

Steam Tunnel

KST80-712

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NOTE

The tunnel is warranted as per PDC "terms and conditions" to work with the materials and products with which it was tested.



1. SAFETY PRECAUTIONS

1.1 WARNING

Failure to install, service and operate this tunnel in accordance with proper engineering and safety techniques may result in serious bodily injury.

1.2 CAUTION

Before any work is to be done on the tunnel turn the supply valve to the off position and allow the tunnel sufficient time to cool down.



2. INSTALLATION & SETUP

This procedure should only be performed by qualified technicians. Incoming steam lines should be isolated from the steam generator and all lock out tag out procedures should be followed.

Connect the drain lines from the steam filter canister and condensation trap to a suitable drain or condensate return line. Be sure the adjustment knob on the Armstrong pressure reducing valve is turned to the maximum counter clockwise position (zero pressure). Connect the steam hose from the output of the steam regulator to the inlet on top of the tunnel (If shipped separately). Connect a steam input line from the steam generator to the ball valve located at the steam supply inlet on the steam tunnel. Connect air line for electronic regulator.





The pneumatic precision regulator adjusts the flow for steam going inside the tunnel. The air pressure setting at the pneumatic transducer should be target at 20 PSI initially – range 18-22.

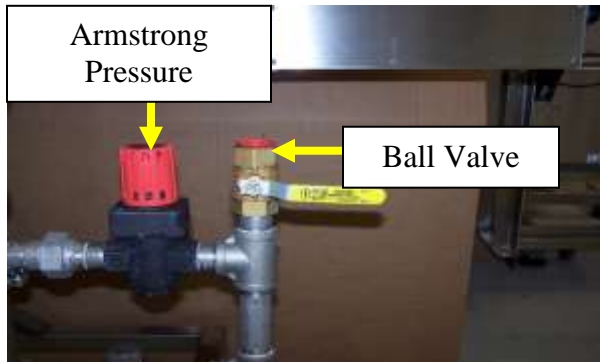
The thermodynamic steam trap opens to release condensate. If it exhausts continually, turn off the steam supply, unscrew the cap and remove any debris on the seat that may have caused it to stay open.

(For installation, operation and maintenance instructions refer to the manual in the technical information section)



2.1 Regulator Setup

Slowly open the ball valve at the steam inlet to allow steam to flow into the steam tunnel manifold. Turn the knob on the Armstrong pressure reducing valve clockwise until a reading of 75 psi is achieved on the filter inlet gauge.

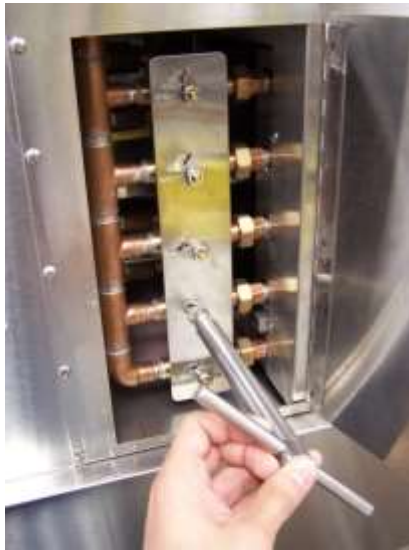


When the pressure differential is greater than 5PSI, the filter needs to be replaced.

3. ADJUSTING THE TUNNEL

3.1 Steam Valve Opening

Open safety guard door. Using the T handle wrench, adjust the flow control valves to the indicated settings on the product set up sheet.



T Wrench – PDC Part # PDC-231-00

There are five steam control valves on each side of the steam tunnel for a total of ten steam control valves on the entire tunnel.



Each of the steam control valves has a flow control scale as indicated by the valve indicators. An operator can select a setting of “closed”, “1/4 open”, “1/2 open”, “open” or fully open.

3.2 Spray Pipe Direction

The spray pipes can be rotated to direct the steam where it is required for the shrink process. Loosen the pipe union and then use the supplied wrench to rotate the spray pipe to position. Record the position number aligned to the pointer indicator.

