440V

For 208V-same as 220V

TRANSPORT KIT						
ltem	Model	Part Number	List Price			
Transport Kit	6-10 ft. series	TK-01	\$1,700.00			
•	12 ft. series	TK-02	\$2,900.00			
	14, 16 ft. series	TK-02S	\$3,000.00			
	18, 20, 22 ft. series	TK-03	\$4,300.00			
	26 ft. series	TK-04	\$5,900.00			
	26 ft. series	TK-04	\$5,90			

	W	'ET BIN	
	Dryer Length	Galvanized Steel List Price	Stainless Steel Price List
All combination dryers are	8 ft.	\$580.00	\$1,040.00
equipped with wet bins as	10 ft.	\$700.00	\$1,280.00
standard equipment	12 ft.	\$1,025.00	\$1,710.00
except Competitor	14 ft.	\$1,190.00	\$1,990.00
models 108, 110, 112	16 ft.	\$1,350.00	\$2,270.00
& 114	18 ft.	\$1,550.00	\$2,575.00
	20 ft.	\$1,710.00	\$2,850.00
	22 ft.	\$1,860.00	\$3,120.00
	26 ft.	\$2,200.00	\$3,690.00

#### **STAINLESS STEEL PRICING**

Model	Column	Price	Тор	Top &	*Rice
	Length	Complete	Only	Sides	Option
160 AB (short sides)	6	\$1,180.00	\$390.00	\$690.00	\$2,135.00
1108, 210AB (short sides)	8	\$1,575.00	\$510.00	\$925.00	\$2,825.00
1110 (short sides)	10	\$1,965.00	\$640.00	\$1,150.00	\$3,830.00
300AB	10	\$2,190.00	\$640.00	\$1,390.00	\$3,885.00
1112, 375AB	12	\$2,635.00	\$765.00	\$1,650.00	\$4,085.00
1114, 1214, 1214S, 1314, 400AB, 415AB	14	\$3,075.00	\$900.00	\$1,940.00	\$6,030.00
1116, 1216,	16	\$3,515.00	\$1,025.00	\$2,215.00	\$6,900.00
1118, 1218, 1218S, 1318	18	\$3,950.00	\$1,150.00	\$2,490.00	\$7,750.00
1120, 1220, 1220S, 600AB	20	\$4,395.00	\$1,285.00	\$2,775.00	\$8,625.00
1122, 1222, 1222S, 1322	22	\$4,835.00	\$1,410.00	\$3,050.00	\$9,475.00
1126, 1226, 1226S	26	\$5,710.00	\$1,665.00	\$3,610.00	\$11,190.00
		Complete	Partial 1	Partial 2	Rice Option
2212	12	\$5,270.00	\$3,400.00	-	\$10,400.00
2214, 2314, 2414	14	\$6,150.00	\$3,975.00	-	\$12,140.00
2218, 2318, 2418	18	\$7,900.00	\$5,100.00	-	\$15,600.00
2220, 2320, 2420	20	\$8,790.00	\$5,680.00	-	\$17,330.00
2222, 2322, 2422	22	\$9,670.00	\$6,250.00	-	\$19,140.00
2226, 2326, 2426	26	\$11,425.00	\$7,375.00	-	\$22,600.00
3312	12	\$7.900.00	-	\$4,290.00	\$15.400.00
3314, 3414, 3614	14	\$9,230.00	-	\$5,020.00	\$18,500.00
3318, 3418, 3618	18	\$11,860.00	-	\$6,450.00	\$23,560.00
3320, 3420, 3620	20	\$13,180.00	-	\$7,170.00	\$26,190.00
3322, 3422, 3622	22	\$14,500.00	-	\$7,890.00	\$28,800.00
3326, 3426, 3626	26	\$17,140.00	-	\$9,325.00	\$34,020.00

Partial 1: All screens of top module and top angle of bottom module.

Partial 2: All screens of top module and top and side screens of middle module.

Small grain perforations (0.050") not available in stainless steel.

\*Includes inside and outside screens (GSI recommends this option for drying rice).

	GRAIN SAMPL	ER	
Item Grain Sampler (Standard on new dryer)	Model	Part Number D01-0405	List Price \$74.00
	HEAT RECLAIM	IER	
Heat <b>Beclaimer</b>	1214	1214-HB01	\$5 150 00
fical ficolatile	1216	1216-HR01	\$5,350.00
	1218	1218-HR01	\$5,500.00
	1220	1220-HR01	\$5,680.00
	1222	1222-HR01	\$5,900.00
	1226	1226-HR01	\$7,000.00
	1314	1314-HR01	\$5,130.00
	1318	1318-HR01	\$5,510.00
	1322	1322-HR01	\$5,900.00
	2000 Series		
	12 ft.	2012-HR01	\$10,800.00
	14 ft.	2014-HR01	\$11,410.00
	18 II. 20 ft	2018-HRUI	\$12,790.00
	20 II. 22 ft	2020-0001	\$13,450.00 \$14,110.00
	22 II. 26 ft	2022-HR01 2026-HR01	\$14,110.00 \$15,430.00
	3000 Series	202011101	ψ10,400.00
	12 ft.	3012-HB01	\$14 280 00
	14 ft.	3014-HR01	\$15.330.00
	18 ft.	3018-HR01	\$16,900.00
	20 ft.	3020-HR01	\$17,640.00
	22 ft.	3022-HR01	\$18,480.00
	26 ft.	3026-HR01	\$19,950.00
	NOISE SUPPRESSO	OR KIT	
Noise Suppressor Kit	1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1126	1100-NS01	\$1,200.00
	1214, 1216, 1218, 1220,1222,1226	1200-NS01	\$2,250.00
	1314, 1318, 1322	1300-NS01	\$2,250.00
	12 14 18 20 22	1200S-NS01	\$4,050.00
	& 26 ft. series	2000-NS01	\$6,800.00
	stacked series	3000-NS01	\$9,600.00
Earling With Llast	All Multi Eco Madala	1200-NSHR	\$1,350.00
Por Use Will Heat Boolaimor	With Heat Reclaimer	2000-NSHR	\$3,900.00
Tieclaintei	With heat heciainter	3000-NSHR	\$6,700.00
		NRM	
	JENVICE FLAIF		

Service Platform All SP-01 \$1,680.00 (extra unit)

\$46.00

#### **SHRINK WRAP** For Dryer Transport Column Length **Net Price After Cash** Job Number 8'-10' CD-0313 \$225.00 12'-18' CD-0409 \$350.00 20'-26' CD-0410 \$475.00 **DISCHARGE AUGER EXTENSION** 10" Diameter Tube \$430.00 CD-AE02 \$580.00 CD-AE04 \$710.00 CD-AE06 \$860.00 CD-AE08 **Fill Extension** MF-AE02L \$550.00 (Automatic Batch Models)

# **Discharge Box Bypass**

In lieu of Standard

2'

4'

6'

8'

Any length needed is available. Call factory for quotation.

D01-1172

		TRASH PAN	
-	TP-08	Trash Pan Kit, 8' Dryer	\$115.00
-	TP-10	Trash Pan Kit, 10' Dryer	\$143.00
-	TP-12	Trash Pan Kit, 12' Dryer	\$166.00
-	TP-14	Trash Pan Kit, 14' Dryer	\$245.00
-	TP-16	Trash Pan Kit, 16' Dryer	\$272.00
-	TP-18	Trash Pan Kit, 18' Dryer	\$294.00
-	TP-20	Trash Pan Kit, 20' Dryer	\$322.00
-	TP-22	Trash Pan Kit, 22' Dryer	\$401.00
-	TP-26	Trash Pan Kit, 26' Dryer	\$450.00

#### **FRAME STEPS**

To be used to extend ladder on front of dryer for access to fan when dryer is on legs.

2 rung step assembly (extends 6" below frame)	D01-1196	\$51.00
3 rung step assembly (extends 18" below frame)	D01-1197	\$68.00

#### **CRANE BRACKETS**

Crane bracket kit - top models (used on single module dryers and top modules of stack dryers)	D04-0128	\$144.00
Crane bracket kit - bottom module (used on bottom and middle modules of stack dryers)	D04-0157	\$52.00

### **DRYER STEEL LEG SUPPORTS**

When ordering leg stands for dryers, please use these part numbers to specify the desired item needed. These groupings have been developed to make ordering legs for dryers easier.

#### Individual Leg Assembly

LEG-016	16" Tall	\$37.00
LEG-018	18" Tall	\$38.00
LEG-024	24" Tall	\$40.00
LEG-030	30" Tall	\$43.00
LEG-036	36" Tall	\$46.00
LEG-042	42" Tall	\$49.00

#### Leg Packages For An 8' Dryer Module

LEG-016-08	16" Tall	\$291.00
LEG-018-08	18" Tall	\$300.00
LEG-024-08	24" Tall	\$317.00
LEG-030-08	30" Tall	\$344.00
LEG-036-08	36" Tall	\$371.00
LEG-042-08	42" Tall	\$397.00

#### Leg Packages For 10' & 12' Dryer Modules

LEG-016-10	16" Tall	\$364.00
LEG-018-10	18" Tall	\$375.00
LEG-024-10	24" Tall	\$397.00
LEG-030-10	30" Tall	\$431.00
LEG-036-10	36" Tall	\$462.00
LEG-042-10	42" Tall	\$497.00

#### Leg Packages For 14' & 16" Dryer Modules

LEG-016-14 16" Tall 5	\$437.00
LEG-018-14 18" Tall	\$449.00
LEG-024-14 24" Tall	\$477.00
LEG-030-14 30" Tall	\$516.00
LEG-036-14 36" Tall	\$555.00
LEG-042-14 42" Tall	\$595.00

#### Leg Packages For 18' & 20' Dryer Module

LEG-016-18	16" Tall	\$509.00
LEG-018-18	18" Tall	\$525.00
LEG-024-18	24" Tall	\$555.00
LEG-030-18	30" Tall	\$602.00
LEG-036-18	36" Tall	\$648.00
LEG-042-18	42" Tall	\$695.00

#### Leg Packages For A 22' Dryer Module

LEG-016-22	16" Tall	\$582.00
LEG-018-22	18" Tall	\$600.00
LEG-024-22	24" Tall	\$635.00
LEG-030-22	30" Tall	\$688.00
LEG-036-22	36" Tall	\$741.00
LEG-042-22	42" Tall	\$794.00

#### Leg Packages For A 26" Dryer Module

LEG-016-26	16" Tall	\$655.00
LEG-018-26	18" Tall	\$674.00
LEG-024-26	24" Tall	\$714.00
LEG-030-26	30" Tall	\$774.00
LEG-036-26	36" Tall	\$834.00
LEG-042-26	42" Tall	\$894.00

#### **ASPIRATOR PACKAGES**

	BASIC ASPIRATOR - DRYER DISCHAR	GE REMOVAL ONLY	
PGC-1-1 PGC-1-3	Basic aspirator Basic aspirator Kit includes: 1-3 hp blower and motor with steel blade 1-Settling box with discharge adapter 1-Polyethylene cyclone 1-90° Elbows 2-Compression clamps 2-Cyclone support tubes Mounting hardware 9' of 6" galvanized tubing	3 hp, 1 phase 3 hp, 3 phase	List \$2,340.00 \$2,340.00

EXPANDED ASPIRATOR - DRYER FILL AND DISCHARGE REMOVAL			
PGC-2-1 PGC-2-3	Expanded aspirator Expanded aspirator Kit includes: 1-3 hp blower and motor with steel blade 1-Settling box with discharge adapter 1-Polyethylene cyclone 4-90° Elbows 7-Compression clamps 2-Cyclone support tubes 1-Large fill box for cleaner hookup. 1-Airstream T-valve control Mounting hardware 12' of 6" galvanized tubing	3 hp, 1 phase 3 hp, 3 phase	List \$3,300.00 \$3,300.00

D04-0132Electronic Control OptionD04-0133Electronic Control OptionD04-0134Electronic Control OptionD04-0135Electronic Control Option	1 phase 3 phase, 240 volt 3 phase, 380 volt 3 phase, 460 volt	\$371.00 \$430.00 \$430.00 \$430.00
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Aspirator attached to fill hopper.



