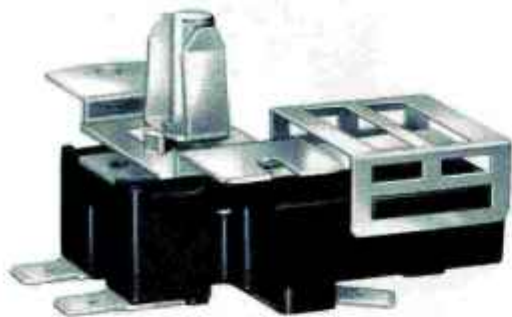


FIXED SETTING CONTROLS



ADJUSTABLE CONTROLS

SPECIAL PURPOSE CONTROLS



EMERSON ELECTRIC GMCH
THERM-O-DISC DIVISION
7000 WARBLINGDEN
Heerstraße 111 Paudfach 12 29

If you have a temperature control problem for a volume production application, Therm-O-Disc can help you solve it. During the past 20 years, we have developed more than 50 controls in cooperation with our customers. Many of these applied new principles developed by Therm-O-Disc Research. Some were modifications of existing designs.

This bulletin includes brief descriptions and representative ratings of fixed setting, adjustable, and special purpose controls which are currently in production. If you need a control that is not illustrated, or one with an electrical rating that is not listed, ask us about it. Chances are that we can meet your requirements. There is a request form on the next page for your convenience.

WHO WE ARE

Therm-O-Disc, Incorporated was organized in Mansfield, Ohio in 1948 to manufacture bimetal blade thermostats for electric water heaters. This control incorporated major design innovations, and was followed a year later by a bimetal disc thermostat which operated on the "free disc" principle—a completely new concept.

Therm-O-Disc has continued its emphasis on engineering research and this effort has established the company as a leader in the temperature controls field.

This commitment to excellence in engineering is supported by complete design and testing facilities.

Therm-O-Disc controls are manufactured at two locations—in Mansfield, Ohio, and in St. Thomas, Ontario, Canada. The headquarters plant in Mansfield is located on a 100-acre plot, and now covers more than 237,000 square feet. The St. Thomas plant, built in 1961, is a manufacturing facility, and covers 37,400 square feet.

WHO WE SERVE

Most of our customers are in the appliance industry. They include companies which produce electric water heaters, gas and electric home heating devices, refrigerators, room air conditioners, automobile air conditioners, clothes dryers, table appliances, liquid and food dispensing machines. In addition, we make thermostats for marine engines, for engine lubrication systems in military vehicles, and for many other purposes.

HOW WE OPERATE

We are prepared to assist you in the way which best meets your needs. You may request one of our Therm-O-Disc Field Sales Engineers to assist in selecting the proper control for your application. If you

SELECTION GUIDE FOR



Therm-O-Disc®

DEPENDABLE TEMPERATURE CONTROLS

- Engineering of Controls for Volume Production Applications.
- Features of typical controls including Fixed Setting, Adjustable, and Special Purpose Types.
- How to Get More Information and Assistance in Selecting the Right Control.
- Control Application Notes.

prefer, you may write or telephone us in Mansfield and discuss your requirements. Or, if several of the controls shown appear to fit your application, we can mail you the appropriate bulletins which contain more detailed information.

Our controls are manufactured to order to meet the special requirements of each customer, and are not carried in inventory as "stock" items. Sample controls usually can be supplied within seven days, and production orders within four weeks.

SELECTION AND APPLICATION

The most important factors in selecting a temperature control are listed on the request form shown on the following page. While additional details may be necessary to provide correct sample controls, these facts will enable us to select the basic design you need.

Each control permits a wide choice of mounting arrangements, terminal configurations, and switch actions. These and other factors to be considered are discussed on the back page.

We invite you to review the general information in this bulletin, then ask us to provide the facts you need or take the action you want.



FIXED SETTING Bimetal Disc TEMPERATURE CONTROLS

These are snap-action controls which are factory calibrated to your exact temperature specifications. They are used for temperature limiting and temperature regulating applications up to 350°F, where a non-adjustable control is suitable.

The bimetal disc element of these controls is dished or curved like the surface of a sphere. When the calibrated temperature is reached, the disc snaps through rapidly and actuates a switch which may be SPST, SPDT, or manual reset. The great speed of this snap action provides fast contact "make" and "break" for long contact life at high electrical loads. These controls are available with exposed or enclosed discs. The exposed disc provides maximum sensitivity, while the enclosed design offers extra protection from dirt, dust and lint.

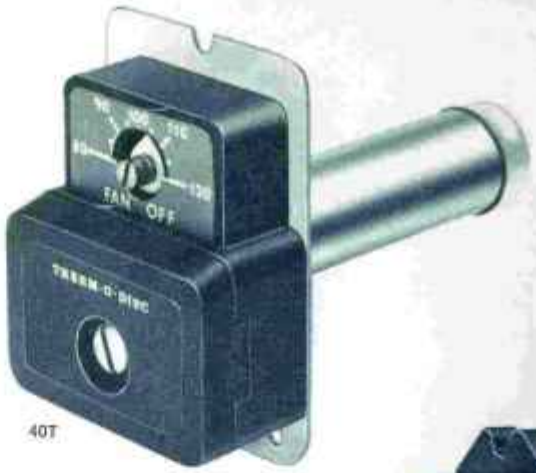
Four basic disc diameters are employed in these controls. They are 1½", 1", ¾",

and ½". The smaller the disc the lower the price, but the larger discs permit higher electrical switch capacities and more precise temperature control. All of the controls are designed to provide maximum useable contact pressure, and have a switch chamber to protect the contacts from contamination. Every possible step is taken to provide dependable operation.

