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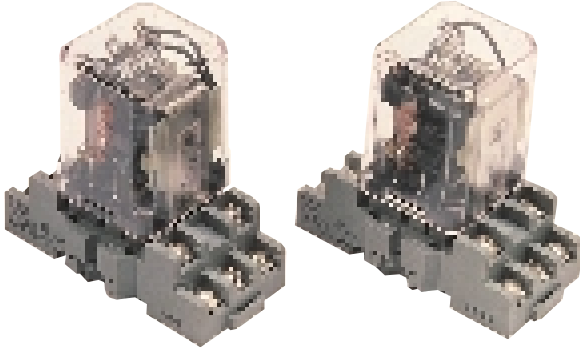
**15**  
SECTION

**ACCESSORIES**



# Mechanical Relays

## DIN Rail Mounted Mechanical Relays



### Design Features

- \* 10 and 15 Amp Models with 24 VDC, 120 and 240 VAC Coils
- \* Sockets Mount on Standard 35 mm DIN Track
- \* Silver-Cadmium Oxide Contacts
- \* Socket and Relay Separation Fast and Easy
- \* UL and CSA Component Recognition
- \* Compact for Easy DIN Rail Installation
- \* Contact Arrangement Up to 3PDT
- \* Enclosed to Prevent Contamination

Common Usage @ 240VAC	Coil Voltage	Poles	Potter & Brumfield Cross Reference Number	TEMPCO Part Number
10	24 VDC	1	KUP-5D15-24	RLM01103
10	120 VAC	1	KUP-5A15-120	RLM01101
10	240 VAC	1	KUP-5A15-240	RLM01102
10	24 VDC	2	KUP-11D15-24	RLM02103
10	120 VAC	2	KUP-11A15-120	RLM02101
10	240 VAC	2	KUP-11A15-240	RLM02102
10	24 VDC	3	KUP-14D15-24	RLM03103
10	120 VAC	3	KUP-14A15-120	RLM03101
10	240 VAC	3	KUP-14A15-240	RLM03102
15	24 VDC	2	KUMP-11D18-24	RLM02153
15	120 VAC	2	KUMP-11A18-120	RLM02151
15	240 VAC	2	KUMP-11A18-240	RLM02152
15	24 VDC	3	KUMP-14D18-24	RLM03153
15	120 VAC	3	KUMP-14A18-120	RLM03151

### CONTACT RATINGS

Type	UL/CSA Ratings	Exp. Life
1-2 Pole KUP	10 amps @ 28 VDC or 240 VAC, 80% PF 5 amp tungsten @ 120 VAC, 3A 600 VAC, 1/2 amp @ 120 VDC	100,000
KUMP	1/2 HP @ 120 VAC, 1/2 HP @ 240, 480, and 600 VAC, 10 FLA 30 LRA @ 120 VAC, 5 FLA, 15 LRA @ 250 VAC. (FLA ratings covered by 30,000 operations)	
KUMP	15 amp @ 277 VAC, 80% PF KUM KUMP	100,000
3-Pole KUP	10 amp @ 28 VDC or 120 VAC, 80% PF, 6% amp @ 240 VAC, 80% PF	100,000



### Easy Rail Mount Socket

Universal socket for mounting 1 to 3 pole relays to a 35mm DIN rail track or surface mounted directly to a panel. A spring loaded latch allows for easy installation or removal from a DIN mounting track. High strength, durable plastic body with 3/16" quick connect/solder; silver-cadmium oxide terminals for relay mounting. Comes with hold down spring. Dimensions with Relay (approximate): 3" x 1 1/2" x 3"

**Part Number:** RLM90001



### How To Order

Choose the **Part Number** of the Relays and accessories that best fit the needs of your application.

**Standard lead time is Stock to 5 days.**



### 35mm DIN Rail Track

Made out of extruded aluminum with holes on 6" centers. Holes accept #8 screws and the rail accepts the offered socket as a simple clip-on mount.

Dimensions: 36" (914mm) long

**Part Number:** RLM90002



## Mechanical Relays

### Definite Purpose Magnetic Contactors

UL and CSA Component Recognition

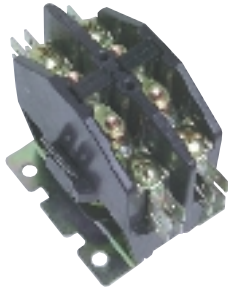
Short Stroke Magnets and Silver Cadmium Oxide Contacts for Long Service

Compact for Side By Side Installation

Front Assembly Pressure Type Line and Load Connectors

Consult Tempco for Units Over 50 Amps or for Optional Nema 1 Enclosure

**Note:** 4-pole model not shown



2-Pole, 30-50 A

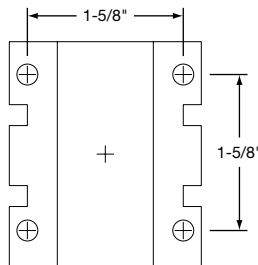


3-Pole, 30-40 A

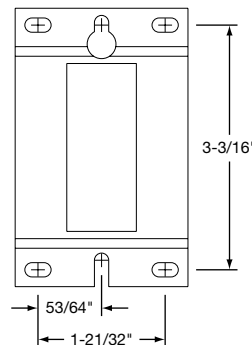


3-Pole, 50 A

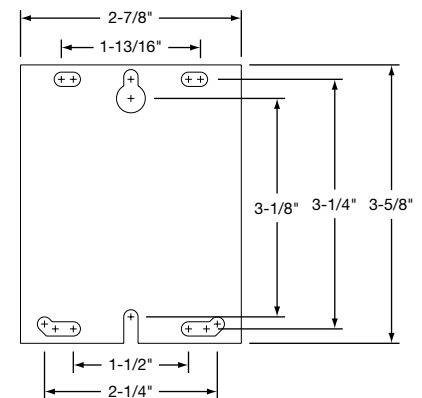
### MOUNTING PLATE DIMENSIONS



2-Pole



3-Pole



4-Pole

Resistive Amperage	Poles	Phase	Dimensions (in)			Furnas Cross Reference	TEMPCO Part Number
			Length	Width	Depth		
30	2	1	3 <sup>3</sup> / <sub>8</sub>	2	2 <sup>27</sup> / <sub>32</sub>	45CG20A	RLM1230
35	2	1	3 <sup>3</sup> / <sub>8</sub>	2	2 <sup>27</sup> / <sub>32</sub>	45DG20A	RLM1235
40	2	1	3 <sup>3</sup> / <sub>8</sub>	2	2 <sup>27</sup> / <sub>32</sub>	45EG20A	RLM1240
35	3	3	3 <sup>31</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>4</sub>	3	42AF35A	RLM1335
40	2	1	3 <sup>3</sup> / <sub>8</sub>	2	2 <sup>27</sup> / <sub>32</sub>	42BF15A	RLM1241
40	3	3	3 <sup>31</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>4</sub>	3	42BF35A	RLM1340
40	4	3	3 <sup>31</sup> / <sub>32</sub>	2 <sup>7</sup> / <sub>8</sub>	3	42BF25A	RLM1440
50	2	1	3 <sup>3</sup> / <sub>8</sub>	2	2 <sup>27</sup> / <sub>32</sub>	42CF15A	RLM1250
50	3	3	3 <sup>31</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>4</sub>	3	42CF35A	RLM1350
50	4	3	3 <sup>31</sup> / <sub>32</sub>	2 <sup>7</sup> / <sub>8</sub>	3	42CF25A	RLM1450

### COIL VOLTAGE TABLE

Voltage	Coil Code	
	60 Hz	50 Hz
24	24	<b>1</b>
110-120	110	<b>2</b>
200-208	N/A	<b>3</b>
208-240	190-220	<b>4</b>
277	240	<b>5</b>
440-480	440	<b>6</b>
550-600	575	<b>7</b>