1004 E. Illinois St. • Assumption, IL 62510 phone: 217-226-4421 • fax: 217-226-4498

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Standard features of the basic unit.

Blower Compone	ents	
CD-0439	3 HP Blower Unit Less Motor	\$570.00
CD-0438	3 HP Blower Fan Housing Assembly	\$377.00
CD-0444	3 HP Blower Blade Assembly	\$193.00
CD-0449	Inlet Tube Weldment	\$ 61.00
D01-1267	Blower Mounting Bracket	\$ 35.00
FH-5474	Motor, 3 HP Single Phase 60 Hz 115-208/230 volt	\$618.00
FH-5475	Motor, 3 HP Three Phase 60 Hz 208-203/460 volt	\$390.00
Discharge Settlir	ng Chamber Components	
D01-1263	Discharge Box Side	\$ 14.00
D01-1264	Discharge Box Bypass Chute	\$ 25.00
D01-1265	Settling Box Fan Side	\$ 38.00
D01-1266	Settling Box Top Side	\$ 28.00
D03-0286	Grill Vent with Gasket	\$ 10.00
Miscellaneous T	ubing Components	
D01-1268	Tubing Mounting Bracket	\$ 12.00
D01-1269	6' Pipe Section Weldment	\$ 84.00
D01-1270	3' Pipe Section	\$ 26.00
D03-0278	6" Compression Coupling	\$ 56.00
D03-0279	6" 90° Elbow	\$151.00
S-7936	U-bolt, 5/8-11 x 6	\$ 17.00
6GT	6.00" Galvanized Tubing (up to 20' length) / foot	\$ 10.21
Cyclone Compor	nents	
D04-0130	Cyclone Assembly	\$331.00
D01-1272	Cyclone Support	\$ 14.00
Expanded Aspira	ator Additional Components	
D01-1236	Fill Hopper Adapter Weldment	\$ 23.00
D01-1283	8' Tube Weldment	\$ 89.00
D01-1285	42.5" Tube Weldment	\$ 52.00
D01-1287	Settling Box Adapter Tube	\$ 31.00
D01-1293	27.5" Tube Section	\$ 30.00
D01-0100	Fill Hopper Assembly	\$112.00
D04-0101	T-valve Control Assembly	\$186.00
Electrical Option	IS	
D04-0132	1 Phase 230 volt Control Option Kit	\$371.00
D04-0133	3 Phase 230 volt Control Option Kit	\$430.00
D04-0134	3 Phase 380 volt Control Option Kit	\$430.00
D04-0135	3 Phase 460 volt Control Option Kit	\$430.00

Over the last few years there has been a considerable amount of confusion involved with the return of transport kits. We at Grain Systems, Inc. would like to eliminate the confusion. So, a new policy for use of transport kits will be in effect starting in 1995. There will still be free use of the kits. However, if the kits will be kept longer than the stated terms of the invoice, payment needs to be received. Upon return of the kit, credit will be issued. If payment is not made a **1% per month finance charge** will be the responsibility of the dealer. When returning the kit please include the invoice number the kit was billed on. This will increase the speed to which one will receive credit. Light kits are available for \$200.00, credit upon return only. \$100.00 is charged to an order for any change made during production, and \$1000.00 charge is issued for a dryer order cancellation during production.

We would like to encourage our dealers selling several dryers per year to purchase a set of kits. This will reduce the amount of confusion that we are presently experiencing. This will become more critical as our dealers begin to trade units in.

## **SPECIAL DRYER TRAILER**

Allowable length 45' 0"

Any combinations to = 45' 0"

#### **DRYER HAULING LENGTHS**

Model Length Series	Length
8	14' 9"
10	16' 9"
12	18' 9"
14	20' 9"
16	22' 9"
18	24' 9"
20	26' 9"
22	28' 9"
26	32' 9"

Following are rates for delivery of dryers:

1. \$1.35 per mile for delivery of a single dryer pulled behind the pickup. 20' & smaller basket dryers.

within

- \$1.10 per mile for delivery of a single dryer combined with another dryer from a different dealer a 150 mile radius.
- 3. \$1.90 per mile for delivery of two dryers to the same dealer.

If you should have any questions or problems in the future concerning your freight charges, please contact Steve Ruot.

Prepared by:				-		Date:		
Customer Information (end user)				GSI Dealer Information				
name:				-	GSI dealer nu	mber:		
street:				-		name:		
city, state, zip:				-		street:		
phone:				_	city, stat	e, zip:		
fax:				-	р	hone:		
						fax:		
					District Ma	nager:		
Dryer Information	I CAPS PLEASE	)						
	1							
SHIPPING METHOD:								
ACCESSORIES:								
COMMENTS:								



# **Dryer Preparation**

#### What the customer needs to do prior to delivery.

The customer has several items that need to be done prior to taking delivery of the dryer. By accomplishing these items before receiving the dryer, installation can proceed in a manner that is time efficient and cost conservative.

#### **Site Preparation**

Arrange for the dryer to be installed on a level surface.

Consult local building codes for the proper grading, fill, and concrete requirements for the specific geographical location where the dryer is to be installed. GSI provides recommendations in this book for a minimum foundation necessary for supporting the dryer models offered.

> See the foundation requirements section of this book or contact GSI for dryer foundation information.

#### Electrical

Arrange for the main power supply to be installed at dryer location.

See electrical specifications for each dryer model for power requirements.

#### Fuel

Arrange for the fuel supply to be installed at dryer location.

See fuel specifications for each dryer model for fuel requirements.

#### **Auxiliary Handling Equipment**

Arrange for delivery and installation of auxiliary handling equipment.

#### **Dryer Shipment**

*GSI Haul*: Consult GSI for delivery date, time, and contact person for shipping. Arrange for labor and equipment (crane, forklift, etc.) to unload the dryer on site at time of delivery.

*Customer Pickup*: Consult GSI for delivery date and time, contact person for shipping, vehicle requirements, and saftey equipment (light bar, safety chains, etc.) necessary for pulling a portable dryer.

#### What the customer needs to do upon delivery.

Once the dryer has been delivered, the customer has the responsibility of installation and startup. GSI will provide technical advice as needed.

#### **Single Module Dryer**

- Installation of proper dryer supports.
- Wet bin setup if required.
- Assembly of top auger drive mechanism and guarding.
- Connection of main power.
- Connection of fuel line.
- Installation of auxiliary handling equipment.
- Connection of auxiliary handling equipment power, control and safety circuits.
- Installations of dryer accessories.
- Dryer startup.

#### Multi-module Stack Dryer

- Installation of proper dryer supports.
- Stacking of dryer modules.
- Installation of dryer stiffener supports.
- Assembly of service platforms(s).
- Wet bin setup.
- Assembly of top auger drive mechanism and guarding.
- Connection of main power.
- Interconnection of electrical circuits between modules.
- Connection of fuel lines.
- Interconnection of fuel lines between modules.
- Installation of auxiliary handling equipment.
- Connection of auxiliary handling equipment power, control and safety circuits.
- Installations of dryer accessories.
- Dryer startup.

# **Competitor Dryer Features**



computer

#### **Portable Dryer Sales Manual**

pneumatic system

is used

# **C-Series Dryer Features**



the dryer on a home

computer

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#### Programming Instructions

- Setting timers, time delays and temperatures 1. Press the button for the program that you wish to change the time or temperature in.
- 2. Use the increase and decrease buttons to change the present time or temperature
- 3. After the time or temperature has been changed. the computer automatically accepts the new value.

#### Using the mode select

1. Pressing the mode select button will toggle the display between timer values, grain temperature and plenum temperature.

#### Checking the hour meter

Pressing the increase button changes the display to the total hours on the dryer. It will automatically return to the main screen after the button is released





Figure 1: The Competitor Series Control Panel.

#### **EMCS DRYER** (1000-3000 series)

- Perforated wet bin standard on all models
- Solid state electronic ignition system
- Computer monitors and calculates BPH, RPM and total bushels. It also provides protection of metering roll system in case of a jammed metering roll or a

# DRYER LINE FEATURES

- failure during operation
- Control panel operation
- switches are illuminated
- Stackable •

•

•

25 error shutdown history

#### COMPETITOR DRYER (100 series-single fan only)

• Grain and plenum chamber temperatures programmed and monitored on control panel display Perforated wet bin standard on 116 model and larger models

•

- Ignition transformer used for • burner ignition system
- Hi-low fire cycling of burner con-• trolled by computer not an external thermostat allows on/off operation for lo temp drying
  - Control panel may be remotely located





Figure 2: The Electronic Monitoring Control Panel features easy access computerized controls.

# **Competitor Dryer Control System**



THE COMPETITOR SERIES 2000 CONTROL SYSTEM GIVES YOU THE COMPETITIVE EDGE
# **AIR SWITCH**

The air switch on the dryer has been changed to a BEC type and will now be mounted on the front of the dryer. The air switch will now be reading air pressure in the plenum instead of airflow from the fan. This will aid in problems with erratic air movements and blockage of the air tube.

# **ENTRELEC TERMINALS**

Entrelec terminals are used for all motor connections as well as computer control circuits.

# TWO TRANSFORMERS IN 440 VOLT DRYERS

Control transformer wiring for the 110V control circuit and the 220V SCR drive circuit are separated on all 440V dryers.

### **BRANCH BREAKERS**

440 volt dryers have branch breakers. This is needed to meet code in some states or areas.

### **GROUND ROD**

A ground rod is included with each dryer. We require that each dryer have a properly installed ground rod.

### 8" FLIGHT

All unload auger flighting has been standardized to eight inches for fast unloading and longer life.

# **MOTOR OVERLOADS**

All the motors on the dryer have been modified so that only the motor overload in the control box can sense a shutdown. All internal overloads in the motors have been removed.

# OUT OF GRAIN (UNLOAD CLEANOUT)

The computer knows the difference between a safety that opened indicating a problem with the dryer and a shutdown that occurs during normal operation. For instance if the out of grain timer shuts down the dryer this is not looked at as a safety hazard. So before the dryer completely shuts down the computer will first allow the unload auger and any take away augers to run long enough to clean themselves out. The amount of time they will run is determined by the setting of the unload time delay.

