

## CLS-A

### Hot Oil System

- Heat Transfer Fluids<sup>1</sup> to 750°F
- 9 - 400 kW (31 - 1,365 Mbh)  
(Up to 1,200 kW Optional)
- 240 and 480V, 3 Phase, 60 Hz
- Pressurized Operation — ASME Certified to 200 psig @ 750°F
- 300 Lb Carbon Steel Construction
- Long Life 0.475" Dia. Steel Sheath Elements
- High Temperature Centrifugal Pump with Water-Cooled Mechanical Seal
- Bypass Relief Line Protects System in Case of Blocked Flow
- Electronic Digital Temperature and Process Control
- Suction and Discharge Pressure Gauges Monitor Pump Performance
- NEMA 1 Electrical Enclosure Complete with Circuit Breaker, Contactors, Fusing, Switches, Transformers and Pilot Lights
- ASME Safety Relief Valve (Set @ 200 psig)
- External Pressurized Heated Expansion Tank (Optional) with Nitrogen (N<sub>2</sub>) Purge

**WARNING** — In hazardous areas, pipe surfaces could achieve temperatures high enough to cause auto-ignition of the hazardous materials present. Consult Article 500 of the National Electrical Code for further information on the maximum allowable temperatures for a specific application.



#### Applications

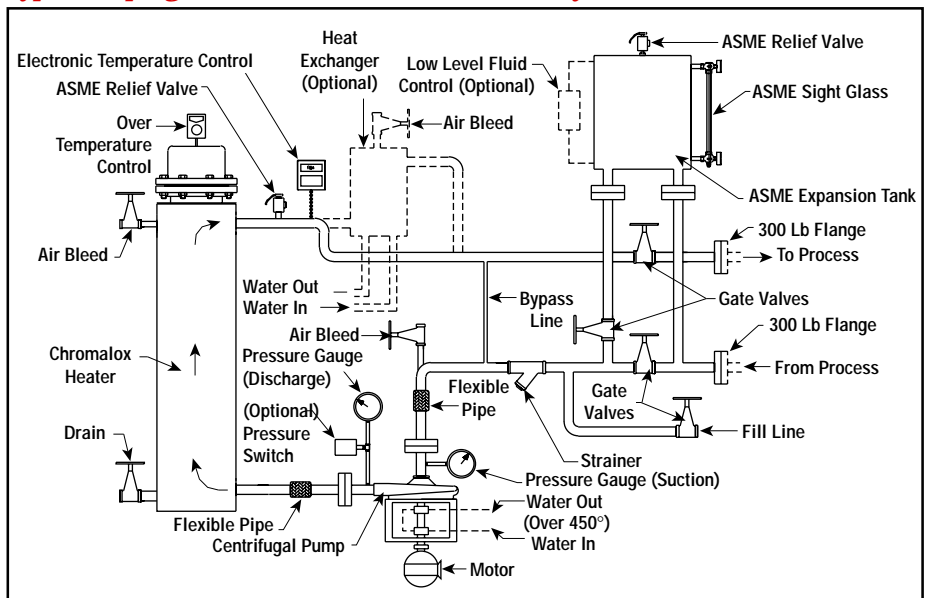
Chromalox CLS Hot Oil Heat Transfer Systems are engineered to operate up to 750°F at a pressure of 200 psig. They are used with Syltherm® 800 and other high temperature heat transfer fluids<sup>1</sup> which require heated lines to prevent crystallization of the media and pressurization to operate at temperature.

CLS systems use a pressurized hot expansion tank (optional) that is heated by hot heat transfer fluid flowing through it. The expansion tank is ASME coded for 650°F @ 200 psig with an ASME safety relief valve. Nitrogen (N<sub>2</sub>) purging is required.

#### Construction

Chromalox CLS Hot Oil Heat Transfer Systems are ruggedly constructed and completely self contained (except for the optional external expansion tank). All CLS systems come complete with heaters, controls, pump valves, safety devices and necessary plumbing. The high temperature cast steel centrifugal pump is provided with a water cooled mechanical seal designed for continuous operation at a maximum temperature of 750°F. CLS systems are factory tested and ready to operate.

