COS-B

Hot Oil System

- **Heat Transfer Fluids[1] to 650°F**
- **9 - 400 kW (31 - 1,365 Mbh)**
- **240 and 480V, 3 Phase, 60 Hz[2]**
- **Non-Pressurized (Atmospheric) Operation**
- **150 Lb Carbon Steel Construction**
- **Long Life 0.475" Dia. Steel Sheath Elements**
- **Positive Displacement, High-Temperature Pump with Inline Strainer**
- **Bypass Relief Valve Protects System (Factory Set 45 psi)**
- **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**
- **External Cold Expansion Tank (Optional) with Atmospheric Vent**

Applications

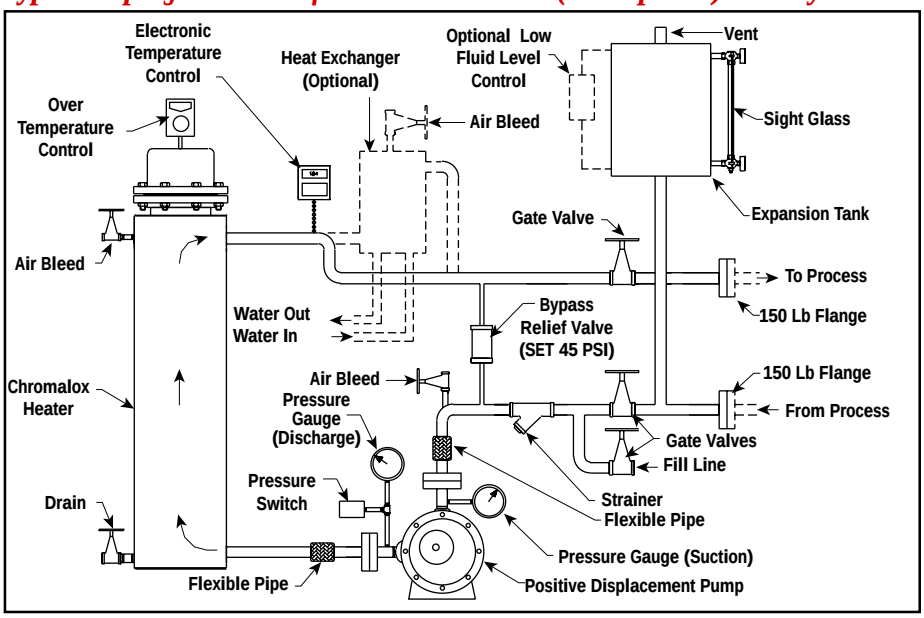
Chromalox COS Hot Oil Heat Transfer Systems are engineered to operate up to 650°F at atmospheric pressure (non-pressurized). They are used with Mobiltherm®, Ucon®, Caloria® and other medium temperature heat transfer fluids[1] which do not require pressurization to operate at temperature.

COS heat transfer systems use a cold expansion tank (optional) that is open to the atmosphere. A cold expansion tank eliminates the need for nitrogen (N_2) purging and reduces the tendency of heat transfer fluids to oxidize and deteriorate.

Construction

Chromalox COS systems are ruggedly constructed and completely self contained (except for the optional external expansion tank). All Chromalox hot oil heat transfer systems have similar components and construction features. All systems come complete with heaters, controls, pumps, valves, safety devices and necessary plumbing. Systems are factory tested and ready to operate.

Typical Piping Schematic for Non-Pressurized (Atmospheric) COS Systems



Notes —

1. For a complete list of compatible heat transfer fluids, contact your Local Chromalox Sales office.
2. Other voltages available, contact your Local Chromalox Sales office.

