

ACTION:

Indirect throttle; Pilot Output Pressure (Yellow) decreases with temperature rise.

APPLICATION:

Used to control a set temperature in indirect heaters, emulsion treaters, reboilers, steam generators, heat exchangers, cooler shutter controls, and salt bath heaters.

WORKING PRESSURE (sensing element):

psig	kg/cm ²
500	35.15 max. without Separable Socket.
4000	281.23 max. with Separable Socket.
7000	492.15 max. with Special Separable Socket.

Separable Socket is an extra price item and must be ordered separately, if desired. To order Separable Sockets refer to Table of Contents

TEMPERATURE RANGE:

T 12, T 18	-30°F minimum to 400°F maximum -34°C minimum to 204°C maximum
HT 12, HT 18	-30°F minimum to 750°F maximum -34°C minimum to 399°C maximum

OPERATION:

These Thermostat Base Assemblies consist of a STAINLESS TUBE for monitoring the changing temperature, which is connected by a Low Expansion Alloy Rod to a DIAPHRAGM or BELLOWS ASSEMBLY. The differential pressure across the Diaphragm or Bellows combined with changes in the length of the STAINLESS TUBE throttle a PILOT PLUG seat. The PILOT PLUG consists of two stainless balls rigidly connected together. The seat at BALL 1 is the Supply Pressure inlet (Violet to Yellow). The seat at BALL 2 is the pressure vent (Yellow to Atmosphere).

Assume the set temperature of the Thermostat is above that of the system. The vent at BALL 2 is closed and the inlet at BALL 1 is open. Output Pressure (Yellow) is being sent to any Pilot or Motor Valve.

As the temperature rises in the system, the STAINLESS TUBE increases in length to move the Thermostat Diaphragm (or Bellows) Assembly in a direction to first close the seat at BALL 1 (Violet to Yellow) and open the seat at BALL 2 (Yellow to Atmosphere). Output Pressure (Yellow) decreases to cause the desired Pilot or Motor Valve action.

As the temperature decreases, the action is reversed to increase Output Pressure (Yellow).

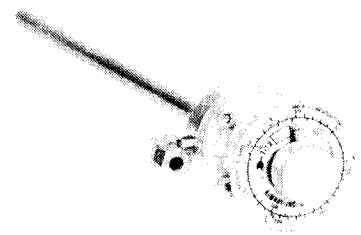
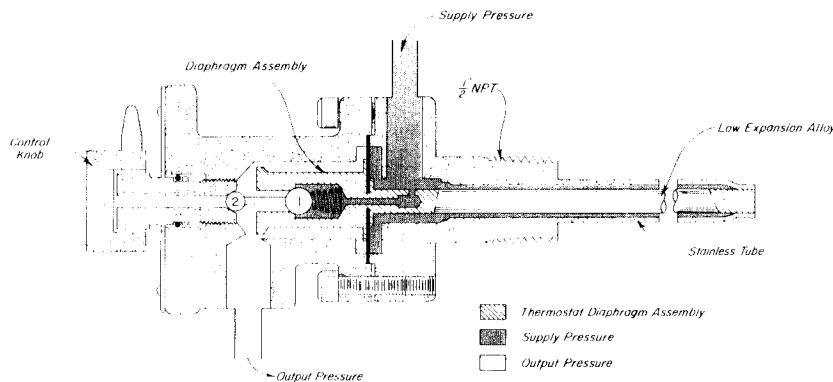
SUPPLY PRESSURE:

5 to 30 psig
.35 to 2.11 kg/cm ²

RESPONSE RANGE:

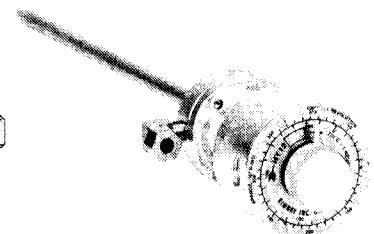
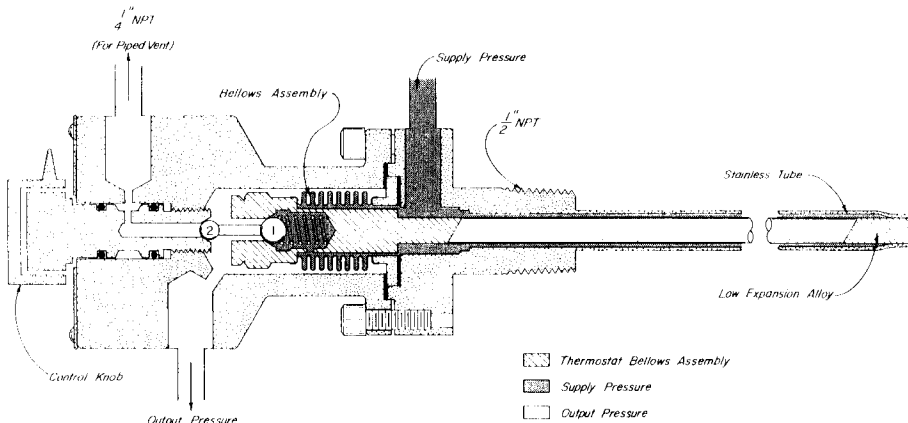
T 12	- 1.75 psig/°F, .22 kg/cm ² /°C
T 18	- 2.50 psig/°F, .31 kg/cm ² /°C
HT 12	- 2.50 psig/°F, .31 kg/cm ² /°C
HT 18	- 3.75 psig/°F, .47 kg/cm ² /°C