# **BOTTOM END REDESIGN**

A redesign of the plenum directly above the auger chamber prevents heat loss. For use with a pneumatic system, perforated outer cleanout doors that reduce the pressure buildup on the lower auger chamber are optional.

# **AIR MIX CHAMBERS**

Complete mixing of heat and ambient air makes for even drying temperature in plenum chamber, front and back and side to side.

# AIRFLOW DELAY

2 second delay in airflow switch to help avoid unnecessary shutdowns due to air flutter.

# VANE AXIAL FANS

Low speed fan blades for low noise level. More efficient (cfm/bu/hp) than centrifugal fans, less electrical costs.

## WORK LIGHT AND SHUTDOWN INDICATOR

The light on the outside of the dryer doubles as a shutdown indicator. When the light switch is placed in the auto position the light will go off whenever the dryer shuts down. The light will also work in the on position even if the dryer is shutdown.

# **TRASH PAN**

A trash pan is available to help distribute trash in the top of the dryer. This will help to keep the grain flowing in the back columns.

### AUXILIARY AUGER OVERLOADS

7 1/2 horsepower heaterstrips will be included with the dryer. If a different size motor is to be used this strip must be changed. If you notify us of this change it will come from the factory correct.

# LOW TEMP BURNER OPTIONS

The on-off burner, as opposed to the hi-low type, is excellent for specialty grain operations.

# PLENUM AND GRAIN TEMPERATURE SET POINTS

The plenum and grain temperature set points can be programmed from the control panel of the 2000 series dryer. This allows you to monitor and change the grain and plenum temperatures from the control box.

# **DRYER SHUTDOWNS**

Each of the shutdowns on the 2000 series are displayed individually so that there is no guesswork when a shutdown occurs.



THE ELECTRONIC MONITORING CONTROL SYSTEM IS OUR TOP OF THE LINE GRAIN DRYING CONTROL

#### **USER SAFETY**

A user supplied safety hook up point is supplied. There is a jumper wire installed between J5-8 and J1-20 on all dryers sent from the factory. To install a user safety, simply remove this wire and connect each end across any normally closed set of contacts that opens when a problem occurs and the dryer is to shut down completely.

#### **EMERGENCY COOLING**

All Airstream dryers have an emergency cooling mode. This enables an Airstream to run only the fans whenever a grain high limit safety has caused a shutdown. Whenever a shutdown occurs the screen will inform the user how to enter the emergency cooling mode. Once the fans are running the computer continues checking each safety and knows when the grain high limit safety has returned to it's normally closed position. At this time the dryer will shut down and wait for the user to restart it back to normal operation.

#### THERMOMETERS

Thermometers with a bulb sensor are used. This has proven to be more accurate and in sync with with the hi-lo thermostat setting.

### **BOTTOM END REDESIGN**

A redesign of the plenum directly above the auger chamber prevents heat loss. For use with pneumatic system, perforated outer cleanout doors that reduce the pressure buildup on the lower auger chamber are provided for 2 fan and larger models.

## OUT OF GRAIN (UNLOAD CLEANOUT)

The computer knows the difference between a safety that opened indicating a problem with the dryer and a shutdown that occurs during normal operation. For instance if the out of grain timer shuts down the dryer this is not looked at as a safety hazard. So before the dryer completely shuts down the computer will first allow the unload auger and any take away augers to run long enough to clean themselves out. The amount of time they will run is determined by the setting of the unload time delay.

# WORK LIGHT AND SHUTDOWN INDICATOR

The light on the outside of the dryer doubles as a shutdown indicator. When the light switch is placed in the auto position the light will go off whenever the dryer shuts down. The light will also now work in the on position even if the dryer is shutdown.



The work light switch can indicate a dryer shutdown.

### **MOTOR OVERLOADS**

All the motors on the dryer have been modified so that only the motor overload in the control box can sense a shutdown. Any internal overload in the motors has been wired around.

# THE "WATCHDOG" REMOTE MONITORING SYSTEM

A system has been designed that will enable a user to "watch" his dryer on a home computer screen. This is for viewing only and will not control the dryer. All switches will be monitored along with the output for each contactor. Bushels per hour and RPM will also be indicated so a person can keep a record of all the grain he has dried even if he resets the total bushels on the dryer. All

THE "WATCHDOG" SYSTEM WILL ENABLE A USER TO "WATCH" HIS DRYER AT HOME ON A COMPUTER SCREEN

safety shutdowns are also monitored and stored in the computer. This will allow a record of all shutdowns (not just the 25 stored in the dryer) to be kept. Another feature on the monitoring system is the alarm feature. This uses a phone modem to call a user if a dryer has a shutdown for any reason day or night. We are also looking at using a modem to call the computer and see the status of the inputs and outputs.

# **CONTROL BOX RAILS**

The upper and lower control box are being mounted on vertical rails instead of only the horizontal rails as in earlier years. This makes it easier for us to lower or raise the control boxes if a customer is going to mount his dryer on taller pedestals.

# **MESSAGE EDITING**

The message across the top of the LCD that formerly only said "Grain Systems, Inc." is now able to be changed to say whatever a dealer or a customer would prefer.

# 8" FLIGHT

All unload auger flighting has been

standardized to eight inches for fast unloading and longer life.

# **ERROR HISTORY VIEWING**

This provides a review of the shutdown history of the dryer while the dryer is operating.

### METER ROLL REVERSE OPTION

Optional part number CD-0466 enables the computer to automatically stop and reverse the meter rolls for a preprogrammed time. After this time the meter rolls stop again and return to normal operation. This is extremely useful in high trash situations.

# **AIRFLOW DELAY**

2 second delay in airflow switch to help avoid unnecessary shutdowns due to air flutter.

# **TRASH PAN**

A trash pan is available to help distribute trash in the top of the dryer. This will help to keep the grain flowing in the back columns.

# **BRANCH BREAKERS**

440 volt dryers have branch breakers. This is needed to meet code in some states or areas.



The air switch box at the bottom of the picture, is mounted on the front of the dryer, below the heater.

# AUXILIARY AUGER OVERLOADS

7 1/2 horsepower heaterstrips will be included with the dryer. If a different size motor is to be used this strip must be changed. If you notify us of this change it will come from the factory correct.

# VANE AXIAL FANS

Low speed fan blades for low noise level. More efficient (cfm/bu/hp) than centrifugal fans, less electrical costs.

# **STARTUP**

A start up video is included with each dryer and should help aid in any questions that a person has when first starting a dryer.

# **AIR SWITCH**

The air switch on the dryer has been changed to a BEC type and will now be mounted on the front of the dryer. The air switch will now be reading air pressure in the plenum instead of airflow from the fan. This will aid in problems with erratic air movements and blockage of the air tube.

# **METER ROLL BOARDS**

Meter roll monitor boards have been redesigned to aid in their replacement and adjustment. A smaller type board allows us to install or replace them without removing the wheel or cutting wires.

### TWO TRANSFORMERS IN 440 VOLT DRYERS

Control transformer wiring for the 110V control circuit and the 220V SCR drive circuit are separated on all 440V dryers.

### **AIR MIX CHAMBERS**

Complete mixing of heat and ambient air makes for even drying temperature in plenum chamber, front and back and side to side.

### WIND BUTTRESS FOR STACK DRYERS

Starting in 1995, we will use stiffeners in place of the wind buttress. This will allow for easier erection, and less concrete work. It will not be as wide.

### **GROUND ROD**

A ground rod is included with each dryer. We require that each dryer have a properly installed ground rod.

### ELECTRONIC CONTROL MONITORING SYSTEM

State of the art computerized control of dryer operating functions.

### ENTRELEC TERMINALS

Entrelec terminals are used for all motor connections as well as computer control circuits.



The lighted start switch indicates that the dryer is operational.



 Plenum closure door
 Meter roll upper shield
 Bottom auger mounted from below

Figure 4: Cross section of the old style unload area.



Figure 5: Cross section of the new style unload area.



1-Plenum closure door 2-Adjustable sealing/ support angle 3-Meter roll upper shield 4-Meter roll strike off plate 5-Perforated connector sheet\* 6-Perforated access door\* 7-Bottom auger mounted from above 8-Hanger bearing mounting assembly (\*2 fan modules only)

 1-Air mixer removable panel
 2-Forward plenum closure door with access panel
 3-Plenum closure door

Figure 6: Access to unload area through the airmixer.



# **COMPETITIVE COLUMN COMPARISON**



Figure 3: The grain column comparison shows GSI's new design, compared to the previous version and competitor's designs.

?

#### **30 REASONS TO BUY AIRSTREAM VERSUS FARM FANS STANDARD ON AIRSTREAM FARM FANS**

1.	Airstream Competitor Series 2000 Control System on single fans, Airstream Electronic Monitoring Control System (EMCS) on multi fan dryers (true automation, dependable, self-diagnosing, accurate and easy to use).	?
2.	Optimizer Blue Burn Burner System (better flame with new fuel blends).	?
3.	Low profile wet holding bin 14' 6" (lower height, fits more installations), optional on the 8'-14' Series 2000 dryers.	?
4.	Standard perforated wet bin 14' 6" (more grain in process better productivity), optional on 8'-14' Series 2000 dryers.	?
5.	Adjustable metering roll gates, with <b>grain bypass</b> (minimizes column plugging, perfect for trashy conditions, quick grain bypass).	?
6.	All fans use a composite blade design (low noise, efficient, more air, less vibration, easier on motors).	?
7.	Over the top metering roll rotation (less H. P. requirement, less grain damage).	?
8.	Galvanized fan housings, control cabinet, & auger housings (much longer life).	?
9.	On EMCS models only proven Fenwal solid state electronic ignition system (dependable, safe, longer life).	?
10.	Double sealed control cabinet (cleaner operation).	?
11.	Full-size, see-through control panel door (convenient & cleaner).	?
12.	Large see-through burner access door (much easier service).	?
13.	Self monitoring start cycle (convenient, more productive).	?
14.	110 volt control circuit and ignition system (safer, more dependable).	?
15.	Main safety disconnect (easier to wire, no extra cost).	?
16.	Hinged lever operated discharge auger dump doors (convenient, easier to operate).	?
17.	Operational monitor lights (easier operation, remote monitoring).	?
18.	Fully perforated inner screens with standard wet bin (more grain exposed to drying air), wet bin is optional on 8'-14' Series 2000 dryers.	On some models
19.	Outside screens in 3 sections (flexible, less expensive replacement).	?
20.	Highway rated tires & rims on optional transport kit (safer, faster transport).	?
21.	Gas train oil trap (optional) (minimizes oil in gas train).	?
22.	4 point (two in each column) electronic moisture control (precision control, any conditions).	?
23.	Computer controlled two speed electronic moisture control (precision control, any conditions).	Opt. on some models
24.	All fans low speed, low noise design (quiet operation).	Opt. on some models
25.	Batch & multistage controls on all models (operates in any system).	Not available on C-2100 Series or CF Stack Series
26.	Grain and plenum temperature read out on all models (allows easy monitoring).	On some models
27.	Grain and plenum temperature set points changeable from control panel (Competitor Series).	On some models
28.	Stackable Series-All Airstream dryers with EMCS (future expansion, more flexible).	4 models
29.	Remote location of dryer controls is optional; customer provides wire (convenient, productive and flexible).	?

