STERLCO TEMPERATURE CONTROL UNIT

SERVICE AND INSTRUCTION MANUAL

MODEL 6210-ABX

STERLING, INC.
5200 West Clinton Avenue
Milwaukee, Wisconsin 53223

Please note that our address and phone information has changed. Please reference this page for updated contact information.

⚠CAUTION These manuals are obsolete and are provided only for their technical information, data and capacities. Portions of these manuals detailing procedures or precautions in the operation, inspection, maintenance and repair of the products may be inadequate, inaccurate, and/or incomplete and shouldn't be relied upon. Please contact the ACS Group for more current information about these manuals and their warnings and precautions.

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BULLETIN 600

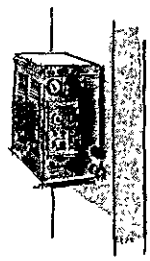
Sterlco®

model 6210

single zone temperature control unit

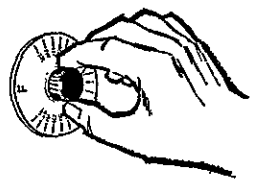
compact

Easily mounted on post, wall or press . . . out of the way of aisle traffic.



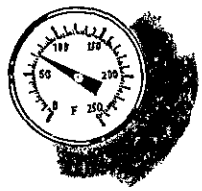
single setting control

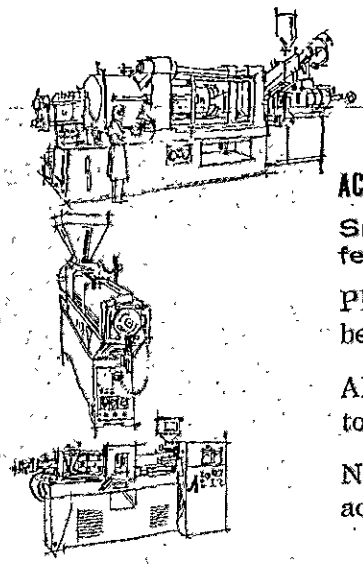
A true single setting . . . only ONE dial to set!



full 50° - 250°F temperature range

Sufficient to run most thermoplastics from styrene to acetate to polycarbonates.





ACCURATE, EFFICIENT WATER CIRCULATING UNIT MAINTAINS PROPER MOLD TEMPERATURE

Small in size . . . yet the Model 6210 embodies all of the control features for which Sterlco units are famous;

PILOT LIGHTS — indicate heating or cooling. Model 6210 may be used for heating only, cooling only . . . or for each as required.

ALL PARTS PROTECTED — neat, compact cabinet prevents damage to parts . . . keeps dirt, grease and grime out.

NEW WATER PROPORTIONING SYSTEM — unique system provides accurate control of mold temperature, even under adverse conditions.

DESCRIPTION

The Model 6210-ABX single zone temperature control unit is designed to continuously circulate water to a mold, roll, platen or other device while automatically maintaining the temperature which the operator has selected. It is designed for use through a temperature range from tap water temperature up to 250 F. maximum.

The unit incorporates a very small water capacity, and this small amount of water is rapidly re-circulated. The unit also has a large heater and plenty of capacity to cool. The net result is a device which can bring the mold or process up to temperature quickly and can also react quickly and accurately to temperature changes in the work area. In addition, the rapid re-circulation tends to uniformly control the process, since there is very little difference between the fluid temperature in and out of the mold.

THE PUMP is a 1/2 HP straight centrifugal type, bronze, fitted pump which gives high gallonage with good discharge pressure, and is suitable for most operating conditions which we expect to encounter. The unit has a nominal usable rating of 15 GPM at 20 psi.

THE HEATER is a low watt-density, three phase immersion heater of 4500 watt capacity for maximum life and minimum fouling.

COOLING is accomplished by the automatic release of a prescribed amount of waste warm water to the drain, which makes room for an equivalent amount of tap water to enter the system from the plant water supply. Naturally the plant water supply temperature will govern the minimum operating temperature of the unit. The raw water enters a blending chamber within the unit to be mixed with the circulated water until the thermostat has been satisfied.

THERMOSTATIC CONTROL is provided by an agile, accurate, one-set thermostat of the non-indicating type. The thermostat actuates the heater or the cooling system whenever required. A small neutral zone between the heating and cooling is provided and this neutral zone can be adjusted if necessary to provide closer control or to conserve water and electricity. The thermostat of this unit has an extra long 20' Capillary length. At 3-M request, the sensing bulb will not be installed in the piping in the normal position. It is our understanding that 3-M will install the sensing probe in their process. Because of this type of installation, we expect that the water temperature may rise and drop as the unit seeks to maintain a constant temperature at the location of the sensing element.