## How To Order

Take the **Part Number** for the appropriate unit (proper amps, poles, and phase) and fill in the blank with the corresponding **Coil Voltage Code** from the table above to match your application needs. **Standard lead time is Stock to 5 days.**



# Mercury Relays

## Mercury Displacement Relays — 35 & 60 Amp Resistive Loads

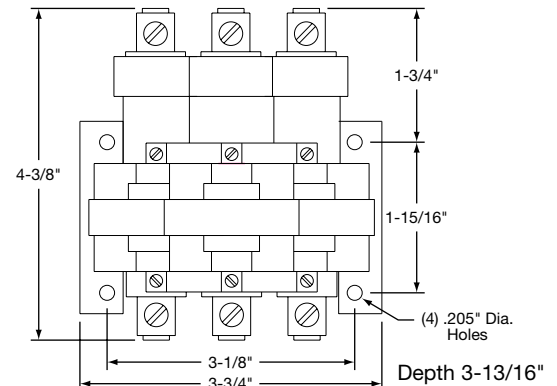
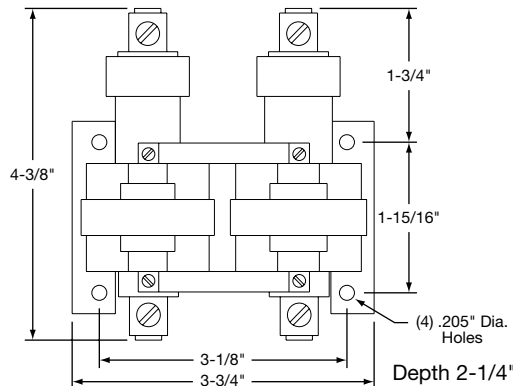
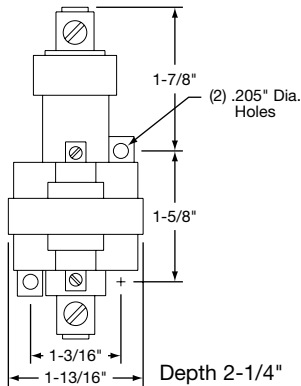
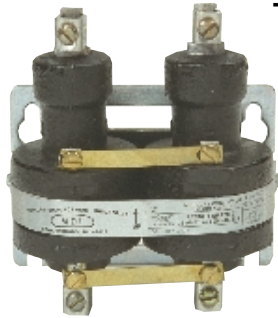
Tempco's Mercury Displacement Relays are specifically designed for resistive loads typical of heating and process equipment. These mercury relays are available in 35 and 60 amp models with single, double, and triple pole configurations. Coil voltages range from 24 to 480 Volts AC at 50/60 Hz and 24 Volts DC.

### Features

Mercury contact action relays are superior to open contact electro-mechanical relays. Mercury relays do not contain springs or button contacts, which tend to wear, weld, and burn out. Mercury contacts are capable of rapid on-off cycling in excess of 6 times per minute under resistive loads. This provides more precise process temperature control, and eliminates the noise from the on-off operating cycles of electro-mechanical relays and contactors.

### Applications

- Industrial Process Equipment Utilizing Resistive Loads
- Industrial Ovens
- Plastic Injection and Extrusion Machinery
- Food Processing Equipment
- Duct Heaters



Type	Coil Volts	35 AMP RELAYS			Coil Resistance (ohms)	60 AMP RELAYS		
		Coil Current	Cross Reference MDI	TEMPCO Part Number		Coil Current	Cross Reference MDI	TEMPCO Part Number
1 Pole Normally Open	24 VDC	136 mA	35NO-24D	RLY01355	176	136 mA	60NO-24D	RLY01605
	24 VAC	242 mA	35NO-24A	RLY01353	50	259 mA	60NO-24A	RLY01603
	120 VAC	53 mA	35NO-120A	RLY01351	1250	48 mA	60NO-120A	RLY01601
	220 VAC	28 mA	35NO-220A	RLY01352	4800	27 mA	60NO-220A	RLY01602
	277 VAC	20 mA	35NO-277A	RLY01356	7900	19 mA	60NO-277A	RLY01606
	480 VAC	12 mA	35NO-480A	RLY01354	20000	12 mA	60NO-480A	RLY01604
2 Poles Normally Open	24 VDC	272 mA	235NO-24D-18	RLY02355	88	272 mA	260NO-24D-18	RLY02605
	24 VAC	484 mA	235NO-24A-18	RLY02353	25	518 mA	260NO-24A-18	RLY02603
	120 VAC	106 mA	235NO-120A-18	RLY02351	625	96 mA	260NO-120A-18	RLY02601
	220 VAC	56 mA	235NO-220A-18	RLY02352	2400	54 mA	260NO-220A-18	RLY02602
	277 VAC	40 mA	235NO-277A-18	RLY02356	3950	38 mA	260NO-277A-18	RLY02606
	480 VAC	24 mA	235NO-480A-18	RLY02354	10000	24 mA	260NO-480A-18	RLY02604
3 Poles Normally Open	24 VDC	408 mA	335NO-24D-18	RLY03355	59	408 mA	360NO-24D-18	RLY03605
	24 VAC	726 mA	335NO-24A-18	RLY03353	17	777 mA	360NO-24A-18	RLY03603
	120 VAC	159 mA	335NO-120A-18	RLY03351	417	144 mA	360NO-120A-18	RLY03601
	220 VAC	84 mA	335NO-220A-18	RLY03352	1600	81 mA	360NO-220A-18	RLY03602
	277 VAC	60 mA	335NO-277A-18	RLY03356	2633	57 mA	360NO-277A-18	RLY03606
	480 VAC	36 mA	335NO-480A-18	RLY03354	6667	36 mA	360NO-480A-18	RLY03604

Note: The 220 VAC coil is used from 208 to 240 VAC.

## How To Order

Choose the **Part Number** of the relay from the table above that matches the needs for your application. We also offer other styles of Mercury Relays—consult Tempco with your requirements.

**Standard lead time is Stock to 5 days.**



### High Performance Economical Mercury Relays — 30 Amp Resistive Loads

The 30 Amp model is designed to save space and simplify mounting methods. It is also extremely economical due to the use of a single coil for 1, 2 or 3 pole relays.

The universal mounting bracket used on the two and three pole relays has various mounting holes and keyhole slots to meet a variety of mounting centers.

The 30 Amp Series is a more compact line with a well proven switch, which is the heart of mercury relays. It is the same switch design that drives our 35 and 60 Amp encapsulated **Mercury Displacement Relays**, which have withstood the test of time and millions of cycles in many different applications.