LOW TEMPERATURE BASE ASSEMBLY



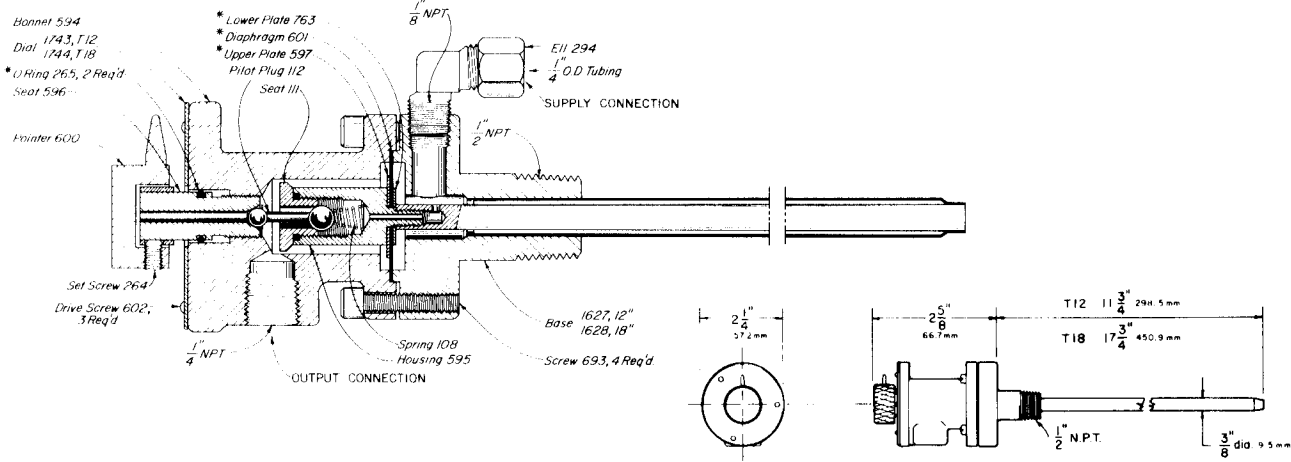
T 12

HIGH TEMPERATURE BASE ASSEMBLY



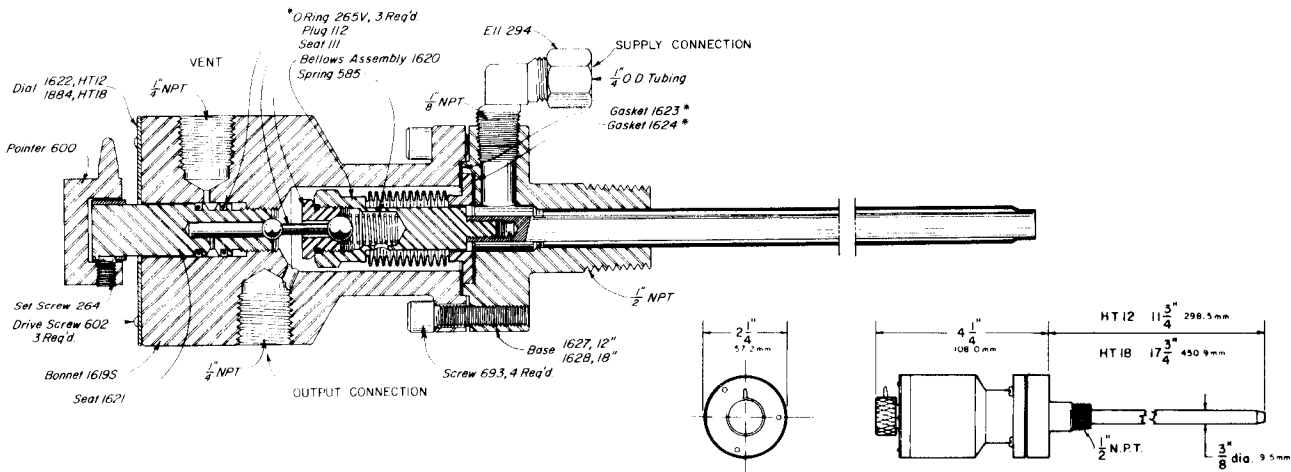
HT 12

T 12/18
DUCTILE
500 lbs. W.P.
-30°F to 400°F, -34°C to 204°C



T 12 & T 18 DIMENSIONS

HT 12/18
STEEL
500 lbs. W.P.
-30°F to 750°F, -34°C to 399°C



HT 12 & T 18 DIMENSIONS

INDIRECT BASE ASSEMBLIES AVAILABLE:
DUCTILE or STEEL

CAT. NO.	BASE ASSEMBLY	MAX. TEMP. °F	MAX. TEMP. °C
HAA	T 12	400	204
HAB	T 18	400	204
HBA	HT 12	750	399
HBB	HT 18	750	399

*These are recommended spare parts and are stocked as repair kits. To order repair kit, specify; "T12BRepair Kit, RLB" or; "HT Repair Kit, RLQ."

Separable Sockets are available at extra cost, refer to Table of Contents for ordering.

ACTION:

Direct semi-throttle; Pilot Output Pressure (Yellow) increases with temperature rise.

APPLICATION:

Low temperature shut down, direct action temperature controller requiring semi-throttling direct action.
For piped vent in Direct or Indirect mode.

WORKING PRESSURE (sensing element):

psig	kg/cm ²
500	35.15 max. without Separable Socket.
4000	281.23 max. with Separable Socket.
7000	492.15 max. with Special Separable Socket.

Separable Socket is an extra price item and must be ordered separately, if desired. To order Separable Sockets refer to Table of Contents

TEMPERATURE RANGE:

-30°F minimum TO 400°F maximum
-34°C minimum to 204°C maximum

OPERATION:

This Thermostat Base Assembly consists of a STAINLESS TUBE for monitoring the changing temperature, which is connected by a Low Expansion Alloy Rod to a DIAPHRAGM ASSEMBLY. The differential pressure across the Diaphragm combined with the changes in the length of the STAINLESS TUBE semi-throttle a PILOT PLUG valve. The PILOT PLUG consists of two stainless balls rigidly connected together. The seat at BALL 1 is the pressure vent (Yellow to Atmosphere). The seat at BALL 2 is the Supply Pressure inlet (Violet to Yellow).

Assume the set temperature of the Thermostat is above that of the system. The Inlet at BALL 2 is closed and the vent at BALL 1 is open. Output Pressure (Yellow) is vented away so that no signal is being sent to the Pilot or Motor Valve.