#### Typical Piping Schematic for Pressurized CLS Systems



**Note 1** — For a complete list of compatible heat transfer fluids, contact your Local Chromalox Sales office.

## CLS-A

### Hot Oil System (cont'd.)

#### Features

**Overtemperature Cutout** protects elements and fluid from overheating

**Electrical Interlock** between pump motor and heating element contactors

**Flexible Piping** before and after pump absorbs vibration and prevents pump damage from thermal expansion

**Inline 0.030 Mesh Strainer** protects pump

**Full Port Manual Gate Valves** on all primary hydraulic piping minimizes pressure drop

**2 Inch Thermal Insulation** around heating chambers minimizes heat loss

**16 Gauge Painted Steel Panels** on all exposed sides — powder coat heat resistant paint

#### Options

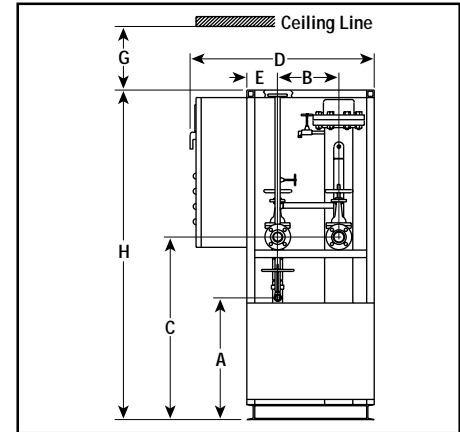
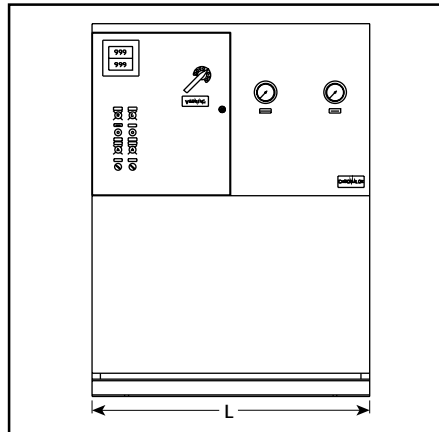
- Alternate Voltage and kW Ratings to 575 Volt and 1,200 kW
- Microprocessor based PID or Ramp Soak Temperature Controls
- Electronic Solid State (SCR) Power Controllers
- Electronic Sequencers, Recorders, Monitors, Time Clocks and Digital Communication Interface available
- Special Pumps and other Mechanical Seals
- Type RJC Closed-loop Cooling Modules
- Expansion Tanks Matched to System (recommended)
- Float or Level Switches for Expansion Tank

#### Electrical Enclosure Options

NEMA 1 enclosures and open drip proof motors are standard on all hot oil systems. All systems (except OTCS) available with optional enclosures that comply with:

- NEMA 4/12 Weather Resistant/Oil and Dust Tight with TEFC motors
- Explosion Resistant Class I, Group D, Div. 1 with TEFC Explosion Resistant motors.

#### Dimensions (Inches)



#### Dimensions (Inches)

kW	Pump Rate (GPM)	Pump Motor (HP)	Inlet/Outlet Pipe Size 300 Lb. Flg	Dimensions (In.)							
				L	D	H	A	B	C	E	G
9-30	40	5	1-1/2	60	42	84	24	12	36	6	50
40	60	5	2	60	42	84	24	12	36	6	50
60	80	7-1/2	2	60	42	84	24	11-1/4	36	5-1/2	50
80	80	7-1/2	2	60	42	98	35	11-1/4	45	5-1/2	66
100	120	7-1/2	3	60	50	98	36	13-1/2	48	6-1/2	66
125-150	150	10	3	66	50	98	45	12	54	8	66
200	150	10	3	66	50	98	45	12	57	8	66
250-400	200	15	3	66	60	98	42	22	54	12	66

#### Specifications and Ordering Information

kW	Volts	Btuh	Min. Rec. Expansion Tank (Gal.) <sup>1</sup>	System Volume (Gal.)	No. Heating Stages	Model <sup>2</sup>	Stock	PCN	Wt. (Lbs.)
9	240	30,708	12	4	1	CLS-750A-9	NS	—	1,500
9	480	30,708	12	4	1	CLS-750A-9	NS	—	1,500
12	240	40,944	12	7	1	CLS-750A-12	NS	—	1,500
12	480	40,944	12	7	1	CLS-750A-12	NS	—	1,500
15	240	51,180	18	7	1	CLS-750A-15	NS	—	1,500
15	480	51,180	18	7	1	CLS-750A-15	NS	—	1,500
20	240	68,240	18	7	1	CLS-750A-20	NS	—	1,500
20	480	68,240	18	7	1	CLS-750A-20	NS	—	1,500
30	240	102,360	18	7	1	CLS-750A-30	NS	—	1,600
30	480	102,360	18	7	1	CLS-750A-30	NS	—	1,600
40	240	136,480	30	10	2	CLS-750A-40	NS	—	1,700
40	480	136,480	30	10	2	CLS-750A-40	NS	—	1,700
60	240	204,720	42	16	3	CLS-750A-60	NS	—	2,000
60	480	204,720	42	16	3	CLS-750A-60	NS	—	2,000
80	240	272,960	42	20	3	CLS-750A-80	NS	—	2,100
80	480	272,960	42	20	3	CLS-750A-80	NS	—	2,100
100	240	341,200	80	30	4	CLS-750A-100	NS	—	2,200
100	480	341,200	80	30	4	CLS-750A-100	NS	—	2,200
125	480	426,450	80	42	4	CLS-750A-125	NS	—	2,300
150	480	511,811	80	42	4	CLS-750A-150	NS	—	2,400
200	480	682,400	80	55	4	CLS-750A-200	NS	—	2,500
250	480	852,900	115	76	6	CLS-750A-250	NS	—	3,500
300	480	1,023,600	115	76	6	CLS-750A-300	NS	—	3,600
350	480	1,194,200	115	100	6	CLS-750A-350	NS	—	3,800
400	480	1,364,800	115	100	6	CLS-750A-400	NS	—	3,900

**Stock Status:** S = stock AS = assembly stock NS = non-stock  
**To Order**—Specify model, volts, phase, kW, PCN, options and quantity.

1. Expansion tank size should be double the increase in volume due to thermal expansion of heat transfer fluid.
2. Does not include expansion tank; see System Options for details.