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Grain Prep[®] Auto Delivery System[®]

Reg. U.S. Pat. Off. Nos. 5,194,275; 5,437,882 & 6,192,750 B1

Continuous Flow Design

General Installation Instructions



Continuous Flow Design

This installation guide details items to be completed prior to the arrival of AgriChem, Inc. personnel for final wiring and start-up*.

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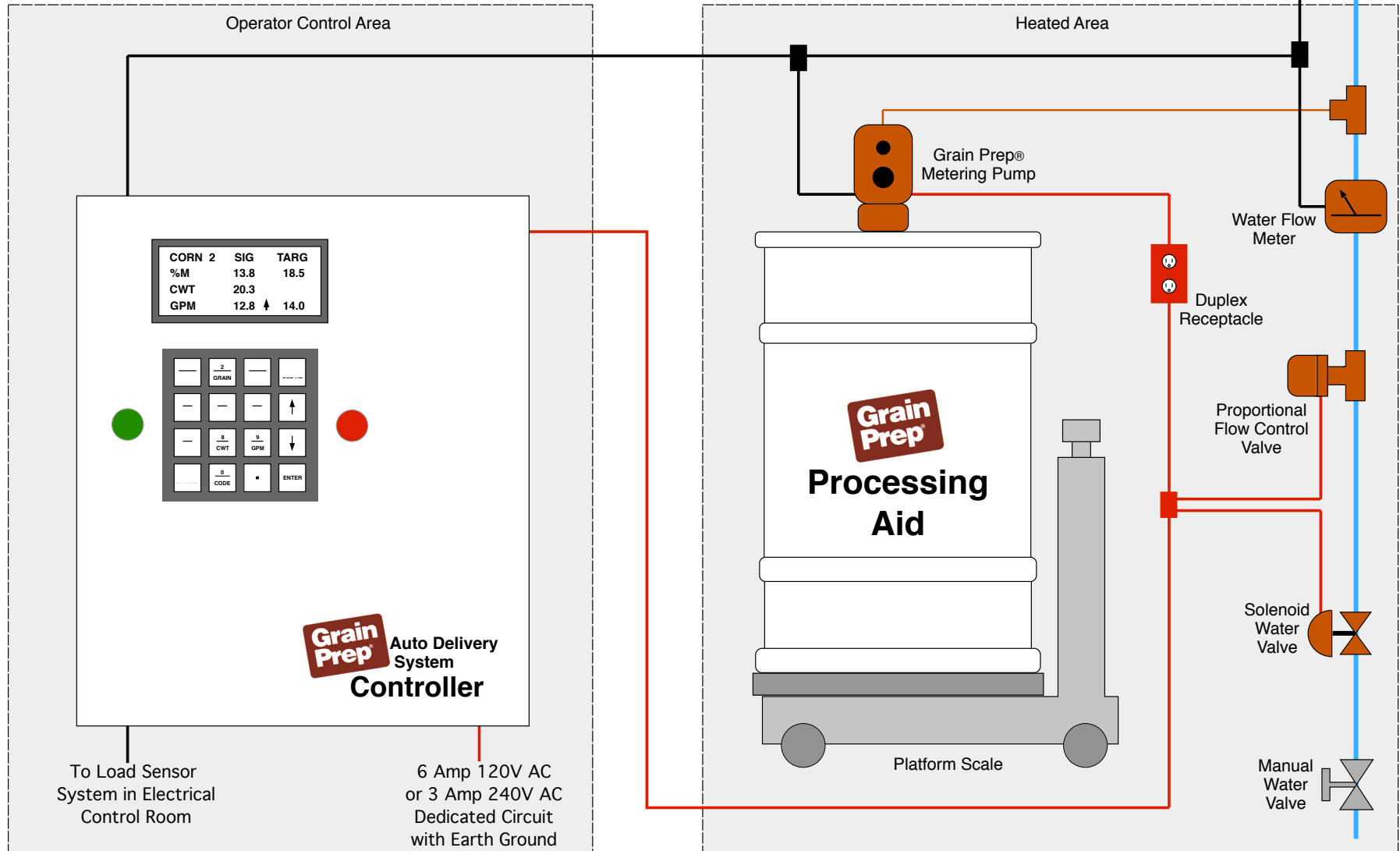
*Since it is impossible to anticipate every possible installation variable, AgriChem, Inc. personnel are available to help solve problems unique to a particular installation. If these instructions do not suggest a solution to a specific installation problem, an application engineer may be contacted by telephone at (763) 434-6755, by FAX at (763) 434-1577, or e-mail at info@agricheminc.com

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Preliminary Installation Schematic Continuous Flow Design