Note: All information subject to change without notice.

30. "Watchdog" available for all Airsream models (additional equipment required).

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Model GSI	Column Holding	List GSI	List Farm Fans		Column Holding	Model Farm Fans
160AB	120	16.200.			120	AB-120A
210AB	160	19,500.			180	AB-180A
300AB	235	23,600.			250	AB-250A
415AB	329	35,100.			350	AB-350A
600AB	470	46,400.			500	AB-500A
108	160	20,500.			150	CF/AB-150
110	200	23,500.			190	CF/AB-190
112	282	29,200.			270	CF/AB-270
114	329	37,500.			320	CF/AB-320
1214S	329	48,400.		(12)	320	CF/SA-320
1214	329	45,200.		<b>`(3)</b>	320	C-2120A
1314	329	52,400.		( )	320	CMS320J
118	423	45,600.		(1)	420	CF/AB-400
1218	423	52,100.		(-)	420	C-2125A
12185	423	56 400		(1.2)	420	CE/SA-410
1318	423	57 800		(12)	420	CMS-420.1
120	470	49 500		(1)	460	CE/AB-460
120	470	57 000		(1)	460	C-2130A
1220	470	57,300.			400	
12203	470	52 000		(1)	400	
122	506	53,000.		(1)	500	CF/AB-510
120	011	59,300.		(1)	598	CF/AB-600
1226	011	70,100.			598	C-2140A
12265	611	74,600.			598	CF & CMS-650M
2314	679	79,300.			735	CF-750H
2318	873	96,800.			850	CF-850H
2320	970	102,100.				
2420	970	108,900.			940	CF & CMS-1000H
2326	1261	120,900.				
2426	1261	137,000.			1254	CF-1300M
3420	1460	137,800.				
3620	1460	150,900.			1380	CF & CMS-1500H
3426	1898	163,800.				
3626	1898	188,100.			1894	CF-2000M
1220	470	57,900. (4)			460	C-2130B
1226	611	70,100. (4)			600	C-2140B
2314	679	79,300. (4)			781	C-2160B
2318	873	96,800. (4)			781	C-2175B
2320	970	102,100.			873	C-21100B

# **AIRSTREAM VERSUS FARM FANS GRAIN DRYER PRICES**

Prices as of 1/1/96, 1 phase, where available LP gas.

The following are variations to make comparisons as equal as possible and are as accurate as our information allows.

Focus 1, and Focus 2 are no longer listed in the Farm Fans Price List. Why is unknown.

- (1) No preheating wet bin losing 10-15% of effective holding area.
- (2) Have 50/50 column split. Our S models are heavier, have a perforated wet bin, and are stackable.
- (3) Low speed lower fan not available on this model.
- (4) Add noise suppressor kit if quietness is an issue.

Note: All information subject to change without notice.

# **Dryer Comparisons**

# 29 REASONS TO BUY AIRSTREAM VERSUS SUPER STANDARD ON AIRSTREAM

	STANDARD ON AIRSTREAM	SUPER B
1.	Airstream Competitor Series 2000 Control System on single fans, Airstream Electronic Monitoring Control System (EMCS) on multi fan dryers (true automation, dependable, self- diagnosing, accurate and easy to use).	?
2.	Optimizer Blue Burn Burner System (better flame with new fuel blends).	?
3.	Adjustable metering roll gates, with <b>grain bypass</b> (minimizes column plugging, perfect for trashy conditions, quick grain bypass).	?
4.	Positive pressure cooling (no vacuum, better grain quality - less internal dirt).	Available only on SD Series with optional batch timer kit
5.	60 minute plus drying retention time (better grain quality - less stress cracks).	?
6.	Effective all heat operation on all models (flexible & high capacity) - with no column width changes.	?
7.	Multiple heat chambers on multi-fan models (better grain quality & max. capacity).	?
8.	Heat mixing ducts all chambers (much better heat mix in long dryers).	?
9.	All fans use a composite blade design - standard (efficient, more air, easier on motors).	?
10.	Low speed 1750 RPM fan blade (low noise, less vibration).	1750 RPM fan blade optional on SD Series
11.	On EMCS models only proven Fenwal solid state electronic ignition system (dependable, safe, longer life).	?
12.	Full-size, see-through control panel door (convenient & cleaner).	?
13.	Large see-through burner access door (much easier service).	?
14.	Galvanized fan housings, control cabinet & auger housings (much longer life).	?
15.	Self monitoring start cycle (convenient, more productive).	?
16.	Column temperature limit <b>both columns</b> (safer)	?
17.	Metering roll external total clean out doors (complete cleaning, service access).	?
18.	Solid dividers each two foot (stronger, convenient).	Except SD Series
19.	4 point (two in each column) electronic moisture control (precision control, any conditions).	?
20.	Gas train oil trap - not drip leg (optional) (minimizes oil in gas train).	?
21.	Easily extended unload auger (standard sizes, less expensive) available from several sources.	Available only from Super B
22.	Main <b>safety</b> disconnect - standard (easier to wire, safe).	Optional
23.	Batch & multistage controls - standard (operates in any system).	Optional on SD models only
24.	Load & unload auxiliary starters - standard (easier to wire, less cost).	Optional at extra cost
25.	Stackable Series-All Airstream dryers with EMCS (future expansion, more flexible).	?
25.	Remote location of dryer controls is optional; customer provides wire (convenient, productive and flexible).	?
27.	Maxon gas valve (except 1 fan LP models) (only valve recognized by some insurance co.).	?
28.	Ladder at front and back-multi fan models only (safer, more convenient).	?
29.	"Watchdog" available for all Airsream models (additional equipment required). Note: All information subject to change without notice.	?

Model GSI	Column Holding	List GSI	List Super B		Column Holding	Model Super B
600AB	470	46,400.		(1)	400	ABS-1000Q
		Super B ha	 as discontinued all bat 	tch dryers.		
108	160	21,050.		(1 6)	134	SD185VQ
112	200	24,170.		(10)	187	SE250VQ
114	329	38.630.		(16)	251	SD375VQ
1214	329	45,200.		(2345)	250	SE375V
120	470	49,500.		(6)	335	SD500VQ
1220	470	57,900.		(2 3 4 5)	313	SE500V
1220	470	57,900.		(2345)	250	SE500C
122	517	53,000.		(6)	402	SD750C
1222	517	57,400.		(2345)	313	SE625C
1226	611	64,200.		(2 3 4 5)	375	SE750C
2318	873	96,800.		(2 3 4 5)	500	SE1000C
2220	970	98,100.		(6)	535	SD1000C
2320	970	102,100.		(2345)	595	SE1200C
2222	1067	104,200.		(6)	635	SD1200C
						MYER
2318	873	96,800.		(2345)	?	1000C
2318	873	96,800.		(2345)	?	1200C
2322	1067	108,300.		(2345)	?	1400C
3418	1314	126,900.		(2 3 4 5)	?	1500C
3422	1606	145,800.		(2 3 4 5)	?	1800C
3422	1606	145,800.		(2345)	?	2000C

Prices as of 12/1/95, 1 phase, where available LP gas.

The following are variations to make comparisons as equal as possible and are as accurate as our information allows.

- (1) Airstream models should be priced with wet bin option for accurate comparison.
- (2) Vacuum cool meaning higher H. P. requirements, but some heat recovery.
- (3) Airstream model may be priced with optional heat recovery system, if an issue.
- (4) Moisture equalizers are available at \$100. list per foot. This relieves some of their grain damage from high airflow.
- (5) PLC panel (programmable logic controller is available for \$6,300. list as an option).
- (6) Add \$1,000. list for batch timer kit to allow operation as batch dryer.
- (7) Stainless outer skin now available for \$170. per foot of basket length.
- (8) For 1996 gravity fill is available for all models.
- (9) Batch dryers have been discontinued except for the model AS-1000 as long as 6 last.
- (10) Burner cycling timer now available for \$300. list on all models to help make up for uneven heat.
- (11) A (C) after the model number designates a centrifugal fan. Use our noise suppressor kit if noise is an issue.

Note: All information subject to change without notice.

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MATHEWS CO.

# STANDARD ON AIRSTREAM

1.	Monitoring Control System (EMCS) on multi fan dryers (true automation, dependable, self- diagnosing, accurate and easy to use).	?
2.	Optimizer Blue Burn Burner System (better flame with new fuel blends).	?
3.	Low profile wet holding bin 14' 6" (lower height, fits more installations) (optional on 8'-14' Series 2000 dryers).	?
4.	Standard perforated wet bin - sides & top (more grain in process better productivity) (optional on 8'-14' Series 2000 dryers).	?
5.	Adjustable metering roll gates, with <b>grain bypass</b> (minimizes column plugging, perfect for trashy conditions, quick grain bypass).	?
6.	Batch & multistage controls on all models (operates in any system).	?
7.	Externally adjustable vaporizers (simple, adjust on the go).	?
8.	Load & unload auxiliary starters are standard (easier to wire, no extra cost).	?
9.	Weatherproof, shielded controls - <b>double sealed</b> (cleaner, longer life, more dependable).	One model weather- proof, none double sealed
10.	All fans use a composite blade design (lower noise, more efficient, more air, easier on motors).	?
11.	Solid dividers every two feet (stronger, eliminates trash accumulation on straps).	?
12.	Metering roll external total clean out doors on all models (complete cleaning, service access).	?
13.	Galvanized fan housings, control cabinet & auger housings (much longer life).	?
14.	Full-size, see-through control panel door (convenient & cleaner).	?
15.	Large see-through burner access door (much easier service).	?
16.	Self monitoring start cycle (convenient, more productive).	?
17.	4 point (two in each column) temperature electronic moisture control (precision control, any conditions).	?
18.	Main <b>safety</b> disconnect (easier to wire, no extra cost).	?
19.	Column temperature limit both columns (safer).	?
20.	New! Gas train oil trap - not drip leg (optional) (minimizes oil in gas train).	?
21.	Highway rated tires & rims on optional transport kit (safer, faster transport).	Farm tire, no axle
22.	Heavy duty SCR metering roll drive (RC 40 chain, 3/4 HP motor & gear box) on 14' & longer.	(1/3 HP motor, 1/4 HP gear box)
23.	Easily extended unload auger (use standard size).	Opt. special order 2'
24.	440 volt kit (optional at no charge).	Optional extra charge
25.	Grain and plenum temperature read out on all models (allows easy monitoring).	?
26.	Grain and plenum temperature set points can be changed from control panel (Competitor Series).	?
27.	Stackable Series-All Airstream dryers with EMCS (future expansion, more flexible).	Some models
28.	Remote location of dryer controls is optional; customer provides wire (convenient, productive and flexible).	?
29.	Maxon gas valve (except 1 fan LP models) (only valve recognized by some insurance co.).	Optional with fire alarm system
30.	Ladder at front and back-multi fan models only (safer, more convenient).	No ladders on single module dryers
31.	"Watchdog" available for all Airsream models (additional equipment required).	?