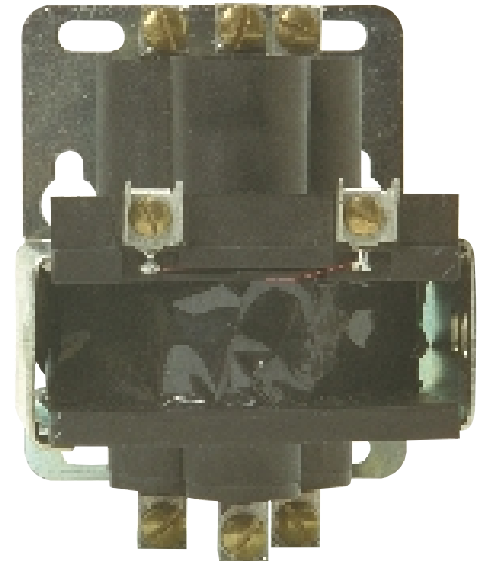
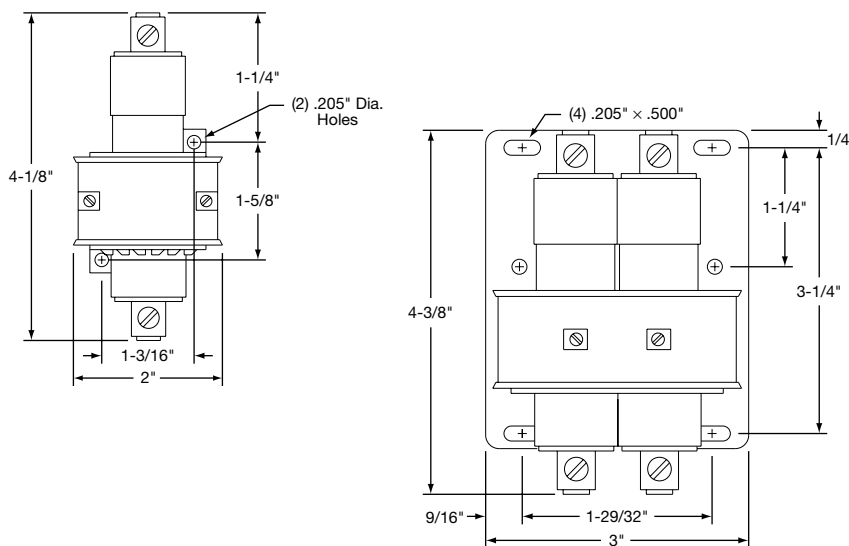
Type	30 AMP RELAYS			Cross Reference MDI	TEMPCO Part Number
	Coil Volts	Coil Current	Coil Resist. (ohms)		
1 Pole N.O.	24 VDC	113 mA	213	30NO-24DU	RLY11305
	24 VAC	216 mA	55	30NO-24AU	RLY11303
	120 VAC	65 mA	725	30NO-120AU	RLY11301
	220 VAC	28 mA	3380	30NO-220AU	RLY11302
2 Poles N.O.	24 VDC	260 mA	92	230NO-24DU	RLY12305
	24 VAC	580 mA	15	230NO-24AU	RLY12303
	120 VAC	115 mA	367	230NO-120AU	RLY12301
	220 VAC	53 mA	1550	230NO-220AU	RLY12302
3 Poles N.O.	24 VDC	217 mA	110	330NO-24DU	RLY13305
	24 VAC	815 mA	7.6	330NO-24AU	RLY13303
	120 VAC	140 mA	215	330NO-120AU	RLY13301
	220 VAC	66 mA	766	330NO-220AU	RLY13302

**Note:** The 220 VAC coil is used from 208 to 240 VAC

### How To Order

Choose the **Part Number** of the relay from the table above that matches the needs for your application.

**Standard lead time is Stock to 5 days.**



### SPECIFICATIONS

**Pull In Voltage:** 90% of nominal (Min. AC)

**Operate (pull in) Time:** 50 milliseconds

**Release Time:** 80 milliseconds

**Operating Ambient**

**Temperature Range:** -35° to 85°C  
(-31° to 185°F)

**Typical Contact Resistance:** 3 Milliohms

**Contact Rating:** 30 Amps

**Dielectric Breakdown:** 2500 VAC RMS

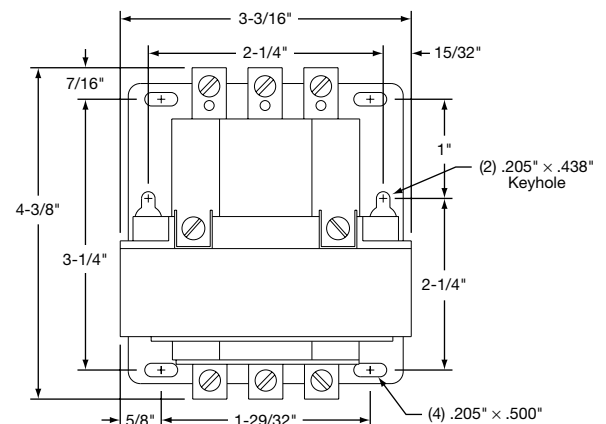
**Mount:** Vertical ±10°

**Coil terminals:** #6 binding head screws

**Load terminals:** #8 binding head screws

**UL Listing:** #E62767

**CSA Listing:** #LR41198



# Solid State Relays and Heatsinks



## Single Phase Solid State Relays (SSR'S)

**Tempco's Solid State Relays** are a highly reliable alternative to mechanical or mercury contactors in high amperage or harsh environments. They offer years of trouble free service and millions of cycles with no moving parts to wear out.



- \* 1 phase normally open models— Current Ratings from 10 Amp through 75 Amp
- \* Zero cross outputs for general applications
- \* UL recognized and CE or CSA certified
- \* Back-to-back SCR output stage
- \* AC or DC control inputs
- \* 240 or 480 Volt Outputs

- Select a **DC control** input relay to work with a temperature control having an *SSR drive output*.
- Choose an **AC control** input relay to work with a temperature control having a *mechanical relay output*.

Nominal Output Voltage Control Input	240VAC		480VAC		Load Current
	DC	AC	DC	AC	
<b>Part Number</b>	RLS02110 RLS02125 RLS02145 — RLS02175	RLS02210 RLS02225 RLS02245 — RLS02275	RLS04110 RLS04125 — RLS04150 RLS04175	RLS04210 RLS04225 — RLS04250 RLS04275	10A 25A 45A 50A 75A
<b>Max. Line Voltage</b> (VAC, rms)	280		530		
<b>Min. Line Voltage</b> (VAC, rms)	24		36		
<b>Max. Off-State Voltage</b> (Vpeak)	±600		±1200		
<b>Max. Off-State Leakage</b> (mArms)	15.0		<b>On-State Voltage Drop</b> (Vpeak)		1.6
<b>Static (Off-State) <math>\Delta v/\Delta t</math></b> (V/ $\mu$ S)	200		<b>Min. On-State Current</b> (mA)		100
<b>Operating Temp. Range</b> (°C)	-20 to +80		<b>Line Frequency Range</b> (Hz)		47 to 60
(°F)	-4 to 176				



### Notes:

1. DC control input = 4-32 VDC
2. AC control input = 90-280 VAC
3. Adequate heatsinking, including consideration of air temperature and flow, is essential to the proper operation of a solid state relay.

## Accessories

For solid state relays Tempco offers a snap-on cover made of high impact, flame retardant polycarbonate that will provide "finger safe" operation.

### Snap-on Cover

For 1 phase SSR: **RLS90001**

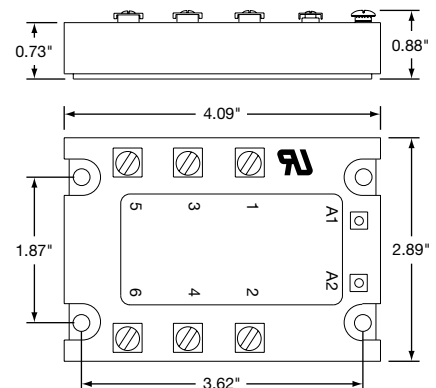
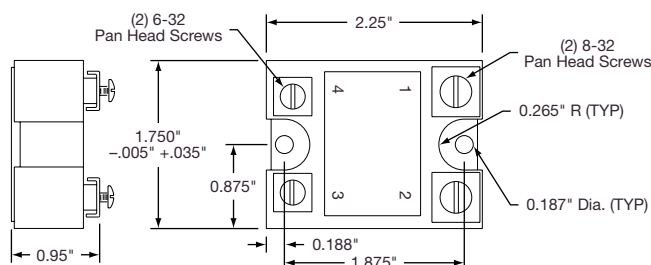
For 3 phase SSR: **RLS90002**

### Thermal Compound: **RLS90003**

2 ounce container

## How To Order

Choose the **Part Number** of the relay from the table above that matches the needs for your application. We also offer other styles of Solid State Relays, such as random turn on; consult Tempco with your requirements. **Standard lead time is Stock to 5 days.**



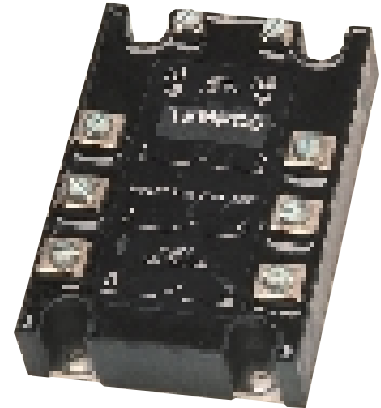


## Solid State Relays and Heatsinks

### Three Phase Solid State Relays (SSR'S)

Tempco's 3 phase Solid State Relays are a highly reliable alternative to mechanical or mercury contactors in high amperage or harsh environments. They offer years of trouble free service and millions of cycles with no moving parts to wear out.