The operating temperature is easily read on the 3-1/2" diameter bimetallic thermometer which is graduated in two degree increments throughout its full range. This thermometer has a long, thin pointer so that one degree changes in temperature can be readily observed.

PILOT LIGHTS and selector switches are provided. The pilot lights indicate when the unit is heating or cooling. The selector switches provide the ability to cut out the heating or cooling when one or the

other is not needed. Under some conditions this can reduce the consumption of water or electricity. Under other conditions it can help stabilize the temperature swing resulting from a strangulated flow of water.

The control circuit and pump operate, 220 volt current. In the units built for 220 volt operation this current is taken from two legs of the three phase power supply. In the 3/60/440 volt unit a single phase transformer is provided to furnish single phase 220 volt current for the control circuit and motor.

Provision is made for the operator to make a quick and complete purge of air from the unit, hoses and mold for startup. The air is expelled through the strainer blow-off vent valve by the operator. This unique Sterlco feature, when used, will insure that the unit is properly filled and primed before the pump is started.

Two high capacity Y-strainers are provided, one in the water supply line and one in the water return line, to help keep your entire system clean and to reduce wear resulting from abrasion. These strainers will hold a considerable amount of foreign material before obstructing the flow of water. A blow-off valve, piped to the drain, is provided with each strainer.

Motor protection is provided by a manual starting switch having an electrical overload. This is in addition to the thermal overload which is built inside the motor.

INSTALLATION

To give the user the value he paid for, three important phases of the installation become quite important. First, a safe, well-grounded electrical power connection must be made; secondly, the hoses and fittings must be large enough to allow plenty of water to flow - not just a trickle; and thirdly, a suitable water supply connection must be made so that the unit has an adequate supply of water with sufficient pressure. All three factors serve important functions in giving you safe, efficient and low maintenance operation.

DELIVERY AND RETURN CONNECTION

It is extremely important that there be no obstructions or valving in the water circulating lines external to the Sterlco unit. Control of the user's process, and control of the water temperature is entirely dependent upon good water flow. If the water flow is restricted or stopped, we can expect very poor control, along with equipment damage.

For your convenience the delivery and return lines are brought out through the back panel to 3/4" female union connections. If hoses smaller than 3/4" are to be used, we suggest you install a tee at the 3/4" union at the Sterlco and take at least two delivery lines in parallel from that tee. The same would be true of the return line. This is far preferable to one long serpentine of small diameter hose and in many cases this can make the difference between good and poor control.

Since the hoses create resistance to flow and thereby diminish the gallonage to be sent through the mold, we suggest that the hoses be as short as they can be conveniently made, and as large in diameter as possible. Even though the passages in the molds may be small, it is wise to use large hoses and fittings to help minimize the total restriction to flow, for after all, the gallonage being circulated depends on the total restriction to flow.

The sketches on the following pages illustrate hoses and fittings which have been found quite suitable. The hose and fittings which you select must be suitable for the temperature and pressures to be encountered and must permit free flow of water. Quick disconnect fittings which have check-valves in each half should be avoided since the check-valves obstruct flow considerably. In many cases these check valves can be removed rather simply.

WATER SUPPLY

While appearing simple at the outset, the water supply to the unit is highly important. We recommend a full 1/2" hose without small fittings. We also recommend a usable water supply pressure of at least 20 psig, and preferably 25 lbs., as measured at the unit, if operation over 150 F. is to be conducted. This will keep the circulated water from flashing to steam at the pump inlet, where water pressure is the lowest in the system. The water supply line should be "ON" whenever the unit is running. Supply pressures over 50 to 60 psi can shorten the life of the unit and while the unit is built for a 125 lbs. maximum pressure, it would be well to install a pressure regulator

in the supply line if the water pressure is high.

Hard or corrosive water can be damaging to the unit and to your equipment since the unit operates at temperatures which would accelerate these conditions if present. Bad water can also build layers of scale or lime on the heat transfer surfaces of your process and thereby, impede production. Since maintenance and down-time are costly, it is well to treat the water supply if that water is bad. In general we can say that people with good water seldom buy parts. Industrial water treatment to minimize this condition is realatively inexpensive, and in many cases is a truly wise investment.

