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XGHL Heatless Purge

Desiccant Compressed Air Dryer 90-5,000 SCFM

Installation, Operation, and Maintenance Manual

Save These Instructions

Gardner Denver

CONTENTS

1.0 INTRODUCTION

Gardner Denver XGHL Heatless Desiccant Dryers are designed to adsorb moisture from compressed air. The dryers are constructed with two towers, each containing desiccant beads, that alternate between online (drying) and offline (regenerating) modes, yielding a continuous stream of dry air at the dryer's outlet.

During normal operation, wet air passes through the online tower and water vapor from the air is adsorbed (collected) on the desiccant beads. While air is being adsorbed in the online tower, the moisture on the desiccant in the offline tower is removed by a process called desorption (regeneration). After an initial rapid depressurization, a portion of dried air from the online tower passes over the desiccant bed and carries the moisture off the bed and out the dryer's exhaust.

The continuous, alternating process of adsorption and desorption is controlled using a timer that switches the towers in a specific timed sequence. Very dry compressed air dew points are achieved through the continuous switching and operation of this dryer. **Gardner Denver** offers dryers to provide either -40°F (-40 °C) or -100°F(-73,33 °C) pressure dew point outlet air.

2.0 ABBREVIATED WARRANTY

Gardner Denver heatless desiccant dryer products are warranted to be free from defects in material and workmanship for a period of 12 months from the original date of shipment from the factory. To allow the warranty to be in effect for 12 months from the date of equipment start-up, the Warranty Registration Card must be completed and returned to **Gardner Denver**. Alternately, the Warranty Registration Card may be completed online at www.Gardner Denver.com. The total warranty period cannot exceed 18 months from the original date of shipment from the factory.

Equipment must be installed and operated in accordance with **Gardner Denver**'s recommendations. **Gardner Denver** liability is limited to repair of, refund of purchase price paid for, or replacement in kind at **Gardner Denver**'s sole option, during the warranty time period stated above. IN NO EVENT SHALL **Gardner Denver** BE LIABLE OR RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, even if the possibility of such incidental or consequential damages has been made known to **Gardner Denver**. In addition, the usual maintenance and replacement type products are not covered by this warranty. See SECTION 10.

The warranties expressed above are in lieu of and exclusive of all other warranties. There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed.

3.0 NOMENCLATURE

Type/Design Series	Nominal Flow SCFM*	Voltage (Dew Point)	NEMA	Electrical Option
XGHL = Pressure Swing	90	1 = 115-1-60 (-40 °C/-40 °F)	H = NEMA 4	0 = Standard
	120	B = 115-1-60 (-73,33 °C/-100 °F)	S = NEMA 4X	A = Failure-To-Shift (FTS)
	160	2 = 230-1-60 (-40 °C/-40 °F)	Stainless Steel	E = Energy Management System (EMS)
	200	C = 230-1-60 (-73,33 °C/-100 °F)		G = EMS + FTS
	250	3 = 220-1-50 (-40 °C/-40 °F)		
	300	E = 220-1-50 (-73,33 °C/-100 °F)		
	400			
	500			
	600			
	800			
	1,000			
	1,200			
	1,500			
	1,800			
	2,100			
	2,700			
	3,300			
	4,000			
	5,000			

* Nominal flows indicated are for 100°F (37,7 °C) inlet temperature, 100°F (37,7 °C) ambient temperature and 100 psig compressed air pressure.

Note: Based on controller P/N 24331811.

Nominal Flow (SCFM) capacities indicated are for dryer models delivering -40ºF dew point air quality. Dryer models delivering -100ºF dew point air quality have reduced flow capacity.

NOTICE
Nomenclature shown above represents standard price sheet options. Other options are available - refer to nomenclature insert specific to your dryer for details.

4.0 RECEIVING AND INSPECTION

4.1 INSPECTION

Upon receiving your **Gardner Denver** air dryer, inspect the unit closely. If evidence of rough handling is detected, note it on your delivery receipt, especially if the dryer will not be uncrated immediately. Obtaining the delivery person's signed agreement to noted damages will facilitate submission of insurance claims.

Contact your local sales office to obtain a RMA claim to initiate the return process (if required).

4.2 UNPACKING AND HANDLING

NOTICE
Under no circumstances should any person attempt to lift heavy objects without proper lifting equipment (i.e.: crane, hoist, slings or fork truck). Lifting any unit without proper lifting equipment can cause serious injury.

Refer to labels on the dryer for the appropriate means for lifting or moving the dryer. When lifting the dryer, ensure that no stress is applied to the piping or the valves. Refer to SECTION 9.2 for locating and mounting of the dryer.

The dryer can be rigged using the forklift rails that are welded to the upper cross member that spans between the two vessels. Use care when inserting fork lift tongs beneath these rails to avoid damaging piping at the rear of the dryer.

5.0 SAFETY AND OPERATION PRECAUTIONS

5.1 SAFETY PRECAUTIONS LIST

Because an air dryer is pressurized and contains mechanical parts, the same precautions should be observed as with any piece of machinery of this type where carelessness in operation or maintenance is hazardous to personnel. In addition to the many obvious safety rules that should be followed with this type of machinery, the safety precautions as listed below must be observed:

1. Only qualified personnel shall be permitted to adjust, perform maintenance or repair this air dryer.
2. Read all instructions completely before operating unit.
3. Pull main electrical disconnect switch and disconnect any separate control lines, if used, before attempting to work or perform maintenance on the unit. Use proper lockout/tag out Procedures.
4. Do not attempt to service any part while dryer is in an operational mode.
5. When servicing this dryers, do not attempt to remove any parts without first relieving the entire air system of pressure.
6. Do not operate the dryer at pressures in excess of its rating.
7. Inspect unit daily to observe and correct any unsafe operating conditions.
8. Dryer must be de-pressurized before servicing.

OSHA Heading Descriptions

⚠ WARNING

"WARNING" is used to indicate a hazardous situation which has some probability of death or severe injury. Warning should not be considered for property damage accidents unless personal injury risk is present.

⚠ CAUTION

"CAUTION" is used to indicate a hazardous situation which may result in minor or moderate injury.

NOTICE

"NOTICE" is used to indicate a statement of company policy as the message relates directly or indirectly to the safety of personnel or protection of property. Notice should not be associated directly with a hazard or hazardous situation and must not be used in place of "DANGER," "WARNING," or "CAUTION."

NOTICE

The user of any air dryer manufactured by Gardner Denver, is hereby warned that failure to follow the above Safety and Operation Precautions can result in personal injuries or equipment damage. However, Gardner Denver does not state as fact, nor does it mean to imply, that the preceding list of Safety and Operation Precautions is all inclusive, and further, that the observance of this list will prevent all personal injuries or equipment damage.

6.0 PRINCIPLES OF OPERATION

6.1 INTRODUCTION

As described in SECTION 1, the XGHL series dryer is used to remove water vapor from compressed air by diverting air flow alternately between two towers that are filled with desiccant material. While one tower processes the compressed air stream, adsorbing water vapor, the opposite tower is regenerated by desorbing the water vapor accumulated in the previous cycle and venting it to atmosphere. Refer to SECTION 15, FLOW DIAGRAM for a visual representation of the drying and regenerating cycles.

Inlet flow to the dryer is directed to the bottom manifold and the outlet flow exits through the upper manifold. The manifolds are comprised of both pneumatically actuated valves and check valves that direct compressed air flow through the dryer.

6.2 DRYING CYCLE

Saturated compressed air enters the dryer and is directed to the appropriate drying tower by the corresponding inlet flow valves. The inlet flow valves are normally-open and one of the valves will be actuated closed to direct the flow of compressed air to the designated drying tower. It is important to note that only one inlet valve is closed during this process. The FLOW DIAGRAM in SECTION 15 of this Technical Manual depicts the scenario where the left tower is being regenerated and the drying process is occurring with the right tower. In this example, wet compressed air enters the dryer and is directed to the right tower for drying when the left tower, normally-open flow valve is actuated to a closed position. The normally-closed, right tower purge valve is closed while the left tower purge valve is actuated to an open position during this period. As the compressed air flows through the desiccant material on the right tower, removal of water vapor from the air stream begins to occur through adsorption.

6.3 REGENERATION CYCLE

Previously adsorbed moisture, removed from the process stream, gets stripped or desorbed from the desiccant material in the regeneration process. The first stage of regeneration is tower depressurization. After the normally-open Inlet Flow Valves are switched to divert air flow away from the regenerating tower, the appropriate normally-closed Purge Valve will be opened and the tower will be depressurized. Through rapid depressurization, a significant portion of the previously adsorbed water vapor is stripped off of the desiccant material and exhausted to atmosphere.

The second stage of regeneration uses a portion of the dry, compressed air, expanded to atmospheric pressure to complete the desorption process. As depicted in the FLOW DIAGRAM, the compressed air exits the drying tower and a portion of the air flows through the Purge Adjustment Valve and the Purge Orifice. Once the air has passed through the Purge Orifice, it expands to atmospheric pressure and continues the regeneration process. Desorption occurs as the desiccant releases water vapor into the regeneration air that is then exhausted through the Purge Muffler.

XGHL Heatless Dryers are equipped with a Downstream Purge feature as standard. The Downstream Purge utilizes air from a downstream source to purge the regenerating tower. This feature is useful for applications with downstream (dry) storage tanks, as pulling air from a downstream source can minimize cycling of the air compressor.

6.4 SETTING THE REGENERATION AIR FLOW

To enable the desiccant media within the towers to be thoroughly regenerated and to get proper dryer performance, it's necessary to manually set the purge air flow. Setting the purge flow too high will waste compressed air and if set too low, the dryer will not achieve proper dew point performance.

The purge flow must be set when the left tower is operating as the drying tower (pressurized) and the right tower is being regenerated (de-pressurized).

NOTICE
When setting purge flow, the left tower must be the drying tower for proper purge adjustment setting. When the right tower is the drying tower, the Purge Adjustment Gauge will read close to line pressure.

The purge adjustment manifold consists of the Purge Adjustment Valve, the Purge Pressure Gauge and the Purge Orifice. When the left tower is the drying tower (pressurized) and the right tower is depressurized (less than 7 PSIG), manually adjust the Purge Adjustment Valve until the gauge reading on the purge pressure gauge matches the Purge Pressure Gauge setting listed on the laminated tag that's affixed to the Orifice Plate Assembly. SECTION 12 of this Technical Manual also includes the proper Purge Pressure Gauge setting value.

NOTICE
When using the Energy Management System (EMS) feature, the purge valve MUST be adjusted to the factory set point to ensure proper operation of these features.

NOTICE
Do not restrict purge exhaust flow in any way. Keep purge mufflers clean. If exhaust air must be piped away from dryer, consult factory for correct pipe sizing and configuration.

6.5 TOWER RE-PRESSURIZATION

Upon completion of tower regeneration, and prior to the Inlet Flow Valves changing position to switch towers, the regenerated tower must be repressurized.

NOTICE
Failure to re-pressurize prior to tower switch-over will result in shocking the desiccant material and cause premature desiccant dusting.

Re-pressurization is accomplished when the appropriate Purge Valve closes. Closing the Purge Valve allows the regeneration air to begin to pressurize the tower. In addition to the regeneration air, the repressurization Valve, (standard on -100°F (37,7 °C) dew point and high pressure dryers; optional on -40°F (-40 °C) dew point dryers) opens allowing some additional air from the outlet of the dryer to ensure adequate pressurization. This valve is pneumatically operated.

6.6 VALVES

Control Air Solenoid Valves are used to actuate the Main Flow Valves and Purge Valves. The Inlet Flow Valves and the optional repressurization Valve are normally-open valves, while the Purge Valves are normally-closed valves. This arrangement permits air to flow through the dryer in the event of power failure. The Control Air Solenoid Valves are located below the main Control Box.

Outlet Check Valves are single direction check valves that will allow flow in the direction shown on the P&ID, but not allow flow in the opposite direction.

6.7 TIMING SEQUENCE

A Digital Controller controls all dryer timing functions. Regardless of controller, the timing of **Gardner Denver** -40°F (-40 °C) and -100°F (37,7 °C) dryers is outlined as follows:

6.7.1 TIMING CYCLE FOR -40°F (-40 °C) DEW POINT DRYERS

The standard timing cycle for -40°F (-40 °C) operation switches the Inlet Flow Valve position every five minutes which alternates the drying tower. At the same time as a tower Inlet Valve opens, the appropriate tower Purge Valve opens to depressurize the regenerating tower. Tower regeneration occurs for 4 minutes and 15 seconds, at which time the Purge Valve closes to initiate repressurization.

6.7.2 TIMING CYCLE FOR -100°F (37,7 °C) DEW POINT DRYERS

The standard timing cycle for -100°F (37,7 °C) operation switches the Inlet Flow Valve position every 2 minutes which alternates the drying tower. At the same time a tower Inlet Valve opens, the appropriate tower Purge Valve opens to depressurize the regenerating tower. Tower regeneration occurs for 1 minute and 50 seconds, at which time the Purge Valve closes to initiate repressurization. The repressurization Valve opens to assist tower re-pressurization for the last 10 seconds prior to Inlet Flow Valve switching.

The re-pressurization valve is pneumatically operated by a shuttle valve. For -100°F (37,7 °C) applications, the timing cycle can be adjusted from -100°F (37,7 °C) to -40°F (-40 °C) or +4°F(-15,55 °C) by entering TECHNICIAN MODE, when the dryer cycle is turned off.

6.8 CONTROLS

The Microprocessor Controller controls all pneumatic valve operation and dryer functions as well as communicates dryer alarms. The Microprocessor Controller stores the last 20 alarm conditions, displaying the alarm and the time and date the alarm occurred. This useful feature can greatly facilitate troubleshooting of the dryer.

The Microprocessor Controller features three levels of access. The default level CUSTOMER MODE permits viewing of various drying parameters. A protected TECHNICIAN MODE permits access to and manipulation of additional parameters. A password protected FACTORY MODE is also included for use with **Gardner Denver** Service Personnel for troubleshooting the dryer.

This microprocessor is provided with a standard RS232 communications protocol with a standard baud rate of 19200. For applications where Ethernet or RS485 communications are required, the following field installation kits are available to meet this requirement. Please note that these are to be field installed.

Kit Number	Description
47777572001	KIT RETR MODBUS TCP/IP N4 DEV2022-01000
47776307001	KIT RETR MODBUS RS232 to RS485 N4

6.8.1 BASIC USER INTERFACE

The Microprocessor Control display providesthe user with the operating parameters and their corresponding values. When power is supplied to the dryer, the Microprocessor Control will illuminate and default to the "Standby" mode, displaying the "Press ON" prompt.

The following illustration summarizes the keypad functions.

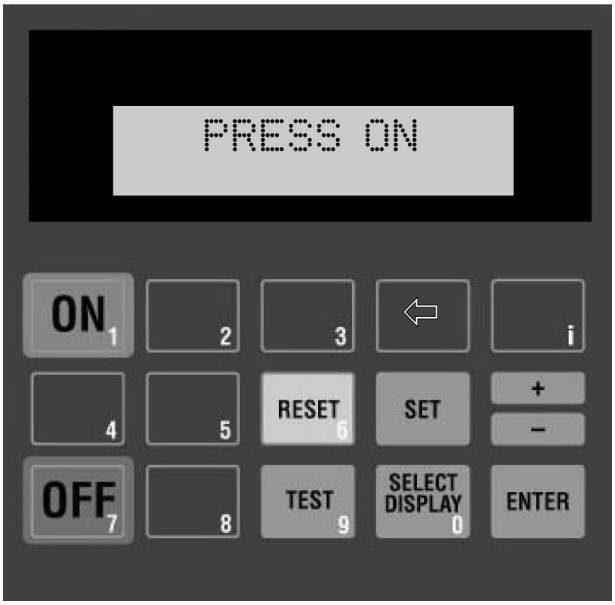


FIGURE 4 - MICROPROCESSOR CONTROLLER

BUTTONS

- ON
  Initiates PLC program. Begins system monitoring and valve switching functions.
- OFF
  Stops PLC program. Stops valve switching functions. Initiates shutdown sequence. Opens Inlet Flow Valves. Closes Purge Valves.
- SELECT DISPLAY
  Allows the user to scroll through the available displays. The last display selected will remain displayed as the default display.
- + / -
  Allows user to modify set point values. Set point values cycle through a fixed range. Also allows entering negative numbers in Factory Modes.
- ⇦ or "blank" button
  Allows user to step backwards to the previous level of the menu.
- RESET
  Pressing once clears the local alarm indication and de-energizes the remote alarm contact for many alarm conditions. Should the alarm condition persist, the alarm will return after the alarm inhibit time has expired.
- SET
  Permits the adjustment of parameters in FACTORY MODES.
- ENTER
  Used to accept changed parameters and set point values.
- TEST
  Not used in Desiccant Dryer applications
- i
  Restricted Level access for factory use only.

The status panel provides clear indication of dryer status via bright LED indicators.
The following illustration summarizes the panel's features:

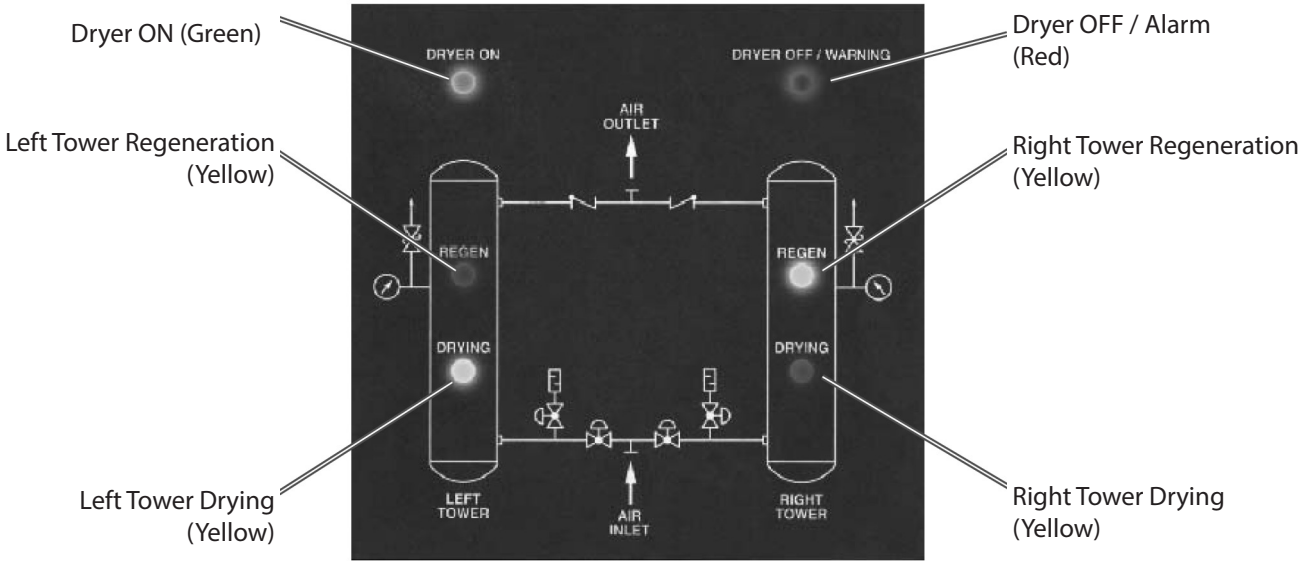


FIGURE 5 - STATUS PANEL

6.8.2 MICROPROCESSOR CONTROL DISPLAY PARAMETERS

The Microprocessor Controller is capable of displaying a number of system parameters. The following summarizes the parameters that can be accessed by depressing the SELECT DISPLAY button from the Microprocessor Controller. (Note that some displays are optional and may not appear on all models):

- Tower Status {LT DRY / RT REGEN or LT REGEN / RT DRY}: Provides visual confirmation of tower drying and regenerating status.
- Step Timer {ie STEP 4 TIME 120}: Information screen displaying the current step in the program and the time remaining for the displayed step.
- Dew Point Temperature (OPTIONAL) - {DEW POINT TEMP: XX}: When equipped with the Energy Management System (EMS) feature, provides accurate display of dryer outlet pressure dew point.
- Purge Status (OPTIONAL) - {PURGE / NO PURGE}: Indicates whether unit is currently consuming purging air. Requires EMS.
- Alarms {ALARM LIST - PRESS ENTER}: Depressing <ENT> at this prompt permits viewing of current alarm status and alarm history.
- Operating & Purge Times - {OPERATING TIMES - PRESS ENTER}: Depressing <ENT> at this prompt provides access to the operating and purge hours of operation.
- Operating Mode {OPERATING MODE: HEATLESS}: Indicates mode of operation for dryer.

6.8.3 ALARMS AND THEIR FUNCTIONS

There are several alarms detected by the Microprocessor Control to alert the user of an out of tolerance condition. Once each alarm is detected, a description of the alarm will appear in the screen and the remote alarm contact will close. Note that during the alarm condition, the SELECT DISPLAY button may be depressed to scroll through the available parameters. After approximately 30 seconds, the alarm screen will reappear, provided the alarm condition persists.

Fail to Shift Alarm (OPTIONAL) - (FAIL TO SHIFT) Pressure switches are provided to detect the pressure within each tower. At "0" psig the switches are normally closed which sends a signal to the controller. When the towers pressurize, the switches open, thus removing the signal to the controller. During the cycle, the Microprocessor Controller interrogates the pressure switches to determine their current position. The Microprocessor Controller compares their position to a look-up table within the program. If the position of either switch differs from the switch's proper position, the dryer will initiate the Fail to Shift Alarm.

High Dew Point Alarm (OPTIONAL) - (HIGH DEW POINT) When the heatless dryer is equipped with the optional EMS feature, a sensor is provided that senses the outlet pressure dew point of the air and displays the value on the Microprocessor Controller. For dryers equipped with the optional EMS feature, the sensor is used to detect a high dew point condition and displays the alarm as "High Dew Point".

Alarm List

The Microprocessor Controller stores the 20 most recent alarm conditions. These alarms are stored with the type of alarm as well as the date and time the alarm occurred. This list can greatly facilitate troubleshooting the dryer and provide an indication of dryer operation during unattended service. The following describe the method to access and review the alarms stored in the Microprocessor Controller:

Depressing the SELECT DISPLAY button will reveal the previous alarm condition(s), as well as the remaining available alarm placeholders for alarms. To EXIT the ALARM LIST, perform the following:

Depress the SELECT DISPLAY button until the ALARM LIST display appears.

Depressing the ENTER button enters the ALARM LIST menu.

Depressing the SELECT DISPLAY button advances the menu to the current alarm status.

Depressing the SELECT DISPLAY list displays the most recent of the alarms stored by the Microprocessor Control. Refer to the diagram at the end of this section for an explanation of the ALARM LIST Display.

Depressing the ⇦ button returns the controller to the top of the ALARM LIST.

Depressing the ⇦ button again returns the controller to the CUSTOMER MODE.

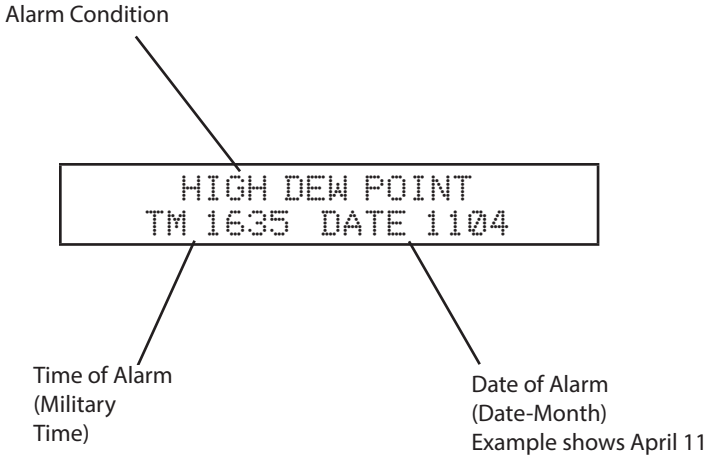


FIGURE 3 - ALARM SCREEN DETAILS

6.8.4 RESTART MODES AND OPERATING DISPLAYS

6.8.4.1 Restart Mode

The Microprocessor Controller includes a Shutdown Sequence that is activated when the dryer OFF button is depressed. This feature positions the valves to their failsafe position and resets the program and is the recommended method of shutting down the dryer. When the dryer is subsequently energized, the dryer is ready to run at the start of the program. Should the Desiccant dryer power fail unexpectedly, the dryer may be set to restart in one of two start modes.

Manual Mode (ZERO)

Gardner Denver dryers are shipped from the factory in the Manual Mode. After power is supplied to the dryer after a loss of power, the "PRESS ON" display will appear. The valve switching and timing operations will only start once the ON button is depressed. In this configuration, to restart the dryer, the user must manually depress the ON button on the Microprocessor Control panel.

Auto Restart Mode (LAST)

In this mode, the dryer will start automatically once power is re-applied to the dryer. The Microprocessor Control will pick up where it left off in the program once power is applied.

6.8.4.2 Operation Hours

In the CUSTOMER MODE, the Microprocessor Controller provides access to the operating hours of the dryer. The following describe the method to access and review the operating and purge hours for the dryer:

Depress the SELECT DISPLAY button until the OPERATING TIMES display appears.

Depressing the ENTER button enters the OPERATING TIMES menu.

Depressing the SELECT DISPLAY button displays the cumulative operating hours of the dryer.

Depressing the SELECT DISPLAY button displays the cumulative hours the dryer has used purge air.

Depressing the ENTER button returns the display to the top of the OPERATING TIMES menu.