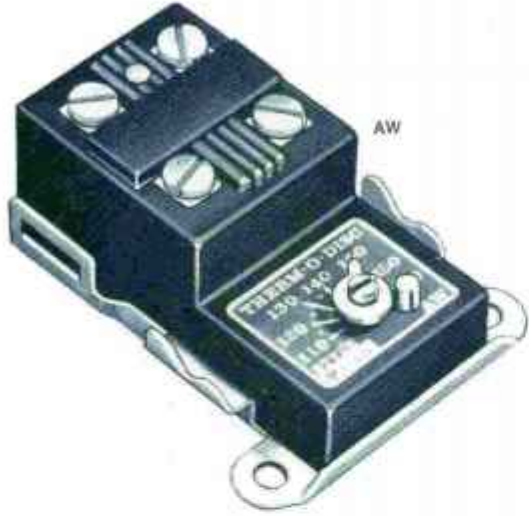
SERIES	DESCRIPTION	TYPICAL APPLICATIONS	REPRESENTATIVE ELECTRICAL RATINGS			
			Inductive Amperes		Resistive Amperes	Volts AC
			Full Load	Locked Rotor		
11T	1" disc. Universal bimetal disc control. SPST and SPDT. Narrow differential. "Workhorse" of the industry.	Clothes Dryers, Gas and Electric Heating, Liquid and Food Dispensing Machines.	10.0 5.0	60.0 30.0	25.0 25.0	120 240
36T	½" disc. Smallest high capacity universal control. SPST.	Dishwashers, Percolators, Other Portable Appliances.	5.8 2.9	34.8 13.0	10.0 10.0	120 240
36TX	Same as above except with increased electrical clearances.	Electric Heating.	5.8 2.9 —	34.8 13.0 —	15.0 10.5 9.3	120 240 277
38T	½" disc. Lowest cost control. SPST.	Hair Dryers and Curlers, Electric Heat Tapes.	— —	— —	5.0 2.5	120 240
41T	¾" disc. Standard manual reset limit control. SPST.	Clothes Dryers, Gas and Electric Heating.	10.0 — —	45.0 — —	25.0 25.0 15.0	120/240 277 600
60T	¾" disc. Standard SPST design. Used for temperature limiting or temperature regulating. Also SPDT.	Clothes Dryers, Gas and Electric Heating.	10.0 5.0 — — —	60.0 30.0 — — —	25.0 25.0 21.6 12.5 10.0	120 340 277 480 600
HL	1½" disc. High electrical capacity manual reset limit control. DPST.	Electric Heating.	— —	— —	50.0 25.0	120/240 480



50T



40T



AW



A



AF

ADJUSTABLE Blade and Disc TEMPERATURE CONTROLS

Most adjustable controls respond to the flexing of a bimetal leaf or blade. They are available with snap-action or creep-type contacts, and are used mainly for temperature regulating or control. Calibrations are available as high as 500°F. The bimetal blade of these controls is fixed at one end, while the other end is free to flex with temperature change. The force developed is used to actuate a snap-action switch, or to directly operate a set of contacts by slowly moving them apart or together.

Now an adjustable control utilizing a bimetal disc as the temperature sensor has been developed by Therm-O-Disc

Research. This new patentable design combines the feature of an adjustable temperature range with the power and dependability of a bimetal disc.

Snap-action bimetal blade controls are available with differentials as narrow as $3 \pm 1^\circ\text{F}$, and may be used to replace more expensive capillary controls on many applications. Bimetal blade controls with creep-type contacts are generally the lowest priced, but their capacity is limited to approximately 1650 watts at 120/240 VAC.

SERIES	DESCRIPTION	TYPICAL APPLICATIONS	REPRESENTATIVE ELECTRICAL RATINGS			
			Inductive Amperes		Resistive Amperes	Volts AC
			Full Load	Locked Rotor		
50T	Precision temperature control. Narrow differential and tolerances. SPST. Double break in "off" position.	Electric Heating, Window Air Conditioning, and Refrigeration.	14.0 —	84.0 —	17.0 17.0	120/240 277
AW	Temperature regulating control.	Electric Water Heaters.	— —	— —	25.0 12.5	120/240 480
A	Bimetal blade. Adjustable to 500°F. Slow make-and-break contacts.	Portable and Table Top Appliances.	— —	— —	13.75 6.88	120 240
AF	Fan control. Bimetal blade sensing element extends $\frac{3}{4}$ " into the air stream.	Room and Unit Heaters, Air Conditioning and Ventilating Equipment.	4.4 2.2	26.4 13.2	— —	120 240
40T	Fan control. Bimetal disc sensing element extends 3" into the air stream.	Standard Fan Control for Gas or Electric Heating Systems.	16.0 10.0	72.0 60.0	— —	125 250

NOTE: All controls shown (except Series A and 30T) carry a minimum pilot duty rating of 125 volt-amperes at their rated voltages. For more complete ratings consult factory.

CONTROL APPLICATION NOTES

The three basic considerations in the selection of the proper temperature control are the electrical, thermal, and physical requirements of the application. Proper attention to these factors is most important in the selection of the basic control and specific variations. We recommend that you avail yourself of our Engineering service in making this selection and in reducing application test time.

A Therm-O-Disc Field Sales Engineer is close at hand and is supported by the Sales Engineering Department which is staffed by trained Engineers. Both are backed by complete research and engineering facilities.

Electrical Requirements

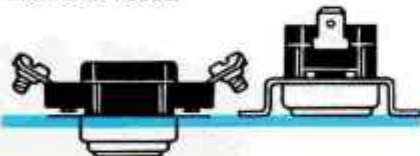
The application need should be determined in terms of electrical load to be controlled, switch action, and required cycle life. Contact ratings vary from milli-amperes and millivolts, up through 5 and 12 KW, and through 480 VAC. Switching actions include single-pole single-throw, single-pole double-throw, double-pole single-throw, and manual reset. Endurance cycle ratings vary from 6,000 to 100,000 cycles.

Physical Requirements

Physical considerations include size, terminal arrangements, and mounting. Therm-O-Disc temperature controls are available with a choice of terminals and mounting arrangements.

Standard screw and blade-type terminals are available. On most controls, the terminals can be formed at different positions to provide better clearances and easier connection.

Bimetal disc thermostats may be mounted with the bimetal in close contact with the surface for conduction temperature sensing, or extended into the medium for convection or radiation sensing. (See illustration below.) A wide variety of mounting flanges is available to meet individual needs.