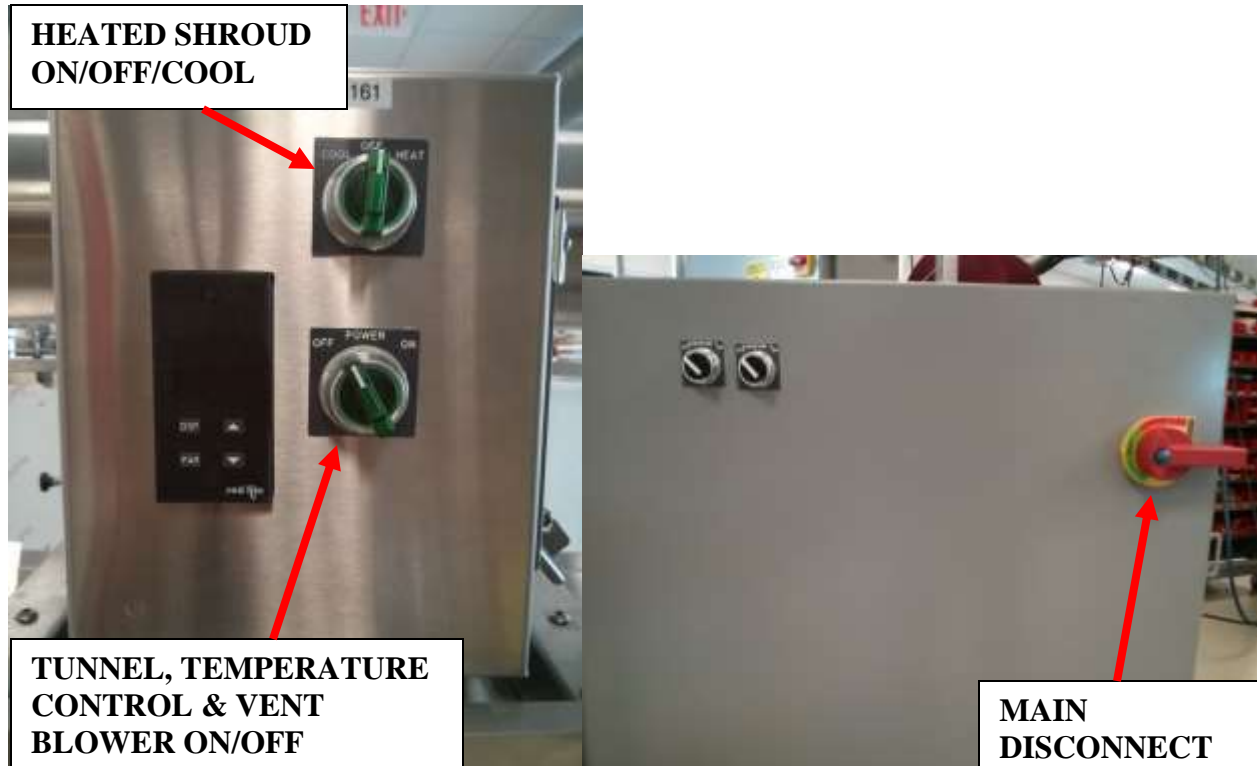


Loosening The Union



Wrench – PDC Part # PDC-231A00

4. CONTROLS



4.1 Power

Turn on the main disconnect on the electrical enclosure. Turn the switch to turn the tunnel ON/OFF. This will turn the exhaust blower ON/OFF.

4.2 Tunnel Temperature Controller

Turn the tunnel electronic temperature control power switch on. The tunnel temperature will rise to the temperature setting on the controller. To change the temperature push either of the buttons marked with the up or down arrows to raise or lower the temperature.

Read the supplied temperature controller manual in the supplementary manual section before making any other changes to the temperature controller settings.

4.3 Heated Shroud

Turn the switch for the heated shroud to the “heat” position. The heat guns will supply hot air to the shroud. When the heated shroud is to be turned off, turn the switch to the “COOL” position to allow for air to cool the heater elements before turning off. Allow to cool for 15 minutes before turning to the “OFF” position.

4.4 Speed Control

Adjust the switch to the desire speed for the conveyor and blower fan.



4.5 TCU Temperature Controller Parameters Default Parameters

UNIT NUMBER		
MNEMONIC	PARAMETER	USER SETTING
SP	Temperature Setpoint	175-185
OPOF	Output Power Offset	0
OP	Output Power	100
ProP	Proportional Band	12
Intt	Integral Time	10
dErt	Derivative Time	0
P-2	Proportional Band#2 (secondary)	-
It-2	Integral Time #2 (secondary)	-
dt-2	Derivative Time #2 (secondary)	-
rtio	Remote Setpoint Ratio	-
bIAs	Remote Setpoint Bias	-
AL-1	Alarm 1	10
AL-2	Alarm 2	10
CONFIGURE INPUT		
MNEMONIC	PARAMETER	USER SETTING
tYPE	Input Sensor Type	T
SCAL	Temperature Scale Units	°F
dCPt	Temperature Resolution	0
FLtr	Digital Filtering	1
SPAN	Input Slope	1000
SHFt	Input Offset	0
SPLO	Setpoint Lower Limit	0
SPHI	Setpoint Upper Limit	250
SPrP	Ramp Rate	60
InPt	User Input	PLOC
HCur	Heater Current Scaling	50
CONFIGURE OUTPUT		
MNEMONIC	PARAMETER	USER SETTING
CYct	Cycle Time	2
OPAC	Control Action	REV
OPLO	Output Power Lower Limit Range	0
OPHI	Output Power Upper Limit Range	100
OPFL	Sensor Fail Power Preset	0
OPdP	Output Power Dampening	3
CHYS	ON/OFF Control Hysteresis	1
Tcod	Auto-Tune Dampening Code	2
ANAS	Linear Output Assignment	OP
ANLO	Linear Output Scale Value	0
ANHI	Linear Output Scale Value	100
ANdb	Linear Output Deadband	0