Depressing the ⇦ button returns the controller to the CUSTOMER MODE

7.0 TECHNICIAN MODE

The Microprocessor Control provides a protected TECHNICIAN MODE to manipulate several parameters not accessible by the casual operator. Below is a list of parameters that can be accessed and manipulated by

the technician in the TECHNICIAN MODE:

Parameter	Display	Set Point
DEW POINT ADJUSTER SETTING	PDP ADJUSTER	-40, -4, +38
ENERGY MANAGEMENT SYSTEM (OPTIONAL)	EMS	OFF , ON
ENERGY MANAGEMENT SYSTEM SETPOINT (OPTIONAL) *	EMS SET POINT	-76 - +68
RESTART MODE	RESTART	LAST, ZERO
PURGE FLOW ADJUSTER SETTING	PURGE ADJUSTER	30% - 100%
COMPRESSOR INTERLOCK SETTING	COMP INTERLOCK	OFF , ON
HIGH DEW POINT ALARM ACTIVATION (OPTIONAL)	HIGH DEW POINT	OFF , ON

In TECHNICIAN MODE, the following parameters can be viewed but not changed:

Parameter	Display
OPERATION MODE	HEATLESS

* NOTE: Setpoints indicated are adjustable ONLY when dryer is equipped with the EMS. Setpoints are non-adjustable on dryers without this option

7.1 ENTERING TECHNICIAN MODE

⚠ WARNING

TECHNICIAN MODE should only be entered by qualified service personnel. Altering the set points in TECHNICIAN MODE will have a significant effect on the operation of the dryer. Incorrect set points may damage dryer and cause potential serious injury.

To enter the TECHNICIAN MODE, perform the following keystrokes:

Pressing the "2" and "3" buttons simultaneously enters the TECHNICIAN MODE.

Depressing SELECT DISPLAY scrolls through the available parameters.

7.2 DEW POINT ADJUSTER (-40 °F DRYERS ONLY)

Dew point adjuster allows the user to select between -40 °F, -4 °F and +38°F pressure dew points. Selecting a higher (wetter) pressure dew point lengthens the drying cycle, making the regeneration process commence less frequently than at lower (dryer) dew points. This results in energy savings by depressurizing the system less times per hour. The chart below describes the available outlet pressure dew points that may be selected along with their respective cycle times.

ISO 8573.1 Class	Pressure Dew Point		Cycle Length	Regenerations per hour
2	-40 °F	-40 °C	10 min	12
3	-4 °F	-20 °C	16 min	7.5
4	+38 °F	+3 °C	24 min	5

The following illustrates the method of accessing and adjusting the dew point adjuster feature

Depress the SELECT DISPLAY button until the DEW POINT ADJUSTER screen is displayed.

Depress the +/- button until the desired dew point is displayed. Pressing SELECT DISPLAY saves the current selection.

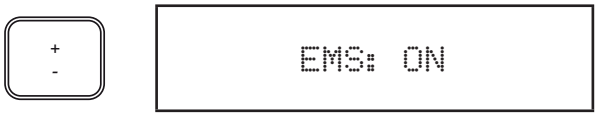
7.3 ENERGY MANAGEMENT SYSTEM (OPTIONAL)

7.3.1 DESCRIPTION AND ACTIVATION

The optional Energy Management System (EMS) feature is designed to minimize the loss of purge air during low flow or low water loading conditions. A digital dew point sensor detects the actual outlet air pressure dew point of the process air. The sensor communicates the pressure dew point reading to the Microprocessor Controller. Should the pressure dew point be below the EMS set point, the Microprocessor Controller will keep the purge valves closed while the dryer continues to cycle back and forth between towers, thereby saving purge air.

The following illustrates the method of accessing and adjusting the Energy Management System feature:

Depress the SELECT DISPLAY button until the ENERGY MANAGEMENT SYSTEM screen is displayed.

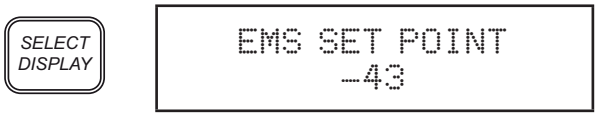


Depress the +/- button until the desired set point is displayed. Pressing SELECT DISPLAY saves the current selection.

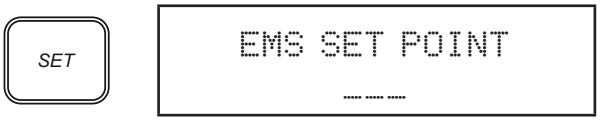
7.3.2 SETPOINT ADJUSTMENT

On dryers equipped with the optional EMS, the Energy Management System setpoint can be adjusted to match the dryers requirements to the desired pressure dew point.

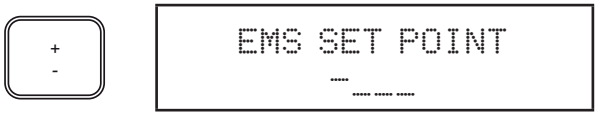
The following illustrates the method of adjusting the setpoint for the Energy Management System feature:



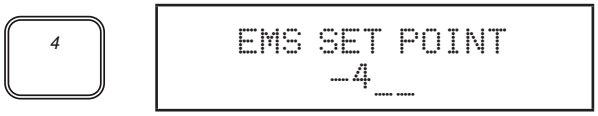
Depress the SELECT DISPLAY button until the EMS SET POINT screen is displayed.



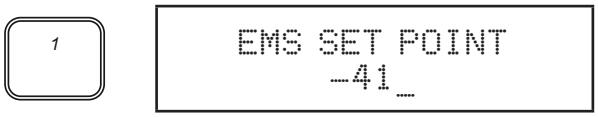
Pressing the SET button permits the value of the EMS SETPOINT to be changed



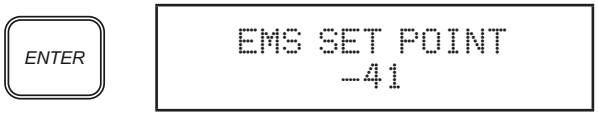
To enter a negative number, depress the +/- button. Otherwise, proceed to the next step.



Use the numbers on the keypad to enter the desired pressure dew point temperature for the EMS setpoint.



Use the numbers on the keypad to enter the desired pressure dew point temperature for the EMS setpoint.

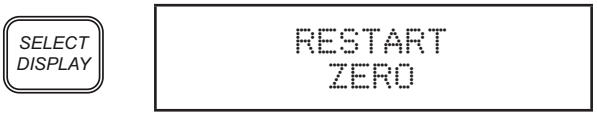


Depressing ENTER saves the selected set point.

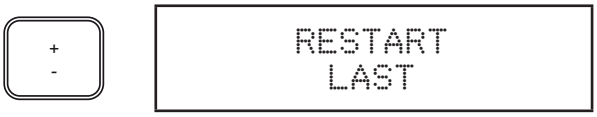
NOTICE
The Energy Management System set point should not be lower (wetter) than the dew point adjuster setting. Failure to do so will prevent the Energy Management System feature from operating. In addition, when operating in EMS, the purge flow adjuster should be set to 100%.

7.4 RESTART MODE

HL Dryers can be configured to restart in one of two operating modes. As described in Section 6, the dryer may be configured for Manual operation (factory default) or Auto Restart, which permits the dryer to restart automatically once power is re-applied to the dryer. The following illustrates the method of accessing and adjusting the different start modes for the dryer:



Depress the SELECT DISPLAY button until the START MODE screen is displayed.



To change the start mode from its current selection to the alternate setting, depress the +/- button until the desired set point is displayed. Pressing SELECT DISPLAY saves the current selection.

7.5 PURGE FLOW ADJUSTER

Purge flow adjuster allows the user to reduce the duration of the purge cycle to more closely match the inlet conditions to the dryer. This feature is well suited for applications where the dryer is consistently underflowed, allowing only the required amount of purge air to be used. The purge flow adjuster feature allows the user to select the relative duration of the purge cycle, from 30% to 100%, in 10% increments.

The following illustrates the method of accessing and adjusting the purge flow adjuster feature

Depress the SELECT DISPLAY button until the PURGE FLOW ADJUSTER screen is displayed.

Depress the +/- button until the desired percent purge is displayed. Pressing SELECT DISPLAY saves the current selection.

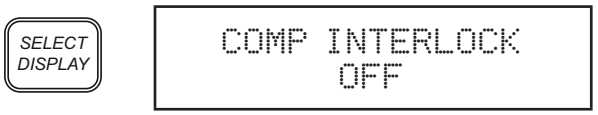
NOTICE
On dryers equipped with the optional Energy Management System feature, the purge flow adjuster MUST be set to 100% in order for the Energy Management System to operate properly.

7.6 COMPRESSOR INTERLOCK

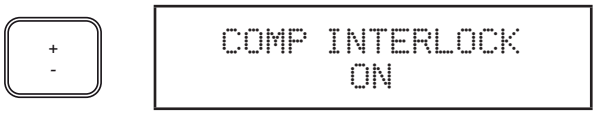
Compressor Interlock adjusts the operation of dryer to purge only when the air compressor is LOADING or ON. This feature requires the customer to provide a relay on the air compressor to indicate whether the air compressor is LOADING or ON vs. UNLOADING or OFF. Prior to using this feature, the user must wire the relay to the 5V DC terminal strip in the dryer's electrical enclosure. The dryer will provide the 5V DC power. The air compressor ON or LOAD signal should correspond with the relay being open. The OFF or UNLOAD signal must correspond to the relay being closed.

With the Compressor Interlock properly set-up and activated, the dryer's purge valves will close when the air compressor is not making air, as indicated by the OFF or UNLOAD condition. With the purge cycle corresponding to the demands of the air dryer, cycling of the air compressor is minimized and energy savings is realized by only purging when the air system requires.

The following illustrates the method of accessing and adjusting the Compressor Interlock feature:



Depress the SELECT DISPLAY button until the COMPRESSOR INTERLOCK screen is displayed.



Depress the +/- button until the desired set point is displayed. Pressing SELECT DISPLAY saves the current selection.

7.7 HIGH DEW POINT ALARM (INCLUDED WITH EMS OPTION)

7.7.1 DESCRIPTION AND ACTIVATION

The purpose of the High Dew Point Alarm is to provide the operator an alarm indication should the equipment fail to supply air at its designed pressure dew point. The EMS dew point sensor communicates the pressure dew point reading to the Microprocessor Controller. Should the pressure dew point rise above the alarm set point, the Microprocessor Controller will display the alarm condition on the controller screen.

The following illustrates the method of activating the High Dew Point Alarm feature:

Depress the SELECT DISPLAY button until the HIGH DEW POINT screen is displayed.

Depress the +/- button until the desired set point is displayed. Pressing SELECT DISPLAY saves the current selection.

7.7.2 SETPOINT ADJUSTMENT

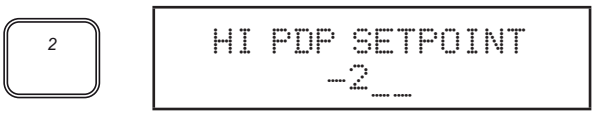
On dryers equipped with the optional EMS, the High Dew Point Alarm setpoint can be adjusted.

The following illustrates the method of adjusting the setpoint for the High Dew Point Alarm feature:

Depress the SELECT DISPLAY button until the HIGH DEW POINT ALARM SET POINT screen is displayed.

Pressing the SET button permits the value of the HIGH DEW POINT ALARM SET POINT to be changed.

To enter a negative number, depress the +/- button. Otherwise, proceed to the next step.



Use the numbers on the keypad to enter the desired pressure dew point temperature for the HIGH DEW POINT ALARM setpoint.

Use the numbers on the keypad to enter the desired pressure dew point temperature for the HIGH DEW POINT ALARM setpoint.

Depressing ENTER saves the selected set point.

NOTICE
The High Dew Point Alarm set point should not be greater than the Energy Management System set point or the dew point adjuster setting. Failure to do so will result in an alarm indication. Gardner Denver recommends setting the High Dew Point Alarm at least 10°F wetter than the Energy Management System or dew point adjuster setpoints.

NOTICE
To exit the TECHNICIAN MODE, press the "+ / -" key to the initial "SETOPMODE" screen and depress the ⇦ button to return to the CUSTOMER MODE.

Gardner Denver desiccant dryers are capable of remote communications via MODBUS. Refer to the document entitled, "Microprocessor Control Modbus Communications Guide" for details on communicating with the Controller via MODBUS.

8.0 ALARMS AND INDICATORS

8.1 MOISTURE INDICATOR

The moisture indicator senses a sample of the control air which is taken from the dryer outlet. The indicator provides a gross indication of dew point deterioration at the outlet of the dryer. Under normal operating conditions, the indicator is blue. In the event of a dryer malfunction or prolonged dryer shut down, it will turn gray in the presence of moisture.

8.2 FAILURE TO SHIFT ALARM (OPTIONAL)

The Failure to Shift Alarm provides an indication of switching failure in one of the dryer switching valves. The Fail to Shift Alarm uses a pressure switch to monitor the pressure in each tower. At "0" PSIG the switches are normally closed which sends a signal to the controller. When the towers pressurize, the switches open, thus removing the signal to the controller. The controller anticipates the appropriate open and closed switch position based on its timing sequence. If either switch is in an incorrect position, the alarm light will illuminate.

8.3 ENERGY MANAGEMENT SYSTEM (EMS) - (OPTIONAL)

Gardner Denver's EMS system is designed to minimize the loss of purge air during low flow or low water loading conditions. A digital dew point sensor is used to detect the actual outlet pressure dew point of the process air. The sensor communicates the pressure dew point reading to the Microprocessor Controller. The Microprocessor Controller interprets whether the outlet pressure dew point is above or at the EMS set point. As long as the outlet pressure dew point is dryer than the set point, the Microprocessor Controller will not allow the Purge Valves to open. The dryer will however, continue to cycle back and forth between towers. Once the EMS threshold is reached, the Microprocessor Controller will initiate the regeneration cycle and the appropriate Purge Valve will open.

NOTICE
At initial start-up or after desiccant changeout, the new desiccant has a moisture holding capacity higher than the dryer's design regeneration capabilities. The desiccant stabilizes to an "aged" state after three to six months of use. Gardner Denver recommends keeping the EMS feature off for one to two weeks from initial start-up or desiccant replacement. Activating the EMS after this period will insure proper operation of the EMS.

8.4 HIGH DEW POINT ALARM (INCLUDED WITH EMS)

The purpose of the High Dew Point Alarm is to provide the operator an alarm indication should the equipment fail to supply air at its designed pressure dew point. The EMS dew point sensor communicates the pressure dew point reading to the Microprocessor Controller. Should the pressure dew point rise above the alarm set point, the Microprocessor Controller will display the alarm condition on the controller screen.

8.5 COMPRESSOR INTERLOCK

Compressor Interlock adjusts the operation of the dryer to use purge air only when the air compressor is LOADING or ON. For installations with significant downstream air storage, this feature closes the purge valves if the compressor is not delivering flow after completion of the current tower purge cycle. This feature requires a relay (supplied by others) on the air compressor to indicate whether the air compressor is LOADING or ON vs. UNLOADING or OFF. Prior to using this feature, the relay must be wired to the 5V DC terminal strip in the dryer's electrical enclosure (refer to the appropriate wiring diagram). The dryer will provide the 5V DC power. For proper operation, the air compressor ON or LOAD signal should correspond with the relay being closed. The OFF or UNLOAD signal must correspond to the relay being open.

Adjusting the purge cycle to correlate with the operation of the air compressor minimizes the potential for the air compressor to cycle and saves the energy associated with generating unnecessary purge air.

9.0 INSTALLATION AND START-UP

9.1 APPLICATION AND CHECK ANALYSIS

To achieve the best dryer performance, you should carefully check that the design and installation requirements outlined below are satisfied.

NOTICE
The standard dryer is not rated for any gas other than air.

The dryer is designed to be operated with a compressed air inlet temperature ranging from 80°F (26,67 °C) to up to 120°F (48,89 °C) and at an operating pressure ranging from 80 PSI to 150 PSIG. The volume of air will be dependent on the system operating pressure. The air compressor delivering air to the dryer must be sized properly to handle both the demand and the purge air requirements necessary for regeneration.

The standard XGHL series heatless desiccant dryer is rated for a maximum allowable working pressure of 150 PSIG(11.35 bar).

The factory should be consulted if the dryer is to be operated at pressures below 80 PSIG (5.51 bar) to verify sizing and proper configuration.

The standard dryer is rated to operate at an inlet temperature and pressure of -100°F (37,7 °C) @ 100 PSI (6.89 bar). The operating conditions should be verified prior to installing and operating the dryer to ensure it is properly sized. A dryer with greater capacity may be required to achieve expected dew point performance in installations with elevated inlet air temperatures. Lower inlet temperature conditions may also reduce dryer performance.

It is important to note that delivering lower compressed air inlet temperature levels will reduce drying performance. A minimum compressed air inlet temperature of 80°F (26,67 °C) is required to be supplied to the dryer for proper operation.

The dryer should generally be installed in an enclosed area where the ambient temperature does not drop below 50°F (10 °C) and is not above 120°F (48,89 °C). Please consult factory for outdoor installation applications where additional provisions maybe required for lower ambient conditions.

NOTICE
Gardner Denver recommends the mufflers be cleaned after initial start-up to remove any desiccant dust generated during dryer shipment. After running the dryer for the initial 30 minute period, de-energize/ depressurize the dryer and remove the mufflers. Disassemble and clean the removable insert inside the muffler core. Reinstall the mufflers prior to operating dryer. Periodic inspection of the mufflers is required to ensure proper dryer operation.

A minimum Inlet Temperature of 80°F (26,67 °C) is required for proper dryer operation.

9.2 LOCATING AND MOUNTING

Using a forklift, lift the dryer only at the lift points identified with labeling. Use care to avoid damage to manifold.

Bolt the dryer to the foundation using the bolt holes provided in the base frame. Anchor bolts should project a minimum of 3.5 inches above the foundation. Refer to SECTION 13, GENERAL ARRANGEMENT DRAWINGS, for details.

9.3 PIPING

Pipe the compressed air lines to the inlet and outlet connections. For 1,800-5,000 SCFM dryer models with filters that ship loose, locate the prefilters as close as possible to the dryer. Ensure the positioning allows for ease of servicing. Refer to the General Arrangement drawing.

Note that the wet air inlet is at the dryer's lower manifold, while the dry air outlet is at the dryer's upper manifold. In situations where air supply is required 24 hours a day (where it is undesirable to interrupt the compressed air flow), an optional three valve by-pass system is recommended to bypass the dryer. Use the fewest elbows necessary to keep pressure drop at a minimum. THE BYPASS SHOULD BE USED WHEN TROUBLESHOOTING AIR COMPRESSOR OPERATION OR WHEN SERVICING THE DRYER. TO PREVENT FLOODING OF THE DESICCANT BED WHEN THE DRYER IS OFF.

Once all piping has been connected, all joints, including those on the dryer, should be soap bubble tested at line pressure to ensure no joints have been damaged in transit and during site placement. All installed piping must be self-supported. The dryer manifold piping cannot be used to support the interconnecting piping.

9.4 FILTRATION

NOTE: A Prefilter and an Afterfilter are provided with your dryer.

NOTICE
All XGHL model dryers must have proper filtration. Liquid water and oil must be removed before compressed air enters the dryer. Ensure separators, Prefilters and drains are in good working order. Failure to do so will void warranty.

Coalescing Prefilters, located before the dryer, protect desiccant beds from contamination by oil, entrained water, pipe scale, etc., thereby, extending dryer desiccant life. Locate Prefilters as close to dryer as possible. Prefilters must be provided with drains to prevent liquid water from entering the desiccant beds. Drain maintenance is not covered by the standard warranty.

It is recommended that a mechanical separator with a properly functioning drain be installed immediately preceding the Prefilter to remove bulk liquid and entrained water.

The Particulate Afterfilter, located after the dryer, helps eliminate the possibility of desiccant dust carryover into the air system.

To ensure proper dryer operation, the pre-filter drain(s) must be inspected periodically.

9.4.1 FILTER DRAIN VALVE

XGHL dryer models are furnished from the factory with filters that include an automatic condensate drain valve. The drains require periodic inspection and maintenance to ensure proper dryer operation. Drain maintenance is not covered by the standard warranty.

Filters on 90-1,500 SCFM dryers include automatic drain valve PN: 24335028. This drain must be checked for correct configuration prior to pressurization of the dryer as follows:

- Filters must be oriented vertically for proper operation.
- The drain stem must be properly adjusted as follows:
- Twist the drain stem (No. 18 in Figure 5) to set for AUTOMATIC (Normal) or MANUAL (Test) operation (See Figure 4 below).
- Twist the stem fully clockwise (when viewed from the bottom of the filter bowl) for AUTOMATIC draining of condensate. This is the Normal position.
- Twist the stem fully counter-clockwise (when viewed from the bottom of the filter bowl) for MANUAL draining of condensate (Test/Bleed) or if connected to an external drain.

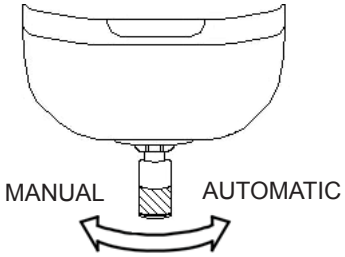


FIGURE 4

Minimum operating pressure of 22 psig(2.53 bar) is required for the float that's within the drain assembly to seat properly. Pressures below 22 psig(2.53 bar) will allow air to escape from the drain. This will occur when the compressed air system is being pressurized.

⚠ WARNING

Proper safety precautions must be followed when servicing filters and drains. Filter bowl must be de-pressurized before servicing drain.

Service should only be performed by qualified personnel.

Before first-time use, and after maintenance, the drain stem (See 18 in Figure 5) should be twisted fully clockwise to provide AUTOMATIC operation (See Figure 4).

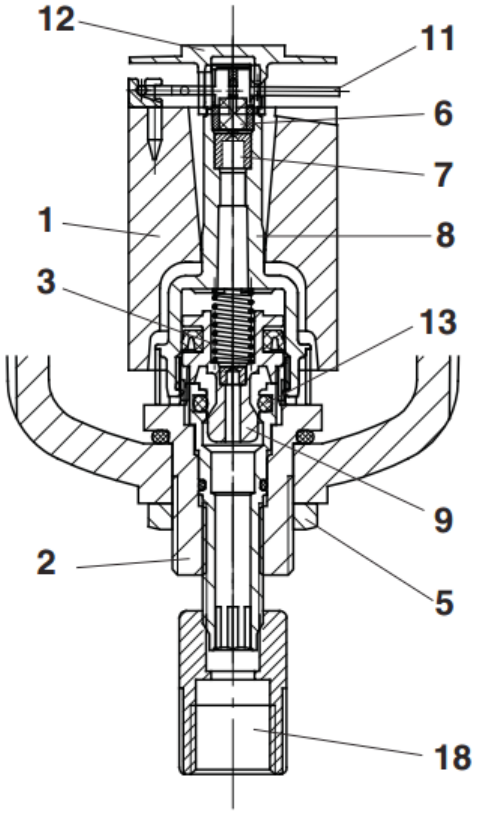


FIGURE 5

Method of Operation (See Figure 5)

- When the filter pressure is below 22 psig(2.53 bar), the Piston (9) is held in an open position by the Spring (3).
- When filter is pressurized above 22 psig(2.53 bar), the Piston closes the drain Aperture at the O-Ring (13).
- As the condensate collects in the Filter Bowl, the Float (1) is pushed upward, opening the Nozzle (7) and allowing air to reach the top of the Piston (9). This causes the Piston to move downward, opening the Aperture at the O-Ring (13) for drainage of the condensate.

Maintenance and Initial Operation

- After initial startup, inspect drain(s) for system debris. Clean as required. Float drain assembly is screwed into bottom of Bowl from the inside.
- Drains require periodic inspection and maintenance to ensure proper operation. Clogging of drains due to system debris or fouling is not considered warranty. Faulty drains must be returned to the factory for analysis in order to receive warranty credit.

Clogged drain screens can be cleaned by immersing drain in a detergent and rinsing thoroughly in water.

9.5 ELECTRICAL CONNECTION

Make all electrical connections to the dryer as shown on the wiring diagram. Care must be taken to connect the proper voltages.

NOTICE
Dryer must be grounded with the full size ground wire connected to an earth ground.

NOTICE
Dryer must be fused according to NEC with the size fuse listed on the dryer serial nameplate, or on specification sheet in Technical Manual.

Size field connection knock-out for the conduit fitting required by the NEC. Installer must use UL Type 4 rated fitting.

The Compressor Interlock wiring should be verified if this function is to be activated at Start-Up.

9.6 DESICCANT LEVEL VERIFICATION

Remove desiccant fill port at the top of each vessel (tower) and check desiccant level. The level should be consistent with the level depicted on the Desiccant Fill Chart in SECTION 10 MAINTENANCE AND SYSTEM CHECK of this Technical Manual.

9.7 DEW POINT MONITOR (EMS OPTION)

The Dew Point Transmitter that is supplied with the dryer as a separate component (when the dryer is ordered with the EMS option) must not be installed until the dryer has been in operation for 24 hours. Color of the Blue Moisture Indicator (BMI) must appear blue before the Transmitter is installed.

The dryer Warranty will be voided if the Dew Point Transmitter is damaged as a result of flooding condition.

9.8 START-UP PROCEDURE

A Startup Form (included with the manual) must be completed and submitted with the Warranty Card as part of the commissioning process. This is included with the dryer at shipment.