DRAIN

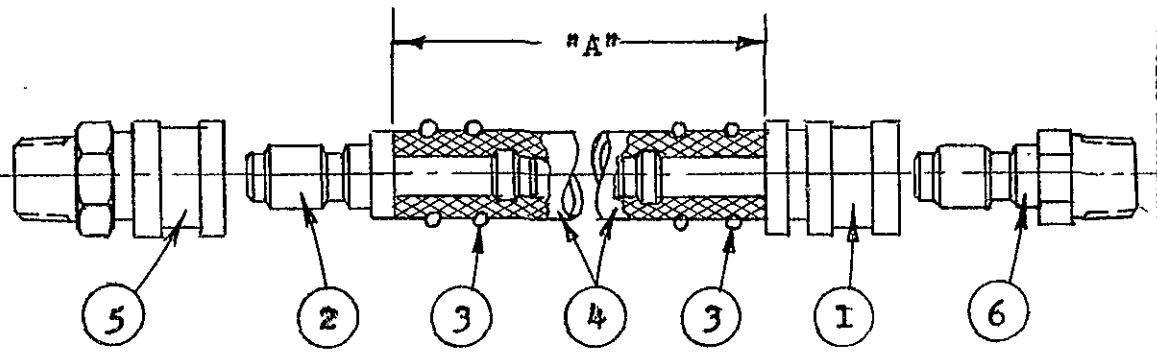
It is best to have the drain line pass to an open drain where the operator can tell when the unit is cooling, and if the vent and blow-off valves are tightly closed when they are not being used. The drain can also be watched when the unit is blown off to be sure that the unit is properly vented on startup and that the strainers are clear.

If it is not possible to flow to an open drain, the unit may be connected to a closed system as long as a reasonable pressure differential exists between the water supply pressure and the back pressure from the drain.

ELECTRICAL POWER

The brass nameplate attached to the Sterlco unit will indicate the voltage and current requirements. The three conductors of the three phase power supply should be connected to the three contactor terminals which are marked for this purpose. A ground connection is provided and should be used to insure that the unit is positively grounded. In general, the power requirements for this unit are approximately as follows:

	3/60/220	3/60/440
MODEL 6210	17 amps	11 amps



UNLESS OTHERWISE SPECIFIED USE
± .005" TOLERANCE ON DECIMAL DIMENSIONS.
± .010" TOLERANCE ON FRACTIONAL DIMENSIONS.

Item No.	No. Parts Req.	Purch. Part No.	Name	Material
1	1	J-91-C	Socket	Hansen #4-S27, Type ST, Brass, 1/2" Hose Con.
2	1	J-91-B	Plug	Hansen #4-T27, Type ST, Steel, 1/2" Hose Con.
3	2	J-91-E	Hose Clamp	Wedgon Or Staput, Narrow Width, to Fit 27/32"O.D. Hose.
4	See Chart	J-91-F	Hose	Ortac 1/2"I.D. X 27/32" O.D. 1 Braid, (200°)
5	1	J-91-A	Socket	Hansen #4-S25, Type ST, Brass, 1/2"M.P.T. Con.
6	1	J-91-D	Plug	Hansen #4-T25, Type ST. Steel, 1/2"M.P.T. Con.

Sub. Assembly Part No.	"A" Hose Length
14289-1	17" Lg.
14289-5	5' 0" Lg.
14289-10	10' 0" Lg.
14289-15	15' 0" Lg.

USED ON | BY | DATE | CHANGE | NO. | BY | DATE | CHANGE | NO. | DATE | CHANGE | NO.

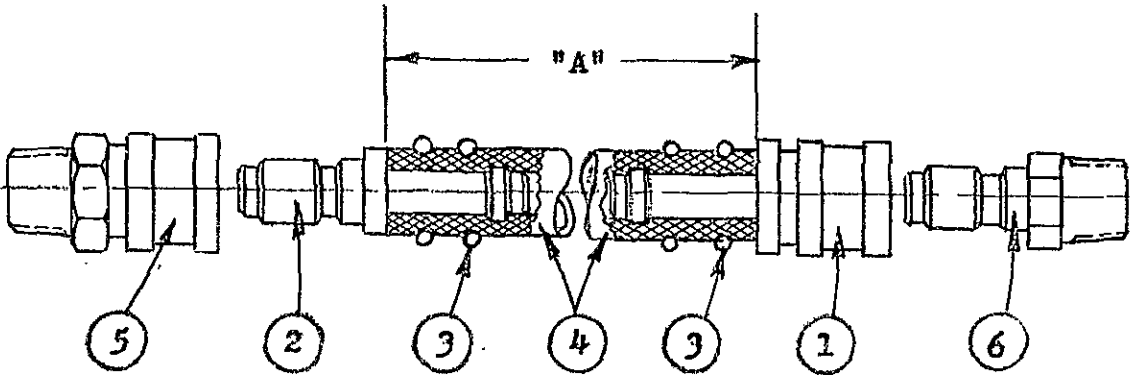
DWG. NO. 14289

DR. HWS | CH'K. HWS | DATE 1-25-56 | SCALE None | ISSUE 3 | DRG. NO. 14289

TITLE 1/2" Hose S.A. For Temp. Control Units

STERLING, INC.
MILWAUKEE, WIS.

MATERIAL
FINISH



UNLESS OTHERWISE SPECIFIED USE
± .005" TOLERANCE ON DECIMAL DIMENSIONS.
± .010" TOLERANCE ON FRACTIONAL DIMENSIONS.