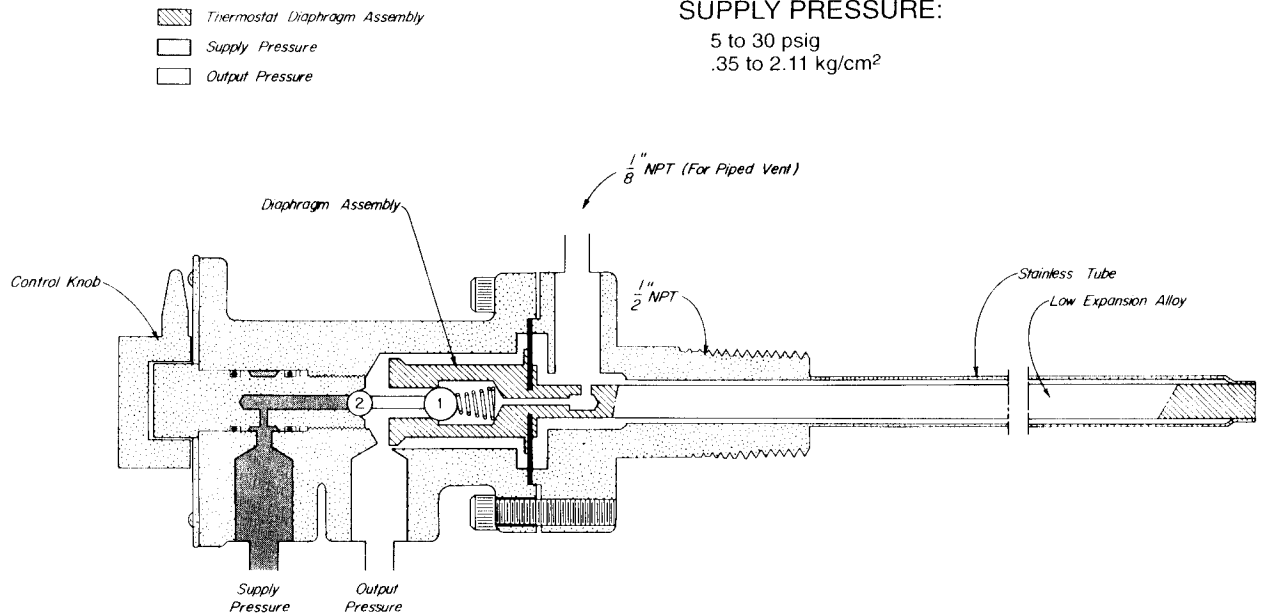
As the temperature rises in the system, the STAINLESS TUBE increases in length to move the Thermostat Diaphragm Assembly in a direction to first close the seat at BALL 1 (Yellow to Atmosphere) and open the seat at BALL 2 (Violet to Yellow). Output Pressure (Yellow) increases and acts on the DIAPHRAGM accounts for the semi-throttle action of the Thermostat. Output Pressure (Yellow) increases to cause the desired Pilot or Motor Valve action.

As the temperature decreases, the action is reversed to decrease or vent Output Pressure (Yellow).

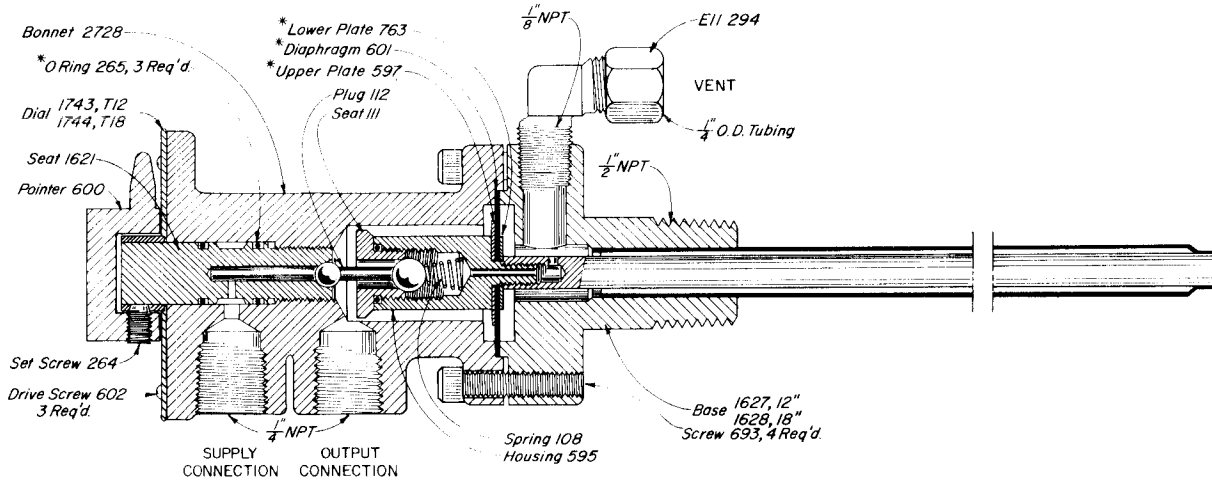
By reversing the Vent and Supply lines, the Thermostat can be made to act in an indirect throttle mode, Pilot Output Pressure decreases with temperature rise. In this mode the "DA" Thermostat acts identical to the standard T 12 Thermostat with the exception of being able to pipe the vent line away from the thermostat.