Prior to pressurizing the compressed air system, conduct a visual inspection of the dryer to verify that the unit was not damaged during the installation process. This includes:

- Inlet and outlet compressed air piping connections are properly supported.
- Pressure vessels are not damaged.
- Gauges are in good condition.
- Pneumatic control air hoses, inlet & outlet compressed air piping connections are properly supported and tightened
- Pre-filter and after-filter bowl are properly tightened.
- Drain lines are installed to the filters. Refer to Section 9.4.1.
- Fasteners securing Differential Pressure indicator to filter head are secured.
- Drain stem on each filter bowl is placed in the proper direction such that it operates in the manual mode for initial startup. Refer to Section 9.4.1. The drains will allow air to escape until the system reaches 22 PSI at which point the internal float will seat properly and the drain will seal closed.
- Observe color of Blue Moisture Indicator.

NOTICE
The Dew Point Transmitter that is supplied with the dryer as a separate component must not be installed until the dryer has been in operation for 24 hours. Color of the Blue Moisture Indicator (BMI) must appear blue before the transmitter is installed.

After the visual inspection is complete, slowly pressurize the dryer and perform a verification check on the following items:

1. Verify that the air outlet shut-off valve is closed (if this is provided for the dryer). This can be provided as part of a three-valve bypass option for the dryer or field provided as part of the installation.
2. Check for air leakage prior to initiating flow through the dryer. Repair all leaks prior to starting the dryer. In order to maintain the drying performance of the dryer, any leaks must be fixed; most important are leaks identified on the outlet side of the dryer.

NOTICE
DO NOT FLOW COMPRESSED AIR THROUGH THE DRYER WHEN THE DRYER IS OFF. The desiccant beds will become flooded with moisture and the Warranty will be voided.

3. Verify the Purge Adjustment Valve is open.
4. Verify that pre-filter drain is blowing freely to drain residual water in the system. If no moisture is observed exiting the drain, turn drain stem to the automatic position. Verify drains ahead of dryer are functioning properly.
5. Turn the field disconnect switch to the ON position to apply power to the dryer. This will energize the Controller. Use proper PPE to verify that the voltage to the control panel matches the voltage / phase listed on the Serial Plate of the dryer. Do not apply power to the dryer until items 1 – 4 listed above have been verified. Do not apply power to the dryer or activate the dryer for operation until the air system checks are completed.
    - For dryers equipped with the EMS option, do not install the Dew Point Transmitter until the dryer has operated for a minimum of 24 hours to reach steady state conditions and the Blue Moisture Indicator appears blue in color. See the Warning note regarding installation of the Dew Point Transmitter. Enter the Settings Screen (3/3) and press the +/- key to de-activate the EMS function. Failure to follow this procedure will damage the Dew Point Sensor and will void the Sensor Warranty.

6. Adjust the Control Air Regulator to not exceed 100 PSIG (7,91 bar). The main flow inlet and purge valves are regulated to operate with a control air pressure level not to exceed 100 PSI (7,91 bar). Check the drain on the control air filter for moisture.
7. Press the ON button on the dryer Controller to initiate dryer operation.
   - Observe the operation of the dryer and verify that the dryer sequence is operating properly. The dryer Controller will automatically sequence the valves. Do not allow the dryer to operate if problems are observed.
   - Set the regeneration purge flow when the left tower is in the regeneration mode. Refer to section 6.4.
   - Slowly open the outlet air shut-off valve (if equipped) and allow the system to slowly pressurize.
8. Verify that the compressed air system remains pressurized.

NOTICE
At initial start-up, check the dryer operation for one or two cycles, especially at the time of the tower shift. Verify that all systems are operating in their proper order and sequence. If the dryer is not functioning properly, contact distributor or Gardner Denver Technical Service.

9. Verify the Technician and Maintenance settings of the dryer.
   - Verify that the float drain(s) on the inlet filters and the drains on the air compressor after-cooler are operating properly. It is important to note that debris from the system piping may interfere with the operation of the float drain and it is the responsibility of the installer to verify this after the dryer is placed into operation. Drain maintenance or cleaning of system debris is not covered under warranty. Improper drain maintenance will result in damage to the desiccant beds and will void the warranty.
   - Once the system has operated for approximately (2) hours, the mufflers will need to be inspected / replaced. Follow proper safety procedures prior to replacing the mufflers. Mufflers are consu mable items and are not warranted other than for manufacturing defects.
   - Monitor the operation of the dryer and contact **Gardner Denver** if any problems arise during the startup process. The float drains on the dryer should be inspected daily to ensure proper operation.
   - For dryers equipped with the EMS option, install the Dew Point Transmitter once the dryer has operated for a minimum of 24 hours and the BMI is fully blue in color. After the sensor has been installed, re-activate the EMS function through the Settings screen.
   - For dryers equipped with the Fail-To-Shift option, verify the Tower Pressure gauge reading matches the pressure displayed on the Controller.
   - Verify that alarms are cleared. Verify (if wired) Compressor Interlock Function. See SECTION 6.8.
10. Complete the Warranty Startup Card after the dryer is fully commissioned.

Long-Term Storage

If a dryer has been in storage for an extended period of time, the Blue Moisture Indicator (BMI) may appear gray in color. Follow the instructions above to start the dryer. Depending on the amount of time the unit was in storage, it may take between 8 and 12 hours before the BMI indicator turns blue.

NOTICE
When opening the outlet valve, ensure drying tower gauge maintains line pressure. Allowing the pressure in the dryer to drop will result in an overflow condition and potentially cause valves to stop functioning.

NOTICE
-100°F (37,7 °C) dryers require flow through the dryer to lower the pressure dew point to design levels. Failure to permit air flow through dryer (deadheading) will result in elevated outlet dew points. Once air is permitted to flow through the dryer, the pressure dew point will gradually reduce to design levels.

A Long-Term Storage option can be ordered separately.

9.9 DRYER SHUT-DOWN SEQUENCE

The following procedures must be followed to correctly terminate dryer operation:

NOTE: The XGHL dryer must remain pressurized during the Shut-Down Sequence.

- Press the red "OFF" button to de-activate the dryer operating sequence and de-energize the control valves. The main flow valves will be positioned to the default position:

  a.The Purge Valve will close

  b.The Regenerating Tower will re-pressurize

  c.The main Inlet Flow Valves will open

The system must remain pressurized in order for the main flow valves on the dryer to revert to the default position.

- The status line in the Home screen will display "OFF".

- The system will remain pressurized at all times. The dryer does not contain any provisions to permit a system bleed down.

- **System Bleed Down:** The operating sequence must be stopped by pressing the "OFF" button before the compressed air system is de-pressurized. This will allow the main flow valves to return to the default position and permit full de-pressurization of the system.

- The red "OFF" button only de-activates the dryer operating sequence - electric power will remain live within the dryer Main Panel.

⚠ WARNING

Failure to follow this procedure may result in the system retaining pressure within the dryer and potentially result in an unsafe condition for service personnel.

NOTICE

DO NOT FLOW COMPRESSED AIR THROUGH THE DRYER WHEN THE DRYER IS OFF. The desiccant beds will become flooded with moisture. The dryer Warranty will be void.

10.0 MAINTENANCE AND SYSTEM CHECK

10.1 SCHEDULED MAINTENANCE

DAILY MAINTENANCE FUNCTIONS:

- Check and record inlet pressure, temperature and flow. Verify that it is within specifications.
- Check tower pressure gauge readings are within operating tolerance.
- Check dryer operation for proper cycling, depressurization and re-pressurization.
- Check that the Prefilter drain is operating properly and that there is no condensate discharged from Purge Mufflers.
- Verify that pressure in purging tower is 3 PSIG (1.22 bar) or less. If higher, muffler replacement is recommended. See SECTION 11 in this Technical Manual.
- Check dryer Digital Controller for Warnings or Alarms.
- Verify that Prefilter and Afterfilter differential pressure is within operating limits. Replace elements and/or cartridges as required.
- Check the Blue Moisture Indicator. Make sure air is bleeding through the indicator. The indicator will appear blue when air is dry.
- Check pilot air filter regulator.

MONTHLY MAINTENANCE FUNCTIONS:

- Check condition of Mufflers by reading tower Pressure Gauge when the tower is in the re-generation cycle. If pressure is above 3 PSIG(1.22 bar), Muffler replacement may be required.

NOTE: Gardner Denver recommends the mufflers be cleaned after initial start-up to remove any desiccant dust generated during dryer shipment. After running the dryer for the initial 30 minute period, de-energize/depressurize the dryer and remove the mufflers. Disassemble and clean the removable insert inside the muffler core. Reinstall the mufflers prior to operating dryer. This procedure should be repeated within the first seven days of dryer operation.

SEMI-ANNUAL MAINTENANCE FUNCTIONS:

- Check outlet dew point.(EMS option only)
- Check Pilot Air Filter element and clean or replace as required.
- Replace Prefilter and Afterfilter elements and/or cartridges.

ANNUAL MAINTENANCE FUNCTIONS:

- Check desiccant and replace if necessary.
- Inspect and clean Pilot Air Control Solenoid Valves, check valves and flow valves. Rebuild and / or replace as required.
- Test lights and switches, replace as necessary.
- Replace Drains on Prefilter and Afterfilter.
- Test electrical components, replace as necessary.
- Check for loose electrical wiring connections and tighten as required.

EVERY TWO YEARS:

- Inspect valves and replace angle valve bonnets if not functioning properly (Preventive).
- -100ºF (73.33 ºC) dryers – Rebuild control air solenoid valve set (Preventive).
- Replace check valves (Preventive).

10.2 PREFILTERS AND AFTERFILTERS

PREFILTERS - The cartridges of the Prefilter must be changed as often as required to prevent contamination of the regenerative dryer's desiccant bed.

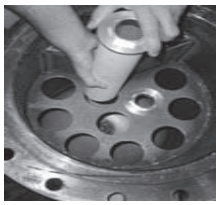
The Prefilter and automatic drain must be checked daily. To prolong filter cartridge life, it is recommended that a mechanical air / moisture separator be placed immediately before the prefilter.

AFTERFILTERS - The purpose of the Afterfilter is to remove residual desiccant dust. Depending upon equipment application and usage, frequency of filter element change will vary. It is recommended that, at the minimum, the filter element be changed every six months.

10.2.1 FLANGED FILTERS:

STEP1- Using a 2" socket with an extension, carefully loosen element.

STEP 2- Remove old element from filter housing.



STEP 3 - Install new element by carefully inserting element in top plate.

STEP 4 - Hand tighten element in place until element o-ring contacts top plate.

STEP 5 - Using a 2" socket with an extension, tighten element one half turn. DO NOT OVERTIGHTEN.

STEP 6 - Repeat procedure as required to replace all elements.

NOTICE
Should the drying system be overloaded and/or malfunctioning, causing high pressure drop, Afterfilters may prematurely plug. This problem can be avoided by frequent inspection and proactive replacement of cartridges.

10.3 PILOT AIR CONTROL SOLENOID VALVES AND FILTER/REGULATOR

The length of time the pilot air valves can reliably operate without replacement is dependent upon the dryer operating cycle. On **Gardner Denver** -40°F (-40 °C) dew point dryers, replacing the valves every 36 months is recommended. For -100°F (37,7 °C) units, it is recommended that the Pilot Valves be replaced every 6 months. The control air regulator should be set for 100 PSI.

10.4 MUFFLER CHANGEOUT PROCEDURE

⚠ WARNING
To avoid injury, depressurize dryer before performing any service.

- Depressurize the dryer. Disconnect dryer from electric power source.
- Replace mufflers.
- Follow Start-up Procedure described in SECTION 9.8 of this Technical Manual.
- Turn control power back on.

10.5 ANGLE SEATED PURGE AND SWITCHING VALVES

- These valves have two control ports: one on top and the other on the back side of the bonnet.
- MAIN INLET FLOW VALVES – Normally-Open (N.O.) valves for inlet air or repressurization. Control air is supplied through the tubing that is connected to the top port.
- PURGE VALVES – Normally-Closed (N.C.) for purge air flow. Control air is supplied through tubing that is connected to the side port. When control air is supplied to the valve, a position indicator will extend from the top of the bonnet, indicating that the valve is open.

10.6 OUTLET CHECK VALVES

Outlet check valve sealing can be verified by depressurizing the dryer and slowly applying pressure to the outlet. The valves should seal and prevent air from pressurizing the towers. If a tower begins to pressurize, the check valve on that side requires replacement.

⚠ WARNING
To avoid injury, depressurize dryer before performing any service.

10.7 DESICCANT CHANGEOUT PROCEDURE

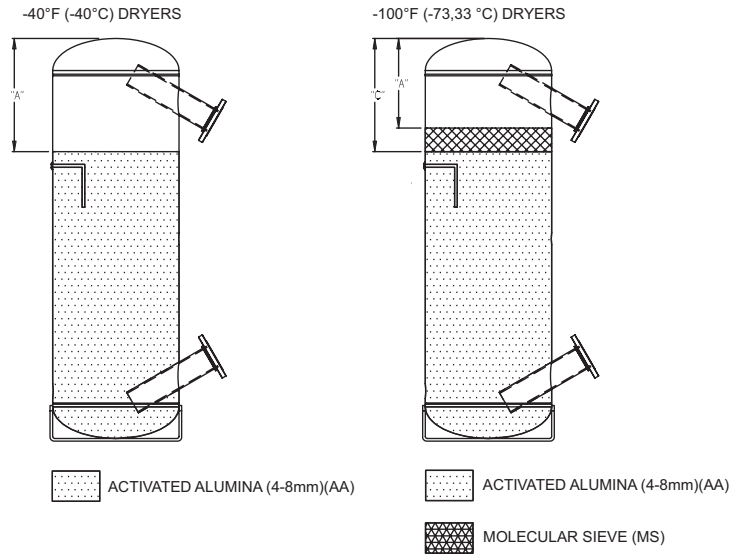
When it becomes necessary to replace the desiccant in the towers, or on units that are shipped without the desiccant installed, observe the following procedure:

⚠ CAUTION

Desiccant will produce dust during the changeout procedure. Be sure to wear respiratory protection during the draining and filling process to minimize inhalation of desiccant dust.

The standard units are furnished with fill and drain ports on each desiccant tower. Remove the caps on both ports.

- To assist in getting the desiccant to flow from the tower, insert a small rod into the drain port as necessary. This may be required as the desiccant is packed into the towers which may interfere with the desiccant flow from the towers.
- Retainer Screens, located at the inlet and outlet piping connections of each tower, are removable on all models. It is suggested that these Screens be removed and cleaned at the time of desiccant changeout. The Screens can be accessed by disconnecting the upper and lower manifolds from the dryer towers.
- After cleaning the retainer Screens, replace Screens and re-attach the outlet port plug.
- With the fill port plug removed, fill the dryer tower with the appropriate grade and size desiccant. The level of the desiccant should be below the top retainer screen as shown on the Desiccant Fill Chart on the following page of this Technical Manual.
- When the towers have been filled to the correct level, replace the fill port plug on each tower.
- Any connections and joints disturbed in the desiccant changeout procedure should be leak tested prior to re-commissioning the dryer.



DESCRIPTION	PART #
ACTIVATED ALUMINA QTY. (1) 50 LB. BAG	38004834
ACTIVATED ALUMINA QTY. (42) 50 LB. BAGS	38004933
ACTIVATED ALUMINA QTY. (1) 2000 LB. SACK	38340659
MOLECULAR SIEVE QTY. (1) 275 LB. DRUM	38449971

MODEL	DIMENSIONS (INCH)		-40°F (-40 °C) DRYERS (AA)	-100°F (37,7 °C) DRYERS	
				(AA)	(MS)
	A	C	lbs./Dryer	lbs./Dryer	
XGHL90	23	30.00	100	75	25
XGHL120	17	20.38	134	100	34
XGHL160	22	29.75	192	150	50
XGHL200	14	21.50	236	177	59
XGHL250	23	28.00	290	215	75
XGHL300	12	21.25	344	258	86
XGHL400	11	22.25	470	352	118
XGHL500	27	32	638	478	160
XGHL600	17.5	29	748	560	188
XGHL800	34	41	900	675	225
XGHL1000	23	31.5	1100	825	275
XGHL1200	10	23.75	1270	950	320
XGHL1500	12	23.25	1600	1200	400
XGHL1800	35	45.75	2000	1500	500
XGHL2100	25.5	38.5	2340	1755	585
XGHL2700	6	26	2928	2196	732
XGHL3300	16.25	35.25	4000	3000	1000
XGHL4000	7.75	29	4400	3300	1100
XGHL5000	9	28	5600	4200	1400

NOTE: Desiccant weight shown is per-dryer.

11.0 TROUBLESHOOTING

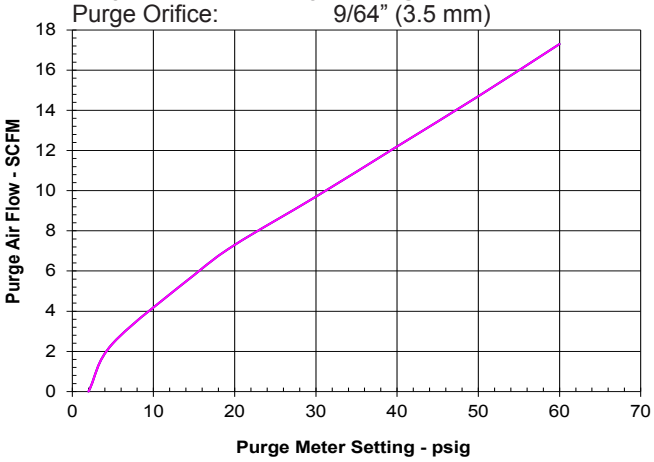
For Troubleshooting Procedures, refer to maintenance descriptions in SECTION 10 as required.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Elevated Dew-point	Insufficient purge flow	• Check purge flow settings. Verify that purge gauge is reading proper value. • Inspect purge valve & control air solenoid valves for proper operation. • Inspect mufflers for clogging.
	Improper valve operation	• Verify operation of main flow and purge valves. • Inspect control air solenoid valves for proper operation. • Verify check valves are maintaining desired pressures by using valve test functions. Refer to valve test section.
	Inlet air pressure below design condition.	• Check pressure source and inspect piping system for leakages. • Verify that the dryer was sized appropriately for the operating conditions.
	Flow rate is higher than design condition.	• Verify that compressor sizing is properly matched to dryer capacity. • For specialty systems where the outlet of the dryer is piped to a booster compressor, verify that the flow of the booster compressor is below the rated capacity of the dryer. Excessive flow will fluidize desiccant bed and result in dusting and significantly reduce performance.
	Inlet temperature to the dryer exceeds the rated capacity of the dryer.	• Inspect the air compressor after-cooler and drain to ensure proper operation. After-cooler may require cleaning in to operate properly. • Verify the inlet temperature does not exceed 120°F under normal operating conditions. For applications that approach 120°F on a continuous basis, dryer sizing should be reviewed prior to operation of the dryer. The standard design is rated based on an inlet condition of 100°F @ 100 PSI and will not deliver proper performance if it is undersized.
	Desiccant bed is flooded with moisture. The BMI will turn gray when this occurs.	• Verify that the air compressor after-cooler drain is functioning properly. • The desiccant will become saturated if compressed air is permitted to flow through the dryer before it is operating. • If this occurs, the performance of the dryer will not easily recover and this will void the warranty on the desiccant material.
Blue Moisture Indicator Turns Gray	Indicator is saturated as a result of an elevated dew-point.	Refer to elevated dew-point corrective actions listed above.
Excessive Pressure in Tower Designated For Regeneration (Above 3 PSI)	Purge Muffler is clogged.	Inspect purge mufflers for clogging and replace as required. Follow proper safety pre-cautions during this process.
	Air leak across Purge Muffler.	Determine if inlet valves and outlet check valves are functioning properly. Refer to valve test section.
Inability to Maintain Line Pressure On Drying Tower	Leaking check valve.	Utilize valve test function to determine if inlet and outlet valves are functioning properly.
Failure to Shift (Switching Failure)	No input power	Check power input.
	Defective solenoid valve	Check solenoid valve.
	No pilot air	Check pilot air line. Check that control air line filter is clean.
	Pilot-operated diaphragm valve seal failure	Inspect and replace seals as required.

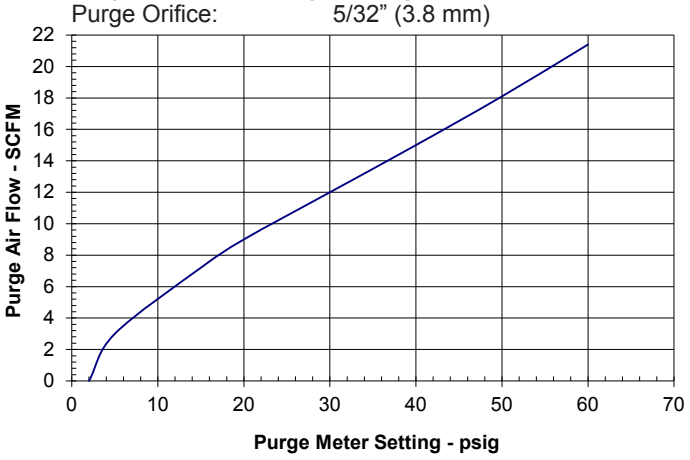
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Dryer fails to pressurize.	Faulty purge valve	Check that repressurization circuit is sending control signal.
		Check purge valve and its solenoid valve.
Dryer depressurizes too rapidly.	Purge valve does not close; dryer repressurizing through inlet valve.	Check purge valve and its solenoid valve.
Dryer fails to purge.	Purge valve does not open. Purge valve stuck in closed position.	Check purge valve and its solenoid valve. Repair and replace if necessary.
		Check that repressurization circuit is sending control signal.
Right tower excessively high pressure at the purge gauge.	Improper calibration.	Reset when right tower is on line.

12.0 PURGE CHARTS

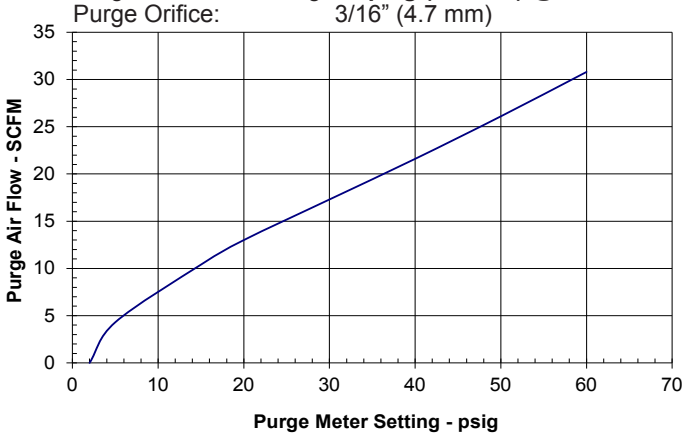
Dryer Model: **XGHL 90**
Purge Pressure Setting: **48 psig (4.32bar)** @ 14 SCFM
Purge Orifice: 9/64” (3.5 mm)



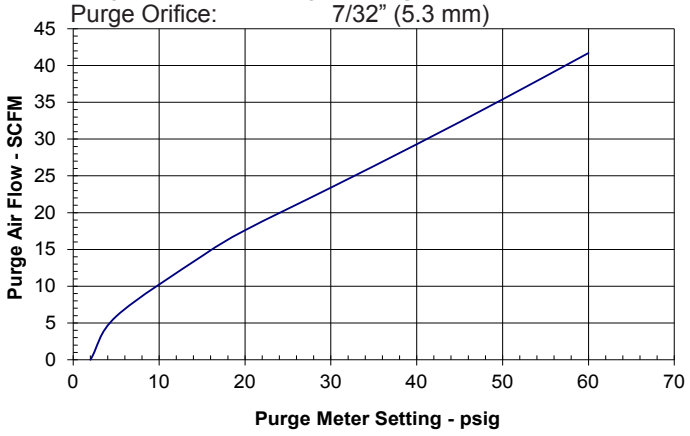
Dryer Model: **XGHL120**
Purge Pressure Setting: **53 psig (4.67bar)** @ 19 SCFM
Purge Orifice: 5/32” (3.8 mm)



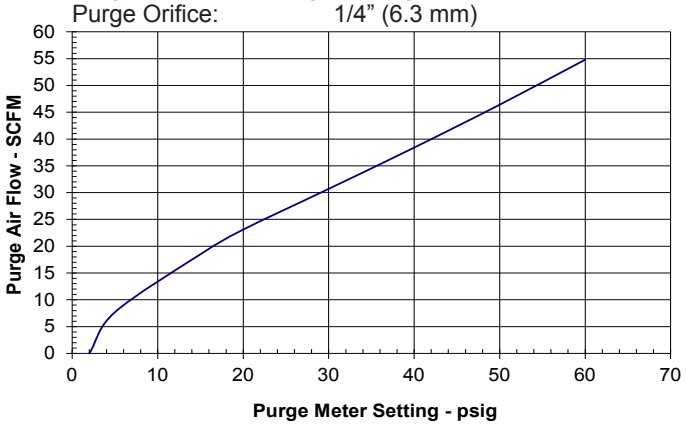
Dryer Model: **XGHL 160**
Purge Pressure Setting: **50 psig (4.46bar)** @ 26 SCFM
Purge Orifice: 3/16” (4.7 mm)



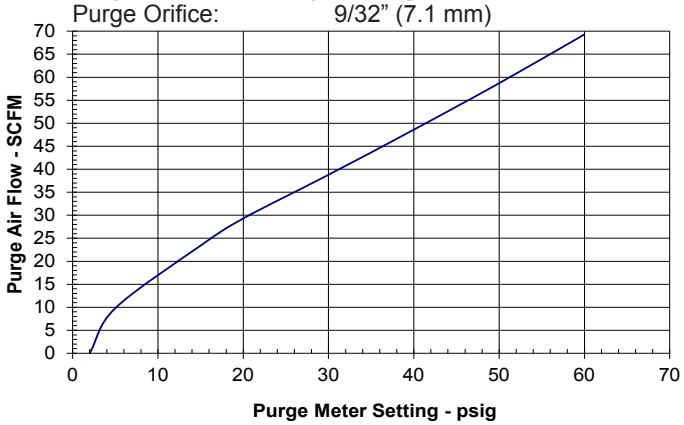
Dryer Model: **XGHL 200**
Purge Pressure Setting: **42 psig (3.91bar)** @ 30 SCFM
Purge Orifice: 7/32” (5.3 mm)