- Legend:**
- Potable Water Supply
 - 1/2 in Conduit for 120V AC Service
 - 1/2 in. Conduit for Shielded Signal Cable
 - Auto Delivery System Components

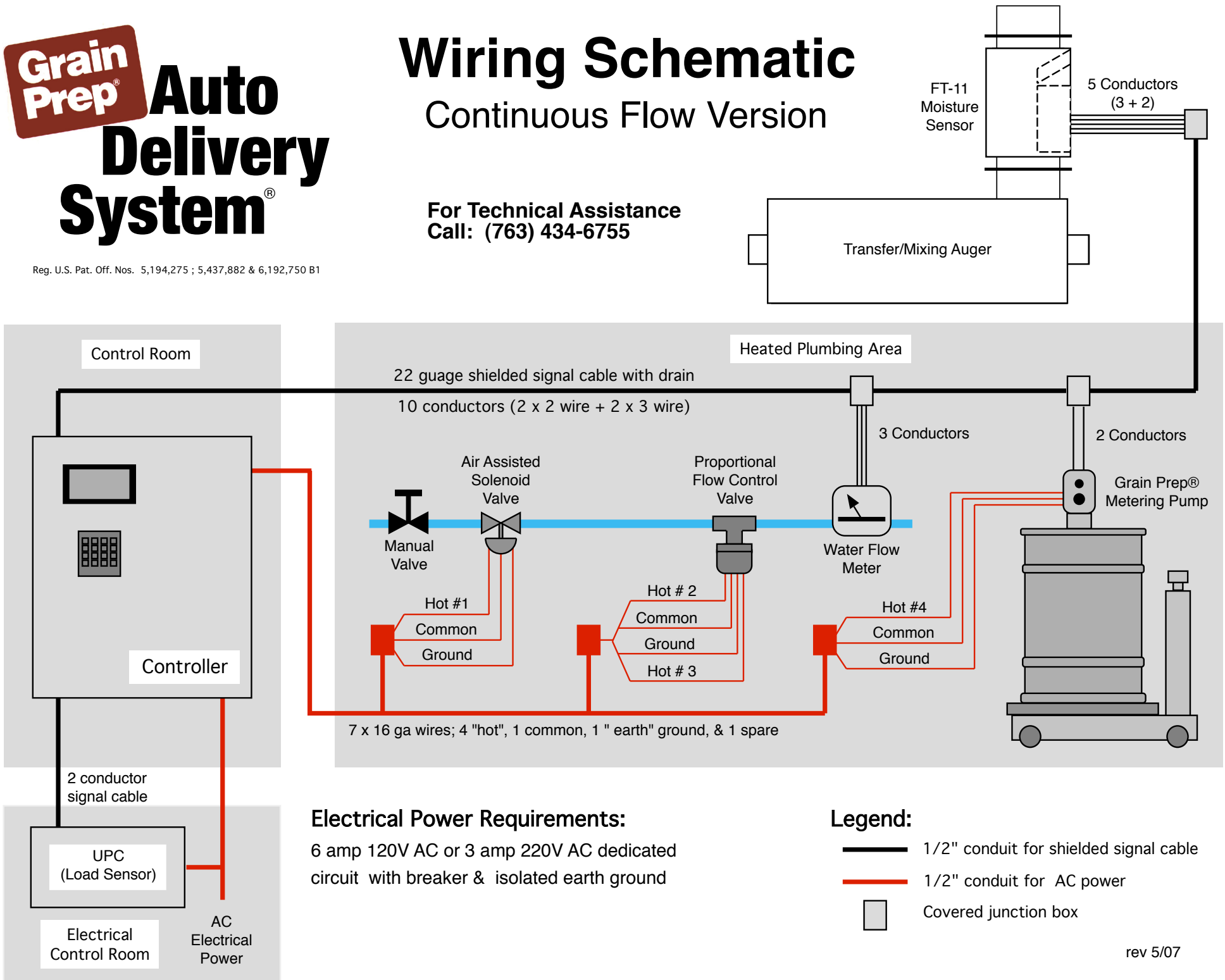


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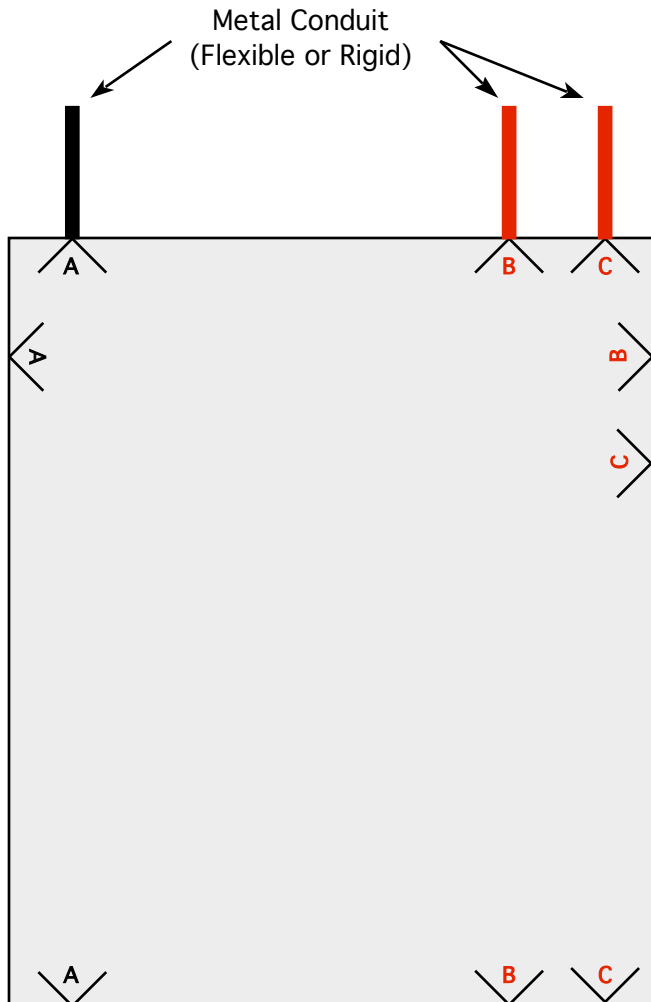
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Wiring Schematic Continuous Flow Version

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Conduit Entrance Points:

A 22 gauge shielded signal cable with drain from the:

1. moisture sensor (5 signal conductors)
2. water flow sensor (2 signal conductors)
3. mass flow sensor (2 signal conductors)
4. metering pump (2 signal conductors)

B Electrical power from Grain Prep Auto Delivery System Controller to heated plumbing area:

1. hot lead to solenoid valve
2. hot lead to metering pump
3. 2 hot leads to proportional flow control valve
4. common leads 1, 2 & 3
5. one earth ground

C Electrical power from main panel to Grain Prep Auto Delivery System Controller:

1. either 6 amp 120V AC or 3 amp 220V AC dedicated circuit with a breaker
2. isolated earth ground

Cabinet Installation:

1. Place Controller cabinet where display and keypad are at a comfortable hand and eye level.
2. Display panel should be conveniently visible to operator.

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Items Supplied with Grain Prep Auto Delivery System:

1. Air Assisted Solenoid Water Valve
2. Water Flow Meter
3. Grain Prep Metering Pump
4. "Tee" for Grain Prep Processing Aid Injection Point
5. Spray Nozzle

