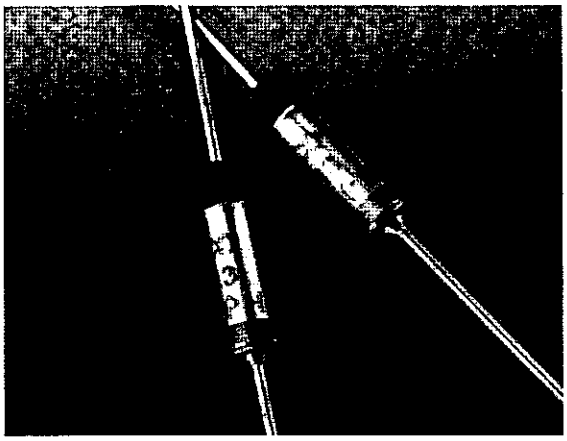
THERMAL CUT-OFFS (THERMAL LINKS)

Responsive, Reliable, Inexpensive, "One Shot"

Overtemperature Protection For:

Major and Small Appliances, Personal Care Products, Heaters, Office Equipment



The TCO responds to temperature by interrupting an electrical circuit when the operating and/or environmental temperature exceeds the thermal rating of the fuse. This is accomplished when the organic pellet experiences a phase change, allowing the spring activated contacts to permanently open the circuit.

RESISTIVE RATINGS

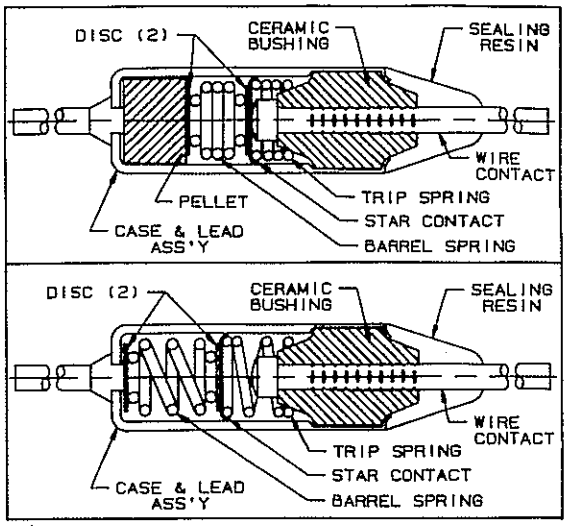
	120VAC	240VAC	277VAC
UL*	16.7/25 Amps	16.7/25 Amps	15/20 Amps
CSA	16.7 Amps	16.7 Amps	15 Amps

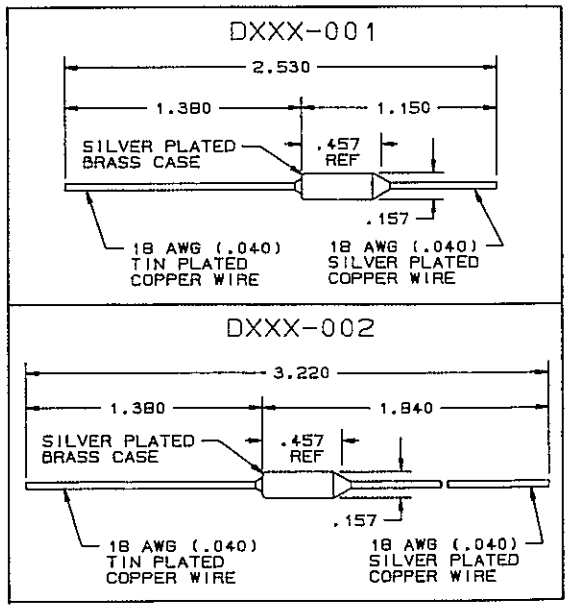
*** Max normal current carrying capability/overload value**

The electrical resistance of a D-Series thermal cut-off is comparable to that found in an equal length of 18 gauge solid copper wire. With proper air flow, heat generation below 15 Amperes is minimal. Above 15 Amperes, the upper limit on current capacity will depend on the environment for each specific application.