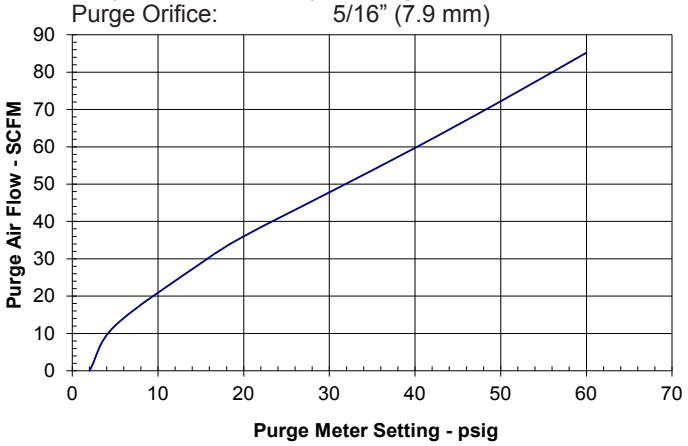
Dryer Model: **XGHL 250**
Purge Pressure Setting: **42 psig (3.91bar)** @ 40 SCFM
Purge Orifice: 1/4” (6.3 mm)



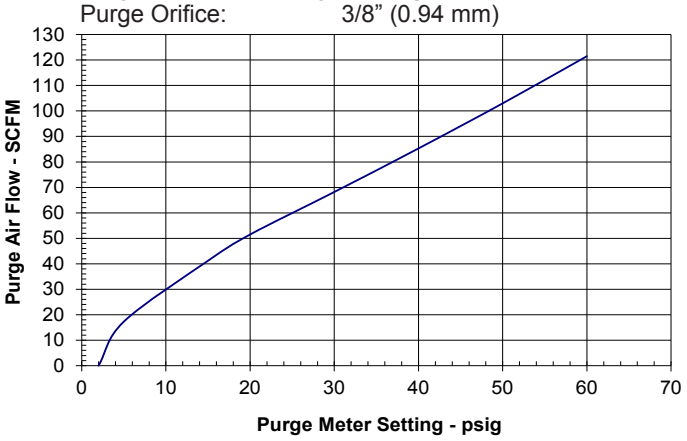
Dryer Model: **XGHL 300**
Purge Pressure Setting: **40 psig (3.77bar)** @ 48 SCFM
Purge Orifice: 9/32” (7.1 mm)



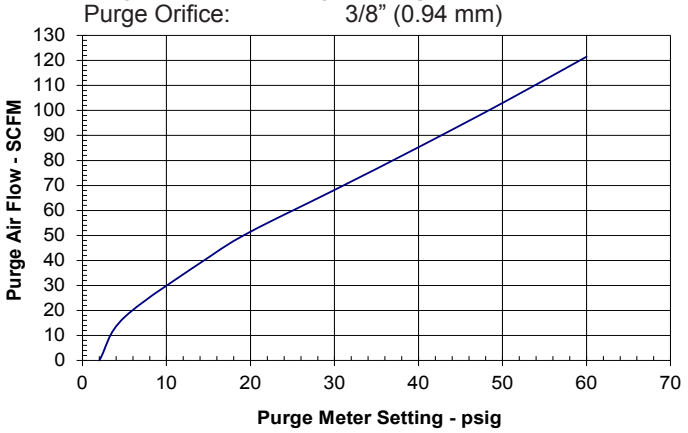
Dryer Model: **XGHL 400**
Purge Pressure Setting: **45 psig (4.11bar)** @ 65 SCFM
Purge Orifice: 5/16” (7.9 mm)



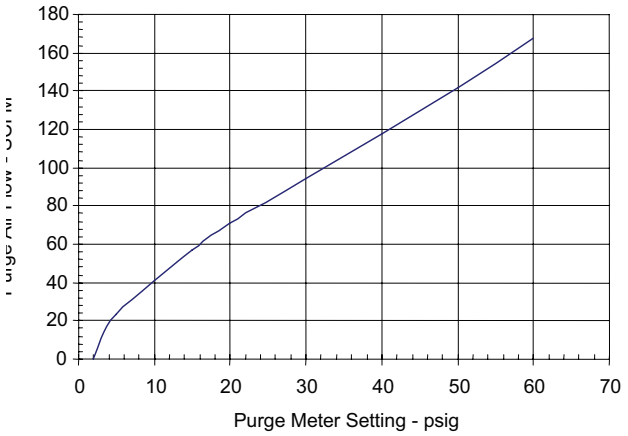
Dryer Model: **XGHL 500**
Purge Pressure Setting: **35 psig (3.43bar)** @ 81 SCFM
Purge Orifice: 3/8” (0.94 mm)



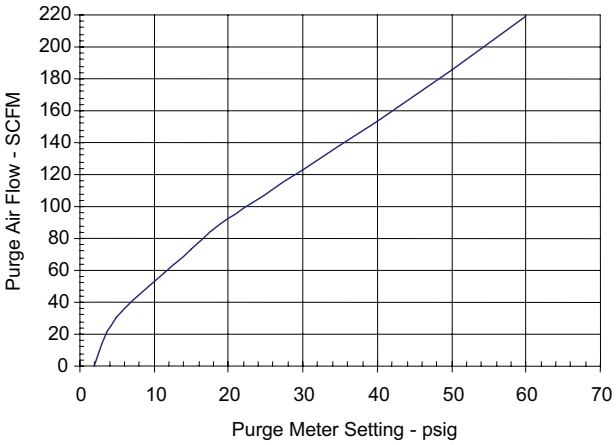
Dryer Model: **XGHL 600**
Purge Pressure Setting: **41 psig (3.84bar)** @ 93 SCFM
Purge Orifice: 3/8” (0.94 mm)



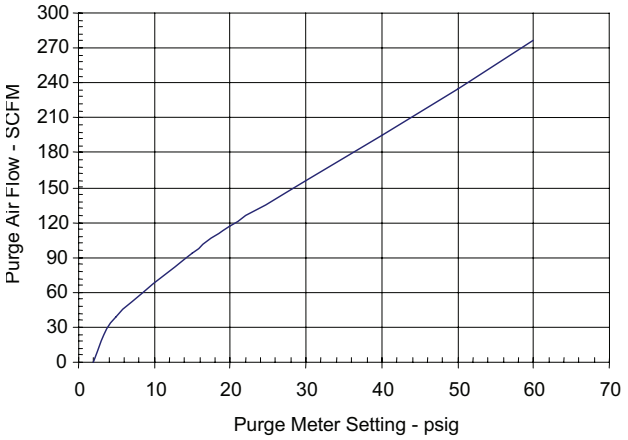
Dryer Model: **XGHL 800**
Purge Pressure Setting: **46 psig (4.18bar)** @ 130 SCFM
Purge Orifice: **7/16" (11.1 mm)**



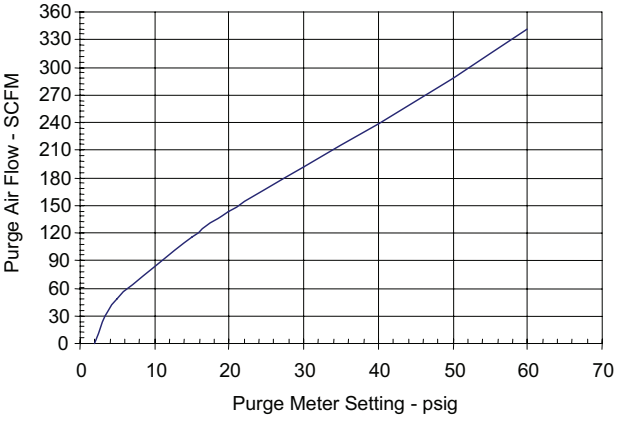
Dryer Model: **XGHL 1000**
Purge Pressure Setting: **43 psig (3.97bar)** @ 162 SCFM
Purge Orifice: **1/2" (12.7 mm)**



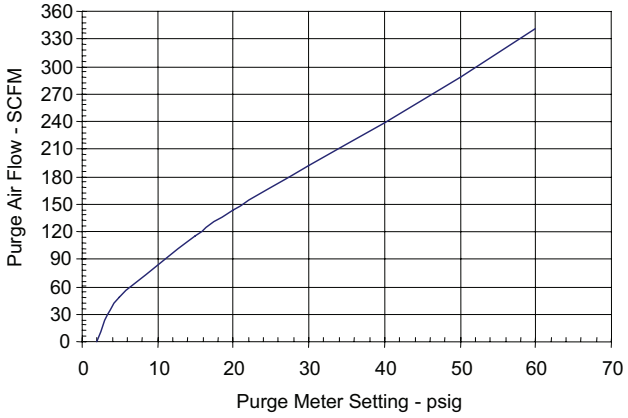
Dryer Model: **XGHL 1200**
Purge Pressure Setting: **41 psig (3.84bar)** @ 195 SCFM
Purge Orifice: **9/16" (14.2 mm)**



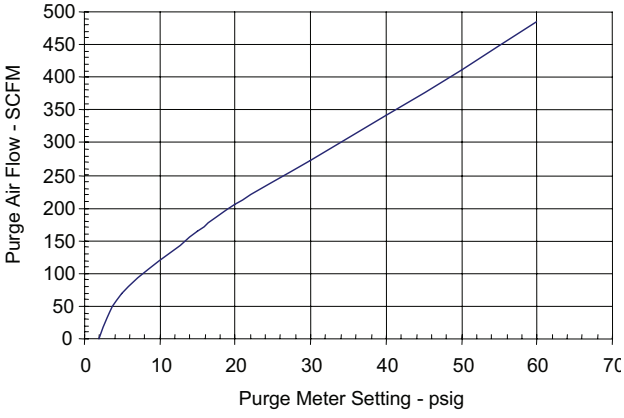
Dryer Model: **XGHL1500**
Purge Pressure Setting: **41 psig (3.84bar)** @ 243 SCFM
Purge Orifice: **5/8" (15.8 mm)**



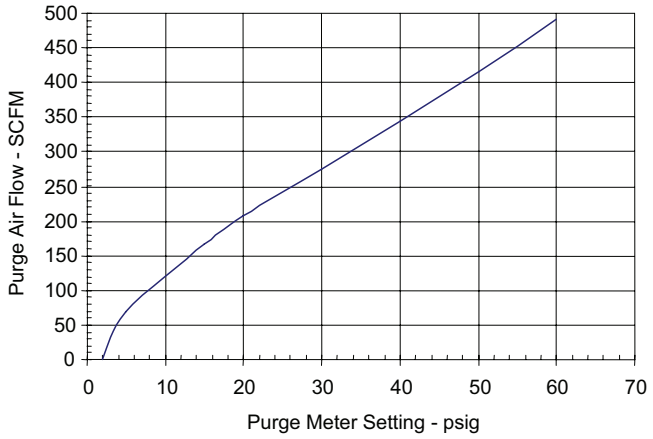
Dryer Model: **XGHL 1800**
Purge Pressure Setting: **51 psig (4.52bar)** @ 292 SCFM
Purge Orifice: **5/8" (15.8 mm)**



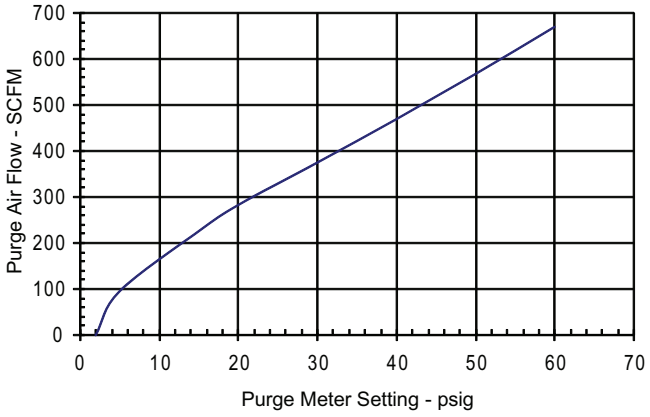
Dryer Model: **XGHL 2100**
Purge Pressure Setting: **40 psig (3.77bar)** @ 340 SCFI
Purge Orifice: **3/4" (19 mm)**



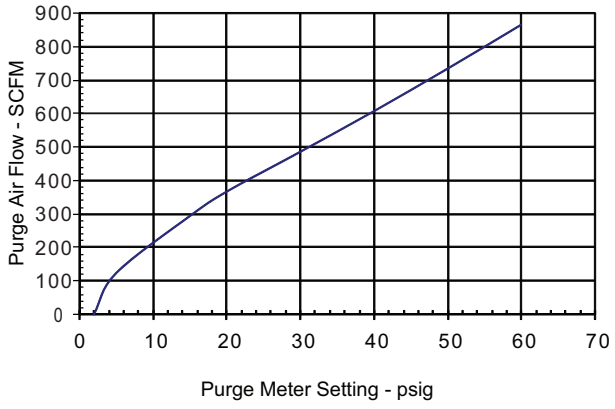
Dryer Model: **XGHL 2700**
Purge Pressure Setting: **53 psig (4.66bar)** @ 438 SCFM
Purge Orifice: **3/4" (19 mm)**



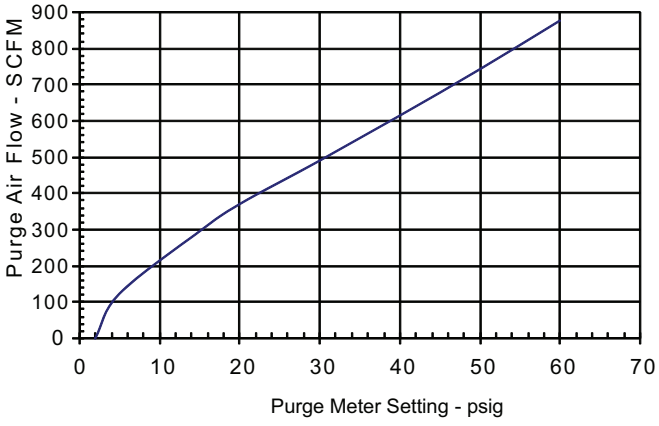
Dryer Model: **XGHL 3300**
Purge Pressure Setting: **47 psig (4.25bar)** @ 535 SCFM
Purge Orifice: **7/8" (22.2 mm)**



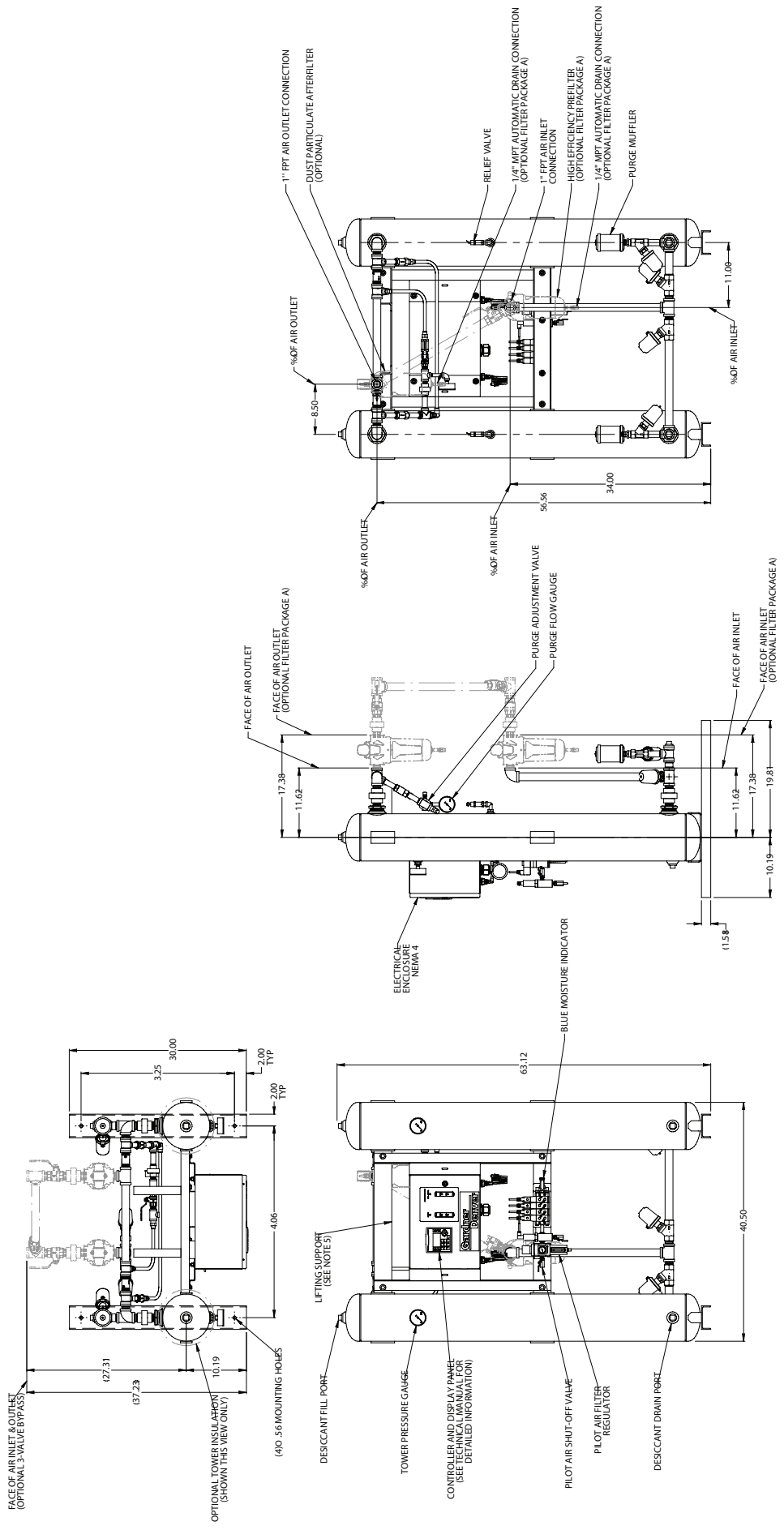
Dryer Model: **XGHL 4000**
Purge Pressure Setting: **44 psig(4.04bar)** @ 649 SCFM
Purge Orifice: **1" (25.4 mm)**



Dryer Model: **XGHL 5000**
Purge Pressure Setting: **56 psig (4.87bar)** @ 811 SCFM
Purge Orifice: **1" (25.4mm)**

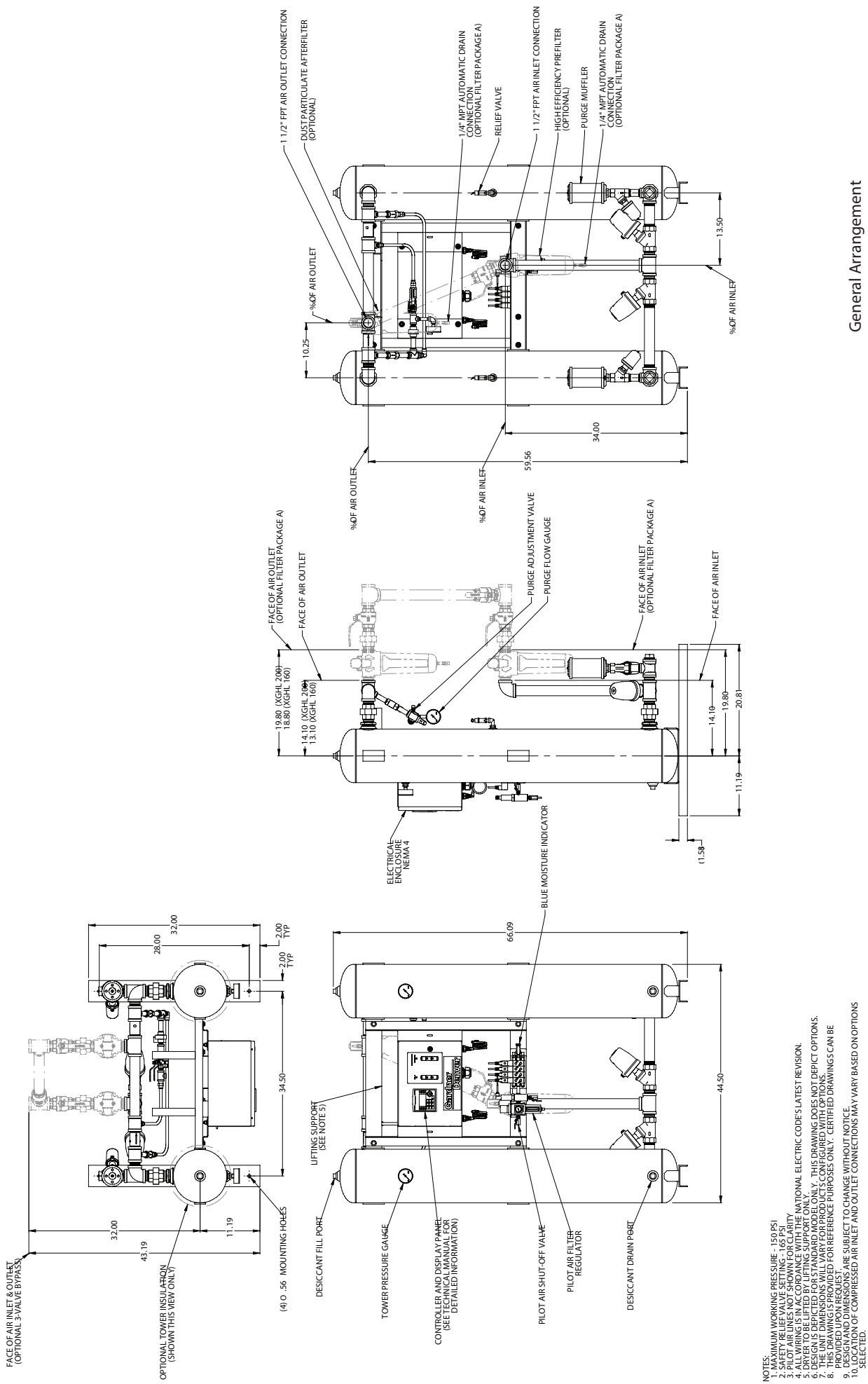


13.0 GENERAL ARRANGEMENT



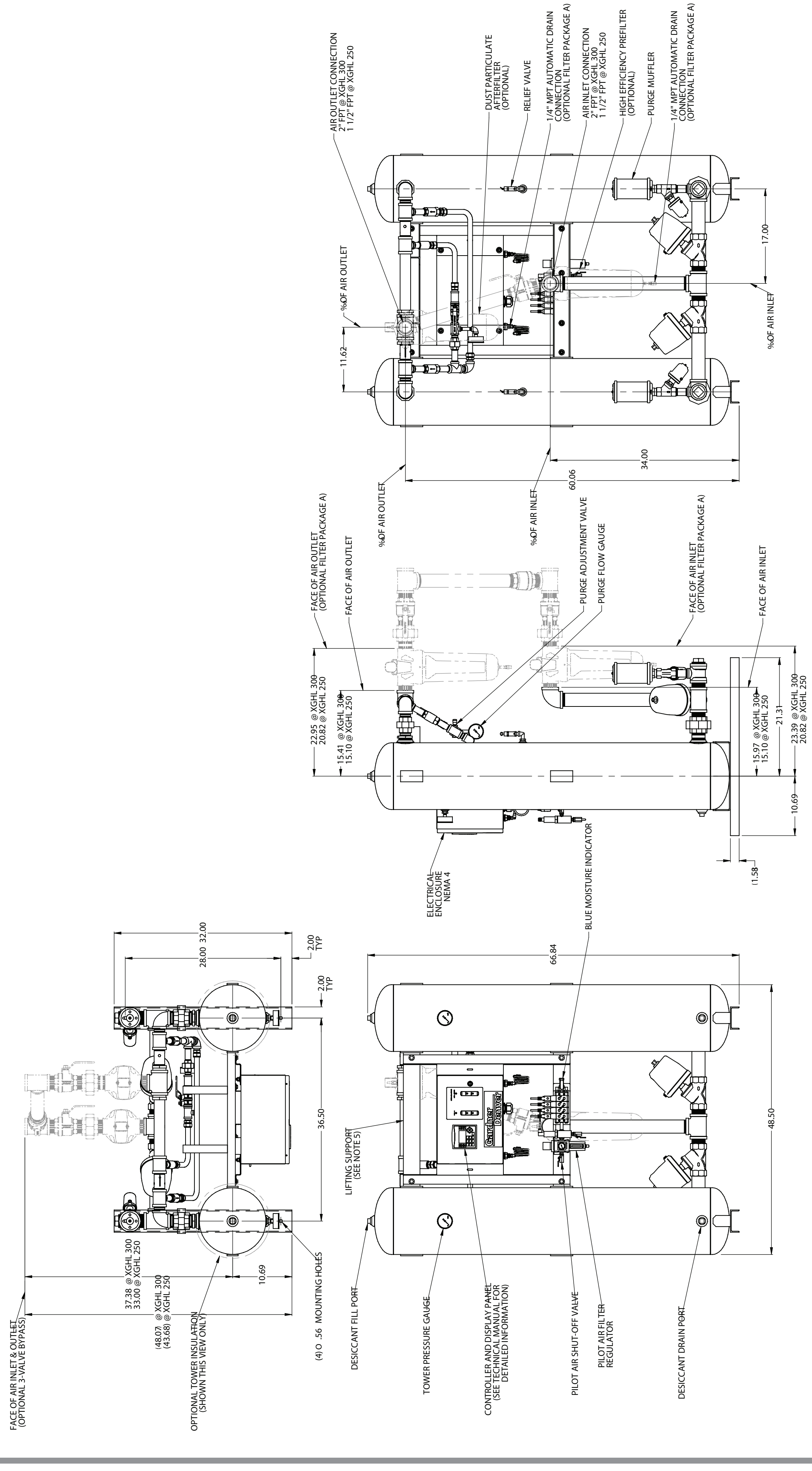
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS SUBJECT TO CHANGE WITHOUT NOTICE. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. TEE IS DIRECTED FOR STANDARD MODELS. CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 90- XGHL 120
NEMA 4
Drawing No.: 47704382_A