SUPPLY PRESSURE:

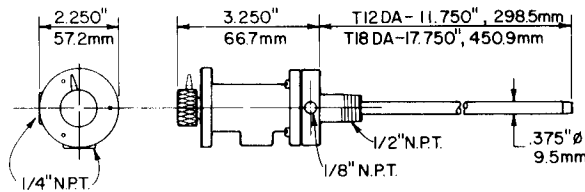
5 to 30 psig
.35 to 2.11 kg/cm²



T 12/18DA
 CAST IRON
 500 lbs. W.P.
 -30°F to 400°F, -34°C to 204°C



THERMOSTAT DIMENSIONS



**DIRECT BASE ASSEMBLIES AVAILABLE:
 CAST IRON, 500 lbs. W.P.**

CAT. NO.	BASE ASSEMBLY	MAX. TEMP. °F	MAX. TEMP. °C
HAP	T 12DA	400	204
HAR	T 18DA	400	204

*These are recommended spare parts and are stocked as repair kits. To order repair kit, specify; "T 12DA Repair Kit, RLK."

Separable Sockets are available at extra cost, refer to Table of Contents for ordering.

ACTION:

Indirect throttle: Pilot Output Pressure (Yellow) decreases with temperature rise.

APPLICATION:

Used to control the temperature in indirect heaters, emulsion treaters, reboilers, steam generators, heat exchangers, cooler shutter controllers, and salt bath heaters

WORKING PRESSURE (sensing element):

p.s.i.g.	kg/cm ²	
500	35.15	max. without Separable Socket.
4000	281.23	max. with Separable Socket.
7000	492.15	max. with Special Separable Socket.

Separable Socket is an extra price item and must be ordered separately, if desired. To order Separable Sockets refer to Table of Contents.

TEMPERATURE RANGE:

TC 12, TC 18	-30 °F minimum to 400 °F maximum.
	-34 °C minimum to 204 °C maximum.
HTC 12, HTC 18	-30 °F minimum to 750 °F maximum.
	-34 °C minimum to 399 °C maximum.

OPERATION:

These Controllers consist of an Indirect Throttle Action Base Assembly operating a 1" Pressure Opening Motor Valve. A Filter Pop Valve is provided as a relief valve in the event the Upstream or Supply Pressure (Red) gets to high for the Base Assembly to control.

Assume the set temperature of the Thermostat is above the temperature of the system being controlled and the Motor Valve is open. When the Motor Valve is open, the Output Pressure (Yellow) under the Motor Valve Diaphragm opposes the spring.

As the temperature rises in the system, the STAINLESS TUBE increases in length to move the Thermostat Diaphragm (or Bellows) Assembly in a direction to first close the seat at BALL 1 (Red to Yellow) and open the seat at BALL 2 (Yellow to Atmosphere). As the Output Pressure (Yellow) decreases, the spring on the Motor Valve Stem Assembly moves the inner valve toward a closed position.