- \* 3 phase Normally Open models— Current Ratings from 10 Amp through 45 Amp
  - \* Zero cross outputs for general applications
  - \* UL recognized and CE or CSA certified
  - \* Back-to-back SCR output stages
  - \* AC or DC control inputs
  - \* Single Output type for 24 through 660 VAC
- Select a **DC control** input relay to work with a temperature control having an *SSR drive output*.
- Choose an **AC control** input relay to work with a temperature control having a *mechanical relay output*.



Nominal Output Voltage Control Input	24 through 660 VAC		Load Current
	DC	AC	
Part Number	RLS36110 RLS36125 RLS36145	— RLS36225 RLS36245	10A 25A 45A
Max. Line Voltage Range (VAC, rms) Max. Off-State Voltage (Vpeak)	24 through 660 VAC ±1200		
Max. Off-State Leakage (mArms)	10.0	On-State Voltage Drop (Vpeak)	1.6
Static (Off-State) dv/dt (V/μS)	500	Min. On-State Current (mA)	200
Operating Temp. Range (°C) (°F)	-20 to +80 -4 to 176	Line Frequency Range (Hz)	47 to 63



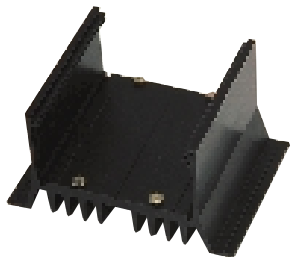
#### Notes:

1. DC control input = 4-32 VDC
2. AC control input = 90-280 VAC
3. Adequate heatsinking, including consideration of air temperature and flow, is essential to the proper operation of a solid state relay.

### How To Order

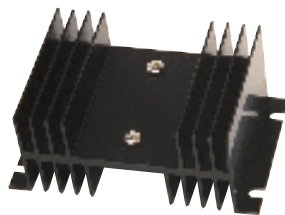
Choose the **Part Number** of the relay from the table above that matches the needs for your application. We also offer other styles of Solid State Relays, such as random turn on; consult Tempco with your requirements. **Standard lead time is Stock to 5 days.**

### Heatsinks



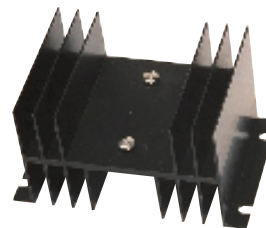
**Part Number: RLS90011**  
Size: 3.87"W × 5.62"L × 3.12"H  
Rating: 1.5°C/W  
Pre-drilled for 3 phase SSR  
Recommended for:

Load Current	Max. Amps	Ambient Max. °C/°F
10A	8	60/140
25A	14	40/104
45A	11	40/104



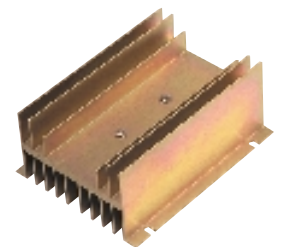
**Part Number: RLS90012**  
Size: 3.0"W × 4.45"L × 2.0"H  
Rating: 2.0°C/W  
Pre-drilled for 1 phase SSR  
Recommended for:

Load Current	Max. Amps	Ambient Max. °C/°F
10A	10	100/212
25A	25	40/104
45, 50A	25	40/104
75A	Not Recommended	



**Part Number: RLS90013**  
Size: 3.0"W × 4.43"L × 2.62"H  
Rating: 1.5°C/W  
Pre-drilled for 1 phase SSR  
Recommended for:

Load Current	Max. Amps	Ambient Max. °C/°F
10A	10	100/212
25A	25	40/104
45, 50A	35	40/104
75A	50	40/104

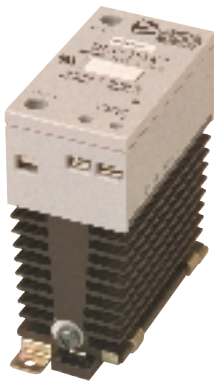


**Part Number: RLS90015**  
Size: 4.35"W × 6.0"L × 2.63"H  
Rating: 0.7°C/W  
Pre-drilled for 1 phase SSR  
Recommended for:

Load Current	Max. Amps	Ambient Max. °C/°F
10A	10	100/212
25A	25	40/104
45, 50A	45	40/104
75A	70	40/104



## “Power Pack” Solid State DIN Rail Relay Modules

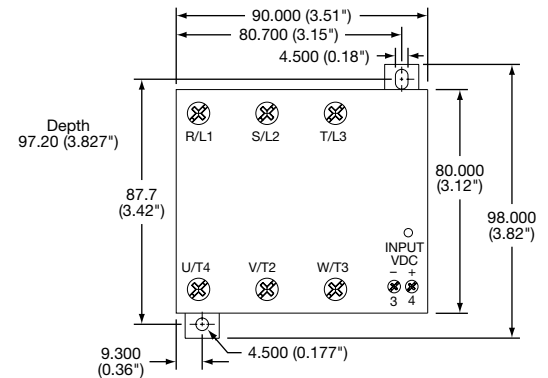
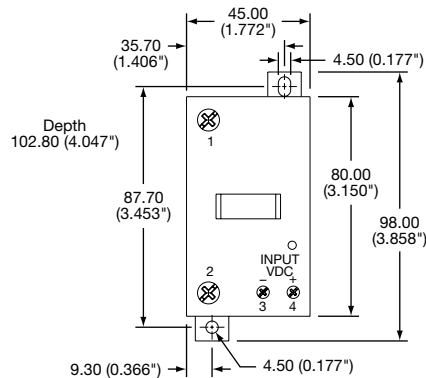
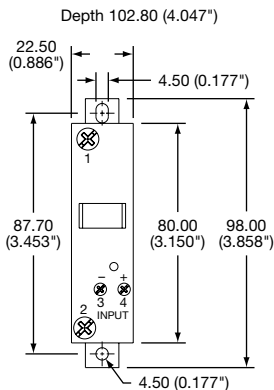


The **Power Pack** combines in one easy to use compact package the traditional hockey puck style solid state relay and required heatsink. This combination eliminates having to mount the SSR to a separate heatsink. It also incorporates the finger safe cover into the housings design. Each Power Pack takes up much less room than the standard SSR and heatsink combination.