Item No.	No. Parts Req.	Purch. Part No.	Name	Material
1	1	J-91-R	Socket	Hansen #6-S32, Type ST, Brass With 3/4" Hose Stem Connection.
2	1	J-91-P	Plug	Hansen #6-T32, Type ST, Steel, 3/4" Hose Stem Con.
3	2	J-91-T	Hose Clamps	Wedgon Or Stamput, Narrow Width, to Fit 1 9/32" O.D. Hose.
4	See Chart	J-91-U	Hose	#21W86 Creamery Type, 3/4" I.D. X 1 9/32" O.D. 4 Ply,
5	1	J-91-N	Socket	Hansen #6-S30, Type ST, Brass, 3/4" M.P.T. Con.
6	1	J-91-S	Plug	Hansen #6-T30, Type ST, Steel, 3/4" M.P.T. Con.

Sub. Assembly Part No.	"A" Hose Length
14339-5	5' 0" Lg.
14339-10	10' 0" Lg.
14339-15	15' 0" Lg.

MATERIAL
FINISH

STERLING, INC.
MILWAUKEE, WIS.

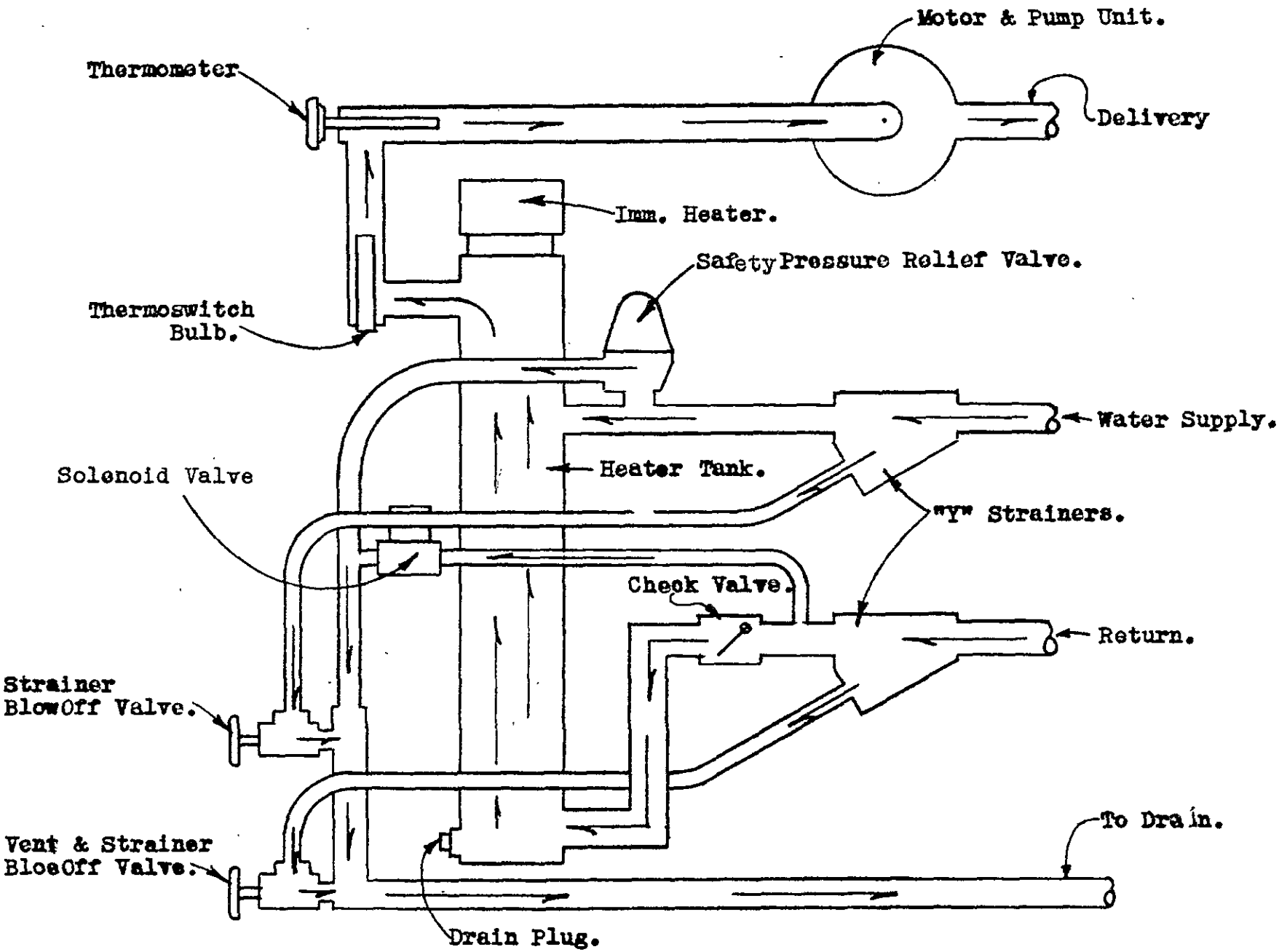
TITLE 3/4" Hose Assy. For Temp. Control Units