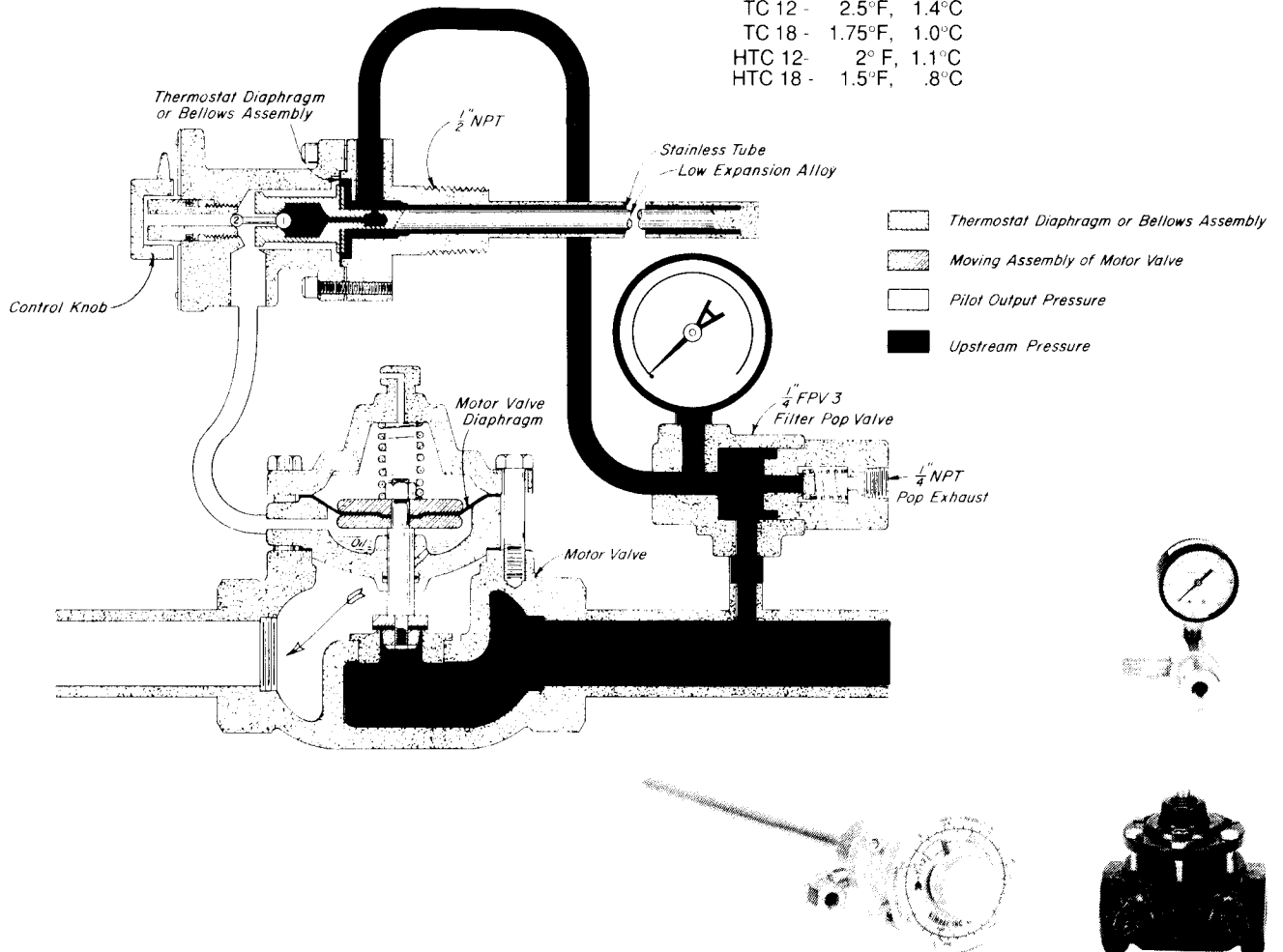
As the temperature decreases, the action is reversed to increase the Output Pressure (Yellow) and move the inner valve to an open position.

SUPPLY PRESSURE:

5 to 25 psig.
.35 to 1.75 kg/cm².