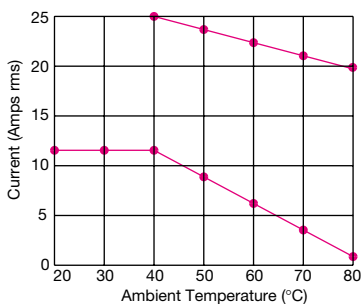
- \* Self Contained Solid State Relay and Heatsink
- \* Standard 35mm DIN Rail or Panel Mount
- \* 1 and 3 phase units with Zero Cross Firing Output
- \* Current ratings from 12 through 35 Amp
- \* 3 Compact Sizes: 22.5mm, 45.0mm, and 90.0mm
- \* Triac or Back-to-Back SCR Outputs

Size	Output Current	Output Voltage	Control Input	Output Type	Max. Turn On Time	Max. Turn Off Time	Min. On State I	Peak On Vol. drop	Part Number
<b>One-Phase Models</b>									
22.5mm	12A	24-280 VAC	4-32 VDC	Triac	8.33 mS	8.33 mS	100 mA	1.85 Vpk	RLS80001
22.5mm	12A	24-280 VAC	90-280 VAC	Triac	20 mS	30 mS	100 mA	1.85 Vpk	RLS80002
22.5mm	24A	24-280 VAC	4-32 VDC	Triac	8.33 mS	8.33 mS	100 mA	1.80 Vpk	RLS80003
22.5mm	24A	24-280 VAC	90-280 VAC	Triac	20 mS	30 mS	100 mA	1.80 Vpk	RLS80004
45.0mm	35A	48-660 VAC	4-32 VDC	B/B SCR	8.33 mS	8.33 mS	100 mA	1.60 Vpk	RLS80101
45.0mm	35A	48-660 VAC	90-280 VAC	B/B SCR	20 mS	30 mS	100 mA	1.60 Vpk	RLS80102
<b>Three-Phase Models</b>									
90.0mm	25A	48-660 VAC	4-32 VDC	B/B SCR	8.33 mS	8.33 mS	100 mA	1.60 Vpk	RLS80201
90.0mm	25A	48-660 VAC	90-280 VAC	B/B SCR	20 mS	30 mS	100 mA	1.60 Vpk	RLS80202

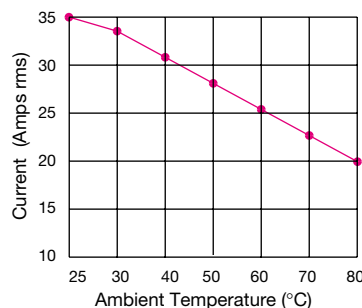
Dimensions mm (inches)



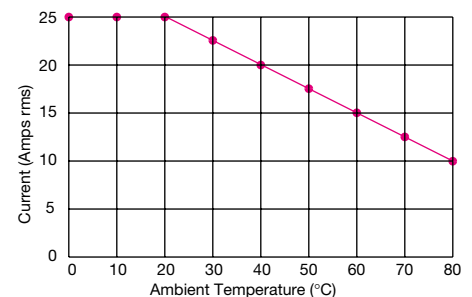
Derating Curve – 22.5mm size



Derating Curve – 45mm size



Derating Curve – 90mm size



## How To Order

Choose the **Part Number** of the relay from the table above that matches the needs for your application. Tempco also offers a complete line of SCR Power Controls, Mechanical Relays, and Mercury Relays for your power handling needs. **Standard lead time is Stock to 5 days.**





## Rotating Electrical Connectors

Tempco's miniature rotating electrical connectors provide dependable connections for demanding applications.

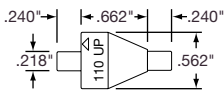
With extremely low resistance and capacitance, high fidelity is assured by fully "wetted" electrodes connecting through a shielded, mercury pool. The mercury is kept to the absolute minimum required by the connector. The body and external parts are made of corrosion resistant materials.

### Typical Applications

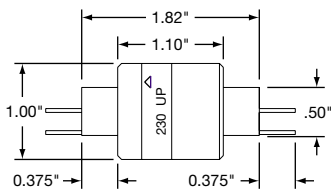
- Heating elements
- Thermocouples
- Rotating antennas
- Turntables
- Cable Reels
- Lamps
- Signs
- Displays
- Packaging Equipment
- Robotics



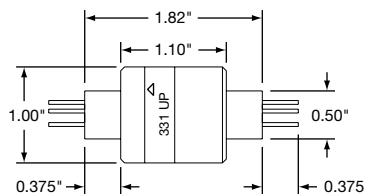
MER00111



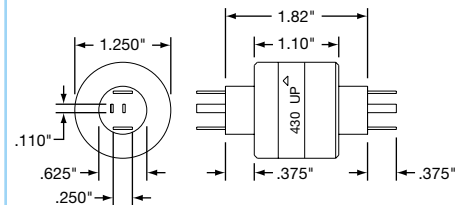
MER00230



MER00331



MER00430

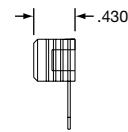


### Note: Items Not Shown

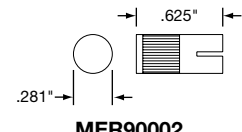
- MER00110** Similar to MER00111 except with screw stud at small end.
- MER00205** Similar to MER00111 except 2 pole

**STOCK ITEMS  
ORDER NOW!**

Accessories	Used With	Part Number
Cap connector w/solder tab	MER00111	MER90001
Shell receptacle (no wire)	MER00110, MER00111	MER90002
Shell receptacle w/6" wire	MER00110, MER00111	MER90003
#6 crimp ring terminal	MER00110	MER90004
2 term. shell receptacle w/2-6" wires	MER00205	MER90005
2 term. receptacle w/no wires	MER00205	MER90006
2 term. cap w/2 solder tabs	MER00205	MER90007
Sm. spade crimp - .110"	MER00230-MER00430	MER90008
Sm. straight spade crimp - .250"	MER00230-MER00430	MER90009
Sm. right. angle spade crimp -.250"	MER00230-MER00430	MER90010
Lrg. straight spade crimp - .250"	MER00230-MER00430	MER90011
Lrg. right. angle spade crimp - .250"	MER00230-MER00430	MER90012



MER90001



MER90002

**SAME DAY SHIPMENT  
on stock items 2 PM  
ORDERED BY CST**

## How To Order

Part Numbers:  
MER00230, MER00331,  
and MER00430 come  
complete with straight  
and right-angle crimp con-  
nectors. Accessories for  
MER00110, MER00111,  
and MER00205 are  
ordered separately.

### ELECTRICAL SPECIFICATIONS

Part Number →	MER00110/111	MER00205	MER00230	MER00331	MER00430
<b>Conductors</b>	1	2	2	3	4
<b>Voltage Range (V) AC/DC</b>	N/A	0-500	0-500	0-500	0-500
<b>Current Rating (A @ 240V AC)</b>	10	4	30	sm. tab 4 lg. tab 30	sm. tab 4 lg. tab 30
<b>Frequency Range (DC)</b>	200 Mhz	200 Mhz	200 Mhz	100 Mhz	100 Mhz
<b>Mercury Contact Resistance</b>	- 1 milliohm max -				
<b>Maximum rpm</b>	3600	2000	1800	1800	1200
<b>Max. Temp. (on body)°F (°C)</b>	140 (60)	140 (60)	140 (60)	140 (60)	140 (60)
<b>Min. Temp. °F (°C)</b>	-20 (-29)	-20 (-29)	-20 (-29)	-20 (-29)	-20 (-29)
<b>Circuit Separation m-ohms</b>	N/A	>25	>25	>25	>25
<b>Typ. Rotational Torque gm/cm</b>	35	75	200	200	400



# Float Switches for Liquid Level Control

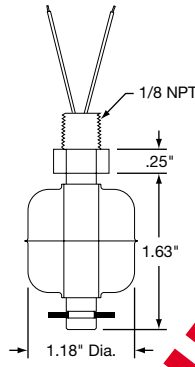
## Vertical Mounted Switches with Miniature Floats



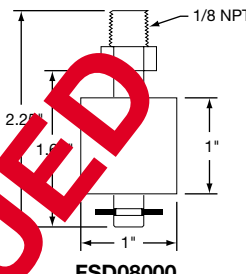
FSD05000



FSD08000  
FSD09000



FSD05000



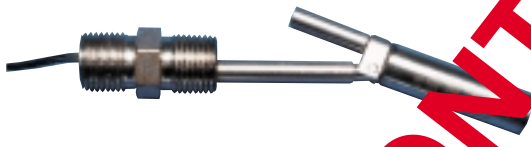
FSD08000  
FSD09000

### Switch Operation

Every Tempco Liquid Level Switch has a magnet-containing float that senses the liquid level and magnetically actuates a dry reed switch encapsulated within the stem.