Controlled series resistance measurements are made across a total lead span of 1.0 inch on all production units. Using this procedure, typical resistance value is 0.8 milliohms.

Mechanical Specifications





INTERNATIONALLY APPROVED:
Type DXXX
Approval Agency Certificate Numbers

Approval Agency	Certificate Number	Standard
UL	E 49429	UL 1020
CSA	LR 43279	C22.2 NO. 209
BEAB	C0284	BS3955
VDE		IEC691/EN60691
MITI	33-541 Thru 33-557	
FEMKO	095875-01-03	PUBL. E128(CEE 28)
SEMKO	7979904-01	SEMKO 111/CEE 11
SEV	737 003	SEV 1020.1965
UTE	19 479 a 19 481	NF C 73-600
KEMA	86.7665	K29A.07

Note: Types DXXXA & DXXXC Are UL & CSA Recognized.

sibalco
SIBALCO, W. SIEGRIST & CO. AG
CH-4009 BASEL Tel. (061) 264 10 10
Birmannsgasse 8 Fax (061) 264 10 15
Internet: www.sibalco.com E-Mail: sib@sibalco.ch

THERMAL CUT-OFFS (THERMAL LINKS)

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Temperature Ratings
Maximum Opening Temperature

TCO Part Number	Temp°C	Temp°F	TCO Part Number	Temp°C	Temp°F
D070	72	162	D118*	121	250
D076	77	171	D125	128	262
D081	84	183	D139*	141	286
D085	87	189	D149	152	306
D090*	93	199	D167*	169	336
D096	98	208	D181	184	363
D098	100	212	D213	216	421
D103	104	219	D226*	228	442
D108	109	228	D242*	240	464
D115	117	243			

Temp. Tolerance: +0° to -4°C (+0° to -7.2°F)
***Temp. Tolerance: +0° to -6°C (+0° to -10.8°F)**

DXXX Series:
Thermal cut-off with a 18 awg tin plated copper case end lead.

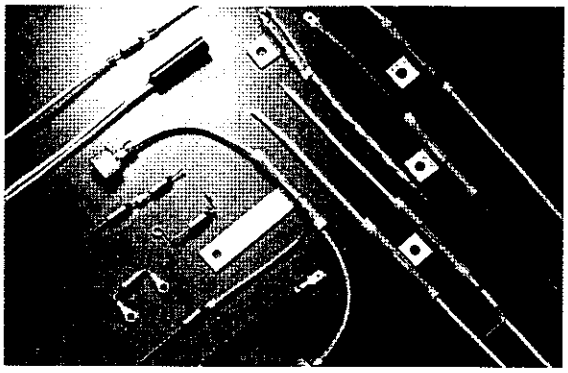
DXXXA Series:
Thermal cut-off with a 23 awg case end lead. Developed for ease of placement in windings.

DXXXC Series:
Thermal cut-off with a 18 awg steel case end lead is available, when required.

JD Series:
Thermal cut-off is set in an Aluminum Surface Mount Bracket.

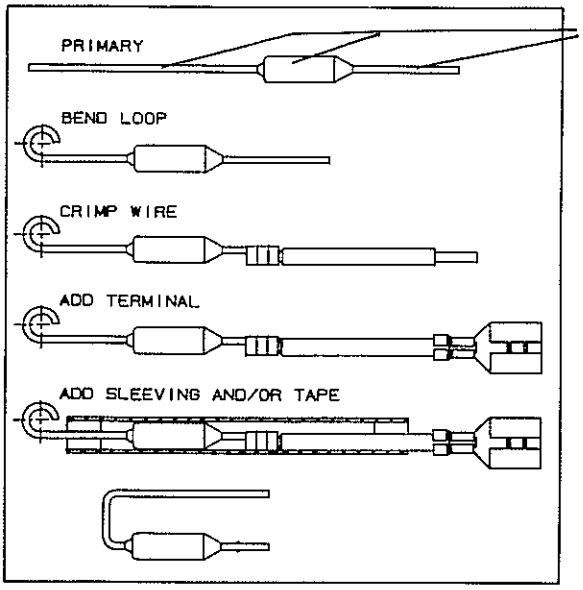
MTP:
Rectangular, insulated thermal cut-off. For use by fhp motor and transformer manufacturers.