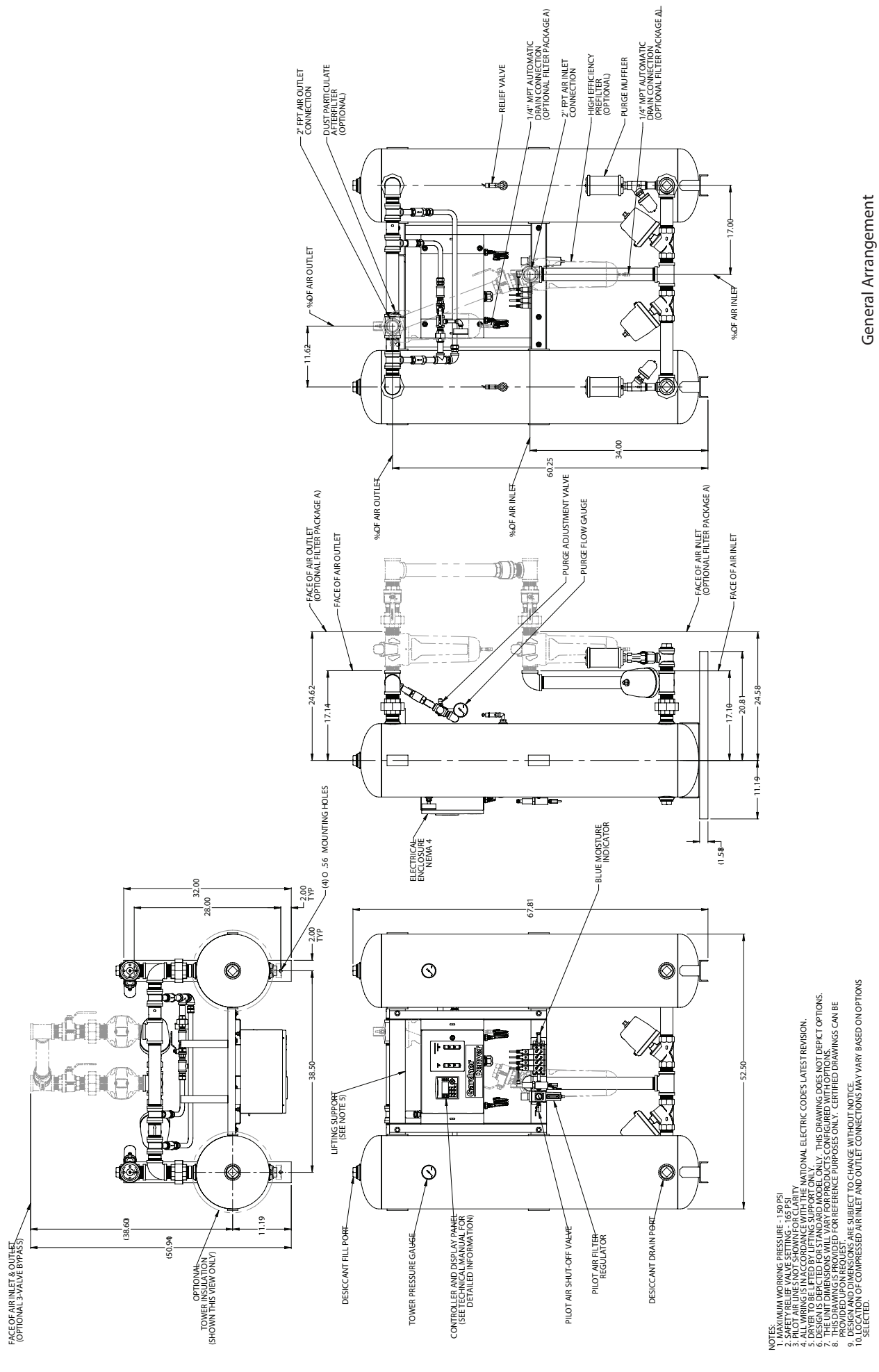
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. COVER REMOVED FOR LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 160 - XGHL 200
NEMA 4
Drawing No.: 47704383_A



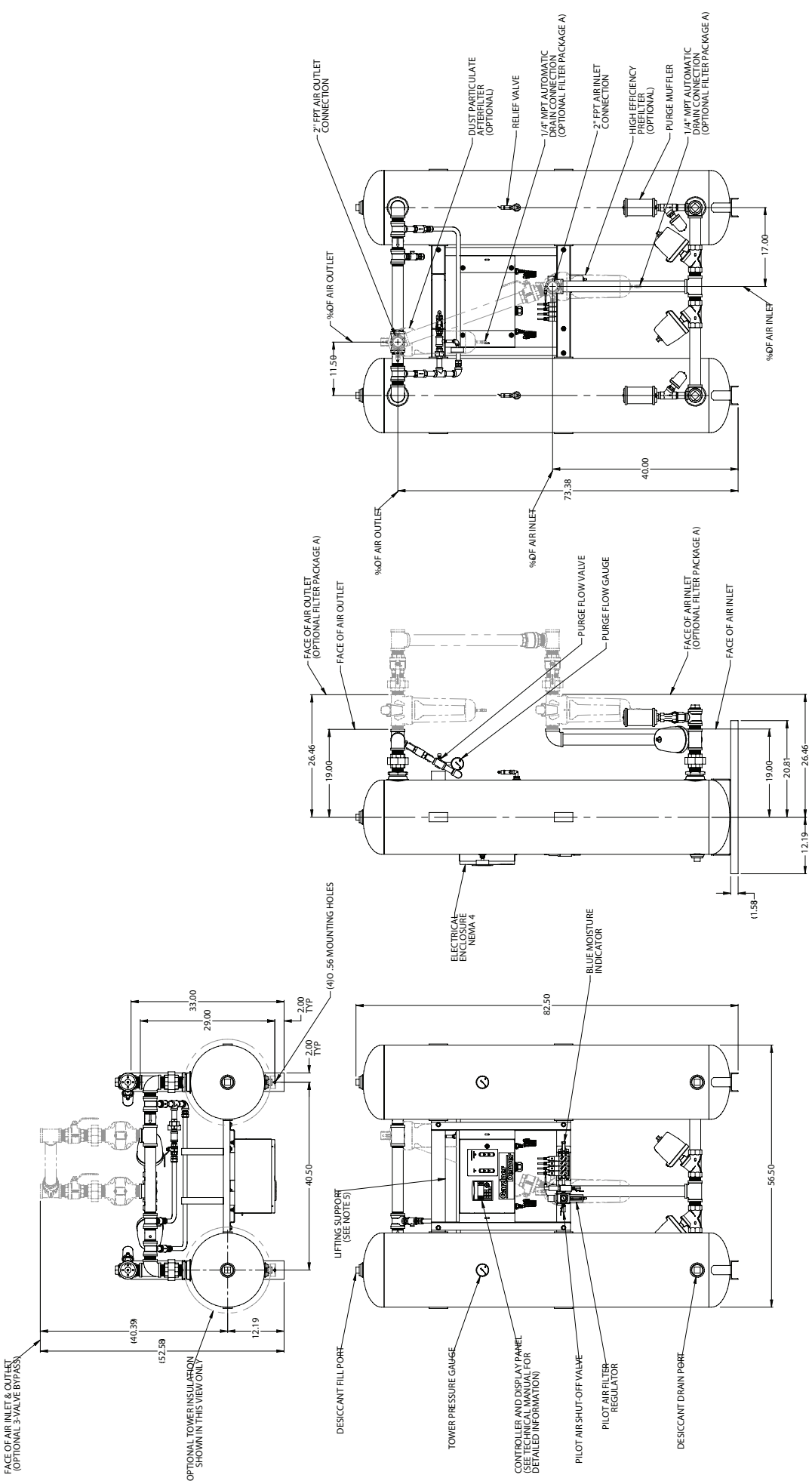
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY.
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 250 - XGHL 300
NEMA 4
Drawing No.: 47704384_A



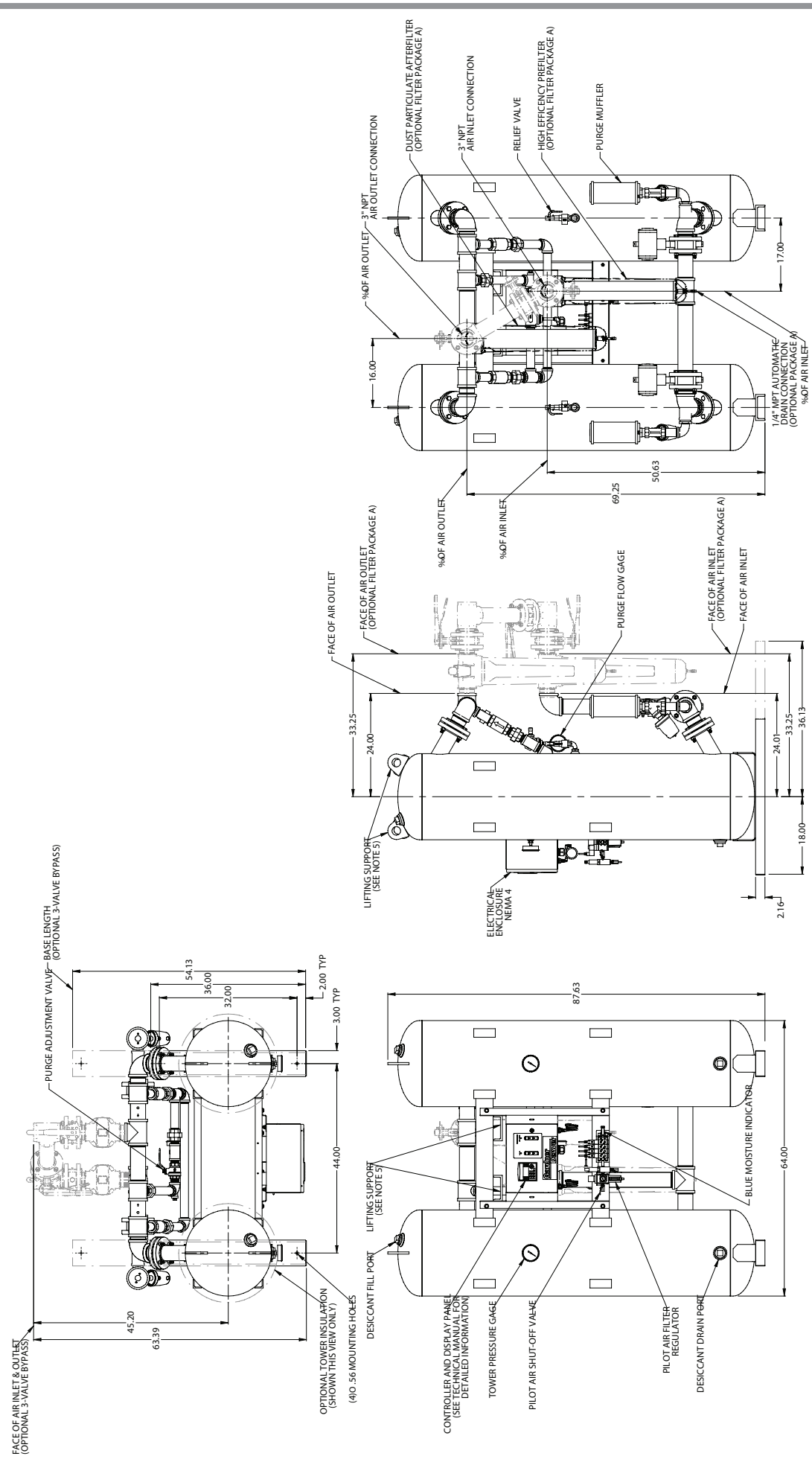
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORTS ONLY.
6. DESIGN IS SUBJECT TO CHANGE WITHOUT NOTICE. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 400
NEMA 4
Drawing No.: 47704385_A



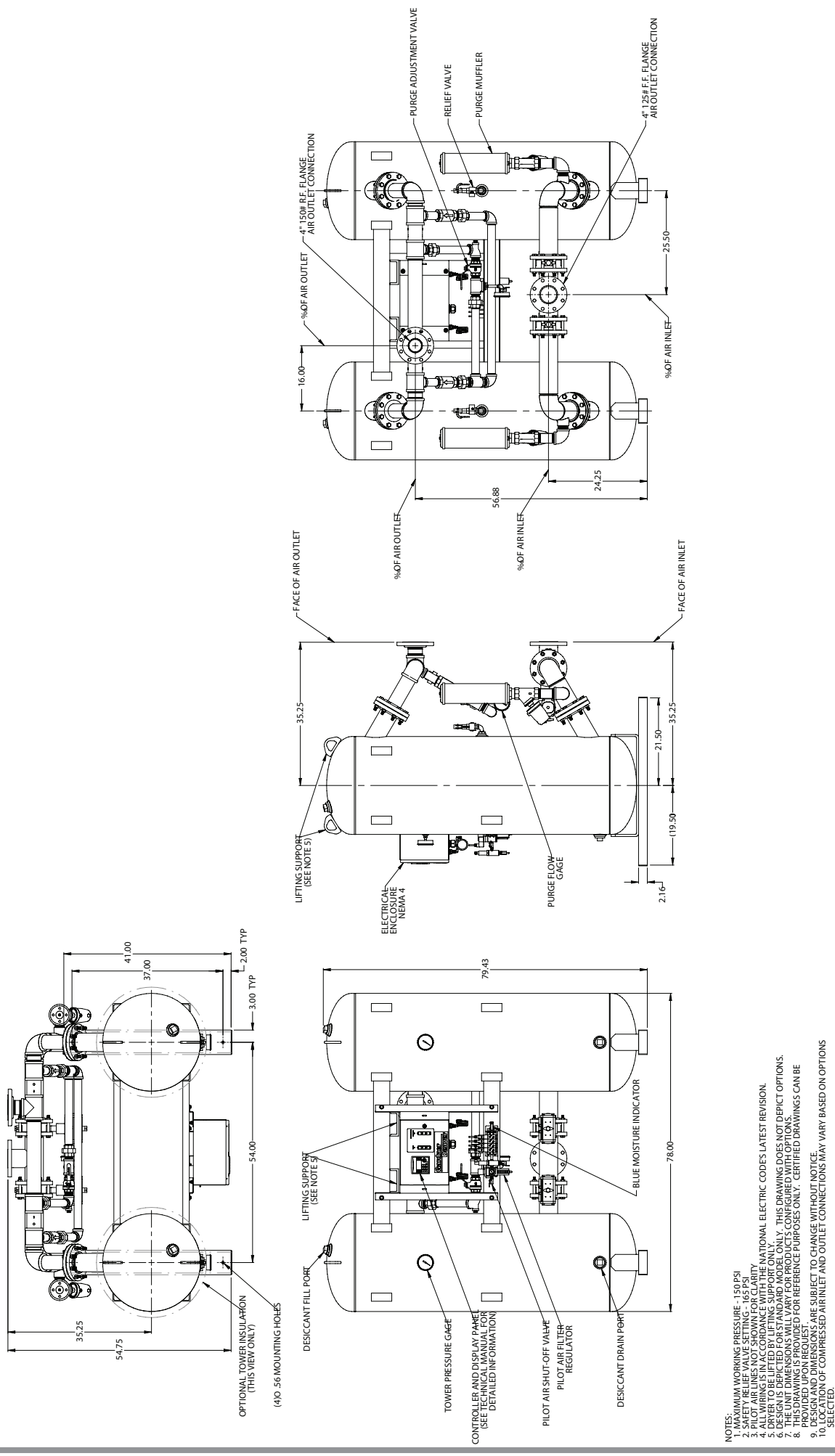
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. LIFTING EYES ARE TO BE USED FOR LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 500 - HGHL 600
NEMA 4
Drawing No.: 47704386_A



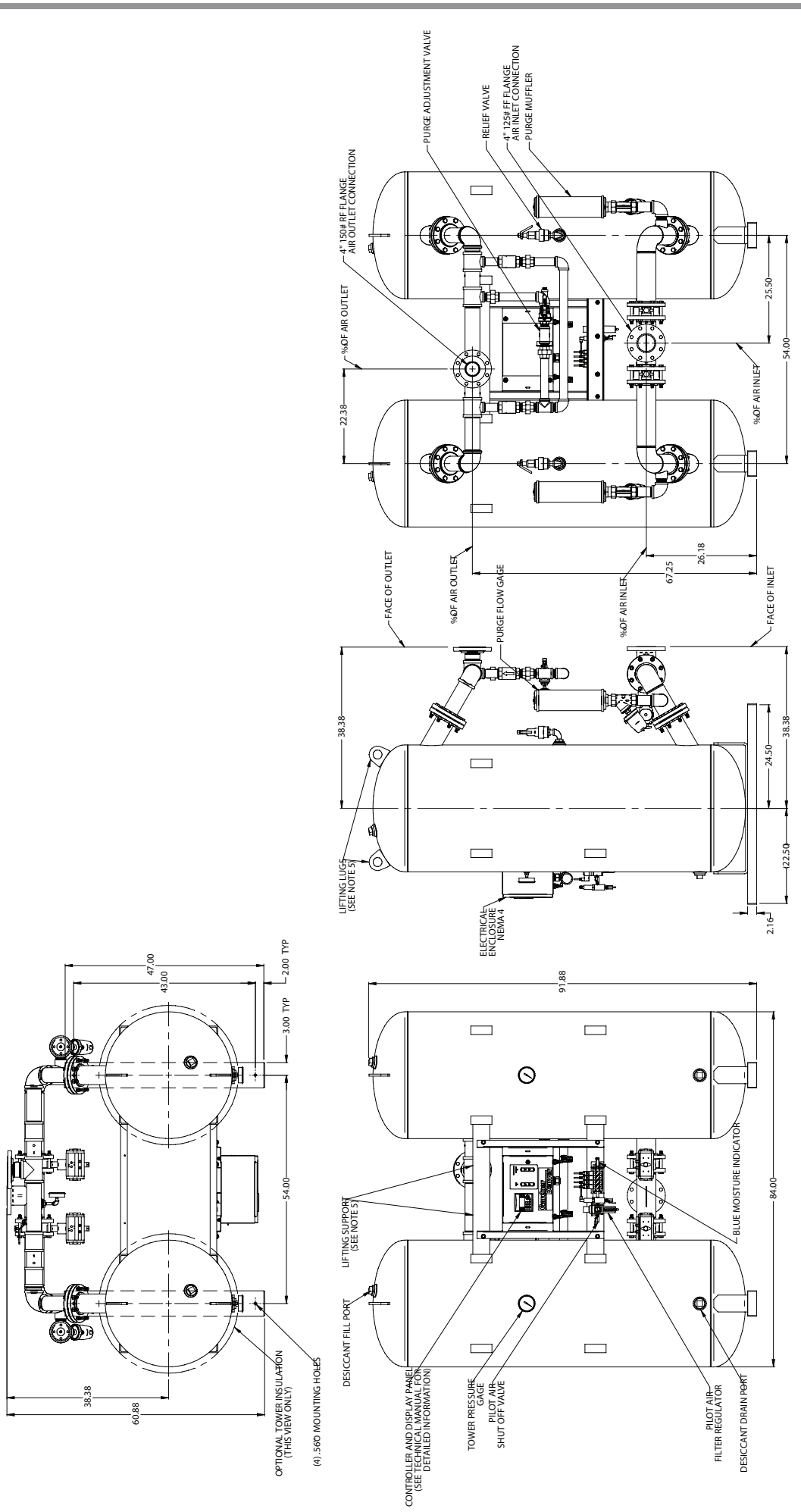
General Arrangement
Dryer Models: XGHL 800 - XGHL 1200
Drawing No.: 47704387_A

NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.



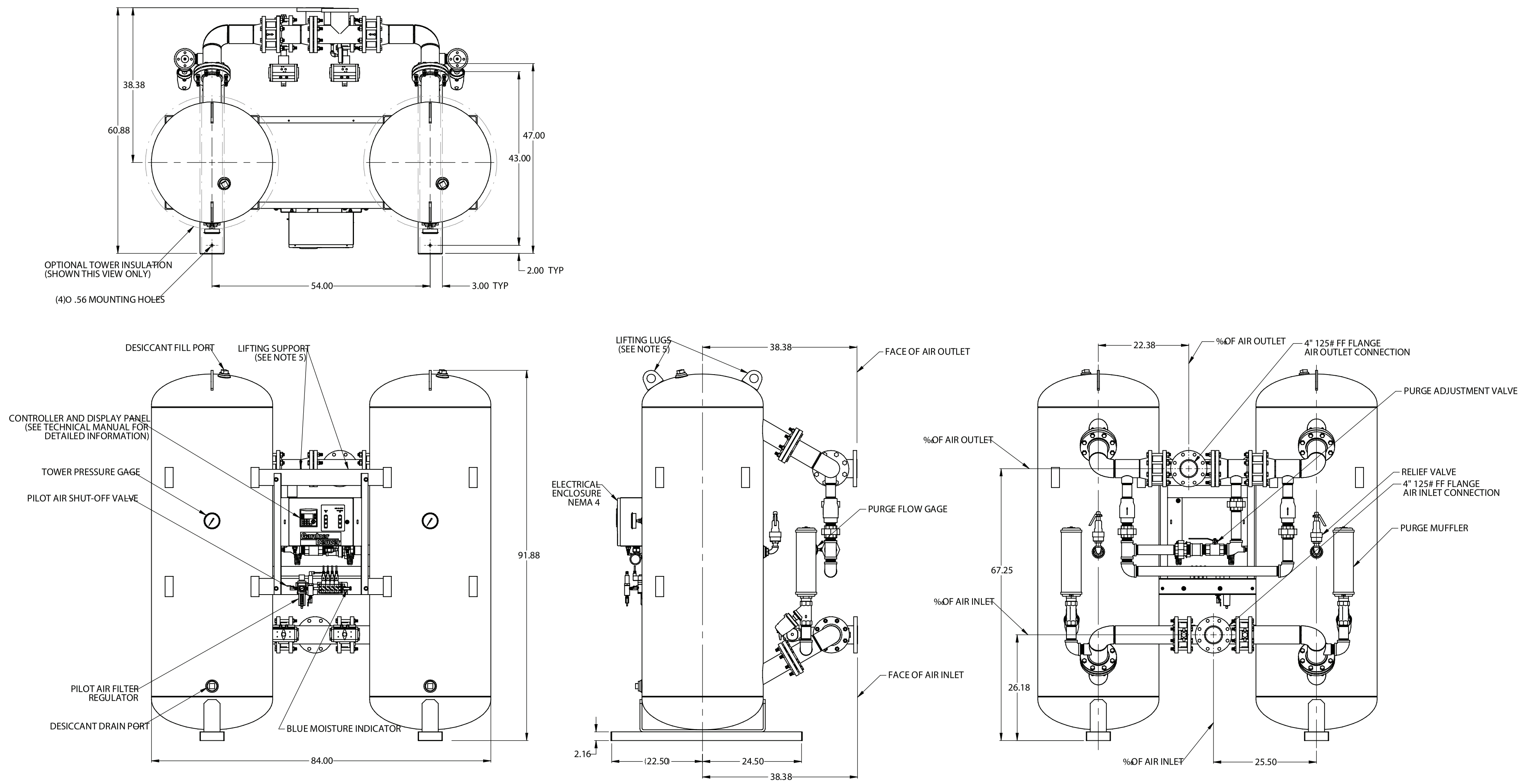
General Arrangement
Dryer Models: XGHL 1500
Drawing No.: 47704388_A

NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODES LATEST REVISION.
5. POWER TO BE FED THROUGH LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.