AIR STREAM MOUNTING SURFACE MOUNTING

Bimetal disc thermostats may also have exposed or enclosed discs. When environmental conditions exist which may contaminate the contacts, it is suggested that the disc be enclosed by the stainless steel cup which is part of the mounting flange as shown below.



EXPOSED DISC

ENCLOSED DISC

Thermal Requirements

Each series of controls has a maximum temperature rating, and these vary from 200°F. up to 525°F. The control selected must be designed and rated for the normal operating temperatures to be encountered in the application, as well as

over-ride temperatures which may be experienced under abnormal conditions.

When the control has been selected that meets the electrical and physical requirements, it is recommended that initial temperature tests be conducted with a non-operating control equipped with a thermocouple connected to the bimetal. The thermocouple sample should be installed in the application as intended, and the equipment manually controlled while the corresponding bimetal temperatures are recorded.

Evaluation of this test information will guide the proper selection of calibrated samples.

When ordering a thermocouple sample, please specify either iron or copper constantan lead, and the length desired. Standard thermocouple wire size is 30 gauge.

GENERAL INFORMATION

Differential, Calibration and Tolerances

The temperature difference between the opening and closing of the control contacts is called the "differential" and is expressed in degrees Fahrenheit. The calibration and manufacturing tolerances are based on the most important temperature to be controlled.

Generally speaking, a blade type control calibration will be specified by an opening or closing temperature, and a temperature differential. Example: Open 150 ± 5°F., Differential 20 ± 5°F.

A bimetal disc thermostat, on the other hand, will be specified by both the opening and closing temperatures. Example: Open at 160 ± 5°F., Close at 150 ± 5°F.

(The differential is described as mean.)

Each control has standard ranges of temperature calibration for selected temperature differentials. Manufacturing tolerances for opening and closing temperatures will also vary with differential and range. The table below shows these figures for the 60T series SPST thermostat with 3/4" disc. This type of information is available for each Therm-O-Disc control.

60T SERIES SPST 3/4" DISC THERMOSTAT			
Top Temperature Setting Between (°F.)	Mean Differential (Between Top Setting & Bottom Reset) (°F.)	Manufacturing Tolerances	
		Open (°F.)	Close (°F.)
0 to 79	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±6
	30 to 39	±5	±7
	40 to 60	±5	±8
80 to 200	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±5
	30 to 39	±5	±6
	40 to 60	±5	±8
201 to 250	15 to 19	±5	±6
	20 to 29	±5	±6
	30 to 39	±5	±7
	40 to 60	±6	±9
251 to 300	30 to 39	±6	±8
	40 to 60	±7	±10
301 to 350	30 to 39	±7	±10
	40 to 60	±8	±12

Testing Agency Recognition

All Therm-O-Disc controls are thoroughly tested and are recognized by the appropriate agencies including UL, AGA, and CSA. Our field Sales Engineers or factory Sales Engineers can provide you with complete information.

No matter which Therm-O-Disc control is selected for your application, you will get dependable operation . . . the result of sound engineering, controlled manufacturing, and thorough testing. We recognize the importance of dependable service, too! Let us help you become one of our valued customers.

THERM-O-DISC, INCORPORATED



A SUBSIDIARY OF
EMERSON ELECTRIC CO.
1320 SOUTH MAIN STREET
MANSFIELD, OHIO 44907
TELEPHONE (419) 756-5911

REQUEST FOR MORE INFORMATION OR ASSISTANCE IN THE SELECTION OF THERM-O-DISC TEMPERATURE CONTROLS

After checking the action desired and filling in the essential information, please mail this form or a copy to Therm-O-Disc at the address shown below. If you prefer to telephone your request, please call us at (419) 756-5911.



FROM:

NAME _____
 TITLE OR FUNCTION _____
 COMPANY _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____

- Please send me product bulletins showing complete details on these controls: _____, _____, _____.
- Please have your Field Sales Engineer in this area contact me. My application will require about _____ controls per year, and I plan to order about _____ at one time.
- Please help me select the proper temperature control. My requirements are indicated below:

1. Application:

- a. Brief description of product and purpose of thermostat: _____

2. Thermostat Function:

- a. Temperature limiting , Temperature controlling .
- b. Automatic reset , Manual reset .
- c. Adjustable, , Non-adjustable .
- d. If adjustable, indicate range of adjustment: _____ °F.

3. Electrical Load:

- a. Resistive , Inductive .
- b. Amperage _____ Voltage _____.
- c. AC , DC .

4. Contact Action:

- a. SPST (Single-Pole Single-Throw) .
- b. If SPST, indicate if contacts open on temperature rise , or close on temperature rise .
- c. SPDT (Single-Pole Double-Throw) .
- d. Specify if other: _____.

5. Thermostat Calibration:

- a. Open at _____ °F.,
 Close at _____ °F.

6. Life Requirement: _____ cycles.

7. Thermostat Mounting:

- a. Air Stream .
- b. Surface .

8. Environment:

- a. Specify if other than clean, dry air (dirt, dust, lint or moisture conditions): _____

9. Estimate of annual quantity requirements: _____ per year.

10. Production quantity to be ordered at one time: _____

Therm O Disc[®]

Leadership through research
THERM-O-DISC, INCORPORATED
 1325 South Main Street • Mansfield, Ohio 44907

CONTROL APPLICATION NOTES

The three basic considerations in the selection of the proper temperature control are the electrical, thermal, and physical requirements of the application. Proper attention to these factors is most important in the selection of the basic control and specific variations. We recommend that you avail yourself of our Engineering service in making this selection and in reducing application test time.

A Therm-O-Disc Field Sales Engineer is close at hand and is supported by the Sales Engineering Department which is staffed by trained Engineers. Both are backed by complete research and engineering facilities.