(See page 10 for additional information)



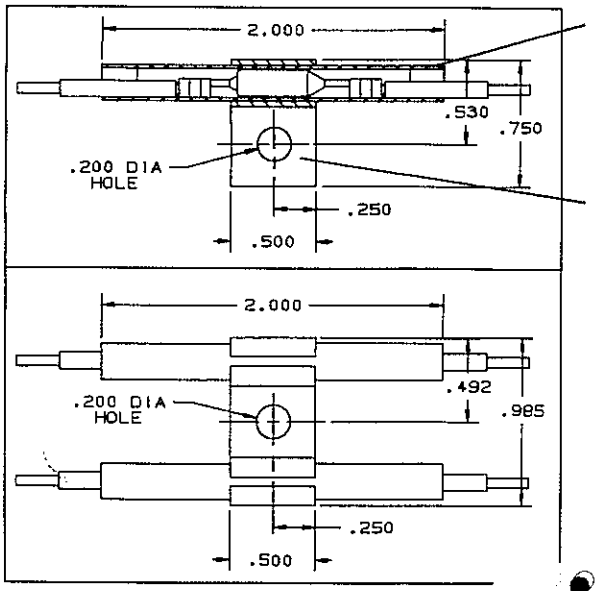
Customized Assemblies:

Fuse assemblies ready for your specific application needs, presenting savings in manufacturing time and money for you...



Strom-leitend

Beispiel



Silikonschlauch Isolation

Kabelschelle

sibalco
SIBALCO, W. SIEGRIST & CO. AG
CH-4009 BASEL Tel. (061) 264 10 10
Birmannsgasse 8 Fax (061) 264 10 15
Internet: www.sibalco.com E-Mail: sib@sibalco.ch

RATINGS OF ELMWOOD THERMAL CUTOFFS (THERMAL LINKS)

Ratings DXXX, DXXXA, & DXXXC

PART NO.	T_F°C	T_H°C	T_M°C
D070(A),(C)	72	65	315
D076(A),(C)	77	67	315
D081(A),(C)	84	76	315
D085(A),(C)	87	80	315
D090(A),(C)*	93	85	315
D096(A),(C)	98	91	315
D098(A),(C)	100	93	315
D103(A),(C)	104	98	315
D108(A),(C)	109	103	315
D115(A),(C)	117	110	315
D118(A),(C)*	121	113	315
D125(A),(C)	128	119	315
D139(A),(C)*	141	134	315
D149(A),(C)	152	144	315
D167(A),(C)*	169	162	315
D181(A),(C)	184	174	315
D213(A),(C)	216	210	315
D226(A),(C)*	228	212	315
D242(A),(C)*	240	215	315

Temp. Tolerance: +0° to -4°C (+0° to 7.2°F)
***Temp. Tolerance: +0° to -6°C (+0° to -10.8°F)**

Electrical Rating DXXX

VOLTS	INTERRUPTING	CONTINUOUS
240VAC	25A RES	16.7A RES
120VAC	5 LRA	0.84 FLA
277VAC	20A RES	15A RES
120-277VAC	125VA PILOT DUTY	
180VDC*	3A MOTOR RATING	

Electrical Rating DXXXA

VOLTS	INTERRUPTING	CONTINUOUS
120VAC	15A RES	10A RES
240VAC	4.5A RES	3A RES
180VDC*	3A MOTOR RATING	

Electrical Rating DXXXC

VOLTS	INTERRUPTING	CONTINUOUS
277VAC	15A RES	10A RES
180VDC*	3A MOTOR RATING	

T_F= Rated Functioning Temperature

T_H= Holding Temperature

T_M= Maximum Temperature Limit

FOR IEC RATINGS CONSULT FACTORY

*** PLEASE CONSULT FACTORY ON TEMPERATURES APPROVED AT THIS LOAD**

INSTALLATION INSTRUCTIONS

The performance of the Elmwood thermal cutoff requires proper handling during installation for it to operate in its intended manner.