Since the float is the only moving part, a long, trouble free switch life can be expected.

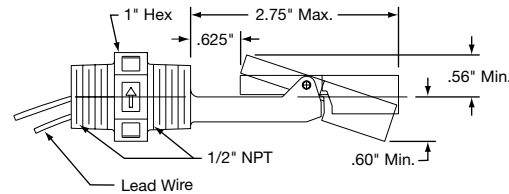
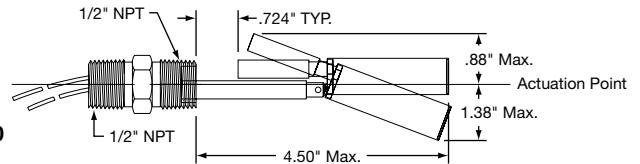
## Side Mounted Switches



FSD05920



FSD08700  
FSD09700



**Not Shown:**  
FSB08790, similar to FSB08700 except 5/8"-11 THD bulkhead fitting

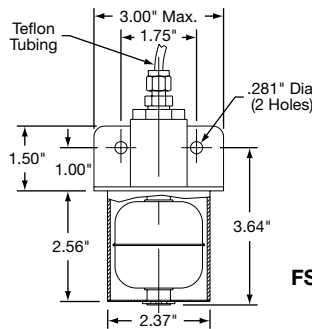
## Submersible Switches



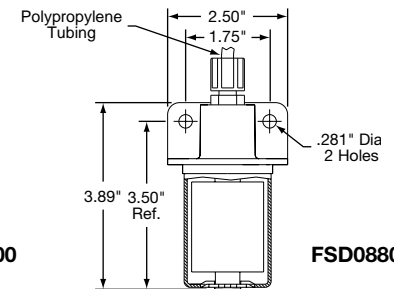
FSD05600



FSD08800



FSD05600



FSD08800

Float Material	Stem Material	Watt Rating	Max. Temp.	Max. PSIG	Application	Part Number
<b>Vertical Mount</b>						
316SS	316SS	30	200°C	300	High Temperature, High Pressure, Corrosive Conditions	FSD05000
polypropylene	polypropylene	30	105°C	100	General Purpose, Low Cost	FSD08000
Kynar	Kynar	30	100°C	15	Outstanding Chemical Resistance	FSD09000
<b>Side Mount</b>						
316SS	316SS	30	200°C	300	High Temperature, High Pressure, Corrosive Conditions	FSD05920
polypropylene	polypropylene	30	105°C	100	Miniature, for General Purpose or Acidic Conditions	FSD08700
polypropylene	polypropylene	30	105°C	100	Miniature, for General Purpose or Acidic Conditions	FSD08790
Kynar	Kynar	30	100°C	100	Miniature, Outstanding Chemical Resistance	FSD09700
<b>Submersible Mount</b>						
316SS	316SS	60	110°C	85	High Temperature, High Pressure, Corrosive Conditions	FSD05600
polypropylene	polypropylene	60	105°C	100	General Purpose, Highly Acidic Conditions	FSD08800

Other styles are available; consult Tempco.

## How To Order

Choose the **Part Number** of the liquid level switch from the table above that matches the needs for your application. **Standard lead time is Stock to 5 days.**



Variable Voltage Transformers

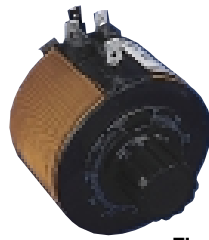


Fig. A



Fig. B



Fig. C

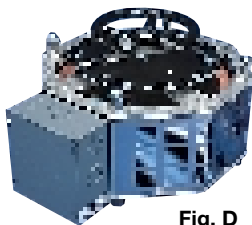


Fig. D

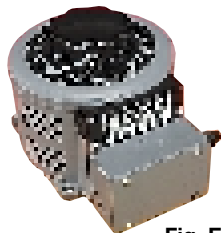


Fig. E



Fig. F

Tempco's Variable Transformers provide a simple, rugged method of controlling electrical voltage, current and power. They take in utility line voltage and provide continuously adjustable output voltage. A wide range of sizes, drives, enclosures and controls is offered.

Standard fixed ratio transformers have output terminals connected to a particular turn of the coil to provide a given output voltage. Instead of a fixed connection to a particular turn of the coil, Tempco's Variable Transformers utilize a brush riding on a commutator formed as part of the transformer turns. The user can select any output turn ratio and thereby vary the output voltage. Because they are autotransformers, one winding acts as both the primary and secondary coils of the transformer.

Fig.	Volts	Output Amps	Output KVA	Size (in) H x W x D	Weight (lbs.)	Cross Reference		TEMPCO Part Number
						Superior	Staco	
<b>120 Volt Panel or Bench Mounting</b>								
A	0-120/132	2.25	0.30	3 <sup>3</sup> / <sub>16</sub> × 2 <sup>1</sup> / <sub>16</sub> × 3	3	10C	291	VTV00001
B	0-120/140	5	0.70	4 <sup>3</sup> / <sub>16</sub> × 3 <sup>3</sup> / <sub>4</sub> × 4 <sup>7</sup> / <sub>16</sub>	6	21	501	VTV00002
B	0-120/140	10	1.40	6 <sup>1</sup> / <sub>8</sub> × 5 × 5 <sup>3</sup> / <sub>16</sub>	12	116CU	1010	VTV00003
C	0-120/140	10	1.40	7 <sup>7</sup> / <sub>16</sub> × 5 × 5 <sup>5</sup> / <sub>8</sub>	12	116CT	1010CT	VTV00004
E	0-120/140	15	2.10	8 <sup>1</sup> / <sub>8</sub> × 6 <sup>3</sup> / <sub>16</sub> × 5 <sup>3</sup> / <sub>8</sub>	18	126T	1510CT	VTV00005
E	0-120/140	22	3.10	10 <sup>1</sup> / <sub>16</sub> × 7 <sup>3</sup> / <sub>4</sub> × 6 <sup>1</sup> / <sub>8</sub>	26	136BT	2510CT	VTV00006
D	0-120/140	50	6.20	17 × 13 <sup>7</sup> / <sub>8</sub> × 9 <sup>1</sup> / <sub>2</sub>	82	1156DT	5010CT	VTV00007
<b>240 Volt Panel or Bench Mounting</b>								
B	0-240/280	3.5	0.98	6 <sup>1</sup> / <sub>8</sub> × 5 × 5 <sup>1</sup> / <sub>16</sub>	12	216CU	1020	VTV00008
C	0-240/280	3.5	0.98	7 <sup>1</sup> / <sub>16</sub> × 5 × 5 <sup>5</sup> / <sub>8</sub>	12	216CT	1020CT	VTV00009
E	0-240/280	7.5	2.10	8 <sup>1</sup> / <sub>8</sub> × 6 <sup>3</sup> / <sub>16</sub> × 5 <sup>3</sup> / <sub>8</sub>	18	226T	1520CT	VTV00010
E	0-240/280	10	2.80	10 <sup>1</sup> / <sub>16</sub> × 7 <sup>3</sup> / <sub>4</sub> × 6 <sup>1</sup> / <sub>8</sub>	26	236BT	2520CT	VTV00011
D	0-240/280	28	7.80	17 × 13 <sup>7</sup> / <sub>8</sub> × 9 <sup>1</sup> / <sub>2</sub>	82	1256DT	5020CT	VTV00012
D	0-240/280	35	9.80	17 × 13 <sup>7</sup> / <sub>8</sub> × 9 <sup>1</sup> / <sub>2</sub>	82	1296DT	6020CT	VTV00013
<b>120 Volt Portable Model (Includes cord and matching receptacle)</b>								
F	0-120/140	10	1.40	6 <sup>1</sup> / <sub>8</sub> × 5 × 5 <sup>1</sup> / <sub>16</sub>	12	3PN116C	3PN1010	VTV00014
F	0-120/140	22	3.10	10 <sup>1</sup> / <sub>16</sub> × 7 <sup>3</sup> / <sub>4</sub> × 6 <sup>1</sup> / <sub>8</sub>	26	3PN136B	3PN2210	VTV00015
<b>240 Volt Portable Model (Includes cord and matching receptacle)</b>								
F	0-240/280	3.5	0.98	7 <sup>1</sup> / <sub>16</sub> × 5 × 5 <sup>5</sup> / <sub>8</sub>	12	3PN216C	3PN1020	VTV00016
F	0-240/280	7.5	2.10	8 <sup>1</sup> / <sub>8</sub> × 6 <sup>3</sup> / <sub>16</sub> × 5 <sup>3</sup> / <sub>8</sub>	18	3PN226	3PN1520	VTV00017
F	0-240/280	10	2.80	10 <sup>1</sup> / <sub>16</sub> × 7 <sup>3</sup> / <sub>4</sub> × 6 <sup>1</sup> / <sub>8</sub>	26	3PN236B	3PN2520	VTV00018