Electrical Requirements

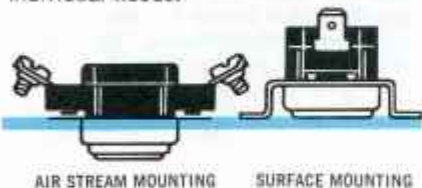
The application need should be determined in terms of electrical load to be controlled, switch action, and required cycle life. Contact ratings vary from milli-amperes and millivolts, up through 6 and 12 KW, and through 480 VAC. Switching actions include single-pole single-throw, single-pole double-throw, double-pole single-throw, and manual reset. Endurance cycle ratings vary from 6,000 to 100,000 cycles.

Physical Requirements

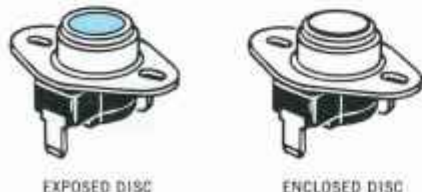
Physical considerations include size, terminal arrangements, and mounting. Therm-O-Disc temperature controls are available with a choice of terminals and mounting arrangements.

Standard screw and blade-type terminals are available. On most controls, the terminals can be formed at different positions to provide better clearances and easier connection.

Bimetal disc thermostats may be mounted with the bimetal in close contact with the surface for conduction temperature sensing, or extended into the medium for convection or radiation sensing. (See illustration below.) A wide variety of mounting flanges is available to meet individual needs.



Bimetal disc thermostats may also have exposed or enclosed discs. When environmental conditions exist which may contaminate the contacts, it is suggested that the disc be enclosed by the stainless steel cup which is part of the mounting flange as shown below.



Thermal Requirements

Each series of controls has a maximum temperature rating, and these vary from 200°F. up to 525°F. The control selected must be designed and rated for the normal operating temperatures to be encountered in the application, as well as

over-ride temperatures which may be experienced under abnormal conditions.

When the control has been selected that meets the electrical and physical requirements, it is recommended that initial temperature tests be conducted with a non-operating control equipped with a thermocouple connected to the bimetal. The thermocouple sample should be installed in the application as intended, and the equipment manually controlled while the corresponding bimetal temperatures are recorded.

Evaluation of this test information will guide the proper selection of calibrated samples.

When ordering a thermocouple sample, please specify either iron or copper constantan lead, and the length desired. Standard thermocouple wire size is 30 gauge.

GENERAL INFORMATION

Differential, Calibration and Tolerances

The temperature difference between the opening and closing of the control contacts is called the "differential" and is expressed in degrees Fahrenheit. The calibration and manufacturing tolerances are based on the most important temperature to be controlled.

Generally speaking, a blade type control calibration will be specified by an opening or closing temperature, and a temperature differential. Example: Open 150 ± 5°F., Differential 20 ± 5°F.

A bimetal disc thermostat, on the other hand, will be specified by both the opening and closing temperatures. Example: Open at 160 ± 5°F., Close at 150 ± 5°F.

(The differential is described as 10°F. mean.)

Each control has standard manufacturing tolerances for opening and closing temperatures will also vary with differential and range. The table below shows these figures for the 60T series SPST thermostat with ¼" disc. This type of information is available for each Therm-O-Disc control.

60T SERIES SPST ¼" DISC THERMOSTAT			
Top Temperature Setting Between (°F.)	Mean Differential (Between Top Setting & Bottom Reset) (°F.)	Manufacturing Tolerances	
		Open (°F.)	Close (°F.)
0 to 79	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±6
	30 to 39	±5	±7
	40 to 60	±5	±8
80 to 200	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±5
	30 to 39	±5	±6
	40 to 60	±5	±8
201 to 250	15 to 19	±5	±6
	20 to 29	±5	±6
	30 to 39	±5	±7
	40 to 60	±6	±9
251 to 300	30 to 39	±6	±8
	40 to 60	±7	±10
301 to 350	30 to 39	±7	±10
	40 to 60	±8	±12

Testing Agency Recognition

All Therm-O-Disc controls are thoroughly tested and are recognized by the appropriate agencies including UL, AGA, and CSA. Our field Sales Engineers or factory Sales Engineers can provide you with complete information.

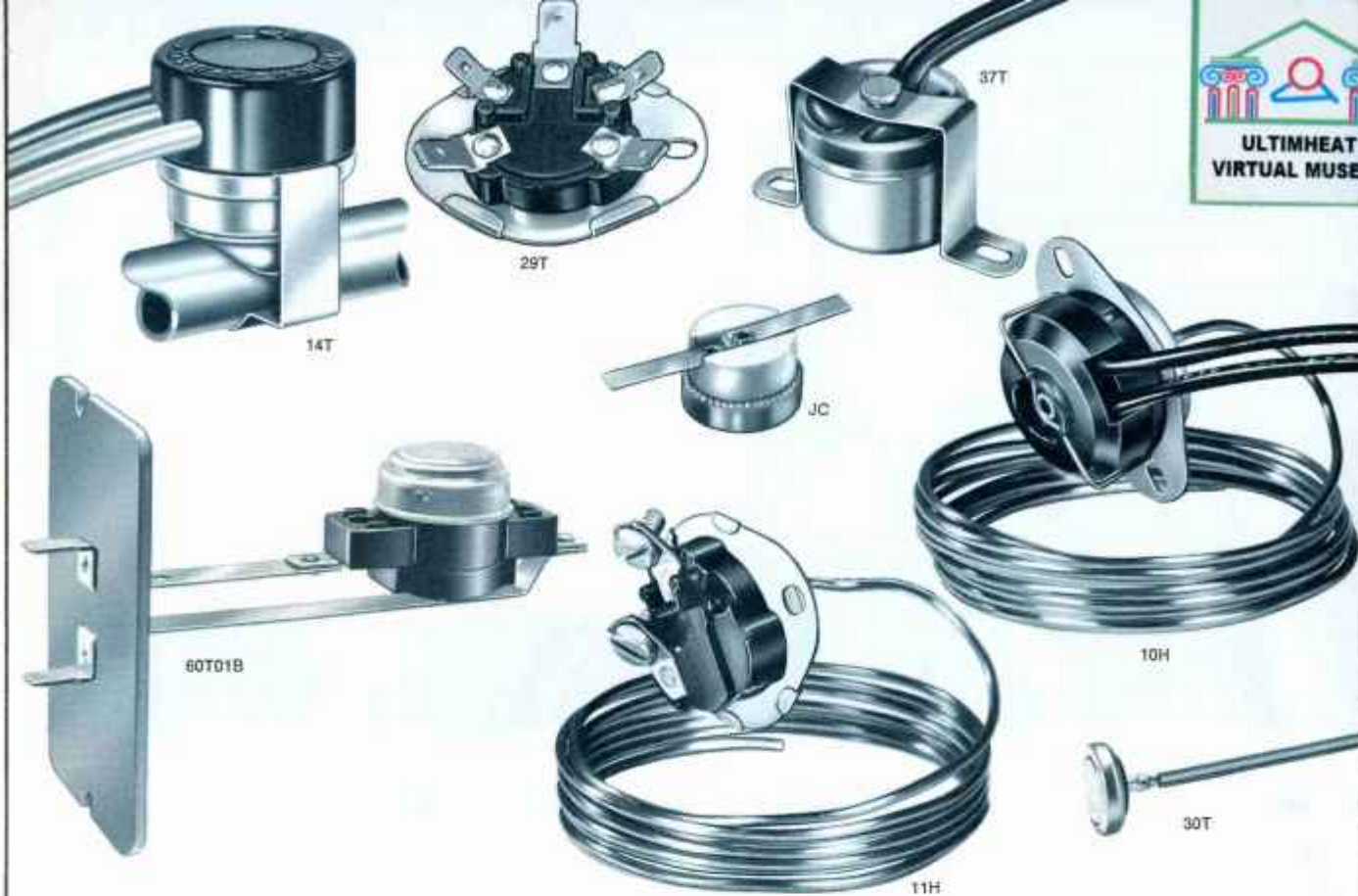
No matter which Therm-O-Disc control is selected for your application, you will get dependable operation... the result of sound engineering, controlled manufacturing, and thorough testing. We recognize the importance of dependable service, too! Let us help you become one of our valued customers.