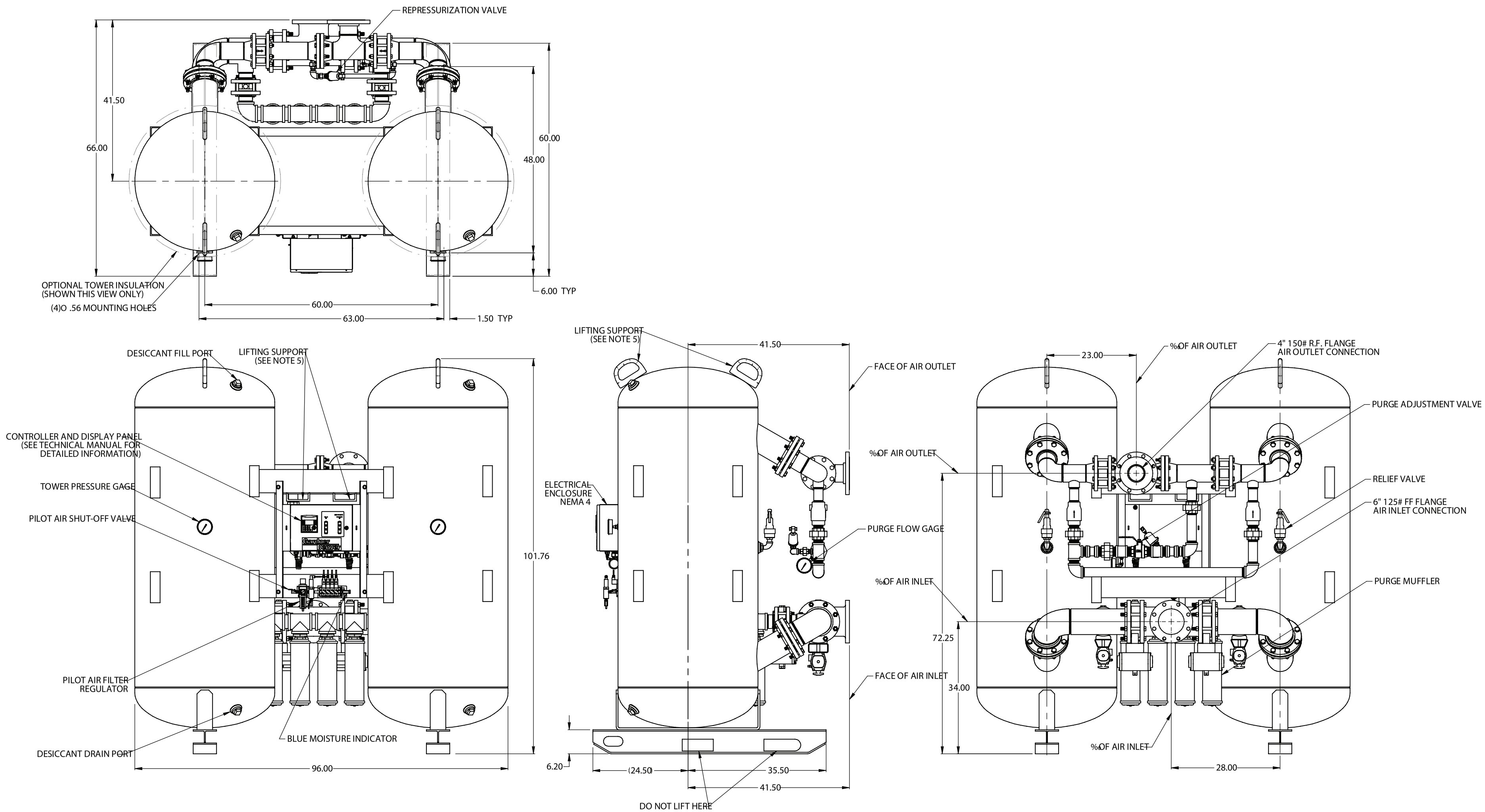
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS SHOWN WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 1800 - XGHL 2100
NEMA 4
Drawing No.: 47704389_A



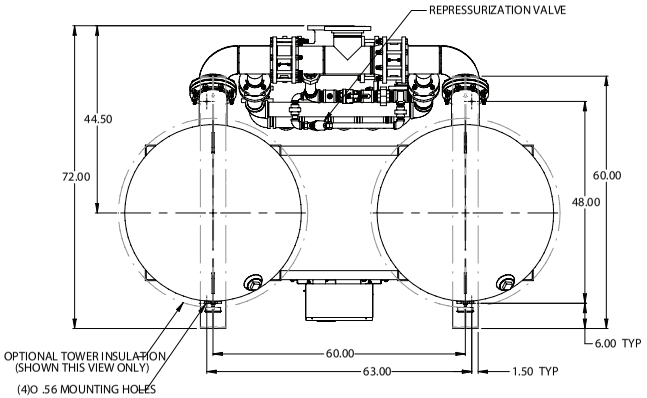
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

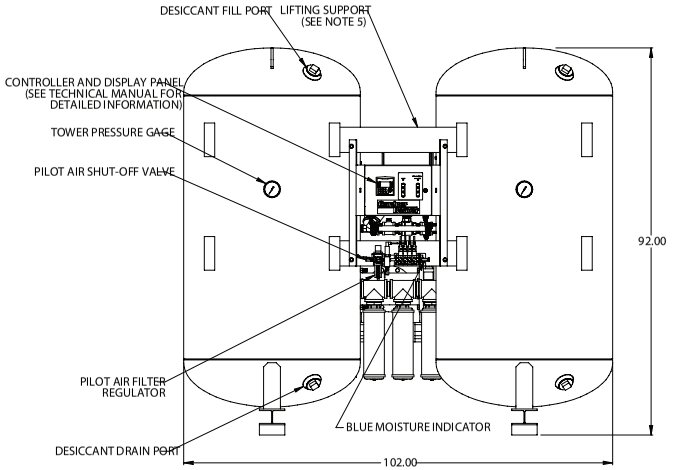
General Arrangement
Dryer Models: XGHL 2700
Drawing No.: 47704390_A

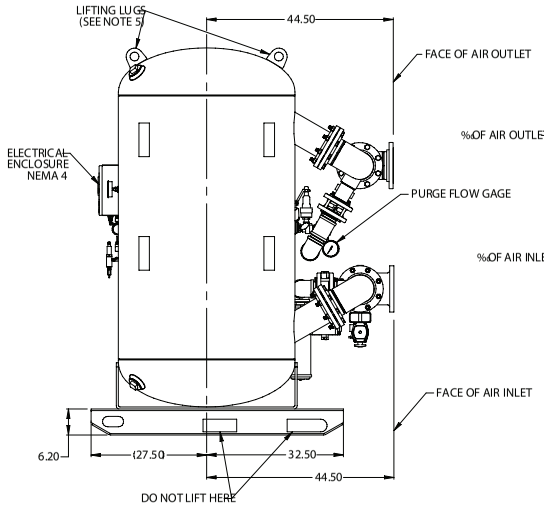


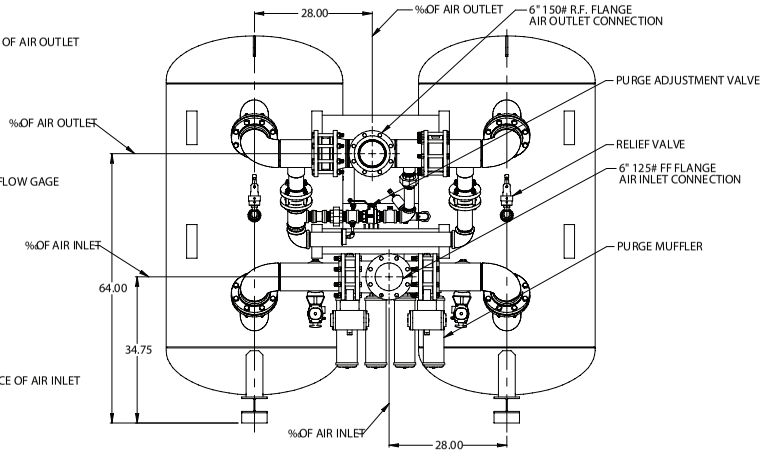
NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 3300 - XGHL 4000
Drawing No.: 47704391_A





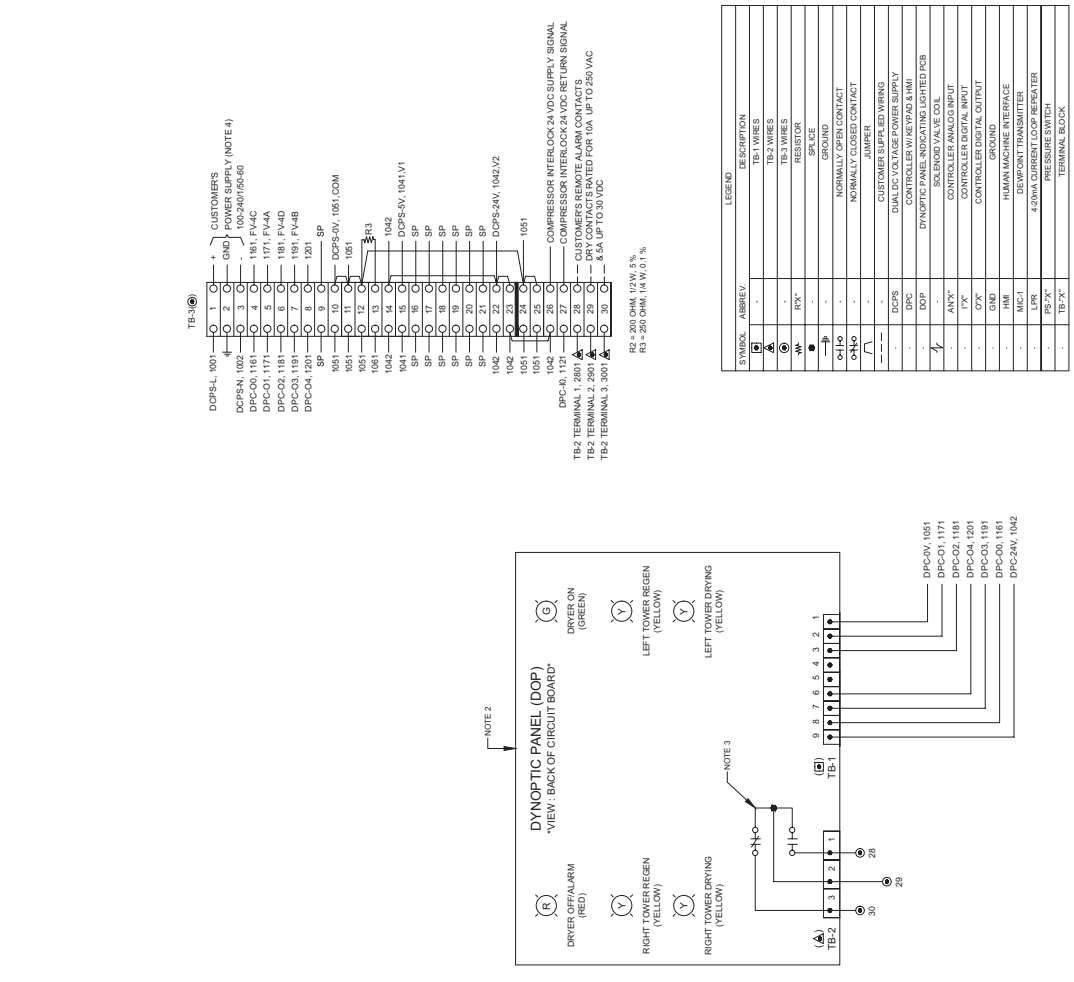




NOTES:
1. MAXIMUM WORKING PRESSURE - 150 PSI
2. SAFETY RELIEF VALVE SETTING - 165 PSI
3. PILOT AIR LINES NOT SHOWN FOR CLARITY
4. ALL WIRING IS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE'S LATEST REVISION.
5. DRYER TO BE LIFTED BY LIFTING SUPPORT ONLY.
6. DESIGN IS DEPICTED FOR STANDARD MODEL ONLY. THIS DRAWING DOES NOT DEPICT OPTIONS.
7. THE UNIT DIMENSIONS WILL VARY FOR PRODUCTS CONFIGURED WITH OPTIONS.
8. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. CERTIFIED DRAWINGS CAN BE PROVIDED UPON REQUEST.
9. DESIGN AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
10. LOCATION OF COMPRESSED AIR INLET AND OUTLET CONNECTIONS MAY VARY BASED ON OPTIONS SELECTED.

General Arrangement
Dryer Models: XGHL 5000
Drawing No.: 47704392_A

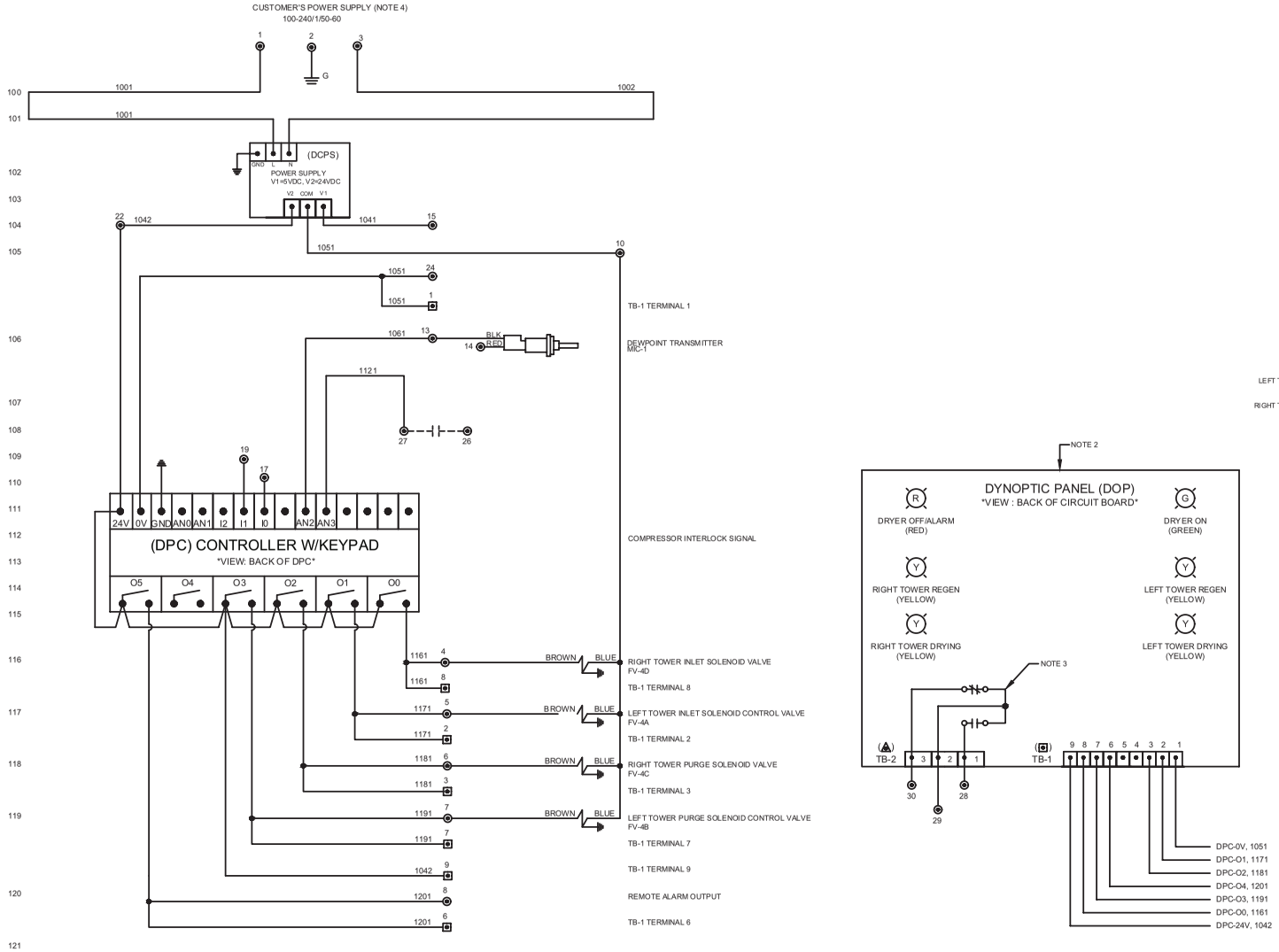
14.0 WIRING DIAGRAM

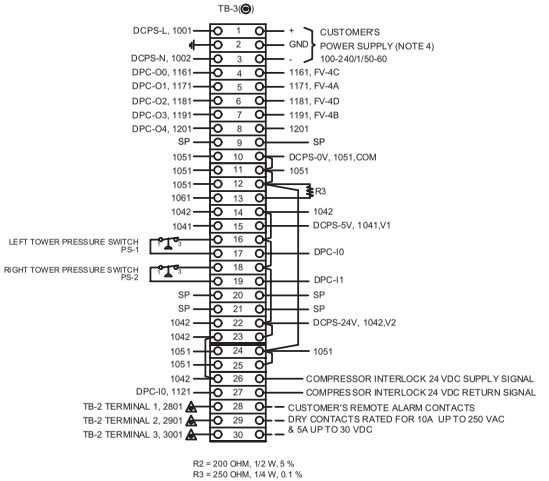


NOTE: EMS IS OPTIONAL FEATURE

Wiring Diagram
Dryer Models: XGHL N4 EMS
Drawing No.: 47776144_A DEV2022-01000

NOTES:
1) CUSTOMERS POWER CONTROL HIGH VOLTAGE WIRE IS BLACK. ALL COMMON CONTROL WIRE IS WHITE. ALL DC VOLTAGE WIRE IS BLUE (+) AND BLUE WITH WHITE STRIPE (-).
2) DYNOPTIC PANEL (DOP) IS MOUNTED ON CONTROL ENCLOSURE DOOR.
3) CONTACTS CHANGE STATE FROM AS SHOWN WHEN DRYER IS RUNNING. CONTACT ARE AS SHOWN WHEN DRYER IS OFF OR AN ALARM IS PRESENT. RELAY AND CONTACTS ARE PART OF CIRCUIT BOARD.
4) CUSTOMER TO PROVIDE DISCONNECT AND CIRCUIT PROTECTION.





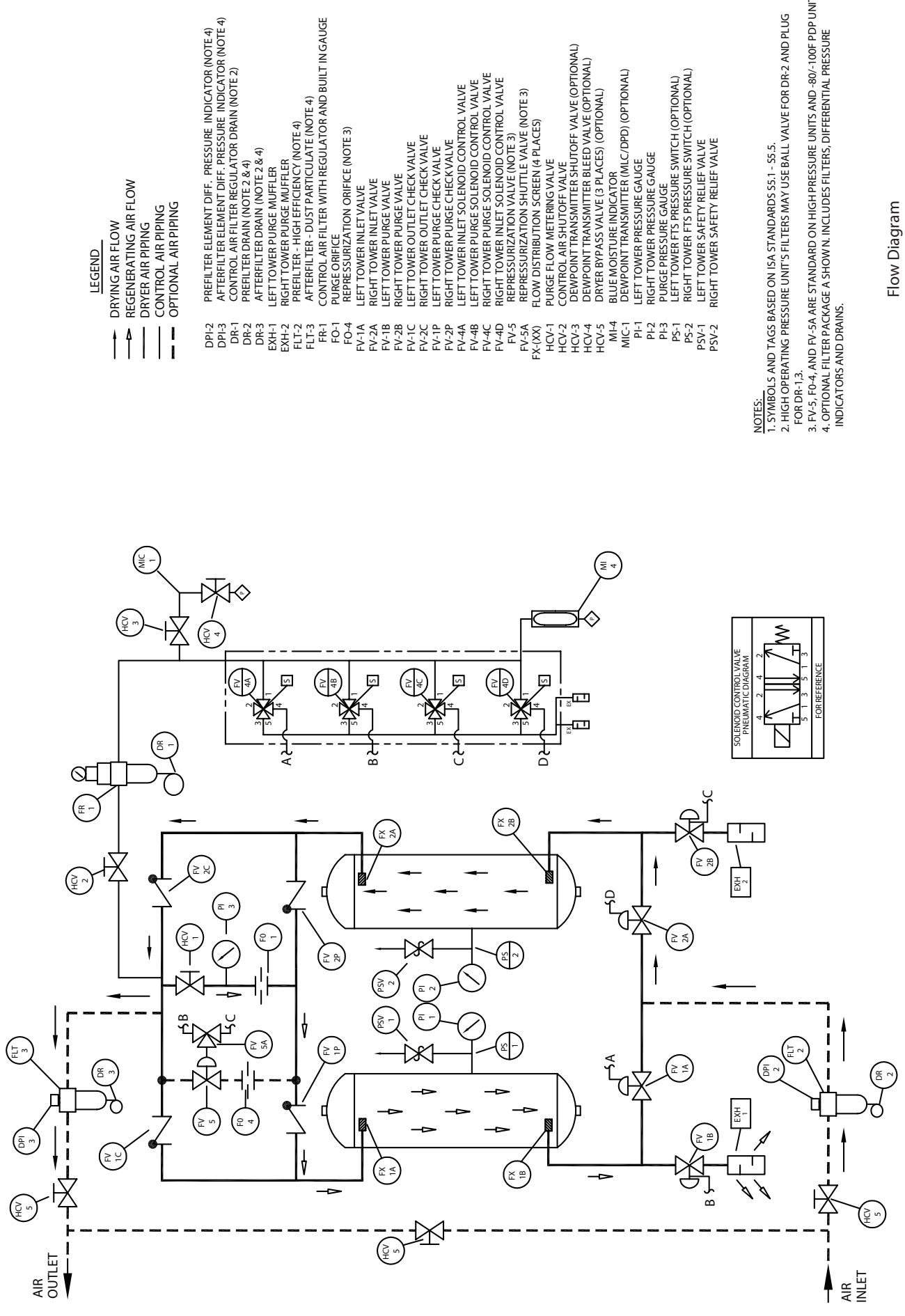
LEGEND		
SYMBOL	ABBREV.	DESCRIPTION
	-	TB-1 WIRES
	-	TB-2 WIRES
	-	TB-3 WIRES
	R"X"	RESISTOR
	-	SPLICE
	-	GROUND
	-	NORMALLY OPEN CONTACT
	-	NORMALLY CLOSED CONTACT
	-	JUMPER
	-	CUSTOMER SUPPLIED WIRING
-	DCPS	DUAL DC VOLTAGE POWER SUPPLY
-	DPC	CONTROLLER W KEYPAD & HMI
-	DOP	DYNOPTIC PANEL-INDICATING LIGHTED PCB
	-	SOLENOID VALVE COIL
-	AN"X"	CONTROLLER ANALOG INPUT
-	I"X"	CONTROLLER DIGITAL INPUT
-	O"X"	CONTROLLER DIGITAL OUTPUT
-	GND	GROUND
-	HMI	HUMAN MACHINE INTERFACE
-	MIC-1	DEWPOINT TRANSMITTER
-	LPR	4-20mA CURRENT LOOP REPEATER
-	PS-"X"	PRESSURE SWITCH
-	TB-"X"	TERMINAL BLOCK

NOTES:
1) CUSTOMERS POWER CONTROL HIGH VOLTAGE WIRE IS BLACK, ALL COMMON CONTROL WIRE IS WHITE, ALL DC VOLTAGE WIRE IS BLUE (+) AND BLUE WITH WHITE STRIPE (-).
2) DYNOPTIC PANEL (DOP) IS MOUNTED ON CONTROL ENCLOSURE DOOR.
3) CONTACTS CHANGE STATE FROM AS SHOWN WHEN DRYER IS RUNNING. CONTACT ARE AS SHOWN WHEN DRYER IS OFF OR AN ALARM IS PRESENT. RELAY AND CONTACTS ARE PART OF CIRCUIT BOARD.
4) CUSTOMER TO PROVIDE DISCONNECT AND CIRCUIT PROTECTION.