Note: Figures indicate style only and not the exact model indicated.

How To Order

Choose the **Part Number** of the Variable Voltage Transformer that matches your requirements for voltage, amperage, and phase. **Standard lead time is Stock to 10 days.**

Make certain that the construction type matches your application needs as some units have an open construction that can only be used in panel mounting applications—see the pictures on the left to identify the construction.

Other models are available; consult Tempco.

# High Temperature Lead Wire (Stock)



## High Temperature Lead Wire

All of Tempco's High Temperature Lead Wires are designed for:

- Internal wiring for commercial and industrial heating products
- Heaters
- Heat treating furnaces and kilns
- Commercial food service equipment

**SAME DAY SHIPMENT**  
on stock items **2<sup>PM</sup>**  
ORDERED BY **2<sup>CST</sup>**



### How To Order

Choose the **Part Number** of the high temperature wire from the stock tables below that matches the needs for your application.

**Minimum Order Quantity:** 100 ft. per wire type



#### Type MGT – 300 Volt, 450°C (842°F) UL 5128

MGT High Temperature Lead Wire is insulated with reinforced mica tapes over the stranded conductors, covered by Teflon® treated fiberglass overbraid.

Wire Gauge	Nominal O.D. (in)	Stranding Num./Ga.	Conductor Material	Part Number
22	.081	7/30	A-NI	LDW-107-101
20	.090	10/30	A-NI	LDW-106-117
18	.098	16/30	A-NI	LDW-105-115



#### Type MGS – 600 Volt, 450°C (842°F) UL 5107

MGS High Temperature Lead Wire is insulated with reinforced mica tapes over the stranded conductors, covered by silicone treated fiberglass overbraid.

Wire Gauge	Nominal O.D. (in)	Stranding Num./Ga.	Conductor Material	Part Number
20	.110	10/30	A-NI	LDW-106-108
18	.117	16/30	A-NI	LDW-105-113
16	.128	26/30	A-NI	LDW-104-104
14	.144	41/30	A-NI	LDW-103-104

#### Type TGGT Lead Wire 250°C (482°F)

TGGT High Temperature Lead Wire is insulated with Teflon® tapes over the stranded conductors and followed by two layers of fiberglass insulation, covered by Teflon® treated fiberglass overbraid.



#### 300 Volt, 250°C (482°F) UL 5180/CSA

Wire Gauge	Nominal O.D. (in)	Stranding Num./Ga.	Conductor Material	Part Number
20	.093	10/30	A-NI	LDW-106-106
18	.102	16/30	A-NI	LDW-105-111
16	.118	26/30	NPC	LDW-104-103

#### 600 Volt, 250°C (482°F) UL 5127/CSA

Wire Gauge	Nominal O.D. (in)	Stranding Num./Ga.	Conductor Material	Part Number
20	.103	10/30	A-NI	LDW-106-107
18	.108	16/30	A-NI	LDW-105-110
16	.123	26/30	NPC	LDW-104-102
14	.140	41/30	NPC	LDW-103-103
12	.161	65/30	NPC	LDW-102-101
10	.184	105/30	NPC	LDW-101-101

**STOCK ITEMS**  
**ORDER NOW!**

Applies to all items on this page.



**Notes:** "A-NI" stands for Grade A Nickel  
"NPC" stands for Nickel Plated Copper  
**For Thermocouple wire see page 14-54.**



## High Temperature Wire Harness

### High Temperature Wire Harness

Tempco's High Temperature Ceramic Insulated Wire Harnesses are designed from the ground up starting with specially selected High Temperature Alloy Wire chosen for its ability to carry the rated current at the required temperature and provide long life.

- Ceramic beads are used for making turns and to provide flexibility at the terminal area.
- Solid ceramic pieces are used for straight runs.
- Ceramic terminal blocks are used for lead connections.

### How To Order

Send all requirements, drawings or samples to Tempco for a fully detailed quote proposal that will meet your requirements. **Standard lead time is typically 2 weeks.**

### Are You Having Problems With Your Wire Harnesses In High Temperature Applications?

Tempco has the design experience in the plastics industry and the manufacturing capability to handle your OEM requirements for many types of wire harness.

Due to our many years of manufacturing electric heaters, we are very familiar with the problems high temperature environments can cause to wiring and connectors.

**We have the solutions to your difficult wiring applications!**

### Applications

- Injection Molding Barrel
- Plastic Extrusion Barrel
- Aircraft Industry Composite Resin Lamination
- Food Service Equipment
- Furnaces
- Ovens
- Heat Treatment
- Foundry Industry

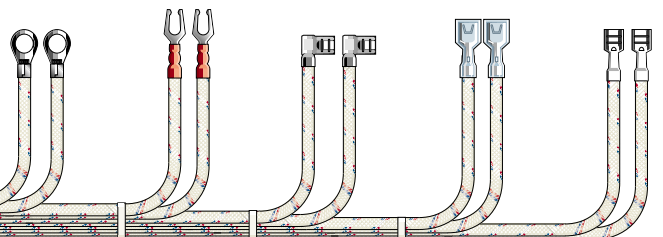
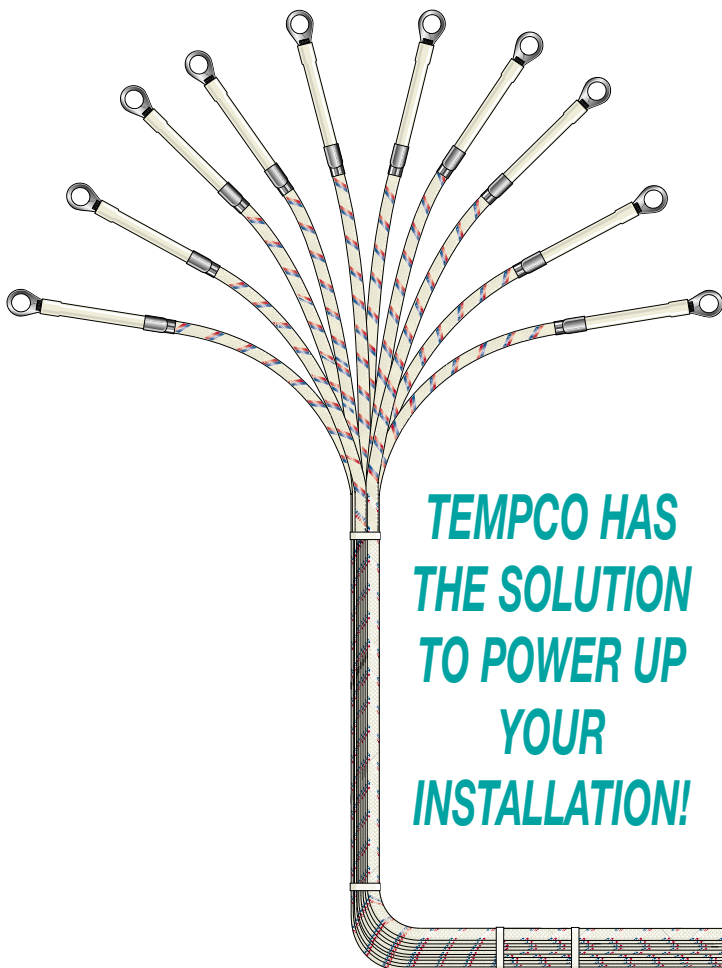
### Services Rendered