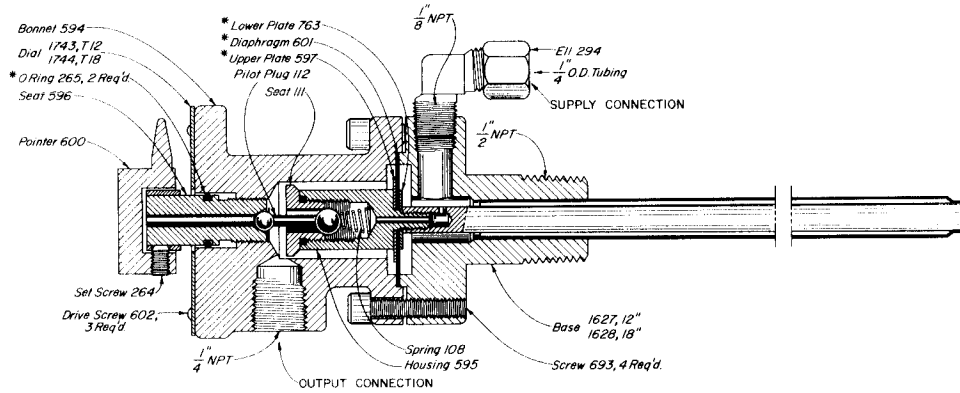
RESPONSE RANGE:

TC 12 -	2.5°F, 1.4°C
TC 18 -	1.75°F, 1.0°C
HTC 12 -	2° F, 1.1°C
HTC 18 -	1.5°F, .8°C

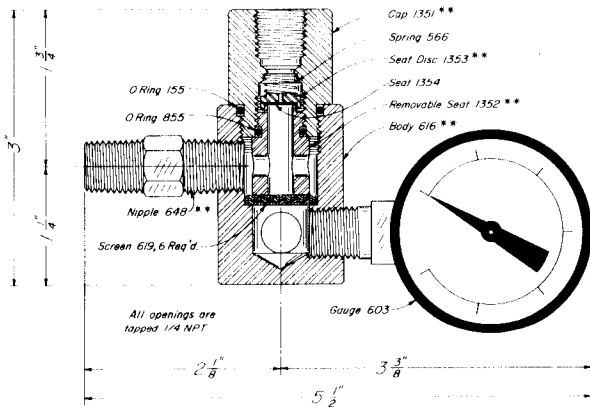


1" TC 12

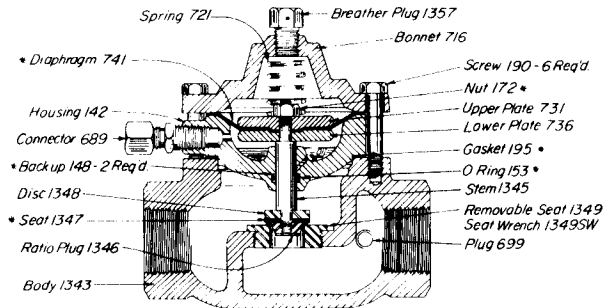
1" TC 12/18
 CAST IRON
 500 lbs. W.P.
 -30°F to 400°F, -34°C to 204°C



FILTER-POP VALVE 1/4 FPV 3



**112 SMT DAB
 CAST IRON
 125 lbs. W.P.**



INDIRECT THROTTLE TEMPERATURE CONTROLLERS AVAILABLE: CAST IRON or STEEL, 500 lbs. W.P.

CAT. NO.	THERMOSTAT MODEL	MAX. TEMP. °F	MAX. TEMP. °C
HAE	1TC 12	400	204
HAF	1TC 18	400	204
HBE	1HTC 12	750	399
HBF	1HTC 18	750	399

*These are recommended spare parts and are stocked as repair kits. To order repair kit, specify, "TC Repair Kit, RLD" or "HTC Repair kit, RLE."

Separable Sockets are available at extra cost, refer to Table of Contents for ordering.

For parts reference of the High Temperature Base Assemblies for HTC 12 and HTC 18, refer to "Base Assemblies" in Table of Contents.