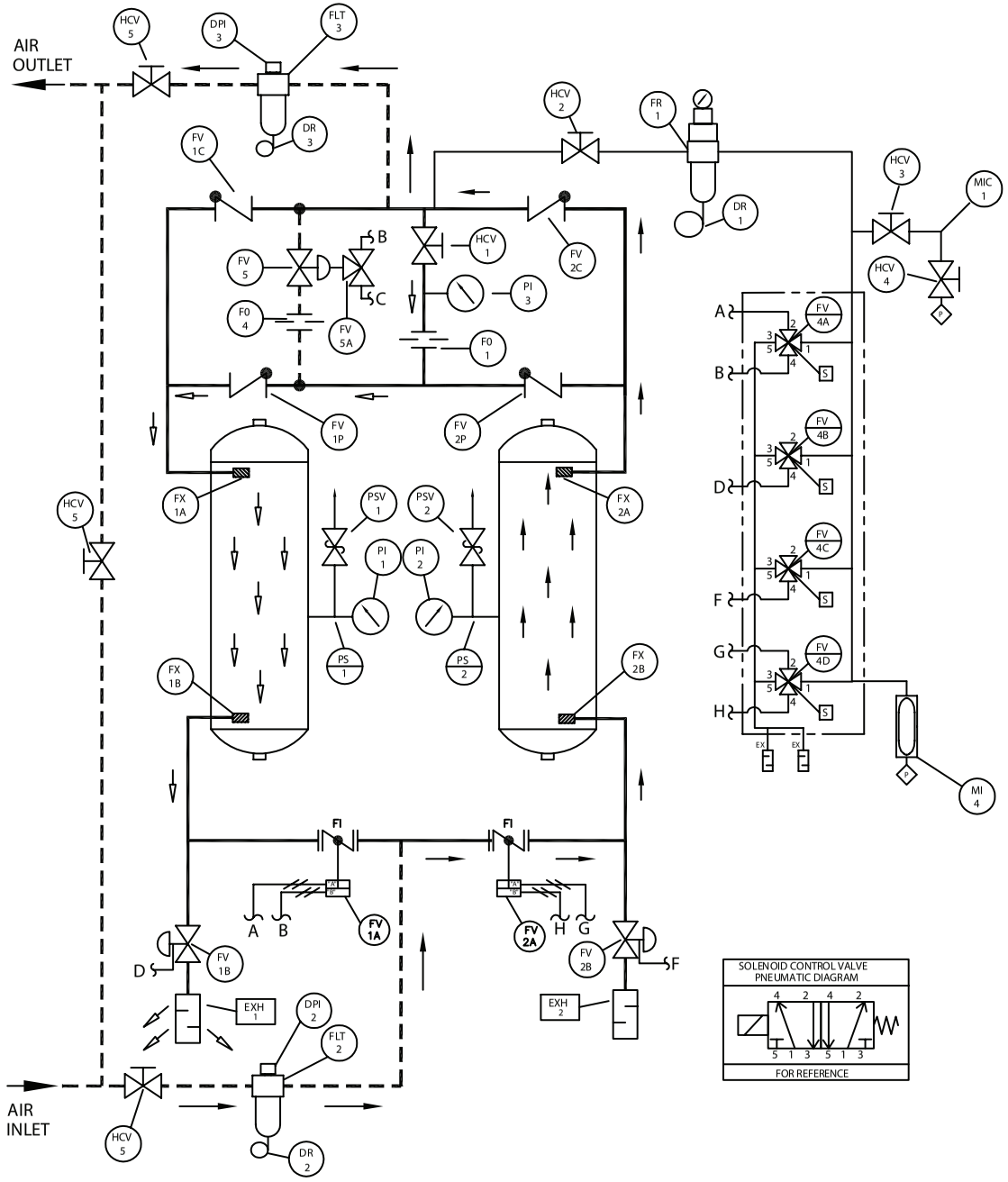
NOTE: EMS & FTS ARE OPTIONAL FEATURES

Wiring Diagram
Dryer Models: XGHL N4 EMS FTS
Drawing No.: 47776145_A DEV2022-01000

15.0 FLOW DIAGRAM



Flow Diagram
Dryer Models: XGHL 90 - 600
STD W/ OPTIONS



LEGEND

- DRYING AIR FLOW
- REGENERATING AIR FLOW
- DRYER AIR PIPING
- CONTROL AIR PIPING
- OPTIONAL AIR PIPING

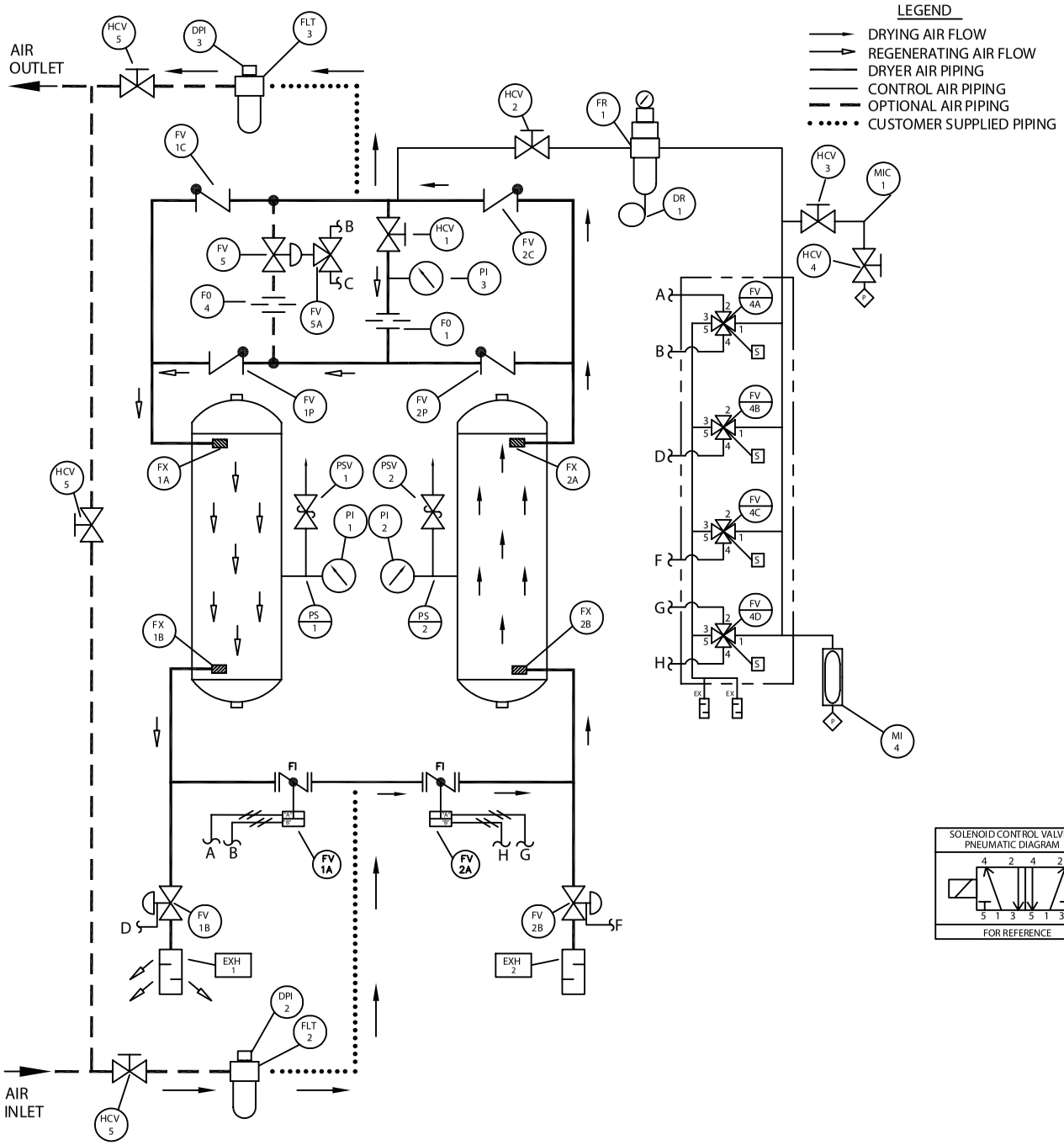
DPI-2	PREFILTER ELEMENT DIFF. PRESSURE INDICATOR (NOTE 4)
DPI-3	AFTERFILTER ELEMENT DIFF. PRESSURE INDICATOR (NOTE 4)
DR-1	CONTROL AIR FILTER REGULATOR DRAIN
DR-2	PREFILTER DRAIN (NOTE 4)
DR-3	AFTERFILTER DRAIN (NOTE 2 & 4)
EXH-1	LEFT TOWER PURGE MUFFLER
EXH-2	RIGHT TOWER PURGE MUFFLER
FLT-2	PREFILTER - HIGH EFFICIENCY (NOTE 4)
FLT-3	AFTERFILTER - DUST PARTICULATE (NOTE 4)
FR-1	CONTROL AIR FILTER WITH REGULATOR AND BUILT IN GAUGE
FO-1	PURGE ORIFICE
FO-4	REPRESSURIZATION ORIFICE (NOTE 3)
FV-1A	LEFT TOWER INLET VALVE
FV-2A	RIGHT TOWER INLET VALVE
FV-1B	LEFT TOWER PURGE VALVE
FV-2B	RIGHT TOWER PURGE VALVE
FV-1C	LEFT TOWER OUTLET CHECK VALVE
FV-2C	RIGHT TOWER OUTLET CHECK VALVE
FV-1P	LEFT TOWER PURGE CHECK VALVE
FV-2P	RIGHT TOWER PURGE CHECK VALVE
FV-4A	LEFT TOWER INLET SOLENOID CONTROL VALVE
FV-4B	LEFT TOWER PURGE SOLENOID CONTROL VALVE
FV-4C	RIGHT TOWER PURGE SOLENOID CONTROL VALVE
FV-4D	RIGHT TOWER INLET SOLENOID CONTROL VALVE
FV-5	REPRESSURIZATION VALVE (NOTE 3)
FV-5A	REPRESSURIZATION SHUTTLE VALVE (NOTE 3)
FX-(XX)	FLOW DISTRIBUTION SCREEN (4 PLACES)
HCV-1	PURGE FLOW METERING VALVE
HCV-2	CONTROL AIR SHUTOFF VALVE
HCV-3	DEWPOINT TRANSMITTER SHUTOFF VALVE (OPTIONAL)
HCV-4	DEWPOINT TRANSMITTER BLEED VALVE (OPTIONAL)
HCV-5	DRYER BYPASS VALVE (3 PLACES) (OPTIONAL)
MI-4	BLUE MOISTURE INDICATOR
MIC-1	DEWPOINT TRANSMITTER (EMS) (OPTIONAL)
PI-1	LEFT TOWER PRESSURE GAUGE
PI-2	RIGHT TOWER PRESSURE GAUGE
PI-3	PURGE PRESSURE GAUGE
PS-1	LEFT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PS-2	RIGHT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PSV-1	LEFT TOWER SAFETY RELIEF VALVE
PSV-2	RIGHT TOWER SAFETY RELIEF VALVE

NOTES:

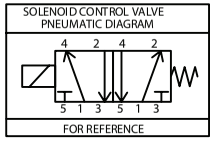
1. SYMBOLS AND TAGS BASED ON ISA STANDARDS S5.1 - S5.5.
2. HIGH OPERATING PRESSURE UNIT'S FILTERS MAY USE BALL VALVE FOR DR-2 AND PLUG FOR DR-1,3.
3. FV-5, F0-4, AND FV-5A ARE STANDARD ON HIGH PRESSURE UNITS AND -80/-100F PDP UNITS.
4. OPTIONAL FILTER PACKAGE A SHOWN INCLUDES: FILTERS AND DIFFERENTIAL PRESSURE INDICATORS AND DRAINS
5. WHEN VIEWING DUAL ACTING ACTUATOR FACING PORTS, PORT A IS THE LEFT PORT AND PORT B IS THE RIGHT PORT

Flow Diagram
Dryer Models: XGHL 800 -1500
STD W/ OPTIONS

EN



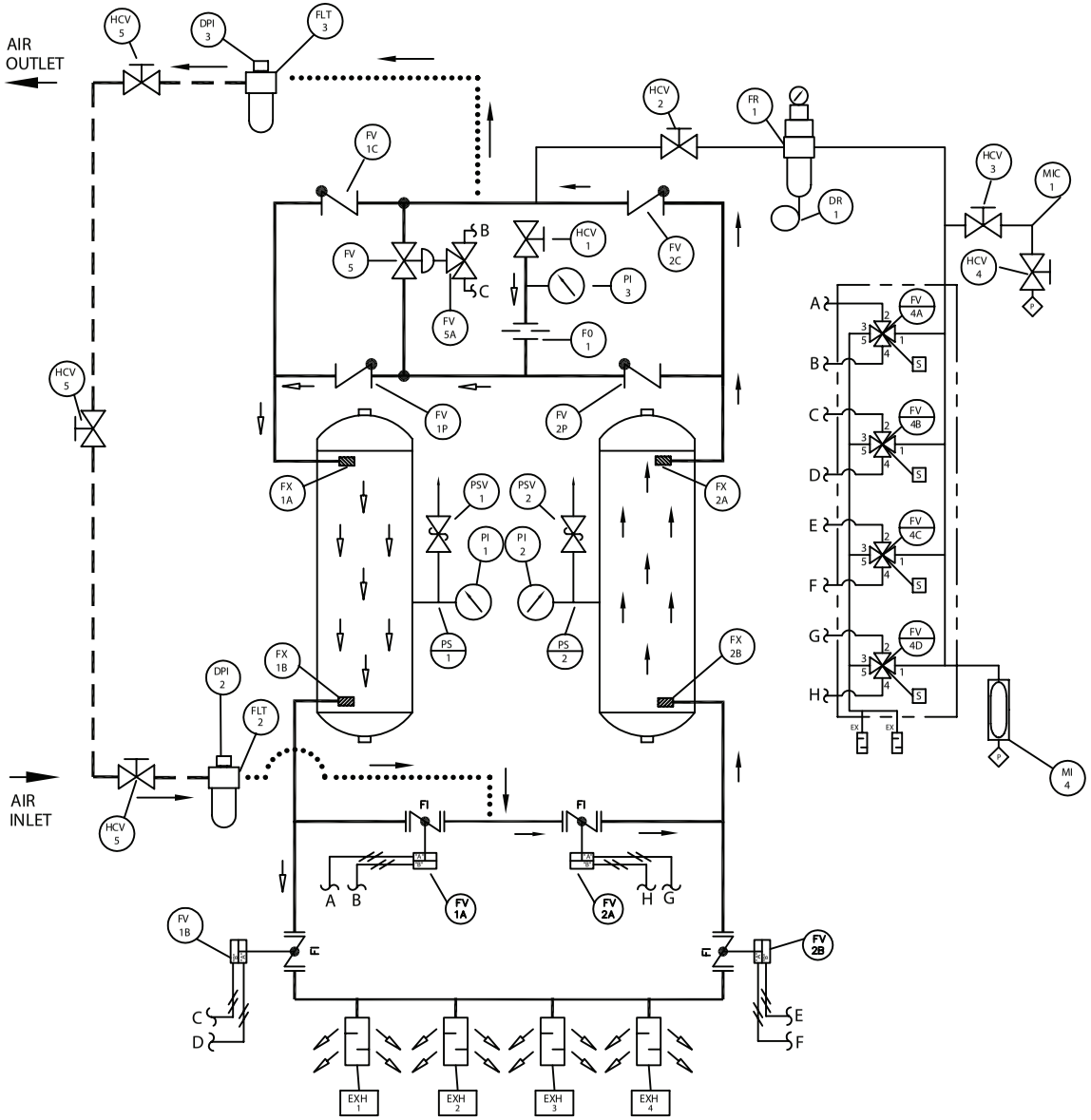
DPI-2	PREFILTER ELEMENT DIFFERENTIAL PRESSURE INDICATOR (NOTE 3)
DPI-3	AFTERFILTER ELEMENT DIFFERENTIAL PRESSURE INDICATOR(NOTE 3)
DR-1	CONTROL AIR FILTER REGULATOR DRAIN
EXH-1	LEFT TOWER PURGE MUFFLER
EXH-2	RIGHT TOWER PURGE MUFFLER
FLT-2	PREFILTER - HIGH EFFICIENCY (NOTE 3)
FLT-3	AFTERFILTER - DUST PARTICULATE (NOTE 3)
FR-1	CONTROL AIR FILTER WITH REGULATOR AND BUILT IN GAUGE
FO-1	PURGE ORIFICE
FO-4	REPRESSURIZATION ORIFICE (NOTE 2)
FV-1A	LEFT TOWER INLET VALVE
FV-2A	RIGHT TOWER INLET VALVE
FV-1B	LEFT TOWER PURGE VALVE
FV-2B	RIGHT TOWER PURGE VALVE
FV-1C	LEFT TOWER OUTLET CHECK VALVE
FV-2C	RIGHT TOWER OUTLET CHECK VALVE
FV-1P	LEFT TOWER PURGE CHECK VALVE
FV-2P	RIGHT TOWER PURGE CHECK VALVE
FV-4A	LEFT TOWER INLET SOLENOID CONTROL VALVE
FV-4B	LEFT TOWER PURGE SOLENOID CONTROL VALVE
FV-4C	RIGHT TOWER PURGE SOLENOID CONTROL VALVE
FV-4D	RIGHT TOWER INLET SOLENOID CONTROL VALVE
FV-5	REPRESSURIZATION VALVE (NOTE 2)
FV-5A	REPRESSURIZATION SHUTTLE VALVE (NOTE 2)
FX-(XX)	FLOW DISTRIBUTION SCREEN (4 PLACES)
HCV-1	PURGE FLOW METERING VALVE
HCV-2	CONTROL AIR SHUTOFF VALVE
HCV-3	DEWPOINT TRANSMITTER SHUTOFF VALVE (OPTIONAL)
HCV-4	DEWPOINT TRANSMITTER BLEED VALVE (OPTIONAL)
HCV-5	DRYER BYPASS VALVE (3 PLACES) (OPTIONAL)
MI-4	BLUE MOISTURE INDICATOR
MIC-1	DEWPOINT TRANSMITTER (EMS) (OPTIONAL)
PI-1	LEFT TOWER PRESSURE GAUGE
PI-2	RIGHT TOWER PRESSURE GAUGE
PI-3	PURGE PRESSURE GAUGE
PS-1	LEFT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PS-2	RIGHT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PSV-1	LEFT TOWER SAFETY RELIEF VALVE
PSV-2	RIGHT TOWER SAFETY RELIEF VALVE



NOTES:
1. SYMBOLS AND TAGS BASED ON ISA STANDARDS S5.1 - S5.5.
2. FV-5, F0-4, AND FV-5A ARE STANDARD ON HIGH PRESSURE UNITS AND -80/-100F PDP UNITS.
3 OPTIONAL LOOSE FILTERS SHOWN INCLUDES: FILTERS AND DIFFERENTIAL PRESSURE INDICATORS.
4. WHEN VIEWING DUAL ACTING ACTUATOR FACING PORTS, PORT A IS THE LEFT PORT AND PORT B IS THE RIGHT PORT

Flow Diagram
Dryer Models: XGHL 1800 - 2700
STD W/ OPTIONS

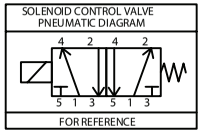
EN



LEGEND

- DRYING AIR FLOW
- REGENERATING AIR FLOW
- DRYER AIR PIPING
- CONTROL AIR PIPING
- OPTIONAL AIR PIPING
- CUSTOMER SUPPLIED PIPING

DPI-2	PREFILTER ELEMENT DIFFERENTIAL PRESSURE INDICATOR(NOTE 2)
DPI-3	AFTERFILTER ELEMENT DIFFERENTIAL PRESSURE INDICATOR(NOTE 2)
DR-1	CONTROL AIR FILTER REGULATOR DRAIN
EXH-(X)	PURGE MUFFLER (4 PLACES)
FLT-2	PREFILTER - HIGH EFFICIENCY(SEE NOTE 2)
FLT-3	AFTERFILTER - DUST PARTICULATE(NOTE 2)
FR-1	CONTROL AIR FILTER WITH REGULATOR AND BUILT IN GAUGE
FO-1	PURGE ORIFICE
FV-1A	LEFT TOWER INLET VALVE
FV-2A	RIGHT TOWER INLET VALVE
FV-1B	LEFT TOWER PURGE VALVE
FV-2B	RIGHT TOWER PURGE VALVE
FV-1C	LEFT TOWER OUTLET CHECK VALVE
FV-2C	RIGHT TOWER OUTLET CHECK VALVE
FV-1P	LEFT TOWER PURGE CHECK VALVE
FV-2P	RIGHT TOWER PURGE CHECK VALVE
FV-4A	LEFT TOWER INLET SOLENOID CONTROL VALVE
FV-4B	LEFT TOWER PURGE SOLENOID CONTROL VALVE
FV-4C	RIGHT TOWER PURGE SOLENOID CONTROL VALVE
FV-4D	RIGHT TOWER INLET SOLENOID CONTROL VALVE
FV-5	REPRESSURIZATION VALVE
FV-5A	REPRESSURIZATION SHUTTLE VALVE
FX-(XX)	FLOW DISTRIBUTION SCREEN (4 PLACES)
HCV-1	PURGE FLOW METERING VALVE
HCV-2	CONTROL AIR SHUTOFF VALVE
HCV-3	DEWPOINT TRANSMITTER SHUTOFF VALVE (OPTIONAL)
HCV-4	DEWPOINT TRANSMITTER BLEED VALVE (OPTIONAL)
HCV-5	DRYER BYPASS VALVE (3 PLACES) (OPTIONAL)
MI-4	BLUE MOISTURE INDICATOR
MIC-1	DEWPOINT TRANSMITTER (EMS) (OPTIONAL)
PI-1	LEFT TOWER PRESSURE GAUGE
PI-2	RIGHT TOWER PRESSURE GAUGE
PI-3	PURGE PRESSURE GAUGE
PS-1	LEFT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PS-2	RIGHT TOWER FTS PRESSURE SWITCH (OPTIONAL)
PSV-1	LEFT TOWER SAFETY RELIEF VALVE
PSV-2	RIGHT TOWER SAFETY RELIEF VALVE



NOTES:

1. SYMBOLS AND TAGS BASED ON ISA STANDARDS S5.1 - S5.5.
2. OPTIONAL LOOSE FILTERS SHOWN INCLUDES: FILTERS AND DIFFERENTIAL PRESSURE INDICATORS.
3. WHEN VIEWING DUAL ACTING ACTUATOR FACING PORTS, PORT A IS THE LEFT PORT AND PORT B IS THE RIGHT PORT

Flow Diagram
Dryer Models: XGHL 3300 - 5000
STD W/ OPTIONS

16.0 REPLACEMENT PARTS

FLOW DIAGRAM REFERENCE	DESCRIPTION	XGHL90 1H00AA	XGHL120 1H00AA	XGHL160 1H00AA	XGHL200 1H00AA	QTY/ UNIT	SPARES		
							1	2	3
MI-4	BLUE MOISTURE INDICATOR (BMI)	38054284	38054284	38054284	38054284	1			
	DESICCANT	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1			
	DISPLAY BOARD, PANEL	38053682	38053682	38053682	38053682	1			
	DRYER CONTROLLER TYPE 4 WITH DESICCANT PROGRAM (Dryer model and serial number must be provided with order to ensure proper configuration).	24331811	24331811	24331811	24331811	1			
FR-1	ELEMENT, CONTROL AIR FILTER REGULATOR	15299662	15299662	15299662	15299662	1	1	1	2
FLT-2	ELEMENT, PREFILTER - HIGH EFFICIENCY	XGHE112E	XGHE135E	XGHE235E	XGHE235E	1	1	1	2
FLT-3	ELEMENT, AFTERFILTER - DUST PARTICULATE	XGGP112E	XGGP135E	XGGP235E	XGGP235E	1	1	1	2
DPI-2, DPI-3	GAUGE, DIFFERENTIAL PRESSURE, FILTER	24335051	24335051	24335051	24335051	2			
PI-1, PI-2, PI-3	GAUGE, PRESSURE, TOWER/PURGE	38053153	38053153	38053153	38053153	3			
DR-2, DR-3	INTERNAL DRAIN, FILTER	24335028	24335028	24335028	24335028	2			
EXH-1, EXH-2	MUFFLER, TOWER PURGE	38446514	38446514	38054524	38054524	2	2	2	2
	POWER SUPPLY	47587161001	47587161001	47587161001	47587161001	1	1	1	1
FX-1A, FX-2A	RETAINER, DESICCANT SCREEN, UPPER MANIFOLD	38446779	38446779	38446779	38054557	2			
FX-1B, FX-2B	RETAINER, DESICCANT SCREEN, LOWER MANIFOLD	38446779	38446779	38054557	38054557	2			
FV-1A, FV-2A	VALVE, TOWER INLET	47590666001	47590666001	47590668001	47590668001	2			
FV-1B, FV-2B	VALVE, TOWER PURGE	47590665001	47590665001	47590667001	47590667001	2			
HCV-1	VALVE, PURGE FLOW METERING	38052148	38052148	38052148	38052148	1			
HCV-2, HCV-3, HCV-4	VALVE, CONTROL AIR, SHUTOFF/BLEED	38054086	38054086	38054086	38054086	3			
FV-1P, FV-2P	VALVE, CHECK, TOWER PURGE	38446464	38446464	38446464	38446464	2			
FV-1C, FV-2C	VALVE, CHECK, TOWER OUTLET	38052999	38052999	38052999	38054441	2			
PSV-1, PSV-2	VALVE, SAFETY/RELIEF, TOWER	38053294	38053294	38053294	38053294	2			
FV-4A, FV-4B, FV-4C, FV-4D	VALVE, SOLENOID, CONTROL AIR	47606405001	47606405001	47606405001	47606405001	4			

NOTE 1: Refer to the Desiccant Fill Chart in this Technical Manual: SECTION 10, MAINTENANCE AND SYSTEM CHECK SPARES: Quantity recommended be kept on-hand for maintenance or repair.

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CLASS 3: Maximum quantity retained - Where interruptions in service are unacceptable.

FLOW DIAGRAM REFERENCE	DESCRIPTION	XGHL250 1H00AA	XGHL300 1H00AA	XGHL400 1H00AA	XGHL500 1H00AA	QTY/ UNIT	SPARES		
							1	2	3
MI-4	BLUE MOISTURE INDICATOR (BMI)	38054284	38054284	38054284	38054284	1			
	DESICCANT	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1			
	DISPLAY BOARD, PANEL	38053682	38053682	38053682	38053682	1			
	DRYER CONTROLLER TYPE 4 WITH DESICCANT PROGRAM (Dryer model and serial number must be provided with order to ensure proper configuration).	24331811	24331811	24331811	24331811	1			
FR-1	ELEMENT, CONTROL AIR FILTER REGULATOR	15299662	15299662	15299662	15299662	1	1	1	2
FLT-2	ELEMENT, PREFILTER - HIGH EFFICIENCY	XGHE288E	XGHE353E	XGHE471E	XGHE589E	1	1	1	2
FLT-3	ELEMENT, AFTERFILTER - DUST PARTICULATE	XGGP288E	XGGP353E	XGGP471E	XGGP589E	1	1	1	2
DPI-2, DPI-3	GAUGE, DIFFERENTIAL PRESSURE, FILTER	24335051	24335051	24335051	24335051	2			
PI-1, PI-2, PI-3	GAUGE, PRESSURE, TOWER/PURGE	38053153	38053153	38053153	38053153	3			
DR-2, DR-3	INTERNAL DRAIN, FILTER	24335028	24335028	24335028	24335028	2			
EXH-1, EXH-2	MUFFLER, TOWER PURGE	38054524	38054524	38054524	38054524	2	2	2	2
	POWER SUPPLY	47587161001	47587161001	47587161001	47587161001	1	1	1	1
FX-1A, FX-2A	RETAINER, DESICCANT SCREEN, UPPER MANIFOLD	38054557	38054557	38053237	38054573	2			
FX-1B, FX-2B	RETAINER, DESICCANT SCREEN, LOWER MANIFOLD	38054557	38053237	38053237	38054573	2			
FV-1A, FV-2A	VALVE, TOWER INLET	47590668001	47590670001	47590670001	47590670001	2			
FV-1B, FV-2B	VALVE, TOWER PURGE	47590667001	47590667001	47590667001	47590667001	2			
HCV-1	VALVE, PURGE FLOW METERING	38054516	38054516	38054516	38054516	1			
HCV-2, HCV-3, HCV-4	VALVE, CONTROL AIR, SHUTOFF/BLEED	38054086	38054086	38054086	38054086	3			
FV-1P, FV-2P	VALVE, CHECK, TOWER PURGE	38446472	38446472	38446472	38446472	2			
FV-1C, FV-2C	VALVE, CHECK, TOWER OUTLET	38054441	38054441	38054458	38054458	2			
PSV-1, PSV-2	VALVE, SAFETY/RELIEF, TOWER	38053294	38053294	23642432	23642432	2			
FV-4A, FV-4B, FV-4C, FV-4D	VALVE, SOLENOID, CONTROL AIR	47606405001	47606405001	47606405001	47606405001	4			

NOTE 1: Refer to the Desiccant Fill Chart in this Technical Manual: SECTION 10, MAINTENANCE AND SYSTEM CHECK SPARES: Quantity recommended be kept on-hand for maintenance or repair.