Plane Connection

THERM-O-DISC, INCORPORATED



A SUBSIDIARY OF
EMERSON ELECTRIC CO.
 1320 SOUTH MAIN STREET
 MANSFIELD, OHIO 44907
 TELEPHONE (419) 756-5911



SPECIAL PURPOSE Bimetal and Capillary TEMPERATURE CONTROLS

This category includes bimetal disc controls which have been modified to meet the needs of special environmental conditions or mounting requirements, and linear limit controls which employ a capillary tube as the thermal sensing element.

The capillary controls are specially designed for over-temperature limit protection in electric baseboard heating, and similar applications with operating temperatures to 350°F. The capillary, which may vary in length from 24 inches to 12 feet, is vacuum charged with selected fluids with boiling points from 150°F through 350°F, at sub-atmospheric pressure. Responding to temperature change anywhere along its length, the capillary actuates a disc type diaphragm. This diaphragm snaps through at a predetermined temperature, and operates the switch which may be SPST, SPDT or manual reset.

Some of the special purpose bimetal disc controls are sealed with epoxy for applications where moist conditions exist, as in refrigerator defrosting. One has an internal heater which provides anticipating heat to the disc. Another is made with a ceramic body for operation in temperatures up to 525°F. For remote temperature sensing, one control has extended terminal straps, while another—not shown in this bulletin—uses a special heat collector. All of them are examples of dependable Therm-O-Disc temperature controls which have been developed to meet the special problems of volume production applications.

SERIES	DESCRIPTION	TYPICAL APPLICATIONS	REPRESENTATIVE ELECTRICAL RATINGS			
			Inductive Amperes		Resistive Amperes	Volts AC
			Full Load	Locked Rotor		
10H 11H	Capillary linear limit. Automatic and manual reset. SPST and SPDT.	Electric Baseboard and Central Heating Systems.	— —	— —	25.0 25.0	120/240 277
14T	1" disc sealed control. SPST and SPDT. Narrow differential. Calibration between -10°F. to 220°F. Heavy duty. Commercial.	Refrigerators and Freezers, Air Conditioning and Ventilating Equipment, Heating-Cooling (fan coil) Systems, Hot Liquid and Food Dispensing.	16.0 10.0	72.0 45.0	25.0 25.0	120 240
60T01B	¾" disc control mounted on a board with terminal straps for extending sensing element into air stream.	Limit Control for Central and Room Heating Systems.	10.0 5.0 — —	60.0 30.0 — —	25.0 25.0 21.6 12.5	120 240 277 480
29T	1" disc with internal anticipating heater for remote or close temperature control. Narrow differential. SPST and SPDT.	Fan Control with Timed "On", Thermal "Off". Clothes Dryer Variable Temperature Control, Thermal Relay.	16.0 10.0	72.0 45.0	25.0 25.0	120 240
30T	½" disc small capacity temperature indicator. Grounded case with single terminal.	Engine Warning Light Indicator.	—	—	1.0 1.0	12VDC 12VDC
37T	¾" disc sealed control. SPST and SPDT.	Temperature Limiting Control for Refrigeration Defrost Termination.	— —	— —	10.0 5.0	120 240
JC	¾" disc high temperature control up to 525°F.	Corn Poppers and Other High Temperature Applications.	— —	— —	6.0 3.0	120 240



Therm-O-Disc

ULTIMHEAT[®]
VIRTUAL MUSEUM

60T SERIES CONTROLS

- Operating Temperatures up to 350°F.
- Snap Action Contacts
- Factory Preset to your Temperature Specifications
- Non-Adjustable
- Automatic and Manual Reset*
- SPST (Single Pole—Single Throw)
- SPDT (Single pole—Double throw)
- U.L. and CSA Recognized
- High Electrical Capacity
- Long Life—Proven Reliability

*For Low Silhouette Manual Reset refer to Bulletin 41T.

FEATURES

Principle of Operation:

Thermal Sensing Element— $\frac{3}{4}$ -inch diameter bimetal disc which snaps through at the calibrated temperature.

Contact Operation—Positive snap contact action is provided by the throw of the bimetal disc.