THE POWER BEHIND THE PACKAGE

ANut	Linear Output Update Time	0
CONFIGURE LOCKOUTS		
MNEMONIC	PARAMETER	USER SETTING
SP	Setpoint Access	ENT
OP	Output Power	ENT
dEv	Access Deviation Display	RED
HCur	Access Heater Current Display	RED
IN-2	Access Second Analog Input	RED
UdSP	Access Display Units	RED
Code	Access Code Number	0
PID	Access Primary PID Values	ENT
PID2	Access Secondary PID Values	LOC
Rtbs	Access Ratio and Bias Values	LOC
AL	Access Alarm(s) Values	ENT
ALrS	Enable Reset Alarm (s)	ENBI
SPSL	Enable Local/Remote Setpoint Selection	LOL
trnF	Enable Auto/Man Transfer	ENBL
tUNE	Enable Auto-Tune	ENBL
CONFIGURE ALARMS		
MNEMONIC	PARAMETER	USER SETTING
Act1	Alarm 1 Operation Mode	B-IN
rSt1	Alarm 1 Reset Mode	AUTO
Stb1	Alarm 1 Standby Enabled	NO
AL-1	Alarm 1 Value	10
Act2	Alarm 2 Operation Mode	B-IN
rSt2	Alarm 2 Reset Mode	AUTO
Stb2	Alarm 2 Standby Enabled	NO
AL-2	Alarm 2 Value	10
AHYS	Alarm Hysteresis Value	1
CONFIGURE COOLING		
MNEMONIC	PARAMETER	USER SETTING
CYC2	OP2 Output Cycle Time	2
GAN2	Relative Cooling Fan	1
db-2	Heat-Cool Overlap/Deadband	0
CONFIGURE SERIAL COMMUNICATIONS		
MNEMONIC	PARAMETER	USER SETTING
bAUd	Baud Rate	1200
PARb	Parity Bit	ODD
Addr	Unit Address	0
Abrv	Abbrev. Or Full Transmission	NO
PrAt	Automatic Print Rate	0
PoPt	Print Options	NO
	INP	YES

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THE POWER BEHIND THE PACKAGE

	SEt	YES
	OPr	YES
	Pdb	NO
	INt	NO
	dEr	NO
	AL1	NO
	AL2	NO
	dEv	NO
	OFp	NO
	r_P	No
	Crg	NO
	Cdb	NO
	OSt	NO
	rAt	NO
	bIA	NO
	RSP	NO
	IN2	NO
	Pb2	NO
	It2	NO
	Dt2	NO
	SP2	NO
	HCr	NO

4.6 Conveyor

The conveyor controls are on the main enclosure box. Turn the switches to the ON/OFF position to control conveyors.