The performance of the Elmwood thermal cutoff requires proper handling during installation for it to operate in its intended manner. These instructions are intended to be used to reduce the risk of malfunction of the thermal cutoff which may result from improper installation during forming of leads, splicing, welding and soldering.

1. BENDING LEADS

Care should be taken when forming the Thermal Cutoff (TCO) leads. The TCO leads must be supported 1/8" from bend and case; and 1/8" from bend and epoxy. This will prevent the epoxy seal from cracking which may result in premature degradation of the pellet. A close visual inspection should be performed to make sure that the TCO leads have not been cut, nicked, folded sharply, fractured or burned.

2. MECHANICAL FORCES DURING APPLIANCE CONNECTION

a. When installing the TCO, avoid unnecessary bending, twisting, pulling or pushing on the TCO leads. Care should be taken to avoid cracking or chipping of the epoxy which may result from sharp twisting or bending of the lead.

b. The TCO body must maintain its cylindrical shape to function properly. Excessive clamping could cause denting or crushing of the TCO body, which may lead to failure. X-ray and visual inspection of the TCO will determine if the fuse body has been damaged.

c. Note that the TCO body is electrically live and must be insulated before applying a metal clamp over the TCO body.

d. Care should be used when pushing the epoxy end lead, to avoid the lead being forced into the TCO body. This could result in failure.

3. SPLICES AND TERMINATIONS

By attaching free wire to the TCO leads, connections can be made by bending the free wire; and keeping the TCO leads from being subjected to undue stresses. Splices should be sized according to the size of the wire plus the TCO lead wire. The connections must be electrically sound to prevent high resistance and secure enough to withstand the rated cutoff temperature. Improper connections may cause damage to the seal or other parts and may result in nuisance tripping of the devices due to the generation of excessive heat at a faulty high resistance junction. High resistance junctions may form after normal operation of end use equipment and if the TCO has been subjected to several high temperature cycles. Lead connections used at 150°C (302°F) or higher should be soldered or welded.

4. SOLDERING LEAD

The TCO leads require heat sinking during soldering operations. Lower temperature rated fuses may require more heat sinking than do higher rated fuses. Samples should be X-rayed before and after soldering to insure a consistent pellet height. Reduction of dimension of the thermal pellet indicates that more heat sinking is required. Also, excessive heat conducted by the leads could shorten the life of the TCO as well as burn the epoxy. Assure that the leads are supported during soldering to avoid breaking or cracking of the epoxy.

5. WELDING LEADS

Excessive heat from resistance welding should not be conducted to the body of the TCO. To avoid welding, internal parts, care should be taken that none of the welding current is conducted through the TCO. A welding current of hundreds of amperes could weld the internal parts together resulting in a failure. The leads must also be supported during welding to avoid breaking or cracking of the epoxy.

6. PROTECTION AGAINST OVERHEATING

A certain amount of heat is transmitted to the body of the TCO through the connecting lead on some applications. By attaching the epoxy lead to the heat source, you thereby minimize the temperature increase of the TCO body from this heat flow. When locating the TCO near a heat source, the device should be protected from overheating during operation. Normal operation overheating may cause premature opening of the device and excess overshoot may cause damage to the thermal cutoff.

7. EXAMINATION FOR DAMAGE

An examination for damage of the thermal cutoff should be done after the device-to-appliance connections are made. X-raying before and after the assembly operation and close visual inspection; with special attention made at the epoxy, should be performed on early production samples.

REPLACEMENT

It should be made clear for reasons of safety, that a TCO is a non-repairable item and that in case of replacement an equivalent TCO with the same catalogue number shall be used and mounted in exactly the same way. (per IEC 691/EN 60691 paragraph 8D Note 1)

X-raying before and after the assembly operation and close visual inspection; with special attention made at the epoxy, should be performed on early production samples.