DR. HWS | CH'K. HWS | DATE 1-25-56 | SCALE None | ISSUE 2 | DRG. NO. 14339

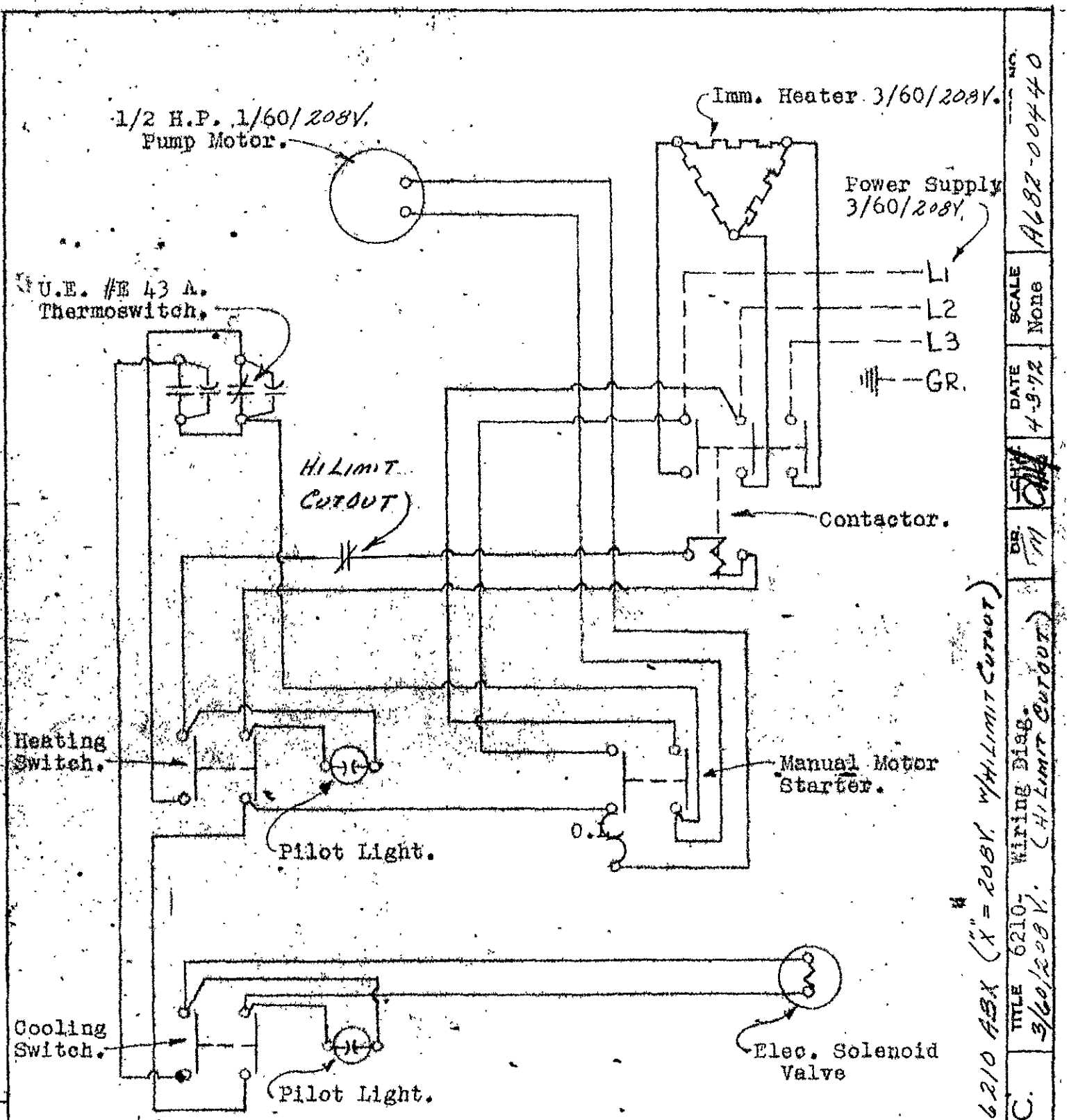
CHANGE NO. | BY | DATE | USED ON

DWG. NO. 14339

DWG. NO. 14618 | (1) Was Pipe Diag. For 6210-A, Sol. Vav. Chg. 8-15-62 LT.



