

# H.O ELECTRIC HEATER OPERATION MANUAL



열매체보일러의명가

SINCE 1984

株式  
會社

朝一特殊 보일러

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<b>CHOIL</b>	<b>OPERATION &amp; MAINTENANCE MANUAL</b>	DOC NO. : -
		REV. NO. : -
<b>ITEM</b>	<b>Hot Oil Electric Heater</b>	DATE : -

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### 1. Concept of Hot Oil Heating System

Recently almost all the manufacturing maker requires high temperature in use, even heating, and precise temperature control by manufacturing technical innovation. As an effective cost reduction measure, for example saving energy, labor cost, maintenance cost, and the cost of equipment, "Hot Oil Heating System" is desperately required various industrial sectors. Hot Oil system is that circulate constantly Hot oil which has strong thermostable between heater(boiler) and effector(product machine) through circulation pump for passing heat. Heater(boiler) should be designed for high efficiency by placed heating surface properly, structure without both partial heating and circulation obstacle, and prevention carbonization of hot oil. Effector(product machine) should be designed for securing enough heating surface, structure with minimum circulation pressure resistance, so that effector will have enough diabatic ability & smooth hot oil circulation.

### 2. Feature of CIE type Hot Oil Electric Heater

◎ **LONG LIFE TIME**

Semi-permanent life time with just one installation

◎ **HIGH EFFICIENCY**

Minimize heat loss having high efficiency of more than 99%

◎ **AUTOMATION**

Self-operation and automatic control from total automatic system

◎ **CLEAN**

Use perfect pollution free heat source with the generation of 0% carbon dioxide

◎ **COMPACTNESS**

Compact structure and easy installation in small space

### 3. How to choose proper Hot Oil ( selection tip )

- ◎ A Hot Oil Heat-resistance temperature higher than maximum running temperature
- ◎ A Hot Oil has Low vapor pressure within using temperature
- ◎ A Hot Oil has No solidification under sub-zero temperature as well as able to use in High temperature
- ◎ A Hot Oil has High specific heat compared with using temperature
- ◎ Buy with ease and widely using product in the inside and outside of the country
- ◎ For the best Hot Oil choice, better ask both Hot Oil maker and Heater maker in advance

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#### 4. Main control devices

- ⊙ Temp. Indicating & Controller

It could adjust set value ranging 0 to 399 C. It also plays key roll to keep set temp. by SCR unit.

- ⊙ Temp. Indicating & Alarm

It could adjust set value ranging 0 to 399 C. It detects temp. of heater element, so could trip SCR.

If there is overheating of heater elements, it alarms & blocks power. Normally set value is higher than TIC.(20~30

- ⊙ Temp. Sensor

It could sense temp. and send signal to TIC & TA.

- ⊙ Differential press. Switch

It could sense press. of hot oil flow. When press. is lower than setting value, it alarm & trip.

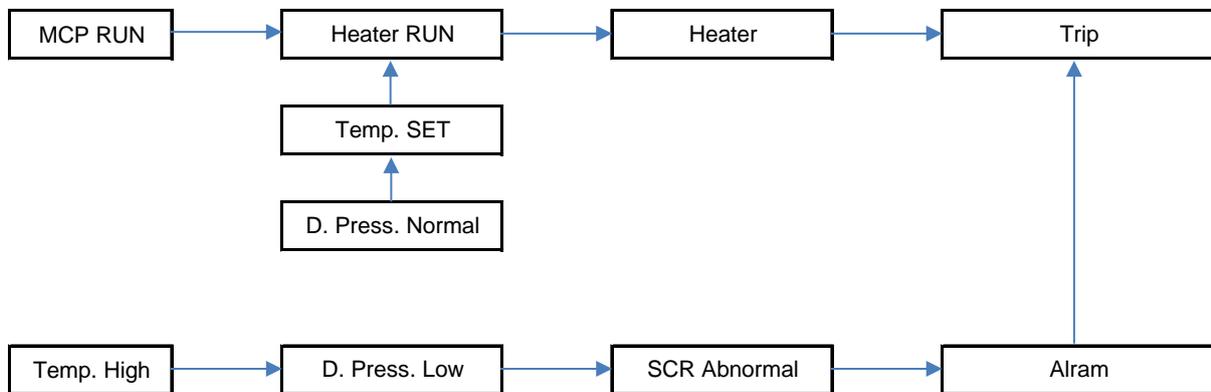
#### 5. Parts description

Sym.	Item name	Description
	Bellows valve	Conducting Hot Oil flow. Check if valve is in open/close position in advance
	Check valve	Prevent Hot Oil back flow
	Flexible joint	Absorb vibration of pump as well as its expansion and contraction
	Forged valve	Manual stop & supply
	Press. safety valve	Dissolve increased press when running press is bigger than setting press
	Solenoid valve	Burner NG stop & supply
	Pump suction strainer	Eliminate impurities of Hot Oil
	Y strainer	Eliminate impurities of fluid
	Vent box	Keep amount of return of Air vent & Burner of fuel, Diesel Oil

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## 6. Operation flow

Operator should be fully aware of handling control devices, before actual operation.



## 7. Operation of Hot Oil Electric Heater

- ⊙ Check voltage & ampere meter, main power circuit breaker switch ON
- ⊙ Turn ON control power circuit breaker switch
- ⊙ Turn ON hot oil circulation pump, check pressure of discharge & suction. Make sure that keep normal press.  
If there is abnormal press.& temp., interlock lamp is OFF.
- ⊙ All interlock devices are fine, then interlock lamp is ON.  
SCR unit is ON, then could see ampere meter is slowly increase.  
Let set temp. with TIC which you want to set, then automatically temp. is going up.
- ⊙ When hot oil filling is needed, do feel hot oil by filling pump unit.
- ⊙ When you stop heater unit, push power botton on control panel then turn OFF main power circuit breaker.

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## 8. Trouble shooting

Fault Condition	Description
When push power switch(ON), but heater dose NOT operate	<p>Check power &amp; fuse</p> <p>Check terminal of cable is fastened well</p> <p>Check Differential press. Switch is operated well</p> <p>Check main power is supplied well</p> <p>Check rated voltage condition is normal or NOT</p>
When SCR Trip lamp is ON	<p>Check SCR's fuse</p> <p>Check overcurrent occurred or its device</p> <p>Check damage of heater's elements</p> <p>If SP lamp is flickering, check power supply of main power</p> <p>If SL lamp is flickering, check power supply of heater</p> <p>If OC lamp is flickering, check overcurrent condition and take measure then push 'RESET' button of SCR</p>
When overload of motor is occurred	<p>Check design head of fluid lift value &amp; ampere on performance curve</p> <p>Check actual head of fluid lift value &amp; ampere</p> <p>If the head of fluid lift is low and ampere is high, overload condition (Close discharge valve fully, then slowly re-open checking ampere)</p> <p>Check circulation pump condition</p> <p>Check open/close status of valves on hot oil piping line</p> <p>Re-check air vent is well done</p>
When full load, heater load is ONLY 50%	Check main power's R, S, T(3 phase) is connected well