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Hot Oil System *(cont'd.)*

Features

Overtemperature Cutout protects elements and fluid from overheating

Low Pressure Lockout Switch de-energizes heaters if a low-flow or no-flow occurs

Electrical Interlock between pump motor and heating element contactors

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

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

2 Inch Thermal Insulation around heating chambers minimize heat loss

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

Options

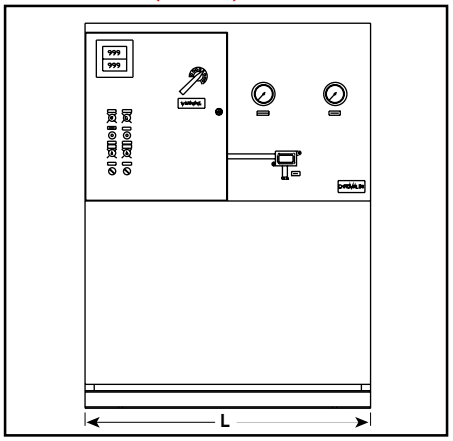
- Alternate Voltage and kW Ratings
- Microprocessor Based PID or Ramp Soak Temperature Controls
- Electronic Solid State (SCR) Power Controllers
- Electronic Sequencers, Recorders, Monitors and Time Clocks, Digital Communication Interface available
- Mechanical Pump Seals and Special Pumps
- Type RJC Closed-loop Cooling Modules
- Expansion Tanks Matched to System (recommended)
- Float or Level Switches for Expansion Tank
- ASME Section VIII Certification 100 psi at 650°F

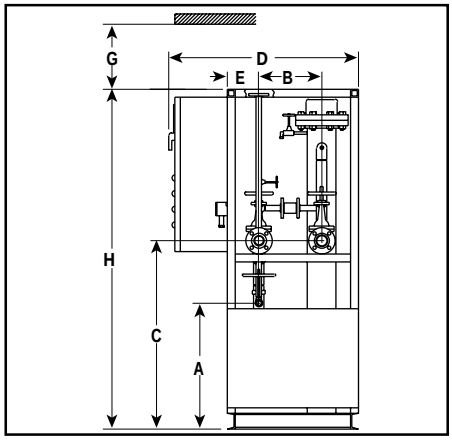
Electrical Enclosure Options

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 150 Lb. Flg	Dimensions (In.)							
				L	D	H	A	B	C	E	G
9-30	35	2	1-1/2	48	35	77	24	12	36	6	50
40	60	3	2	48	35	77	24	12	36	6	50
60	80	5	2	48	35	81	24	11-1/4	36	5-1/2	50
80	80	5	2	48	35	96	35	11-1/4	45	5-1/2	66
100	120	7-1/2	3	54	42	96	36	13-1/2	48	6-1/2	66
125-150	150	7-1/2	3	54	42	96	45	12	54	8	66
200	150	7-1/2	3	54	42	96	45	12	57	8	66
250-400	200	10	3	62	57	96	42	22	54	12	66

Specifications and Ordering Information

kW	Volts	Btuh	Min. Rec. Expansion Tank (Gal.)[1]	System Volume (Gal.)	No. Heating Stages	Model[2]	Stock	PCN	Wt. (Lbs.)
9	240	30,708	12	4	1	COS-650B-9	NS	098010	1,000
9	480	30,708	12	4	1	COS-650B-9	NS	098028	1,000
12	240	40,944	12	7	1	COS-650B-12	NS	098036	1,100
12	480	40,944	12	7	1	COS-650B-12	NS	098044	1,100
15	240	51,180	18	7	1	COS-650B-15	NS	098052	1,100
15	480	51,180	18	7	1	COS-650B-15	NS	098060	1,100
20	240	68,240	18	7	1	COS-650B-20	NS	098079	1,200
20	480	68,240	18	7	1	COS-650B-20	NS	098087	1,200
30	240	102,360	18	7	1	COS-650B-30	NS	098095	1,300
30	480	102,360	18	7	1	COS-650B-30	NS	098108	1,300
40	240	136,480	30	10	2	COS-650B-40	NS	098116	1,400
40	480	136,480	30	10	2	**COS-650B-40**	**S**	**098124**	1,400
60	240	204,720	42	16	3	COS-650B-60	NS	098132	1,700
60	480	204,720	42	16	3	**COS-650B-60**	**S**	**098140**	1,700
80	240	272,960	42	20	3	COS-650B-80	NS	098159	1,800
80	480	272,960	42	20	3	**COS-650B-80**	**S**	**098167**	1,800
100	240	341,200	80	30	4	COS-650B-100	NS	098175	1,900
100	480	341,200	80	30	4	COS-650B-100	NS	098183	1,900
125	480	426,450	80	42	4	COS-650B-125	NS	098191	2,000
150	480	511,811	80	42	4	**COS-650B-150**	**S**	**098204**	2,000
200	480	682,400	80	55	4	COS-650B-200	NS	098212	2,100
250	480	852,900	115	76	6	COS-650B-250	NS	098220	3,100
300	480	1,023,600	115	76	6	COS-650B-300	NS	098239	3,200
350	480	1,194,200	115	100	6	COS-650B-350	NS	098247	3,400
400	480	1,364,800	115	100	6	COS-650B-400	NS	098255	3,500

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.

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.