STERLING, INC. MILWAUKEE, WIS.	TITLE 6210-B Schematic Piping	DR. HWS	CH'K. HWS	DATE 9-22-61	SCALE None	ISSUE 2	DRG. NO. 14618



For The Following: 6210 ASX ("X" = 208V. W/Hi Limit Cutout)

STERLING, INC. MILWAUKEE, WIS.	
TITLE	6210, 3/60/208V. Wiring Diag. (Hi Limit Cutout)
DR.	
SHT.	
DATE	4-3-72
SCALE	None
DWG. NO.	A682-00440

A682-00440

UNLESS OTHERWISE SPECIFIED USE: ±.005 TOL. FOR DECIMAL DIMENSIONS; ± .008" TOL. FOR FRACTIONAL DIMENSIONS

OPERATION

After all hose, piping, and electrical connections are made, the following sequence of steps should be followed to put the unit into operation. All switches should be off and all manual valves closed before starting.

1. Open your water supply valve to allow water to enter the unit and fill the circuit through the dies.
2. Open the valve marked vent blow-off for a period of 2 to 3 minutes to bleed the air from the system. Then close it securely.
3. Turn on the pump switch to start water circulating.

(NOTE: IF THE PUMP OR HEATER ARE OPERATED WHEN THE UNIT IS NOT FULL OF WATER, DAMAGE TO THE UNIT MAY RESULT.)*

4. Set the thermostat knob at desired temperature and turn on the heater and cooling switches. The heater will operate until the temperature setting is reached, and the heater pilot light will indicate when it is operating.

5. STRAINERS. One "Y" strainer is installed in the return line to protect the unit's component parts against dirt in the circulating system, and one 1/2" "Y" strainer is installed in the water supply line to protect the entire unit against foreign matter from that source.

   These strainers will hold a considerable quantity of dirt before they start to clog. However, they should be cleaned out daily by simply opening the 3/8" blow-off valves which are piped directly to the drain. Do not blow off both strainers at the same time.

   DRAINING. When the unit is not in use, or if it is to be temporarily exposed to freezing weather, it should be thoroughly drained. After the delivery and return hoses or piping have been disconnected from the unit, remove the pipe plugs in the union tees below the connections of the pump and tank.

*Please refer to Pressure Switch Option under "Other Sterlco Features and Units."

TROUBLE SHOOTING

TEMPERATURE FLUCTUATIONS - Overheating and overcooling

While the general reaction is to adjust the thermostat, this fluctuation can most always be traced to poor water flow resulting from one or more of the following conditions:

A. Small hoses and fittings, or small water passages.

B. Very long lengths of hose or long serpentine flow of water in and out of the mold in series, rather than in parallel.

C. Clogged strainer on the return line. The strainer blowoff valve should be used regularly to clean the strainer. In cases of doubt we recommend that the strainer screen be removed and checked.

D. Blocked water line in the mold. New molds sometimes contain metal chips or other foreign particles inside the water lines. Old molds sometimes contain lime or rust accumulation.

E. Quick disconnect fittings with check valves (a source of serious obstruction).

F. Lime buildup in the piping or fittings.

The unit itself can be checked out by the use of a short length of 3/4" or 1/2" hose connected directly from the delivery to the return line. This will provide a condition of very good flow and will establish whether the blockage is in the unit or in the piping. This will also provide a strong indication as to whether a thermostat adjustment is required.

RAPID CYCLING FROM HEAT TO COOL

This condition is traceable to the same causes as the temperature fluctuations indicated above.

UNABLE TO PROPERLY HEAT

When the water temperature will not rise above a certain temperature, the cause can generally be traced to a continuous loss of water from the system (allowing cooling water to enter). This can be checked by observing the drain. The operator should check to be sure that the blowoff valves are closed and are not leaking. Under some conditions it is possible to have the valve closed on a particle of grit which, of course, will allow the valve to continuously leak. The same is true of

the solenoid valve which is used for the cooling control. This solenoid valve can be flushed out easily by having the operator run the thermostat dial up and down several times to open and close the solenoid. Another cause could be traceable to a leaking hose or fitting somewhere else in the system. It is also possible that the immersion heater might be inoperative or defective, and most any competent electrician can check this out readily.

UNABLE TO COOL

In order to cool, the unit must discharge water to the drain and simultaneously allow tap water to enter. Therefore, if your unit does not provide cooling, the following steps should be checked to help locate the cause.

1. Check to see if water flows to the drain when the cooling pilot is "on".

2. Check to see that the water supply or fill valve is opened and allowed to remain open at all times while the unit is in operation.

3. Check the solenoid valve for proper operation.

4. Check the strainer screen on the water supply line. We would suggest that you use the blow-off valve to blow down the strainer and if there is any doubt as to the condition of the strainer, then it would be well to remove the strainer screen and clean it as required.