Sensitivity:

The temperature-sensitive bimetal disc may be either enclosed for protection, or exposed for greater sensitivity. The selection is dependent upon thermal and environmental (moisture, dust or lint) considerations.

Flexibility:

Air Stream Mounting—The temperature-sensitive bimetal disc extends beyond the mounting surface into the air stream.

Surface Mounting—The bimetal disc is located for sensitivity against a flat surface.

Terminal Arrangements—Screw or blade terminals in various configurations.

Terminal and Mounting Relationship—Switch and terminal housing may be rotated in mounting flange by 45° angular increments to provide additional electrical clearances when needed.

Contact Action—Either open (cut out) or close (cut in) on temperature rise. Also available with manual reset feature.

The contacts of the 60T Series manual reset separate on temperature rise at a pre-

determined fixed temperature and stay open. Only after the bimetal disc cools down to its approximate original position can the contacts be reclosed by depressing the manual reset button. Contact action is "trip-free" from the manual reset button. Holding the reset button in a continuous reset position will cause the control to operate as an automatic reset limit control.

The basic difference between the 60T Series and the low silhouette 41T Series manual reset is the overall height and the disc cup extension. The 60T disc cup extends farther into the air stream. Refer to Bulletin 41T.

Quality:

Life and Performance—The "free disc" principle pioneered by Therm-O-Disc Research assures long contact life and calibration stability. Resistant to normal vibrations. No radio or TV interference. Proven Dependability.

Inspection—100% operation checked in addition to Quality Control Analysis.

APPLICATIONS

Over-temperature Limit Protection
Temperature Controlling and Regulating
Automatic Fan Control

Clothes Dryers
Combination Washers-Dryers
Room, Unit and Space Heaters

Central Heating Furnaces
Electric Heating—Portable & Built-in
Air Conditioning and Ventilating Equipment
Portable Appliances
Hot Liquid and Food Dispensing Machines
Aircraft and Miscellaneous Devices

ELECTRICAL RATINGS

U. L. and CSA Recognized
Maximum Temperature 350°F.

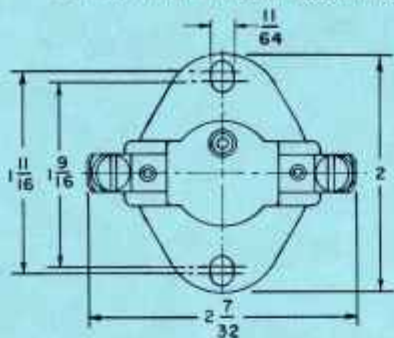
Contact Arrangement	Cycles of Endurance	Inductive Amperes		Resistive Amperes	Volts AC
		Full Load	Locked Rotor		
Terminals 1 & 3 SPST or SPDT	100,000	10	60	25	120
	100,000	5	30	25	240
	100,000	—	—	21.6	277
	100,000	—	—	12.5	480
Terminals 1 & 2 SPDT	6,000	5.8	34.8	10	120
		2.9	17.4	10	240
	100,000	125 VA Pilot Duty	—	—	120
		—	—	—	—
		—	—	—	277

Additional CSA Electric Heat Ratings:

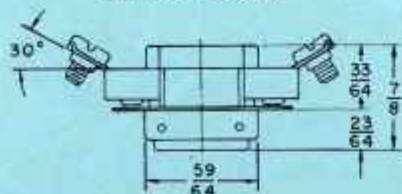
- a. Resistive: 10.0 amperes at 600 VAC.
- b. Pilot Duty: 400 volt amperes at 600 VAC. Consult factory for ratings at other voltages.

continued on next page.

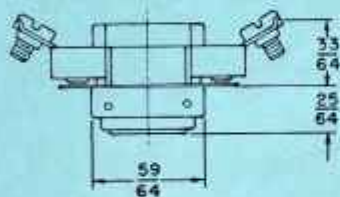
S.P.S.T. AIR STREAM MOUNTING



8-32 NC-2 TERMINAL SCREWS SHIPPED IN BULK



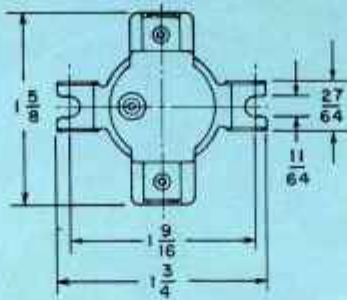
EXPOSED DISC



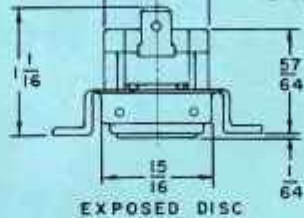
ENCLOSED DISC
AUTOMATIC RESET

Figure 1

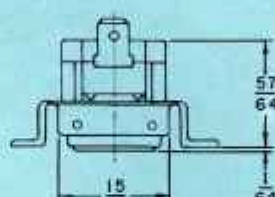
S.P.S.T. SURFACE MOUNTING



1/4 BLADE TERMINALS



EXPOSED DISC



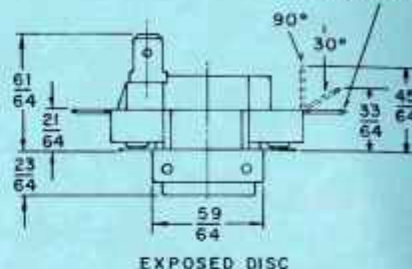
ENCLOSED DISC
AUTOMATIC RESET

Figure 2

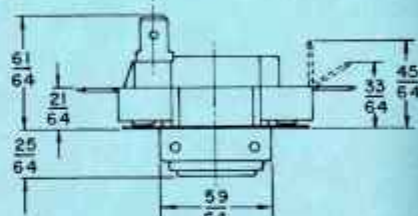
S.P.D.T. AIR STREAM MOUNTING



HORIZONTAL



EXPOSED DISC



ENCLOSED DISC
AUTOMATIC RESET

Figure 3

continued from page one.

For direct current ratings, consult factory.

For millivolt circuits, consult factory.

The 60T Series has been tested and is recognized by U. L. and CSA for electric heating—baseboard and duct heaters.

The 60TX Series is available with increased electrical spacings when required for special applications.