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Model GSI	Column Holding	List GSI	List MC	Column Holding	Model MC
108	160	20,500.		157	370EMS
112	282	29,200.		313	690EMS
112	282	29,200.		313	690EM
112	282	29,200.	*	313	690C
	No compar	able model		313	570EMS
1214	329	45,200.		313	670EMS
1218	423	52,100.	*	313	675EM
1218	423	52,100.	*	413	680EM
120	470	49,500.	*	413	970C
1220	470	57,900.		470	970EMS
1220	470	57,900.		470	970EM
1226	611	70,100.	*	620	975EM
1226	611	70,100.	*	620	980EM
2318	873	96,800.	*	812	1075EM
2318	873	96,800.	*	812	985EM
2320	970	102.100.	*	927	1080EM
2420	970	108.900.	*	927	1175EM
2326	1261	120.900.	*	1234	1180EM
2326	1261	120,900.	*	1234	1195EM
3422	1606	145.800.	*	1541	2675EM
3426	1898	163,800.	*	1848	3175EM

Prices as of 12/1/95, 1 phase, where available LP gas.

The following are variations to make comparisons as equal as possible and are as accurate as our information allows.

\* Denotes where MC uses centrifugal fans. Use our noise suppressor kit if noise is an issue.

- (1) All MC dryers now have the lower chamber burner standard.
- (2) New in 1996 all MC dryers now have stainless steel feed roll pans.
- (3) It is reported that all MC dryers now have slide gate access to the metering rolls from the inside, but do not have true total cleanout doors.
- (4) Note that the majority of MC dryers are now sold direct at 5% over cost.

Note: All information subject to change without notice.



#### \$ Cost / Bushel (based on \$0.50 / Gallon LP)

# Approximate Bushels per Gallon of Fuel <sup>(1)</sup>

Based on 10 Point Removal and 100° F Moisture Control Setting

Drying Method	Bushels / Gallon LP	Btu / Ib H <sub>2</sub> O
Dry & Cool	5 - 6	2466 - 2055
Dry & Cool with Heat Recovery	7 - 8	1761 - 1541
All Heat	7 - 8	1761 - 1541
All Heat with Heat Recovery	8 - 9	1541 - 1370
Top Dry Cooling in Bottom	8 - 9	1541 - 1370

(1) Historical data from past customer reports.

Fuel Type	Base Unit	Btu Content			
Liquid Propane	gallon	91,500			
Natural Gas	cubic foot therm	1,040 100,000			
#2 Fuel Oil	gallon	136,000			
Electricity	kilowatt	3,413			

# **Fuel Formula Constants**

The following information should be used for estimates only.

#### **Drying Energy Constants**

#### Corn

7.42 pounds (lb) of water (H O) are removed per bushel at 10 point removal.

3.48 pounds (lb) of water ( $H^2O$ ) are removed per bushel at 5 point removal.

1044 Btu are required to evaporate one pound of free water at 100% efficiency.

- Approximately 1400 to 2000 Btu are required to remove 1 pound of water from 25% moisture corn when drying it down to 15% moisture content. Requirements will vary with the type of dryer, method of operation, grain density, grain quality, and outside conditions.
- The shaded area in following graph represents the range of values for fuel consumption that can occur for each capacity and between the drying energies of 1400 and 2000 Btu / lb of water removed.



#### Sample Calculations; 25% Shelled Corn Dried to 15% Moisture Content

Use the average drying energy of 1700 Btu / pound of water removed.

Btu required per bushel

To find the Btu required per bushel, multiply the amount of water to be removed for a given point differential by the drying energy used in the dryer for each pound of water removed.

10 point removal 
$$\frac{7.42 \text{ lb H}_2\text{O}}{\text{bushel}} \times \frac{1,700 \text{ Btu}}{\text{lb H}_2\text{O}} = 12,614 \frac{\text{Btu}}{\text{bushel}}$$

Fuel units required per bushel

To find the fuel units required per bushel, divide the amount of Btu required per bushel at a given point removal by the heating value per unit of the fuel to be used.

10 point removal	12,614 Btu	$\sim \frac{1 \text{ gallon LP}}{1 \text{ gallon LP}}$	- 0 138 gallon LP
To point temoval	bushel	^ 91,500 Btu	bushel

The reciprocal of these values is the number of bushels that can be dried per gallon of LP.

Fuel Consumption (units per hour)

Multiply the number of fuel units required by the bushel capacity of the dryer in question at the moisture removal desired.

A 126 dryer has a capacity of 715 bph for 10 point removal. How many gallons of LP are used?

 $\frac{715 \text{ bushels}}{\text{hour}} \times \frac{0.138 \text{ gallon LP}}{\text{bushel}} = 98.67 \frac{\text{gallon LP}}{\text{hour}}$ 

Drying Costs (cost per bushel)

Multiply the cost of fuel per unit by the fuel unit per bushel rate.

Assume LP costs \$0.60 per gallon.

 $\frac{\$0.60}{\text{gallon LP}} \times \frac{0.138 \text{ gallon LP}}{\text{bushel}} = \frac{\$0.083}{\text{bushel}}$ 

It will cost \$0.083 per bushel to dry in a 126 dryer at the rated capacity of 710 bushels per hour for 10 point removal.

10 point rem.

15 point rem.

# **OPERATING IN THE DRY & COOL MODE**

	BATCH	STAGED BATCH	CONTINUOUS
5nt removal	minutes	minutes	minutes
Spt. Terrioval			
FILL	15	-	-
HEAT	35	35	35
COOL	20	15	17.5
UNLOAD	12	15	-
TOTAL TIME	82 min.	65 min.	52.5 min.
10 pt. removal			
FILL	15	-	-
HEAT	60	60	60
COOL	20	15	30
UNLOAD	12	15	-
TOTAL TIME	107 min.	90 min.	90 min.
15 pt. removal			
FILL	15	-	-
HEAT	90	90	90
COOL	20	15	45
UNLOAD	12	15	-
TOTAL TIME	137 min.	120 min.	135 min.
OVERALL TOTAL	326 min.	275 min.	275 min.
	CAPACITIES I (To illustrate differences o	ESTIMATED FROM ABC principle, no adjustment or drying occuring in wet	OVE INFORMATION is made for airflow bin holding area.)
	BATCH	STAGED BATC	CH CONTINUOUS
CAPACITIES	329 BH	329 RH	329 BH
	Wat Dry	1023 DO. 11/2t Dry	Wet Dry
5 point rem.	258 241	+326 305	+365 341

+ Allows no value for grain preheated in wet holding bin.

+245

+195

219

165

+245

+172

219

146

207

171

185

145

# **OPERATING IN THE ALL HEAT MODE**

	BATCH	STAGED BATCH minutes	CONTINUOUS minutes
5 pt. removal	limitatee		
FILL HEAT UNI OAD	15 35 12	- 35 -	- 35 -
TOTAL TIME	62 min.	35 min.	35 min.
10 pt. removal			
FILL HEAT UNLOAD	15 60 12	- 60 -	- 60 -
TOTAL TIME	87 min.	60 min.	60 min.
15 pt. removal			
FILL HEAT UNLOAD	15 90 12	- 90 -	- 90 -
TOTAL TIME	117 min.	90 min.	90 min.
OVERALL TOTAL	266 min.	185 min.	185 min.

#### CAPACITIES ESTIMATED FROM ABOVE INFORMATION

(To illustrate principle, no adjustments made for airflow differences, drying occuring in wet bin holding area, or multiple heat zones.)

	BA	TCH*	STAG	ED BATCH	CON	TINUOUS
CAPACITIES	329	BU.	329	BU.	329	BU.
ALL HEAT	Wet	Dry	Wet	Dry	Wet	Dry
5 point rem.	341	319	+606	567	+606	567
10 point rem.	253	226	+365	329	+365	329
15 point rem.	199	169	+258	219	+258	219

\* Does not include Fill or Unload time in calculations.

+ Allows no value for grain preheated in wet holding bin.

NOTE: In the all heat mode, the burner on Combination Dryers does not shut down during the fill & unload cycle.

Grain temperature is proportional to what the final moisture will be after the grain is cooled in the bin. Though no two farms or bins will be the same there are some starting points. Moisture testers will read from 17% to 19% after temperature correction.

Commercial Corn 15%125-130 degrees

White Corn 15%120-125 degrees

Waxy Corn 110-120 degrees

Each 5-7 degrees 1 point of moisture

Waxy may lose no points of moisture in bin

# DRYERATION PROCESS

After starting with MOISTURE CON-TROL settings from the manual, adjust accordingly to get 130 degree corn out back of dryer. On rare occasions hard drying, or immature corn may require higher temperatures. Always use a moisture tester to confirm the temperature reading. Use a large sample (2.5 GAL) and an accurate thermometer (A.W. SPERRY model DT-5A digital preferred) to determine actual temperature. Smaller containers bleed off temperature before the thermometer reaches true temperature.

Bins should have a full aeration floor, 1/3 to 1/2 CFM of air when the bin is full, and a grain spreader. Normally let 2 to 3 feet of warm grain enter the bin before turning on fans to give heat a head start. Small dryers or very large bins may take too long.



A single fan all heat dryer.

Do not start fans longer than 2 - 4 hours after starting the dryer. On bins with high airflow (above 1/2 CFM) you may have to cycle fans two hours on, two hours off throughout the day to maintain a thick enough hot grain layer to get proper moisture loss in the bin. Large dryers (1,000 bu/hr and bigger) may require at least 1/2 CFM, and immediate starting of fans. Follow these procedures each time you start putting grain in the bin. Continue aeration until the grain is completely cooled.

Fill each bin completely, do not alternate bins as this will layer moistures in the bin. The first morning after starting, take a cooled sample from the bin and test it. The grain will be within .2% to .5% of final moisture at this time. Check again 24 and 48 hours later. Always use this test to decide what moisture setting is correct. If test is too wet, turn moisture control up (higher temp.). If test is too dry, turn MOISTURE CONTROL down (lower temp.). Each small mark on face of the MOISTURE CONTROL dial is approximately ONE POINT of moisture. In other words, if you want 15% and your test mark was 14% turn MOISTURE CONTROL down one small mark, and retest the next morning.

Also keep in mind that at the bottom of the bin you have a rather high airflow, and as the bin fills, you will tend to take out more moisture. This is somewhat offset by the grain at the bottom getting more hours of aeration. If you are like most first timers you will over dry the first year, and will alter your settings the second year.

It is very important to write down every setting for a year to year comparison, and to establish a preset dryer starting point.

# Towing

The dryer is available with an optional transport kit for transporting the unit by truck or tractor. Make certain to observe the following safety precautions.

- 1. Recommended towing hitch height 14-17 inches. (Figure 1)
- 2. Hitch bolt to be *not less than 3/4 inch* in diameter and securely fastened with a locking nut, so it will not come out in travel and hitch will not bend. (Flgure 2)
- 3. Minimize vertical hitch play with washers. (Figure 2)
- 4. Use safety chain. (Figure 1)
- Dryer must by towed empty and in accordance with applicable state or provincial regulations. Dryer must never be towed with grain or other material in it.
- 6. Recommended tire pressures 55-60 P. S. I. (cold)
- Maximum towing speed is 45 miles per hour or speed limit, which ever is lower.
- 8. After the first 50 miles and every 200 miles thereafter:
- a. Check dryer wheel hub and spindle temperature immediately after stopping. Temperature should not exceed 150° F. It may be hot to touch, but not melting lubricant.
- b. Check wheel lug nuts. They are factory torqued at 115 to 120 ft.
   lbs. Retighten, if required.