5. Perhaps it might be well to check the water supply pressure to be certain it hasn't dropped. Please refer to "Erratic Operation at Temperatures Over 150 F."

6. A high pressure from the drain could easily cause a limited ability to cool, since the unit depends upon the pressure differential between the water supply and drain for the amount of cooling which it can provide.

ERRATIC OPERATION AT TEMPERATURES OVER 150 F.

Under some conditions the unit can call for cooling and provide a continuous flow of water to the drain, but the temperature will stay unchanged until a sharp drop of 20 to 50 degrees takes place. The process will than start over. This condition is directly traceable to a low water supply pressure and should not be allowed to continue because serious damage to the unit will likely result. The installation instructions with regard to the water supply should be checked promptly to be certain that the unit has an adequate supply of water, under the proper pressure.

HEATER BURN-OUT

A direct visual indication of heater burn-out is the presence of scorched or discolored paint on the heater tank. In most cases the water level inside the tank at the time of burn-out can be determined because the paint on the exterior of the tank below the water level will not be scorched. Causes of heater burn-out are generally traceable to:

1. The unit not being filled with water before startup
2. A condition of low water supply pressure as described above under the heading of "Erratic Operation at Temperatures Over 150 F."
3. A faulty heater
4. A plugged system or generally obstructed flow.

PUMPS AND SEALS

Before leaving our factory each unit is operated for some considerable period of time, and calibrated. After this test the unit is drained and blown out with warm air to remove most of the water from the piping system. If the unit is allowed to sit for a long period of time before being installed in your factory, the housing gaskets at the pump can dry out and will possibly leak when the unit is started. In many cases these gaskets soon swell and form a tight seal, while in other cases it may be necessary for you to make a partial turn on the pump screws.

In some cases it is possible to have the pump seal surfaces separate slightly because of rough handling or considerable vibration during transit from our plant to yours. This, of course, would cause a leak at the seal when the pump is started, and in most cases the surfaces will mate again after the pump is allowed to run for a short period of time. If they do not mate you may find it necessary to install a replacement seal in a new unit unless the unit has been started without water.

Our pump seals should give a long period of service life. There are conditions of course which tend to shorten the seal life, such as the presence of grit, operation of the unit without water, sustained high water temperatures, or the presence of certain chemicals in the water. When installed properly our J-81-E bronze and carbon seal gives very good service life with good water conditions. Our ceramic and carbon type seal, J-81-H, has been developed to resist abrasive tendencies which we find present in many water systems. The J-81-H is the seal which is installed in our unit when new. Should you have need to operate your Sterlco continuously at elevated temperatures, we would suggest the J-81-K, which has high temperature components. All of these seals can be destroyed rather easily if the unit is run without water.

After the unit has been in service for a period of years and particularly where abrasive conditions are present, you may find that the pump casting which is designated as our "bracket", can be eroded away in the area around the seat of the rotary seal. This area should provide a straight, smooth surface against which the O-ring of the seal seat should bear. Should your casting show signs of erosion in this area, we would strongly recommend that the casting be replaced, since the replacement cost of the casting is a very modest investment when compared with down-time and maintenance cost for replacing a seal which has been installed in a worn out pump. A small puddle underneath the unit is a sign of rotary seal wear and if your investigation confirms the pump as the source of the leak, we would recommend that the seal be replaced as soon as practical. If allowed to leak, the water will eventually find its way to the lower motor bearing and cause further damage. The water slinger is intended to provide temporary protection against this possibility, but a continued and substantial leak will undoubtedly ruin the motor bearings.

Even though your maintenance people may have had years of experience in dealing with pumps in general, we would strongly suggest that they follow our form I-4100-E1 when overhauling the pumps. Careful attention to these instructions will help assure a proper installation and minimum down-time.

Under some conditions users find that the pump will not start. After turning off the power supply it would be well to check the motor shaft to be certain that it is free to turn. By removing the drip cover atop the motor, access is provided to the end of the shaft, which has been slotted so that it might be turned with a screwdriver. If the shaft is found free to turn, we would suggest that the power supply to the unit be checked on all legs to be certain that power is available to the motor. If these two items have been checked, we would then recommend that a competent electrician be called upon to check the motor and its circuit.

THERMOSTAT CALIBRATION

Each Sterlco unit is operated for a considerable time at our plant and is carefully calibrated and checked as part of our final test. However, the unit can arrive with a thermostat out of calibration because of a rough ride or rough handling in transit. Also, the thermostat can come out of calibration after a long period of service, and it is helpful therefore to reset the dial. The best method of correction is to loop a short length of 1/2 or 3/4 inch hose between the delivery and return lines (to insure good water flow) and to bring the water temperature to mid-scale, where it should be allowed to stabilize. By loosening the set screw of the thermostat dial, the dial can then be set to agree with the temperature being maintained on the thermometer.