Plumbing Installation Schematic

Continuous Flow Version

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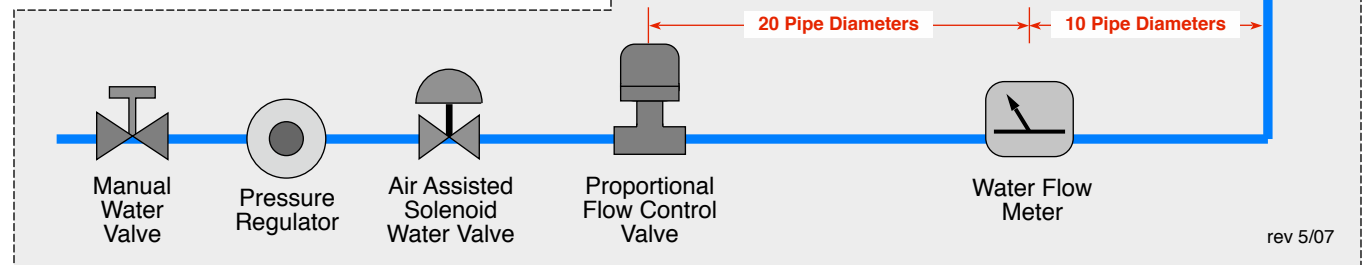
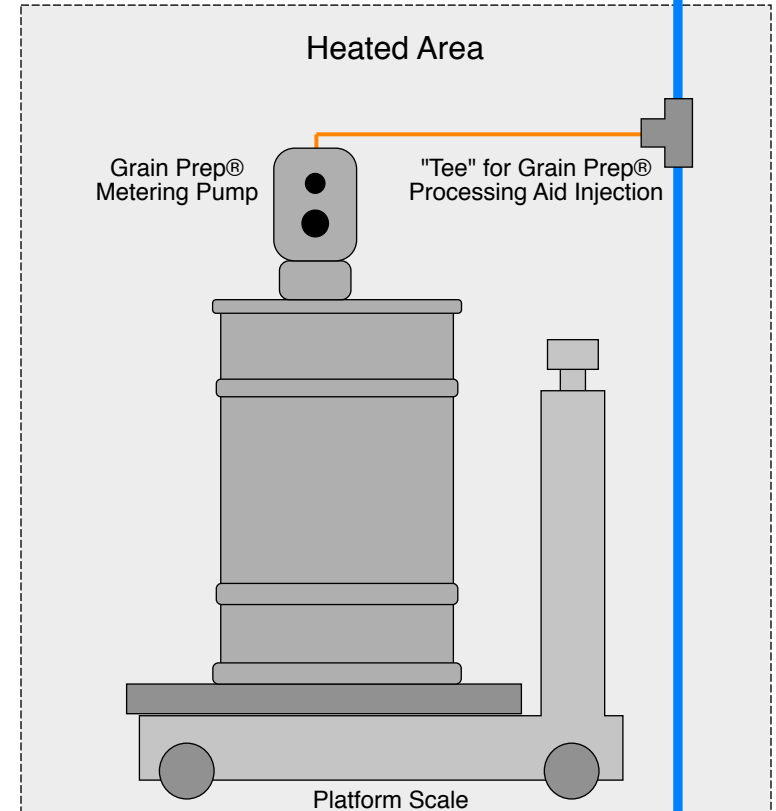
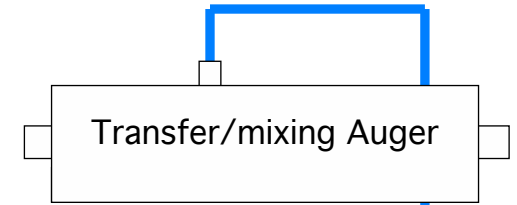
Items Supplied by Customer:

1. Installation Labor
2. Piping: 1" or 1.5" PVC or Galvanized
3. Manual Shut-off Valve
4. Water line pressure regulator
5. 1" close couple for spray nozzle mount

IMPORTANT:

To assure accurate performance from the **water meter**, there must be a minimum length of straight run pipe equal to **20 pipe diameters upstream** of its location and **10 diameters downstream**.

The water meter may be placed in either a vertical or horizontal pipe run as long as the pipe is always completely filled when the Auto Delivery System is operating.





PROCESS MOISTURE APPLICATION RATE

Volume Required for fully Automated Moisture Control

U.S. Gallons per 100 lbs (Cwt) of Grain

Incoming Moisture (%)	Target Moisture Content (%T)								
	14	15	16	17	18	19	20	21	22
8	0.84	0.99	1.14	1.30	1.46	1.63	1.80	1.98	2.15
9	0.70	0.85	1.00	1.16	1.32	1.48	1.65	1.82	2.00
10	0.56	0.71	0.86	1.01	1.17	1.33	1.50	1.67	1.85
11	0.42	0.56	0.71	0.87	1.02	1.19	1.35	1.52	1.69
12	0.28	0.42	0.57	0.72	0.88	1.04	1.20	1.37	1.54
13	0.14	0.28	0.43	0.58	0.73	0.89	1.05	1.22	1.39
14	0.00	0.14	0.29	0.43	0.59	0.74	0.90	1.06	1.23
15		0.00	0.14	0.29	0.44	0.59	0.75	0.91	1.08
16			0.00	0.14	0.29	0.44	0.60	0.76	0.92
17				0.00	0.15	0.30	0.45	0.61	0.77
18					0.00	0.15	0.30	0.46	0.62

INSTRUCTIONS:

1. Incoming grain moisture (%) is represented by the numbers in the left column. The treated or target grain moisture content (%T) is represented by the numbers in the top row.
2. Read this table as if it were a distance chart on a road map. The number at the intersection of the row containing the incoming moisture value and the column with the target moisture content is the volume of Grain Prep Processing Aid - water moisturizing solution* (gallons) needed to be applied to each Cwt of grain or feed ingredients.

EXAMPLE:

If %I = 9, %T = 18 & Grain Flow or Weight (G) = 6,000 lbs, then Moisture Addition (W) = 1.32 (from table) x 60 (6000/100) = 79.2 gallons

Formula Used for Computation: $\frac{G(\%T - \%I)}{8.33(100 - \%T)} = W$ Where: G = grain flow rate (100's lbs/min) & W = solution flow rate (gpm) or
 G = batch size (100's lbs) & W = total solution volume (gallons)

*Grain Prep Processing Aid Use Rate = 0.083 oz/gallon