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FLOW DIAGRAM REFERENCE	DESCRIPTION	XGHL600 1H00AA	XGHL800 1H00AA	XGHL1000 1H00AA	XGHL1200 1H00AA	QTY/ UNIT	SPARES		
							1	2	3
MI-4	BLUE MOISTURE INDICATOR (BMI)	38054284	38054284	38054284	38054284	1			
	DESICCANT	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1			
	DISPLAY BOARD, PANEL	38053682	38053682	38053682	38053682	1			
	DRYER CONTROLLER TYPE 4 WITH DESICCANT PROGRAM (Dryer model and serial number must be provided with order to ensure proper configuration).	24331811	24331811	24331811	24331811	1			
FR-1	ELEMENT, CONTROL AIR FILTER REGULATOR	15299662	15299662	15299662	15299662	1	1	1	2
FLT-2	ELEMENT, PREFILTER - HIGH EFFICIENCY	XGHE589E	XGHE918E	XGHE1077E	XGHE1354E	1	1	1	2
FLT-3	ELEMENT, AFTERFILTER - DUST PARTICULATE	XGGP589E	XGGP918E	XGGP1077E	XGGP1354E	1	1	1	2
DPI-2, DPI-3	GAUGE, DIFFERENTIAL PRESSURE, FILTER	24335051	24335051	24335051	24335051	2			
PI-1, PI-2, PI-3	GAUGE, PRESSURE, TOWER/PURGE	38053153	38052973	38052973	38052973	3			
DR-2, DR-3	INTERNAL DRAIN, FILTER	24335028	24335028	24335028	24335028	2			
EXH-1, EXH-2	MUFFLER, TOWER PURGE	38054524	38054540	38054540	38054540	2	2	2	2
	POWER SUPPLY	47587161001	47587161001	47587161001	47587161001	1	1	1	1
FX-1A, FX-2A	RETAINER, DESICCANT SCREEN, UPPER MANIFOLD	38054573	38054565	38054565	38054565	2			
FX-1B, FX-2B	RETAINER, DESICCANT SCREEN, LOWER MANIFOLD	38054573	38054565	38054565	38054565	2			
FV-1A, FV-2A	VALVE, TOWER INLET	47590670001	47633579001	47633579001	47633579001	2			
FV-1B, FV-2B	VALVE, TOWER PURGE	47590667001	47590669001	47590669001	47590669001	2			
HCV-1	VALVE, PURGE FLOW METERING	38054516	38054052	38054052	38054052	1			
HCV-2, HCV-3, HCV-4	VALVE, CONTROL AIR, SHUTOFF/BLEED	38054086	38054086	38054086	38054086	3			
FV-1P, FV-2P	VALVE, CHECK, TOWER PURGE	38446472	23354582	23354582	23354582	2			
FV-1C, FV-2C	VALVE, CHECK, TOWER OUTLET	38054458	38053484	38053484	38053484	2			
PSV-1, PSV-2	VALVE, SAFETY/RELIEF, TOWER	23642432	38054060	38054060	38054060	2			
FV-4A, FV-4B, FV-4C, FV-4D	VALVE, SOLENOID, CONTROL AIR	47606405001	47606405001	47606405001	47606405001	4			

NOTE 1: Refer to the Desiccant Fill Chart in this Technical Manual: SECTION 10, MAINTENANCE AND SYSTEM CHECK SPARES: Quantity recommended be kept on-hand for maintenance or repair.

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FLOW DIAGRAM REFERENCE	DESCRIPTION	XGHL1500 1H00AA	XGHL1800 1H00AL	XGHL2100 1H00AL	XGHL2700 1H00AL	QTY/ UNIT	SPARES		
							1	2	3
MI-4	BLUE MOISTURE INDICATOR (BMI)	38054284	38054284	38054284	38054284	1			
	DESICCANT	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1			
	DISPLAY BOARD, PANEL	38053682	38053682	38053682	38053682	1			
	DRYER CONTROLLER TYPE 4 WITH DESICCANT PROGRAM (Dryer model and serial number must be provided with order to ensure proper configuration).	24331811	24331811	24331811	24331811	1			
FR-1	ELEMENT, CONTROL AIR FILTER REGULATOR	15299662	15299662	15299662	15299662	1	1	1	2
FLT-2	ELEMENT, PREFILTER - HIGH EFFICIENCY	XGHE1589E	XGHE600E (3)	XGHE600E (4)	XGHE600E (5)	(Multiple)	1 Set	1 Set	2 Sets
FLT-3	ELEMENT, AFTERFILTER - DUST PARTICULATE	XGGP1589E	XGGP600E (3)	XGGP600E (4)	XGGP600E (5)	(Multiple)	1 Set	1 Set	2 Sets
DPI-2, DPI-3	GAUGE, DIFFERENTIAL PRESSURE, FILTER	24335051	38458402	38458402	38458402	2			
PI-1, PI-2, PI-3	GAUGE, PRESSURE, TOWER/PURGE	38052973	38052973	38052973	38052973	3			
DR-2, DR-3	INTERNAL DRAIN, FILTER	24335028	-	-	-	2			
EXH-1, EXH-2	MUFFLER, TOWER PURGE	38054045	38054045	38054045	38054045	2	2	2	2
	POWER SUPPLY	47587161001	47587161001	47587161001	47587161001	1	1	1	1
FX-1A, FX-2A	RETAINER, DESICCANT SCREEN, UPPER MANIFOLD	38054292	38054326	38054326	38054326	2			
FX-1B, FX-2B	RETAINER, DESICCANT SCREEN, LOWER MANIFOLD	38054292	38054326	38054326	38054326	2			
FV-1A, FV-2A	VALVE, TOWER INLET	47633580001	47633580001	47633580001	47633580001	2			
FV-1B, FV-2B	VALVE, TOWER PURGE	47590672001	47590672001	47590672001	47590672001	2			
HCV-1	VALVE, PURGE FLOW METERING	38054052	38054052	38054052	38054532	1			
HCV-2, HCV-3, HCV-4	VALVE, CONTROL AIR, SHUTOFF/BLEED	38054086	38054086	38054086	38054086	3			
FV-1P, FV-2P	VALVE, CHECK, TOWER PURGE	23354582	23354582	23354582	23321292	2			
FV-1C, FV-2C	VALVE, CHECK, TOWER OUTLET	38053484	38053484	38053484	38053567	2			
PSV-1, PSV-2	VALVE, SAFETY/RELIEF, TOWER	38054060	38054375	38054375	38054375	2			
FV-4A, FV-4B, FV-4C, FV-4D	VALVE, SOLENOID, CONTROL AIR	47606405001	47606405001	47606405001	47606405001	4			

NOTE 1: Refer to the Desiccant Fill Chart in this Technical Manual: SECTION 10, MAINTENANCE AND SYSTEM CHECK SPARES: Quantity recommended be kept on-hand for maintenance or repair.

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FLOW DIAGRAM REFERENCE	DESCRIPTION	XGHL3300 1H00AL	XGHL4000 1H00AL	XGHL5000 1H00AL	QTY/ UNIT	SPARES		
						1	2	3
MI-4	BLUE MOISTURE INDICATOR (BMI)	38054284	38054284	38054284	1			
	DESICCANT	NOTE 1	NOTE 1	NOTE 1	NOTE 1			
	DISPLAY BOARD, PANEL	38053682	38053682	38053682	1			
	DRYER CONTROLLER TYPE 4 WITH DESICCANT PROGRAM (Dryer model and serial number must be provided with order to ensure proper configuration).	24331811	24331811	24331811	1			
FR-1	ELEMENT, CONTROL AIR FILTER REGULATOR	15299662	15299662	15299662	1	1	1	2
FLT-2	ELEMENT, PREFILTER - HIGH EFFICIENCY	XGHE600E (6)	XGHE600E (7)	XGHE600E (10)	(Multiple)	1 Set	1 Set	2 Sets
FLT-3	ELEMENT, AFTERFILTER - DUST PARTICULATE	XGGP600E (6)	XGGP600E (7)	XGGP600E (10)	(Multiple)	1 Set	1 Set	2 Sets
DPI-2, DPI-3	GAUGE, DIFFERENTIAL PRESSURE, FILTER	38458402	38458402	38458402	2			
PI-1, PI-2, PI-3	GAUGE, PRESSURE, TOWER/PURGE	38052973	38052973	38052973	3			
DR-2, DR-3	INTERNAL DRAIN, FILTER	-	-	-	2			
EXH-1, EXH-2	MUFFLER, TOWER PURGE	38054045	38054045	38054045	4	4	4	4
	POWER SUPPLY	47587161001	47587161001	47587161001	1	1	1	1
FX-1A, FX-2A	RETAINER, DESICCANT SCREEN, UPPER MANIFOLD	38054300	38054300	38054334	2			
FX-1B, FX-2B	RETAINER, DESICCANT SCREEN, LOWER MANIFOLD	38054300	38054300	38054334	2			
FV-1A, FV-2A	VALVE, TOWER INLET	47633581001	47633581001	47633581001	2			
FV-1B, FV-2B	VALVE, TOWER PURGE	47633579001	47633579001	47633579001	2			
HCV-1	VALVE, PURGE FLOW METERING	38054532	38054532	38054532	1			
HCV-2, HCV-3, HCV-4	VALVE, CONTROL AIR, SHUTOFF/BLEED	38054086	38054086	38054086	3			
FV-1P, FV-2P	VALVE, CHECK, TOWER PURGE	23321292	23321292	23557945	2			
FV-1C, FV-2C	VALVE, CHECK, TOWER OUTLET	38053567	38053567	38053575	2			
PSV-1, PSV-2	VALVE, SAFETY/RELIEF, TOWER	38054375	38054375	38054375	2			
FV-4A, FV-4B, FV-4C, FV-4D	VALVE, SOLENOID, CONTROL AIR	47606405001	47606405001	47606405001	4			

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ANGLE VALVE REBUILD PARTS

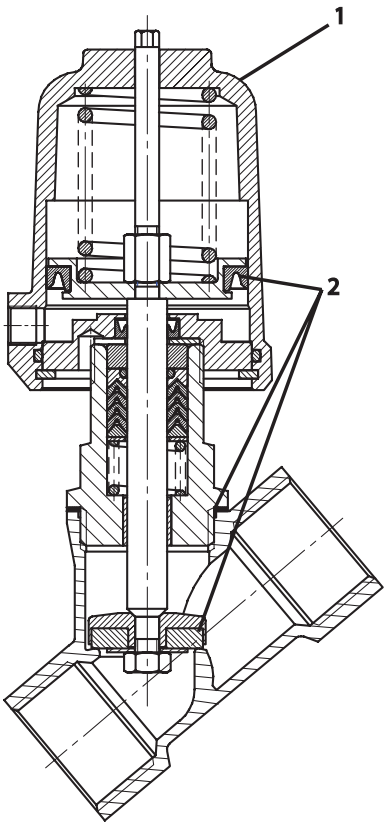
VALVE PART NUMBER	VALVE DESCRIPTION	REPLACEMENT ACTUATOR PART NUMBER (CALLOUT 1)	SEAL REBUILD KIT* PART NUMBER (CALLOUT 2)	MOUNTING TOOLS PART NUMBER
47590665001	VALVE, ANGLE, 3/4" P.O.N.C.	47607077001	47607078001	47607080001
47590664001	VALVE, ANGLE, 3/4" P.O.N.O.	47607077002	47607078002	
47590667001	VALVE, ANGLE, 1" P.O.N.C.	47607077003	47607078003	47607080001
47590666001	VALVE, ANGLE, 1" P.O.N.O.	47607077004	47607078004	
47590669001	VALVE, ANGLE, 1-1/2" P.O.N.C.	47607077005	47607078005	47607080002
47590668001	VALVE, ANGLE, 1-1/2" P.O.N.O.	47607077006	47607078006	
47590672001	VALVE, ANGLE, 2" P.O.N.C.	47607077007	47607078007	47607080002
47590670001	VALVE, ANGLE, 2" P.O.N.O.	47607077008	47607078008	
47590671001	VALVE, ANGLE, 2" P.O.N.O.	47607077009	47607078009	

*Seal Rebuild Kit includes: Seat Seal, Head Section Seal, Exterior Lip Seal

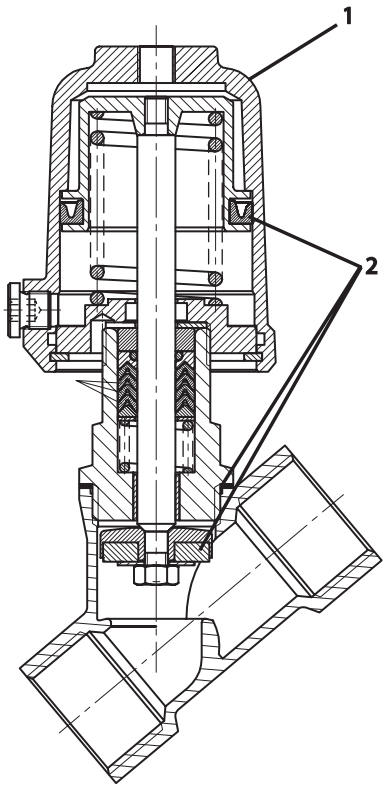
Mounting tool is required for normally-closed valves (P.O.N.C.) only. Tool is required to decompress springs and is required for safe dismantling of the valve.

Tool is needed to install Replacement Actuator, as well as to install Seal Rebuild kit.

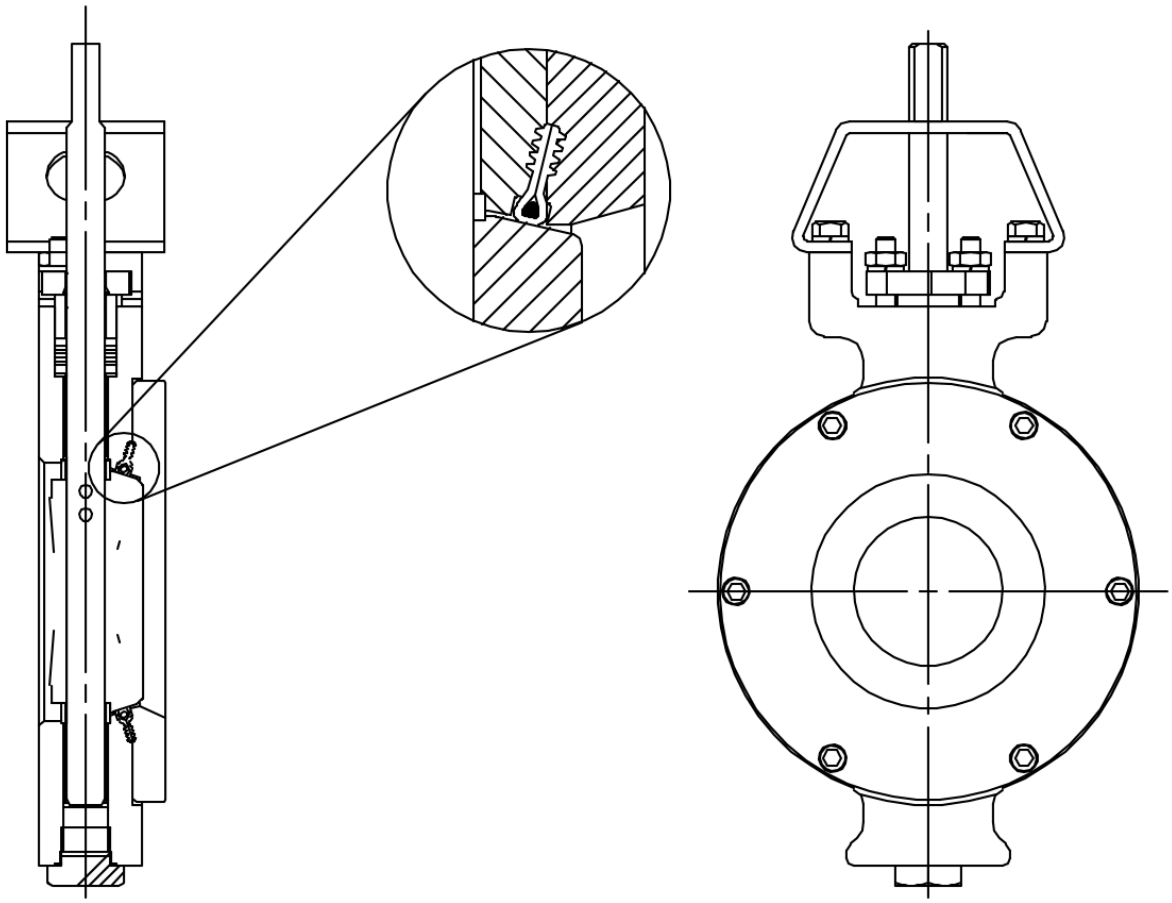
Normally Closed Valve



Normally Open



HIGH PERFORMANCE BUTTERFLY VALVE DETAIL VIEWS



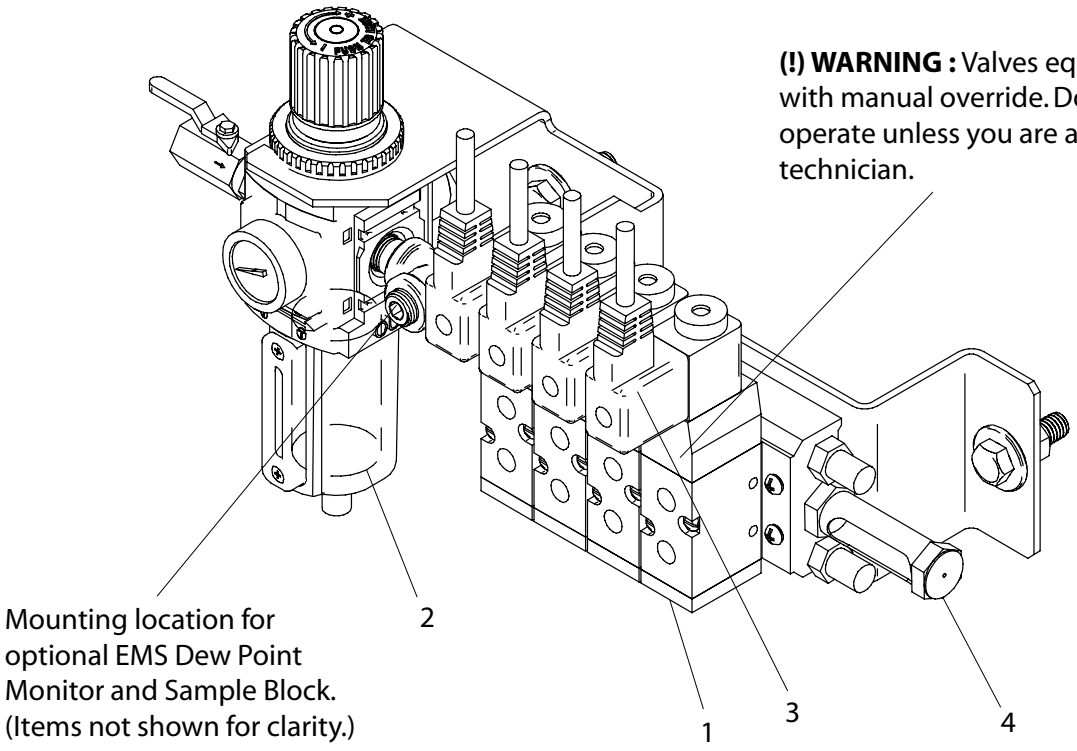
NOTE: Actuator not shown for clarity.

VALVE PART NUMBER	VALVE DESCRIPTION	REPLACEMENT VALVE W/ GASKETS PART NUMBER	SEAL REBUILD KIT PART NUMBER*
47595375001	VALVE BUTTERFLY 3" W/ ACTUATOR	47633579001	47633604001
47595376001	VALVE BUTTERFLY 4" W/ ACTUATOR	47633580001	47633605001
47595377001	VALVE BUTTERFLY 6" W/ ACTUATOR	47633581001	47633606001

* Seal Rebuild Kit includes new valve seat and stem seals.

Optional Field Installed Controller Communication Protocols Kits

Kit Number	Description
47777572001	KIT RETR MODBUS TCP/IP N4 DEV2022-01000
47776307001	KIT RETR MODBUS RS232 to RS485 N4



ITEM NO.	PART NO.	DESCRIPTION
1	47606405001	Solenoid Valve with Gasket and Mounting Hardware (Individual valve)
2	104422	Filter Regulator Element
3	81322547	DIN Connector, Solenoid Valve, right angle, with Gasket and Cord
4	705001-SP	Blue Moisture Indicator

EMS REPLACEMENT PARTS

VALVE PART	VALVE DESCRIPTION
CABLE, TRANSMITTER	633671
RESISTOR, 250 OHM (R3 on wiring diagram)	23134851
TRANSMITTER, DEWPOINT (MIC-1 on flow digram)	23167778

4-20 mA Dew Point Signal Current Loop Repeater Spare Part Table	
Description	**Replacement Part**
REPEATER, CURRENT LOOP 4-20mA	23174022

3V Bypass & Filter Package Valve Replacement Part Table	
Description	**Part Number**
VALVE, BALL 1"	38054037
VALVE, BALL 1-1/2"	38054052
VALVE, BALL 2"	38054532
VALVE, BUTTERFLY 3", WAFER STYLE	23456031
VALVE, BUTTERFLY 4", WAFER STYLE	23456049
VALVE, BUTTERFLY 6", WAFER STYLE	23456056

17.0 ENGINEERING SPECIFICATIONS

MODEL	Inlet Flow -40 Dew point SCFM	Inlet Flow -100 Dew point SCFM	Purge Flow (m3/h)	Width in. (cm)	Depth in. w/o Bypass (cm)	Depth in. w/ Bypass (cm)	Height in (cm)	Air In & Out Conne-ction	Shipping Weight lbs (kg)	Desiccant Weight per Dryer (kg)
XGHL90	90	72	14	40.5 (102.9)	30 (76.2)	37.5 (95.3)	63.12 (160.3)	1	475 (213)	100 (45)
XGHL120	120	96	19	40.5 (102.9)	30 (76.2)	37.5 (95.3)	63.12 (160.3)	1	563 (255)	134 (61)
XGHL160	160	128	26	44.5 (113)	32 (81.3)	43.75 (111.1)	66.12 (167.9)	1 1/2	707 (321)	192 (87)
XGHL200	200	160	30	44.5 (113)	32 (81.3)	43.75 (111.1)	66.12 (167.9)	1 1/2	731 (332)	236 (107)
XGHL250	250	200	40	48.5 (123.2)	32 (81.3)	44.19 (112.2)	66.81 (169.7)	1 1/2	869 (394)	290 (132)
XGHL300	300	240	48	48.5 (123.2)	32 (81.3)	50.38 (128.0)	66.81 (169.7)	2	924 (419)	344 (156)
XGHL400	400	320	65	52.5 (133.4)	36.19 (91.9)	50.94 (129.4)	67.81 (172.2)	2	1115 (506)	470 (213)
XGHL500	500	400	81	56.5 (143.5)	39.69 (100.8)	54.5 (138.4)	82.5 (209.6)	2	1564 (709)	638 (289)
XGHL600	600	480	93	56.5 (143.5)	42.4 (107.8)	57.25 (145.4)	82.5 (209.6)	2	1664 (755)	748 (339)
XGHL800	800	640	130	64 (162.6)	51.25 (130.2)	64.38 (163.5)	87.62 (222.6)	3	2017 (915)	900 (408)
XGHL1000	1000	800	162	64 (162.6)	51.25 (130.2)	64.38 (163.5)	87.62 (222.6)	3	2237 (1015)	1100 (499)
XGHL1200	1200	960	195	64 (162.6)	51.25 (130.2)	64.38 (163.5)	87.62 (222.6)	3	2424 (1100)	1270 (576)
XGHL1500	1500	1200	243	78 (198.1)	54.76 (139.1)	N/A	80 (203.2)	4	2974 (1349)	1600 (726)
XGHL1800	1800	1440	292	84 (213.4)	60.62 (154.0)	N/A	91.88 (233.4)	4	3905 (1771)	2000 (907)
XGHL2100	2100	1680	340	84 (213.4)	60.62 (154.0)	N/A	91.88 (233.4)	4	4279 (1941)	2340 (1062)
XGHL2700	2700	2160	438	84 (213.4)	60.76 (154.3)	N/A	91.88 (233.4)	4	4926 (2234)	2928 (1328)
XGHL3300	3300	2640	535	96 (244)	66 (167.6)	N/A	100 (254)	6	2950 (1338)	4000 (1814) *
XGHL4000	4000	3200	649	96 (244)	66 (167.6)	N/A	100 (254)	6	3000 (1361)	4400 (1996) *
XGHL5000	5000	4000	811	102 (259)	72 (183)	N/A	92 (233.7)	6	3950 (1792)	5600 (2540) *

* Dryer weight shown does not include desiccant. Desiccant shipped separately.

Note: All above dryers rated at 150 psig, 120 °F max inlet temperature.
Capacity and purge flow is basis standard inlet conditions (100 psig / 100 °F) and will vary at different inlet conditions.

NOTICE
Specification information above accurate at time of publication. Refer to equipment serial label for actual specifications for units.