THERMOSTAT ADJUSTMENT

Under some conditions it may be necessary to adjust the span between heating and cooling. However, before starting this adjustment the operator should check to see that the unit has proper water flow (see Temperature Fluctuation under "Trouble Shooting"). The calibration can be accomplished by first removing the thermostat dial which exposes the positioning screws of the thermostat. Refer to form F43A for illustration. By adjusting only the switch on your left as you face the unit, the temperature tolerance can be set to any desired amount. Do not attempt to work both positioning screws. After this adjustment has been made the dial can be replaced and reset.

STERLING, INC. January 31, 1972
Industrial Control Division
5200 West Clinton Avenue, Milwaukee, Wisconsin 53223

SPARE PARTS LIST MODEL 6210-ABX

PART NO.	DESCRIPTION	PRICE
J-81-M	Rotary seal - ceramic and carbon	$ 10.15
J-18-CJ	Housing Gasket - 1 required per pump (new style)	.30
R-150-FC	Temperature control (cooling)valve,specify range & cap.lgth.	75.85
J-17-T	Wheel handle for cooling control valve	.60
J-42-298	Thermoswitch, specify range (6012,6015,6022,6031)	32.80
J-42-446	Thermostat (6210,6211,6221, 6231,6111C, 6121C, 6131C)	79.95
Thermostat Assembly (bulb, capillary & plunger) only for above		30.75
J-17-DA	Thermoswitch pointer	.45
J-17-CZ	Thermometer (6012, 6015, 6022, 6031)	16.40
J-17-ED	Thermometer (6210, 6211, 6231, 6221, 6111C, 6121C, 6131C)	17.40
J-42-8[illegible]X	Electric immersion heater 4-1/2 KW, 3 Phase, 208 V. Flanged	
J-42-106	230V. Immersion Heater, 9000 watt, 3 phase	35.00
J-42-107	460V. Immersion Heater, 9000 watt, 3 phase	35.00
J-42-165	230V. Immersion Heater, 4500 watt, 3 phase	35.00
J-42-277	460V. Immersion Heater, 4500 watt, 3 phase	35.00
J-42-234	Heater Switch - Cooling Switch	1.90
J-42-235	Pilot light receptacle, less bulb (Red Lens)	1.90
J-42-452	Pilot light receptacle, less bulb (Amber Lens)	1.90
J-42-236	Pilot light bulb	.40
J-42-108	Contactor, Size 0	33.80
J-42-109	Contactor, Size 1	38.95
Transformer	460/230 1-KVA (pls. specify model & serial number of unit)	50.00
J-42-263	Pressure Switch	27.65
J-44-87	Pressure Relief Valve	5.60
J-46-K	Screen for 1/2" & 3/4" strainers	.45
J-42-134	Single phase motor, 1/2 HP Marathon	50.25
J-42-266	Single phase motor, 1/2 HP General Electric	59.45
J-42-309	Three phase motor, 1/2 HP, T.E.N.V. (Delco $69.70, G.E. $71.75)	57.40
10410-2	Complete pump and motor assembly, 1/2 HP single phase	101.45
10410-8	Complete pump and motor assembly, 1/2 HP, 3 phase T.E.N.V. (adjust for G.E. and Delco)	111.70
16119-1	Motor & Impeller assembly, single phase, 1/2 HP	96.35
16119-3	Motor & Impeller assembly, three phase, 1/2 HP T.E.N.V. (adjust for G.E. and Delco)	101.45
J-44-88	Vent-priming cock	.45
J-79-B	Impeller screw	.25
10404	Water slinger	.10
13341-1	Bracket E - Per Form I-4100-E1	14.85
14921	Volute A - Per Form I-4100-E1	11.25
13251-1	Volute B - Per Form I-4100-E1	15.35
13359	Pump Impeller, standard brass	11.25
J-42-113	Pump starting switch, less element	7.40
J-42-325	Heater element for pump start switch (specify amp rating)	1.30
J-106-D	Heat exchanger 3.7 sq. ft. (6111, 6121, 6131)	97.35
J-42-391	Solenoid valve 1/4" (6210, 6211, 6221, 6231, 6225)	13.30
Solenoid coil only, for above		7.15
J-42-211	Solenoid valve 1/2" (6111C, 6121C, 6131C)	19.95

NOTE: PARTS NOT DESIGNATED FOR SPECIFIC UNITS ARE USED ON ALL MODELS. PLEASE GIVE MODEL AND SERIAL NUMBERS WHEN ORDERING PARTS. PART NUMBERS ARE LISTED AS A GUIDE, BUT MANY UNITS HAVE SPECIAL PARTS OR FEATURES NOT COVERED BY THIS LIST. PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE, NET 30 DAYS FOB MILWAUKEE, WISCONSIN.