Figure 1: Use a 14-17 inch towing hitch height and a safety chain.



Figure 2: A 3/4 inch hitch bolt and washers fastened with a locking nut at the bottom of the hitch.



Figure 3: The grain dryer transport kit.



Do not maneuver augers in a raised position.

### LOCATION OF THE DRYER

When considering the exact location of the dryer, keep in mind the wet grain supply and dry grain discharge, also the location of storage bins and other grain handling equipment. Do not install the dryer inside a building or any other area where electrical codes, fuel installation regulations and/or insurance requirements do not allow. Maintain a minimum distance of at least three feet from other structures. or air flow problems may occur. See page 13. Do not operate in an area where combustible materials can be drawn into the fans, or where load and unload augers can come in contact with power lines.

## FOUNDATION

A reinforced concrete pad or similar permanent foundation is recommended for dryer stability. See pages 14 and 15 for details.

# SUPPORTING THE DRYER

The wheels are for transporting the empty dryer only. Before loading any grain into the dryer, it is necessary to support the frame of the unit on each side. Support the frame with concrete blocks every six feet on each side plus at the hitch mount

> USE A MINIMUM OF ONE SUPPORT PER EACH SIX FEET OF BASKET LENGTH ON EACH SIDE

location with the hitch removed. The blocks must support the dryer plus the weight of grain when full. Use shims to provide uniform, level support. The dryer should be at least 16 inches off the pad to allow for clean out and the use of auxiliary grain handling equipment. The hitch tongue should be removed, but the hitch assembly and the fan support must be left on during operation; they are not part of the transport tie down assembly.

# SUPPORTING THE DRYER WITH THE OPTIONAL STEEL SUPPORT LEGS

Anchor points may be cast into the concrete slab, or the dryer may be tied down by cable and turn-buckle to anchors installed at the edge of the slab. This is to prevent overturn or lateral movement by wind or other forces.

### WET GRAIN SUPPLY

A wet grain holding bin provides gravity flow to the dryer or loading conveyor. This conveyor may be electrically connected to the power circuit provided in the main control box. At the beginning, the dryer will completely fill. During drying, the top auger will start and stop as required depending upon the dry grain discharge rate, and grain shrinkage to maintain the dryer fill. If the dryer does not fill within the time that you preset on the out of grain timer (see owners manual), the dryer will shut down.

### **DRY GRAIN REMOVAL**

The dry grain is normally discharged out of the rear end of the dryer. Front discharge is an optional feature. A take away system needs to be provided to remove grain from the drying system. This conveyor may be electrically connected to the power circuit provided in the main control box.

#### **Installation Notes**

When estimating labor to be used to install the dryer, consider the items listed in the Customer Responsibilities II section of this book. It is also important to remember these notes.

- A tractor, forklift, heavy duty truck, or crane should be present to help unload the delivery truck on the day of delivery.
- All parts should be identified to verify all are present, and installation crews should familiarize themselves with the parts to ease the assembly process.
- A three person crew can install a single module dryer in a one day time period.
- A three person crew will need a few days of preparation time before lifting the dryer modules into place. This allows for time to install stiffeners, platforms, ladders, wet bin, etc. A crane should not be scheduled to stack the dryer on the same day as delivery.
- Single module heat reclaimers will take a few working days to install with an experienced two person crew. Some extra time may be required.
- Stack heat reclaimers will take a minimum of 5 working days to install completely. Most of this installation should be done before stacking the dryer modules as it is much easier to work from the ground rather than from scaffolds or ladders.
- Noise suppressers can be installed in a one day time period.
- Aspirators can be installed in a few hours.

# TIME FOR STACKING A MULTI-MODULE DRYER

#### Use for estimating time needed for on site labor

Assume 15 minutes per stiffener section and base support. Assume 10 minutes per support leg.

\*2000 Series Dryers have 4 sections of stiffener per each stiffener.

\*3000 Series Dryers have 6 sections of stiffener per

Assume 2 hours for platform assembly.

\*\*Minimum 2 hours for setting each module.

each stiffener.

Dryer Model Series	* Number of Stiffeners	Number of Support Bases	Number of Support Legs	Stiffener Assembly Time (Man- hours)	Platform Assembly Time (Man- hours)	Wet Bin Assembly Time (Man- hours)	Total Time (man hours)	** Minimum Crane Time (hours)
2042	0	0	0	0.00	0.00	4.00	44.00	4.00
2012	б	6	2	8.00	2.00	1.00	11.00	4.00
2014	6	6	4	9.00	2.00	1.25	12.25	4.00
2018	8	8	4	11.00	2.00	1.50	14.50	4.00
2020	10	10	2	13.00	2.00	1.75	16.75	4.00
2022	10	10	4	14.00	2.00	2.00	18.00	4.00
2026	12	12	2	16.00	2.00	2.50	20.50	4.00
3012	6	6	2	11.00	4.00	1.00	16.00	6.00
3014	6	6	4	12.00	4.00	1.25	17.25	6.00
3018	8	8	4	15.00	4.00	1.50	20.50	6.00
3020	10	10	2	18.00	4.00	1.75	23.75	6.00
3022	10	10	4	19.00	4.00	2.00	25.00	6.00
3026	12	12	2	22.00	4.00	2.50	28.50	6.00

\* \*\*Minimum time estimates only. Each installation may vary.

# LIQUID PROPANE (LP)

### LIQUID DRAW

Airstream dryers have internal vaporizers, and they are designed to operate on liquid draw from the supply tank. The tank should be 1,000 gallons or larger, and have no regulator mounted to it. The connection to the dryer should be with a flexible hose designed for LP gas, see chart for proper size. Consult your LP gas dealer for proper fittings, connection hose and safety controls required to meet local standards and to conform with national fire protection association standards. The piping train on the dryer includes strainer, pressure relief valve, electronic safety shut off valve (on some models) and a pressure regulator between the vaporizer and burner.

#### **AMMONIA TANKS**

Do not use tanks which have previously been used for ammonia or fertilizer solutions. These substances are extremely corrosive and will damage fuel supply and burner parts.

# **OIL OR WATER IN TANKS**

With liquid draw from the supply tank any water or oil present in the tank may freeze in the pipe train or controls causing damage. To make sure the tank is free of moisture it can be purged with methanol. Avoid tanks which may contain an accumulation of oil or heavy hydrocarbon from long use on a vapor withdrawal system.



Figure 5: A grain dryer connected to a liquid propane tank.

# **Orifice Cross Reference Chart**

	L	Р	N	G
Fan Diameter	Fan Horsepower	Orfice Size	Fan Horsepower	Orfice Size
26"	10-12 hp	7/32"	10-12 hp	5/16"
28"	10-12 hp	1/4"	10-12 hp	3/8"
36"	10-12 hp 10-16 hp	9/32" 21/64"	10-12 hp 10-16 hp	13/32" 1/2"
40"	25 hp	23/64"	25 hp	9/16"
42"	10-16 hp 20 hp 25 hp 30 hp 40 hp	11/32" 3/8" 25/64" 7/16" 29/64"	10-16 hp 20 hp 25 hp 30 hp 40 hp	33/64" 35/64" 37/64" 19/32" 41/64"

Dryer Model	Maximum Heat Capacity (Btu / hr)	Maximum Fuel Flow (gal / hr)	Fuel Line Size (Minimum for 100')
108, 1108	3,000,000	33	1/2"
110, 1110	3,500,000	38	1/2"
112, 1112	4,500,000	49	1/2"
114, 1114	5,750,000	63	1/2"
116, 1116	5,750,000	63	1/2"
118, 1118	6,750,000	74	1/2"
120, 1120	7,500,000	82	1/2"
122, 1122	8,750,000	96	3/4"
126, 1126	10,250,000	112	3/4"
1214	6,200,000	68	1/2"
1216	7,200,000	79	1/2"
1218	7,200,000	79	1/2"
1220	8,500,000	93	3/4"
1222	9,750,000	107	3/4"
1226	10,500,000	115	3/4"
1314	8,100,000	89	3/4"
1318	8,100,000	89	3/4"
1322	8,100,000	89	3/4"
1214H	6,000,000	66	1/2"
1218H	7,000,000	77	1/2"
1220H	9,000,000	98	3/4"
1222H	9,000,000	98	3/4"
1226H	13,500,000	148	3/4"
2212	9,000,000	98	3/4"
2214	11,000,000	120	3/4"
2218	13,500,000	148	3/4"
2220	15,000,000	164	3/4"
2222	17,500,000	191	1"
2226	20,500,000	224	1"
2314	11,500,000	126	3/4"
2318	13,750,000	150	3/4"
2320	16,500,000	180	1"
2322	17,750,000	194	1"
2326	24,250,000	265	1"

# Fuel System Specifications & Recommendations Liquid Propane (LP) Tank Pressure

# Fuel System Specifications & Recommendations Liquid Propane (LP) Tank Pressure

	Maximum Heat Capacity	Maximum Fuel Flow	Fuel Line Size
Dryer Model	(Btu / hr)	(gal / hr)	(Minimum for 100')
2414	12 000 000	131	3/4"
2418	14 000 000	153	3/4"
2420		197	1"
2420		197	1"
2426	27,000,000	295	1"
2420	27,000,000	235	I
3312	13,500,000	148	3/4"
3314	16,500,000	180	1"
3318	20,250,000	221	1"
3320	22,500,000	246	1"
3322	26,250,000	287	1"
3326	30,750,000	336	1 1/4"
3414	17,000,000	186	1"
3418	20,500,000	224	1"
3420	24,000,000	262	1"
3422	26,500,000	290	1"
3426	34,000,000	372	1 1/4"
3614	18,000,000	197	1"
3618	21,000,000	230	1"
3620	27,000,000	295	1"
3622	27,000,000	295	1"
3626	40,500,000	443	1 1/4"
160AB	3,000,000	33	1/2"
210AB	3,500,000	38	1/2"
300AB	4,500,000	49	1/2"
375AB	5,500,000	60	1/2"
400AB	5,500,000	60	1/2"
415AB	7,000,000	77	1/2"
600AB	9,000,000	98	3/4"

# NATURAL GAS (NG)

# GAS VOLUME AND PRESSURE

The dryer is designed to operate on natural gas having a heat value of about 1,000 BTU per cubic foot. The dryer is equipped with a natural gas supply pipe system connected to the heater solenoid valves. A regulated pressure of 10 PSI must be provided at the connection to the dryer, with gas available in sufficient volume to maintain the operating pressure.



Figure 6: A grain dryer connected to a natural gas supply tank.