NOMENCLATURE

60T (1st and 2nd suffix numbers)

1st Suffix Indicates Mounting Arrangement:

- 0—No Flange
- 1—Air Stream Mounting
- 2—Surface Mounting
- 8—3/4" Disc Cup Extension

2nd Suffix Indicates Contact (or switching) Arrangement:

- 1—Normally-closed contacts—contacts open on temperature rise.
- 2—Normally-open contacts—contacts close on temperature rise.
- 3—SPDT—single pole, double throw.
- 4—Manual Reset.

Example: 60T11 = 60T thermostat for air stream mounting with normally-closed contacts opening on temperature rise.

CALIBRATION TEMPERATURES, DIFFERENTIALS AND TOLERANCES

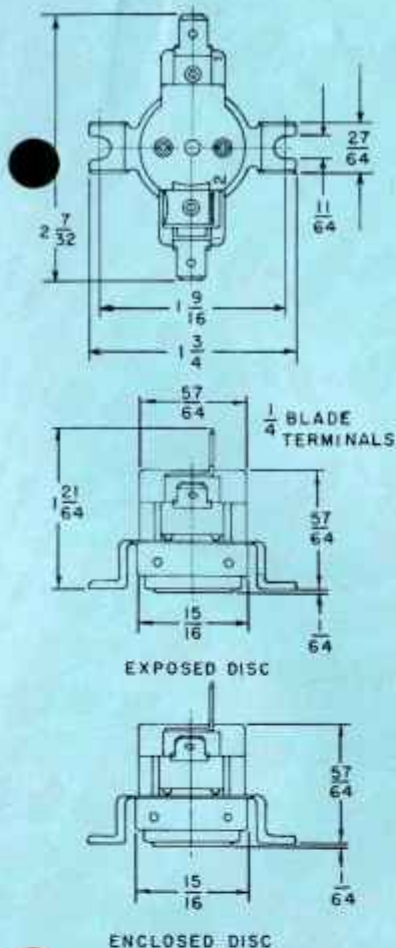
Automatic Reset Design. Top temperature settings, mean differentials, and manufacturing tolerances listed below are considered standard for the automatic reset design. Differential is the difference between the open and close temperatures. The wider the differential, the lower the cost.

Example: A thermostat calibrated to open 160 ± 5°F. (top temperature setting) and close 120 ± 8°F. (bottom reset) has a 40°F. mean differential and costs less than one calibrated to open 160 ± 5°F. and close 150 ± 5°F. with a 10°F. mean differential. Consult factory for any other special considerations.

Top Temperature Setting Between (°F.)	Mean Differential (Between Top Setting & Bottom Reset) (°F.)	Manufacturing Tolerances	
		Open (°F.)	Close (°F.)
0 to 79	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±6
	30 to 39	±5	±7
	40	±5	±8
80 to 200	10 to 14	±5	±5
	15 to 19	±5	±5
	20 to 29	±5	±5
	30 to 39	±5	±6
	40	±5	±8
201 to 250	15 to 19*	±5	±6
	20 to 29	±5	±6
	30 to 39	±5	±7
	40	±6	±9
251 to 300	30 to 39	±6	±8
	40 to 50	±7	±10
301 to 350	30 to 39	±7	±10
	40 to 60	±8	±12

*At this mean differential, the maximum top temperature setting is 220°F.

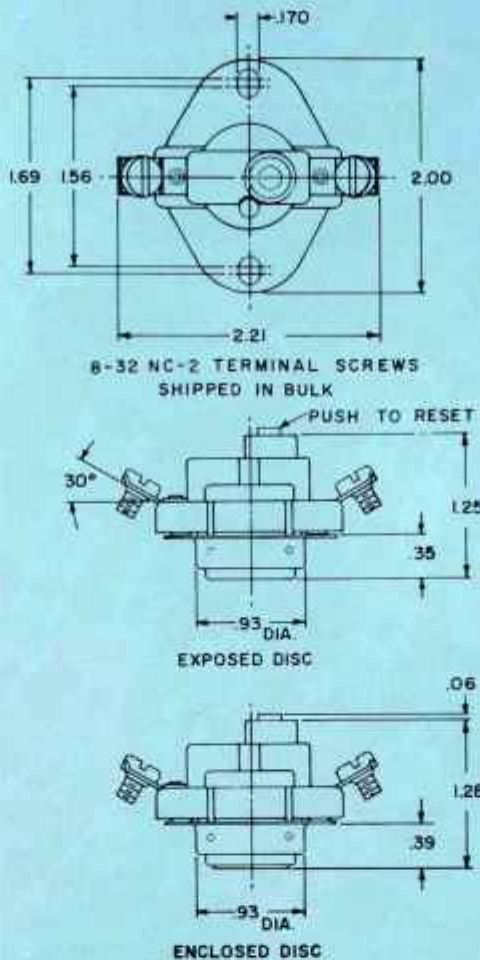
S.P.D.T. SURFACE MOUNTING



AUTOMATIC RESET

Figure 4

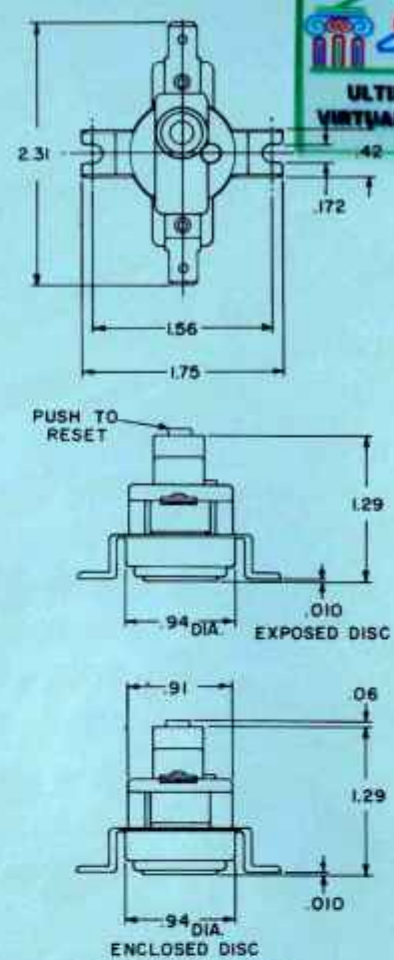
S.P.D.T. AIR STREAM MOUNTING



MANUAL RESET

Figure 5

S.P.S.T. SURFACE MOUNTING



MANUAL RESET

Figure 6



Manual Reset Design. Top temperature settings, mean bimetal disc differentials, and manufacturing tolerances below are considered standard for the manual reset design.