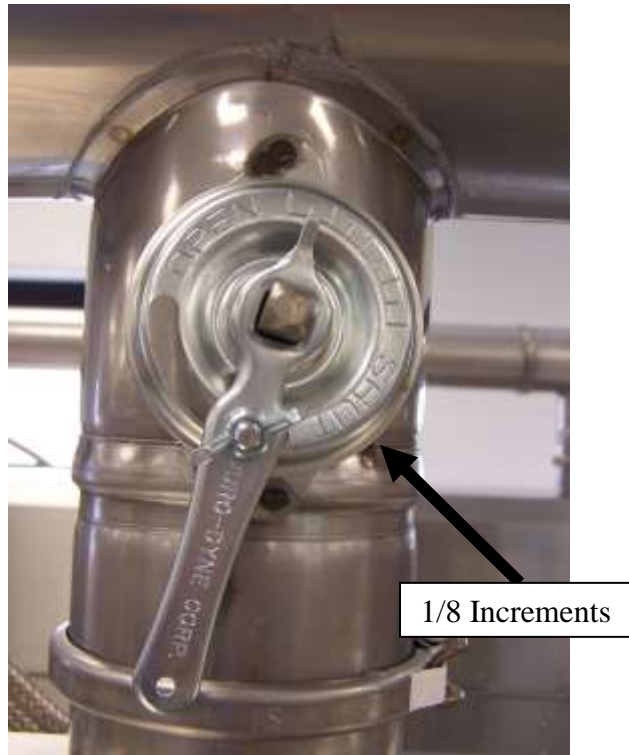
4.7 Shutdown

To shut down the steam system, close the steam supply valve to the regulator. The condensate trap will discharge any water that is still in the trap. Turn off the conveyors. Turn off the power to the temperature controller and shut off the air supply to the transducer filter/regulator. Turn off the boiler generator. Turn off main disconnect.

5. STEAM VENTING PACKAGE

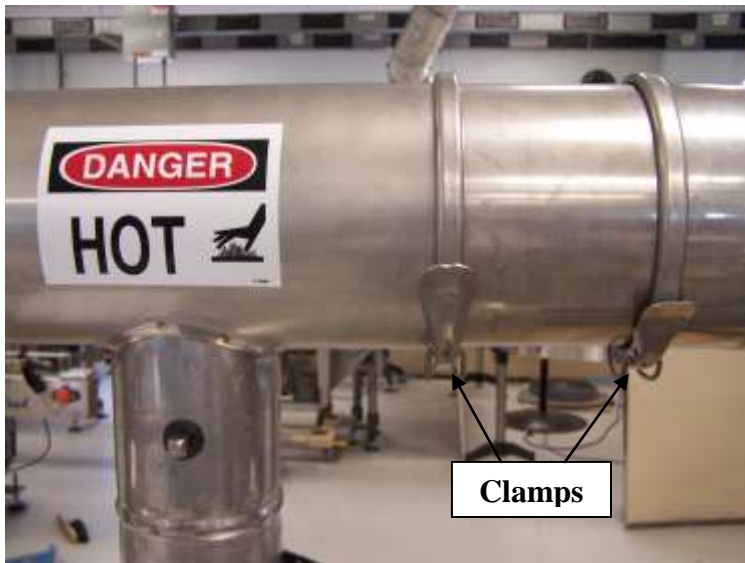
5.1 Adjusting the Vent Valve

Refer to the setup form and adjust each vent according to the amount of opening. each line is 1/8 increment of the opening.



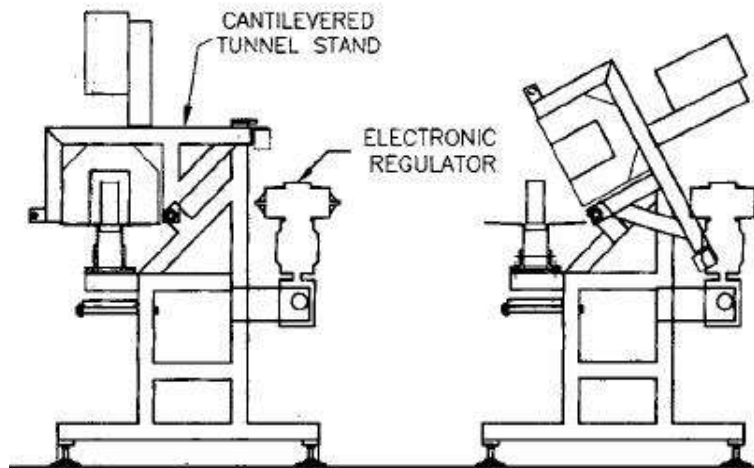
5.2 Cantilevered Tunnel Stand

After the clamps are loosened, pick up the handle in front of the tunnel and gently push the tunnel to the open position. Once in the open position, fallen bottles/containers and maintenance can be performed. When the operations are completed, gently place the tunnel back on the closed position and closed clamps. Before closing the clamps, make sure the “o” ring is in place.



STEAM TUNNEL
CLOSED POSITION

STEAM TUNNEL
OPEN POSITION



6. HEATED SHROUD



CAUTION: Use caution when operating heat gun. Do not touch outside surface.

Current settings for heat gun:

Heat gun: 3
@ 1.75 PSI

7. GENERAL TROUBLESHOOTING

If there is a lack of steam, check the following:

is the temperature controller on?

Is the air supply on and at pressure?

Is the steam supply valve open and at pressure?

Is the cantilever frame in the closed position with the position switch closed?

Check for defective thermocouple.

8. TECHNICAL INFORMATION

Refer to the technical information section for manufactures literature for further information.