	L	P	N	G
Fan Diameter	Fan Horsepower	Orfice Size	Fan Horsepower	Orfice Size
26"	10-12 hp	7/32"	10-12 hp	5/16"
28"	10-12 hp	1/4"	10-12 hp	3/8"
36"	10-12 hp 10-16 hp	9/32" 21/64"	10-12 hp 10-16 hp	13/32" 1/2"
40"	25 hp	23/64"	25 hp	9/16"
42"	10-16 hp 20 hp 25 hp 30 hp 40 hp	11/32" 3/8" 25/64" 7/16" 29/64"	10-16 hp 20 hp 25 hp 30 hp 40 hp	33/64" 35/64" 37/64" 19/32" 41/64"

# **Orifice Cross Reference Chart**

# Fuel System Specifications & Recommendations Natural Gas (NG) 10 psig operating pressure

	Maximum Heat Capacity	Maximum Fuel Flow	Fuel Line Size (Minimum for 100')	
Dryer Model	(Btu / hr)	(cu ft / hr)		
108, 1108	3,000,000	3000	1 1/2"	
110, 1110	3,500,000	3500	1 1/2"	
112, 1112	4,500,000	4500	2"	
114, 1114	5,750,000	5750	2"	
116, 1116	5,750,000	5750	2"	
118, 1118	6,750,000	6750	2"	
120, 1120	7,500,000	7500	2"	
122, 1122	8,750,000	8750	2 1/2"	
126, 1126	10,250,000	10250	2 1/2"	
1214	6,200,000	6200	2"	
1216	7,200,000	7200	2"	
1218	7,200,000	7200	2"	
1220	8,500,000	8500	2 1/2"	
1222	9,750,000	9750	2 1/2"	
1226	10,500,000	10500	2 1/2"	
1314	8,100,000	8100	2 1/2"	
1318	8,100,000	8100	2 1/2"	
1322	8,100,000	8100	2 1/2"	
1214H	6,000,000	6000	2"	
1218H	7,000,000	7000	2"	
1220H	9,000,000	9000	2 1/2"	
1222H	9,000,000	9000	2 1/2"	
1226H	13,500,000	13500	3"	
2212	9,000,000	9000	2 1/2"	
2214	11,000,000	11000	2 1/2"	
2218	13,500,000	13500	3"	
2220	15,000,000	15000	3"	
2222	17,500,000	17500	3"	
2226	20,500,000	20500	3"	
2314	11,500,000	11500	2 1/2"	
2318	13,750,000	13750	3"	
2320	16,500,000	16500	3"	
2322	17,750,000	17750	3"	
2326	24,250,000	24250	3 1/2"	

Dryer Model	Maximum Heat Capacity (Btu / hr)	Maximum Fuel Flow (cu ft / hr)	Fuel Line Size (Minimum for 100')
2414	12,000,000	12000	2 1/2"
2418	14,000,000	14000	3"
2420	18,000,000	18000	3"
2422	18,000,000	18000	3"
2426	27,000,000	27000	3 1/2"
3312	13,500,000	13500	3"
3314	16,500,000	16500	3"
3318	20,250,000	20250	3"
3320	22,500,000	22500	3"
3322	26,250,000	26250	3 1/2"
3326	30,750,000	30750	3 1/2"
3414	17,000,000	17000	3"
3418	20,500,000	20500	3"
3420	24,000,000	24000	3"
3422	26,500,000	26500	3 1/2"
3426	34,000,000	34000	3 1/2"
3614	18,000,000	18000	3"
3618	21,000,000	21000	3"
3620	27,000,000	27000	3 1/2"
3622	27,000,000	27000	3 1/2"
3626	40,500,000	40500	4"
160AB	3,000,000	3000	1 1/2"
210AB	3,500,000	3500	1 1/2"
300AB	4,500,000	4500	2"
375AB	5,500,000	5500	2"
400AB	5,500,000	5500	2"
415AB	7,000,000	7000	2"
600AB	9,000,000	9000	2 1/2"

# Fuel System Specifications & Recommendations Natural Gas (NG) 10 psig operating pressure

### **POWER SUPPLY**

An adequate power supply and proper wiring are important factors for maximum performance and long life of the dryer. Electrical service must be adequate enough to prevent low voltage damage to motors and control circuits. (See Electrical Load Information, page 21-28) Power supply for single phase models must include a neutral wire.

# TRANSFORMERS AND WIRING VOLTAGE DROP

Advise the service representative of your local power supplier that an additional load will be placed on the line. Check on KVA rating of transformers, considering total horsepower load. The power supply wiring, main switch equipment and transformers must provide adequate motor starting and operating voltage. Voltage drop during motor starting should not exceed 14% of normal voltage, and after motor is running at full speed it should be within 8% of normal voltage. Check Electrical Load Information (pages 23-30) for HP ratings and maximum amp loads.

# POWER SUPPLY DISCONNECT

All dryers are equipped with a power disconnect switch in the power box to permit total power shutdown before opening the power box door, as required for inspection and service. The power disconnect switch is located on the power box door for quick shutdown.

# MACHINE TO EARTH GROUNDING

It is very important that a *Machine To Earth Ground Rod* be installed at the dryer. Place the ground rod that comes standard, within 8 feet of the dryer and attach it to the dryer control panel with at least a #6 solid, bare, copper ground wire and the clamp provided. The grounding rod located at the power pole will not provide adequate grounding for the



Figure 7: Installation of a ground rod (standard with dryer purchase) specifically for the grain dryer is necessary for safety and equipment preservation.

dryer. The proper grounding will provide additional safety in case of any short and will ensure long life of all circuit boards, SCR drive, and the ignition system. The ground rod must be in accordance with local requirements.

# PROPER INSTALLATION OF GROUND ROD

It is not recommended that the rod be driven into dry ground. Follow these instructions for proper installation.

- Dig a hole large enough to hold
  to 2 gallons of water.
- 2. Fill hole with water.
- 3. Insert rod through water and jab it into the ground.
- 4. Continue jabing the rod up and down. The water will work its way down the hole, making it possible to work the rod com- pletely into the ground. This method of installation assures good contact with the surround-ing soil, making a proper ground.
  - 5. Connect the bare, copper ground wire to the rod with the proper clamp.
  - Connect ground wire to control panel with the ground lug provided in the control box.
  - Ground wire must not have any breaks or splices. Insulated wire is not recommended for grounding applications.

# CONNECTING AUXILIARY CONVEYORS

The auxiliary load and auxiliary unload augers or conveyors can be wired directly to the dryer. Electrical Load Information (page 23-30) shows the maximum horse power and amps of auxiliaries that can be wired to the dryer. If an auxiliary motor is larger than what is recommended, then it must be powered from a source outside the dryer, and must use a separate contactor and overload protection device for each motor. However, the operation of the auxiliaries can be performed by the control panel.



Dig a hole large enough to hold 1 or 2 gallons of water. Work the ground rod into the earth until it is completely in the ground.

The following charts provide information for the electrician wiring the grain dryer, and are a reference guide for parts. It is recommended that you contact your local power company and have a representative survey the installation to see that your wiring is compatible with their system and that adequate power is supplied to your unit. Remember that the only thing connected to the recommended service amps should be your grain dryer. Standard electrical safety practices and codes should be used. (Refer to National Electrical Code Standard Handbook by National Fire Protection Association.) A qualified electrician should make all electrical wiring installations.

			Minimum		Maximum Amps	Recommended Service
Dryer Model	Phase	Voltage	Amps	Auxililary Size	with Auxiliaries	in Amps
	1	220	62.5	(2) 7.5 hp	153	250
108, 1108	3	220	41.4	(2) 7.5 hp	104	150
	3	440	20.7	(2) 7.5 hp	57	150
	1	220	75	(2) 7.5 hp	168	250
110, 1110	3	220	39.2	(2) 7.5 hp	101	150
·	3	440	19.6	(2) 7.5 hp	56	150
	1	220	100	(2) 7.5 hp	196	300
112, 1112	3	220	50.2	(2) 7.5 hp	114	175
,	3	440	25.1	(2) 7.5 hp	62	150
	1	220	130	(2) 7 5 hp	231	350
114 1114	3	220	65.4	(2) 10 hp	145	200
114, 1114	3	440	32.7	(2) 10 hp	78	150
	0	0++	02.7	(2) 10 11p	10	100
	1	220	130	(2) 7.5 hp	231	350
116, 1116	3	220	65.4	(2) 10 hp	145	200
	3	440	32.7	(2) 10 hp	78	150
118, 1118	3	220	76.4	(2) 10 hp	158	250
	3	440	38.2	(2) 10 hp	84	150
120, 1120	3	220	104	(2) 15 hp	219	300
·	3	440	52	(2) 15 hp	115	200
122, 1122	3	220	114	(2) 15 hp	231	350
,	3	440	57	(2) 15 hp	120	200
	Ũ	110	0.	(_) 10 11p	0	200
126, 1126	3	220	154	(2) 15 hp	277	400
	3	440	77	(2) 15 hp	143	225
	1	220	153	(2) 7.5 hp	257	350
1214	3	220	87.4	(2) 10 hp	170	225
	3	440	43.7	(2) 10 hp	90	150
	1	220	178	(2) 7.5 hp	286	400
1216	3	220	98.4	(2) 10 hp	183	225
	3	440	49.2	(2) 10 hp	96	150

			Minimum		Maximum Amps	<b>Recommended Service</b>
Dryer Model	Phase	Voltage	Amps	Auxililary Size	with Auxiliaries	in Amps
	1	220	178	(2) 7.5 hp	286	400
1218	3	220	98.4	(2) 10 hp	183	225
	3	440	49.2	(2) 10 hp	96	150
	1	220	188	(2) 7.5 hp	298	400
1220	3	220	112	(2) 15 hp	229	300
	3	440	59	(2) 15 hp	123	150
1222	3	220	123	(2) 15 hp	241	350
	3	440	64.5	(2) 15 hp	129	200
				(-) (-)		
1226	3	220	149	(2) 15 hp	271	350
	3	440	77.5	(2) 15 hp	144	200
	1	220	196	(2) 7.5 hp	307	400
1314	3	220	125.4	(2) 10 hp	214	250
	3	440	62.7	(2) 10 hp	112	150
	1	220	196	(2) 7 5 hp	307	400
1318	3	220	125 4	(2) 10 hp	214	250
1010	3	440	62.7	(2) 10 hp	112	150
	U		02.1	(2) 10 110	112	100
	1	220	206	(2) 7.5 hp	318	400
1322	3	220	139	(2) 15 hp	260	350
	3	440	69.5	(2) 15 hp	135	200
	1	220	148	(2) 7.5 hp	252	350
1214H	3	220	92.4	(2) 10 hp	176	225
	3	440	46.2	(2) 10 hp	93	150
	1	220	158	(2) 7.5 hp	263	350
1218H	3	220	82.4	(2) 10 hp	165	225
	3	440	41.2	(2) 10 hp	87	150
	4	000	040		222	400
400011	1	220	218	(2) 7.5 np	332	400
1220H	3	220	118	(2) 15 hp	235	300
	3	440	59	(2) 15 hp	123	150
	1	220	218	(2) 7.5 hp	332	400
1222H	3	220	118	(2) 15 hp	235	300
	3	440	59	(2) 15 hp	123	150
1226H	3	220	180	(2) 15 hp	307	400
	3	440	90	(2) 15 hp	158	200