Top Temperature Setting Between (°F.)	Mean Differential Between Open and Bimetal Disc Reset (°F.)	Manufacturing Tolerance—Open (°F.)
0 to 125	35 (minimum) 40 to 80	±5 ±5
126 to 200	25 (minimum) 30 to 39 40 to 80	±5 ±5 ±5
201 to 300	45 (minimum) to 90	±6
301 to 350	50 (minimum) to 90	±8

SAMPLES AND QUOTATIONS

Complete information on the application is very important for furnishing operating samples and for quoting purposes. Please fill in the essential facts, then mail this form or a copy to Therm-O-Disc at the address shown on the next page.

1. Load: AC DC

- a. SPST—Contacts #1 and #3
Resistive Inductive
Amperage _____, Voltage _____

- b. SPDT—Contacts #1 and #2
Resistive Inductive
Amperage _____, Voltage _____

2. Calibration:

- a. Open _____ °F. Temperature
- b. Close _____ °F. Temperature

3. Type of Mounting:

- a. Airstream
- b. Surface

4. Switch Action:

- a. Automatic Reset
- b. Manual Reset

5. Terminals:

- a. Screw Blade
- b. Formed—30° (standard)
90° or horiz.

6. Switch Housing and Terminal Arrangement:

- a. Standard—terminals 90° from mounting holes center line
- b. Rotated 45°—Clockwise
Counterclockwise from mounting holes center line.
- c. Non-standard terminal arrangement (Please describe)

7. Bimetal Disc:

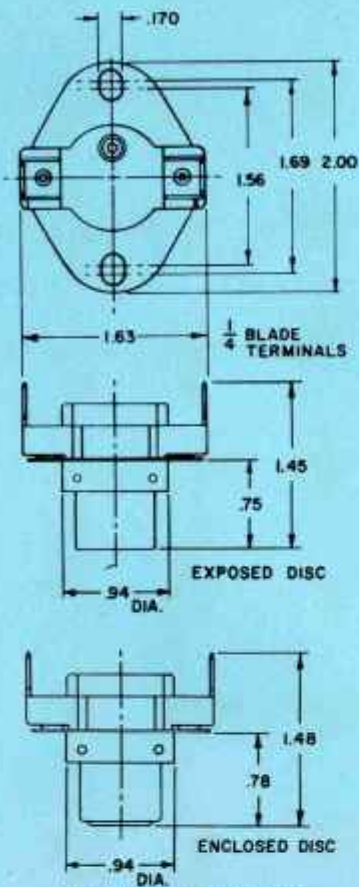
- a. Exposed
- b. Enclosed

8. Disc Cup Extension:

- a. Standard (Fig. 1 through 6)
- b. 3/4" Extension (Fig. 7)

continued on next page.

S.P.S.T. AIR STREAM MOUNTING
WITH 3/4 INCH DISC CUP EXTENSION



AUTOMATIC RESET
Figure 7

NON-STANDARD TERMINAL
ARRANGEMENT
S.P.S.T. ONLY

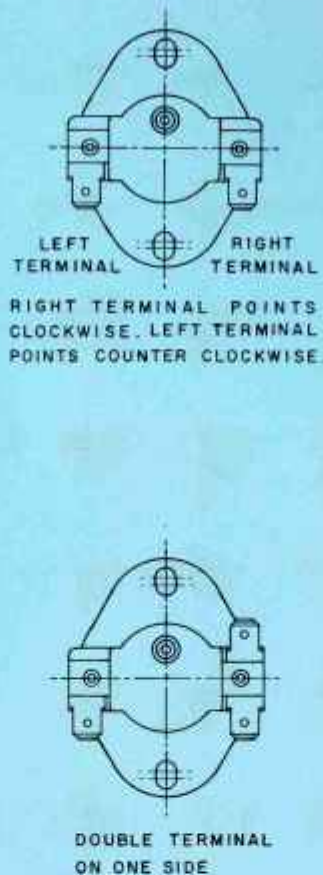


Figure 8

TERMINALS CAN BE MOUNTED 45°
CLOCKWISE OR COUNTER CLOCKWISE
FROM MOUNTING HOLES

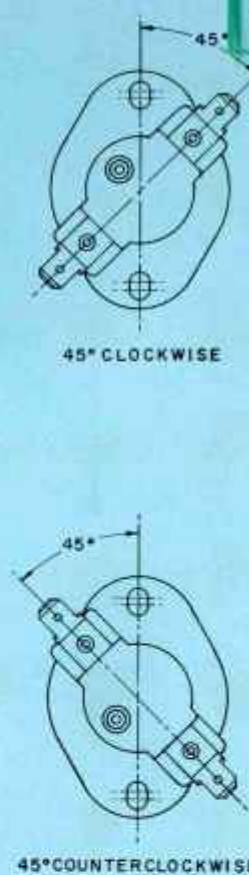


Figure 9



- 9. Life Requirement _____ cycles.
- 10. Maximum temperature to which thermostat will be subjected _____ °F.
- 11. Estimate of yearly quantity requirements. _____ per year.
- 12. Production quantity to be ordered at one time _____

- 13. Environment:
 - a. Specify if other than clean, dry air (dirt, dust, lint or moisture conditions): _____
 - _____
 - _____
 - _____

- 14. Appliance or Application:
 - a. Electric , Gas , Oil
 - b. Purpose of Thermostat and Application Description: _____
 - _____
 - _____
 - _____

THERM-O-DISC, INCORPORATED
Plants in Mansfield, Ohio and St. Thomas, Ontario



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