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Dryer Model	Phase	Voltage	Minimum Amps	Auxililary Size	Maximum Amps with Auxiliaries	Recommended Service in Amps
	1	220	191.4	(2) 7.5 hp	301	400
2212	3	220	95.2	(2) 7.5 hp	165	225
	3	440	47.6	(2) 7.5 hp	88	150
	1	220	208	(2) 7.5 hp	321	400
2214	3	220	104.4	(2) 10 hp	190	250
	3	440	52.2	(2) 10 hp	100	150
2218	3	220	126.4	(2) 10 hp	215	300
	3	440	63.2	(2) 10 hp	113	200
2220	3	220	168	(2) 15 hp	293	350
	3	440	84	(2) 15 hp	151	200
2222	3	220	188	(2) 15 hp	316	400
	3	440	94	(2) 15 hp	163	225
2226	3	220	256	(2) 15 hp	394	500
	3	440	128	(2) 15 hp	202	300
	1	220	226	(2) 7.5 hp	341	400
2314	3	220	131.4	(2) 10 hp	221	300
	3	440	65.7	(2) 10 hp	115	150
2318	3	220	132.4	(2) 10 hp	222	300
	3	440	66.2	(2) 10 hp	116	200
2320	3	220	182	(2) 15 hp	309	400
	3	440	91	(2) 15 hp	160	200
2322	3	220	192	(2) 15 hp	321	400
	3	440	96	(2) 15 hp	165	225
2326	3	220	282	(2) 15 hp	424	500
	3	440	141	(2) 15 hp	195	300
	1	220	244	(2) 7.5 hp	362	450
2414	3	220	158.4	(2) 10 hp	252	300
	3	440	79.2	(2) 10 hp	131	200
	1	220	264	(2) 7.5 hp	385	450
2418	3	220	138.4	(2) 10 hp	229	300
	3	440	69.2	(2) 10 hp	119	150
2420	3	220	196	(2) 15 hp	325	400
	3	440	98	(2) 15 hp	168	200
2422	3	220	196	(2) 15 hp	325	400
	3	440	98	(2) 15 hp	168	200
2426	3	220	308	(2) 15 hp	454	500
	3	440	154	(2) 15 hp	232	300

			Minimum		Maximum Amps	Recommended Service
Dryer Model	Phase	Voltage	Amps	Auxililary Size	with Auxiliaries	in Amps
	1	220	264	(2) 7.5 hp	385	450
2418	3	220	138.4	(2) 10 hp	229	300
	3	440	69.2	(2) 10 hp	119	150
2420	3	220	196	(2) 15 hp	325	400
	3	440	98	(2) 15 hp	168	200
2422	3	220	196	(2) 15 hp	325	400
	3	440	98	(2) 15 hp	168	200
2426	3	220	308	(2) 15 hp	454	500
	3	440	154	(2) 15 hp	232	300
	1	220	304	(2) 7.5 hp	431	500
3414	3	220	170.4	(2) 10 hp	266	300
	3	440	85.2	(2) 10 hp	138	200
3418	3	220	182.4	(2) 10 hp	280	350
	3	440	91.2	(2) 10 hp	145	200
3420	3	220	246	(2) 15 hp	383	450
	3	440	123	(2) 15 hp	196	300
3422	3	220	266	(2) 15 hp	406	500
	3	440	133	(2) 15 hp	208	300
3426	3	220	384	(2) 15 hp	541	600
	3	440	192	(2) 15 hp	276	350
	1	220	340	(2) 7.5 hp	472	550
3614	3	220	224.4	(2) 10 hp	328	350
	3	440	112.2	(2) 10 hp	169	200
3618	3	220	194.4	(2) 10 hp	293	350
	3	440	97.2	(2) 10 hp	152	200
3620	3	220	274	(2) 15 hp	415	500
	3	440	137	(2) 15 hp	212	300
3622	3	220	274	(2) 15 hp	415	500
	3	440	137	(2) 15 hp	212	300
3626	3	220	436	(2) 15 hp	601	650
	3	440	218	(2) 15 hp	306	350

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Dryer Model	Phase	Voltage	Minimum Amps	Auxililary Size	Maximum Amps with Auxiliaries	Recommended Service in Amps
	1	220	61	(2) 7.5 hp	151	250
160AB	3	220	39.8	(2) 7.5 hp	102	150
	3	440	19.9	(2) 7.5 hp	56	100
	1	220	81	(2) 7.5 hp	174	300
210AB	3	220	40.4	(2) 7.5 hp	102	150
	3	440	20.2	(2) 7.5 hp	56	100
	1	220	113.4	(2) 7.5 hp	212	300
300AB	3	220	56.2	(2) 7.5 hp	121	175
	3	440	28.1	(2) 7.5 hp	65	100
	1	220	113.4	(2) 7.5 hp	212	300
375AB	3	220	56.2	(2) 7.5 hp	121	175
	3	440	28.1	(2) 7.5 hp	65	100
	1	220	130	(2) 7.5 hp	231	350
400AB	3	220	65.4	(2) 10 hp	145	200
	3	440	32.7	(2) 10 hp	78	150
	1	220	158	(2) 7.5 hp	263	350
415AB	3	220	82.4	(2) 10 hp	165	225
	3	440	41.2	(2) 10 hp	87	150
	1	220	218	(2) 7.5 hp	332	400
600AB	3	220	118	(2) 15 hp	235	300
	3	440	59	(2) 15 hp	123	150



Diagram of dryer dimensions.

# Single Module Transport and Installation Dimensions Values are valid for transportation of stack modules.

Dryer Basket	A Transport Height	B Installed Width	C Installed Height		D Height w/o Wet Bin	E Frame Width	F Transport Width	G Installed Length	H Transport Length
			8 ft.	11' 11"	8'	13'	11' 6"	10' 3"	6' 5"
10 ft.	11' 11"	8'	13'	11' 6"	10' 3"	6' 5"	8'	17' 2''	19' 2''
12 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	19' 2''	21' 2"
14 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	21' 2"	23' 2''
16 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	23' 2"	25' 2''
18 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	25' 2''	27' 2''
20 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	27' 2''	29' 2''
22 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	29' 2''	31' 2"
26 ft.	13' 5"	8'	14' 6"	13'	11' 9"	6' 5"	8'	33' 2''	35' 2"
1214S	13' 5"	8' 8"	14' 6"	13'	11' 9"	6' 5"	8'	21' 2"	23' 2''
1218S	13' 5"	8' 8"	14' 6"	13'	11' 9"	6' 5"	8'	25' 2"	27' 2''
1220S	13' 5"	8' 8"	14' 6"	13'	11' 9"	6' 5"	8'	27' 2"	29' 2''
1222S	13' 5"	8' 8"	14' 6"	13'	11' 9"	6' 5"	8'	29' 2"	31' 2''
1226S	13' 5"	8' 8"	14' 6"	13'	11' 9"	6' 5"	8'	33' 2"	35' 2''
160AB	11' 11"	8'	N/A	11' 6"	10' 3"	6' 5"	8'	13' 2"	15' 2''
210AB	11' 11"	8'	N/A	11' 6"	10' 3"	6' 5"	8'	15' 2"	17' 2''
300AB	13' 5"	8'	N/A	13'	11' 9"	6' 5"	8'	17' 2"	19' 2''
375AB	13' 5"	8'	N/A	13'	11' 9"	6' 5"	8'	19' 2"	21' 2"
400AB	13' 5"	8'	N/A	13'	11' 9"	6' 5"	8'	21' 2"	23' 2"
415AB	13' 5"	8'	N/A	13'	11' 9"	6' 5"	8'	21' 2"	23' 2"
600AB	13' 5"	8'	N/A	13'	11' 9"	6' 5"	8'	27' 2"	29' 2''


## DIMENSIONS FOR CONCRETE BLOCK SUPPORTS

Dryer Basket Length	6	8	10	12	14	16	18	20	22	26
Concrete Pad Size	12 x 16	12 x 18	12 x 20	12 x 22	12 x 24	12 x 26	12 x 28	12 x 30	12 x 32	12 x 36
Yards Concrete	5.3	5.9	6.5	7.1	7.7	8.3	8.9	9.2	10.1	11.3
Reinforcing Rods 20" each	6	6	7	7	7	8	8	8	9	10
Wire Mesh Sq. Ft.	192	216	240	264	288	312	336	360	384	432
Steel Legs(minimum)	8	8	10	10	12	12	14	14	16	18
Anchors	4	4	4	6	6	6	8	8	8	10
Blocks	10	14	14	18	18	18	22	22	26	30
Foot of 2 x 6	10	14	14	18	18	18	22	22	26	30
Turnbuckles	4	4	4	6	6	6	8	8	8	10
Estimated Manhours	8	10	12	14	18	18	20	22	24	28

Quantities are approximate and requirements may vary due to site elevations. Setup times do not include preparing site and pouring concrete pad.







<u>REAR VIEW</u>

BASKET LENGTH X (FEET) NOTE: INSTALLATION OF THE LEG STANDS SHOULD START AT THE BACK COLUMN LEG OF 08 18 THE DRYER AND CONTINUE ON EVERY OTHER COLUMN LEG TOWARDS THE FRONT. 10 20 SOME DRYERS WILL HAVE TWO LEG STANDS NEAR THE FRONT OF THE BASKET 12 22 AS SHOWN IN THE DRAWING. 14 24 16 26 18 28 20 30 22 32 26 36 ጠ ጠ шпщ uν n 0'- 6" GRADE LEVEL 1'- 10" -3'- 6" --6'-7 1/2" -"X" - VARIES WITH LENGTH OF DRYER -SIDE VIEW RECOMMENDED GAS LINE LOCATION GRAIN DISCHARGE LOCATION 6'- 3 1/2" -FILL HOPPER LOCATION



### TOP VIEW



#### 

UNEXCAVATED SOIL -

# Stack Dryer Foundation

Basket Length	12	14	18	20	22	26
Concrete Pad Size (12' x "X") <sub>1</sub>	12 x 22	12 x 24	12 x 28	12 x 30	12 x 32	12 x 36
Concrete (cubic yards)	19.00	20.75	24.25	26.00	27.50	31.00
# 4 Rebar (feet) <sub>2</sub>	840	900	1060	1140	1220	1400
Anchors <sub>3</sub>	14	16	20	22	24	28

 $^{\rm 1}$  10" depth with 36" wide x 36" deep footings along each side

<sup>2</sup> #4 reinforcing rods on 1" - 0" centers. Both directions in slab and bottom of footing.

<sup>3</sup> Use 3/4" x 9 5/8" minimum anchors with epoxy. GSI part numbers: anchor (GTC-0003) epoxy (GTC-0004)

Minimum soil bearing capacity = 2000 PSF

#### Concrete Specifications

Compressive Strength @ 28 days -- 4000 psi

Minimum Cement Content -- 6 sacks/yard

Maximum Slump -- 4" +/- 1"



## **Portable Dryer Sales Manual**



## SIDE VIEW - 3 MODULE STACK DRYER

## **Dryer Installed Length**

1, 2, and 3 Module Stacks

Basket Length	Installed Length ("x")
12 ft.	21 ft. 6 in.
14 ft.	23 ft. 10 in.
18 ft.	27 ft. 10 in.
20 ft.	29 ft. 10 in.
22 ft.	31 ft. 10 in.
26 ft.	35 ft. 10 in.



END VIEW - 2 MODULE STACK DRYER





Figure 8: The Airstream Heat Reclaimer recirculates warmed air and provides energy savings. (Shown with optional noise suppressor on lower module.)



Figure 9: The new stiffener package for use on all stack dryers.





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