- Custom Harness Manufacturing
- Contract Assembly & Manufacturing
- Automatic Cut & Strip
- Wire Processing
- Automatic & Hand Termination
- Wire Bundling: Fiberglass Tape, Metal Strapping, Tie Wraps
- Individual wire ID Markings

### Materials Used

- Specially Selected High Temperature Conductors
- UL and CSA rated wire
- High Temperature Insulation
- 600 Volt rated Insulation
- Sleeving and Tubing
- Armor and Braid
- UL and CSA rated Connectors
- Multi-Pin Connectors

**TEMPCO HAS THE SOLUTION TO POWER UP YOUR INSTALLATION!**





# Lead Wire Protection

## High Temperature Fiberglass Slewing



The fiberglass slewing is first annealed to remove all organic matter and then uniformly coated with high abrasion resistant silicone rubber, which provides an excellent secondary insulation for greater dielectric strength and for added protection against abrasion and wire contamination.

**Temperature Range:** -70°C to 180°C (-94°F to 356°F)

**Order by the foot:** 100 ft. minimum

Trade Size	Nom. I.D. (in)	Part Number
24	.022	SLV-101-113
20	.034	SLV-101-112
16	.053	SLV-101-111
12	.085	SLV-101-110
10	.106	SLV-101-109
8	.133	SLV-101-108
5	.186	SLV-101-107
4	.208	SLV-101-106
3	.234	SLV-101-104
2	.264	SLV-101-102
0	.330	SLV-101-101
3/8"	.387	SLV-101-114

## Flexible Armor Cable



### Stainless Steel or Galvanized Steel

Used to protect lead wire against abrasion or physical damage in hazardous environments and provides protection from excessive flexing.

**Order by the foot:** 100 ft. minimum

I.D. (in)	O.D. (in)	Part Number	
		Galv. Steel	Stainless Steel
3/16	9/32	CAB-101-101	CAB-102-102
1/4	3/8	CAB-101-108	CAB-102-104
5/16	7/16	CAB-101-103	CAB-102-105
3/8	1/2	CAB-101-104	CAB-102-106

## Stainless Steel Braid Slewing



Used to protect lead wire against abrasion or physical damage in hazardous environments.

**Order by the foot:** 100 ft. minimum

I.D. (in)	Part Number
.078	CAB-105-101
.125	CAB-105-102
.172	CAB-105-103
.250	CAB-105-104
.375	CAB-105-105



Applies to all items on pages 15-14 and 15-15.



## Stock Ceramic Accessories



### Secondary Insulating Bushing

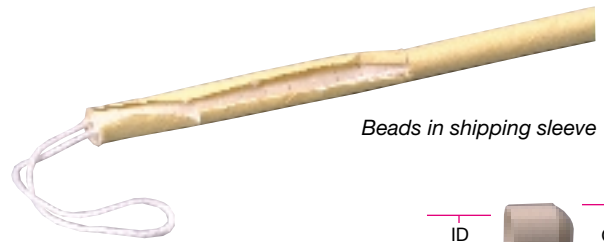
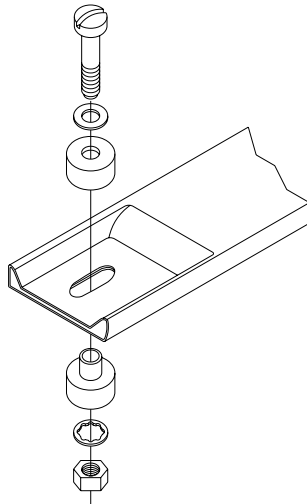
Used on channel and finned strip heater mounting tabs to isolate the heater from the mounting surface.

A non-standard  $\frac{1}{2}$ "  $\times$   $\frac{5}{8}$ " slot in the strip heater is required.

All hardware provided, including: screw, 2 ceramic bushings, 2 washers, and nut.

**Part Number:** CERR-1001

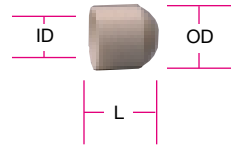
*Order per assembly*



Beads in shipping sleeve

### Ceramic Beads

Used to insulate bare lead wire at extremely high temperatures.



O.D. (in)	I.D. (in)	Length	Packaging	Part Number
.110	.056	.110	67 beads/6" sleeve	CER-103-101
.170	.068	.170	86 beads/12" sleeve	CER-103-102
.200	.092	.200	36 beads/6" sleeve	CER-103-103
.200	.092	.200	bulk—loose	CER-103-104
.330	.124	.330	bulk—loose	CER-103-105
.203	.085	.203	bulk—loose	CER-103-108

### Ceramic Covers for Insulating Screw Terminals

Used on the following heaters:

Mica Band • Ceramic Band • Mi-Plus® • Channel Strip • Finned Strip • Mica Strip

Provides an electrically safe environment on standard screw terminals.

Can be field retrofit or factory installed.



#### Igloo™ Ceramic Bases

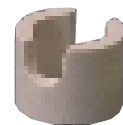
Type	Part Number
"Double Port In-Line"	CER-101-104
"Double Port 90°"	CER-101-106
"Single Port"	CER-101-107



#### Ceramic Cap

Thread	Part Number
10-32	CER-102-101
10-24	CER-102-104
8-32	CER-102-105

All three ceramic cap sizes fit the Igloos and the conventional ceramic base.



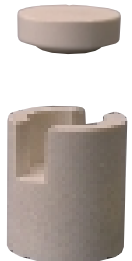
#### Conventional Ceramic Base

Part Number: CER-101-101

#### Ceramic Cap & Base for .430" diameter Tubular Heaters

Primarily used on cast-in heater tubular elements. The cap has 10-32 threads. The CER-102-103 cap will only fit the base CER-101-103.

Description	Part Number
Ceramic Cap w/10-32 thread	CER-102-103
Ceramic Base – .430 dia.	CER-101-103



#### High Temperature Ceramic 2-Pole Terminal Block

Used for wiring in high temperature locations. Max. Temp. 500°C (935°F).

**Voltage:** 600 VAC

**Current:** 20 Amp

**Dimensions:** 1.56"  $\times$  1.24"  $\times$  .79"

**Part Number:** EHD-108-101



**SAME DAY SHIPMENT**  
on stock items **2 PM**  
ORDERED BY **2 CST**



## Stock Quick Disconnect High Temperature Electrical Plugs

**Quick Disconnect High Temperature Plugs** provide the simplest and safest way to apply power to heater installations. The combination of plug and cup assembly along with armor cable covered leads eliminate all live exposed terminals or wiring that can be a potential hazard to employees or machine.

**• IN STOCK**

- Replace Exposed Terminals
- Durable Cast Aluminum Body
- High Temperature Ceramic Insulators
- Solid Brass Contacts
- Replace Exposed Lead Wires
- 25 Amp—250 Volt Electrical Rating
- Temperature Exposure Up to 300°C (572°F)
- Available on Many Tempco Heater Products

**SAME DAY SHIPMENT**  
on stock items **2 PM**  
**ORDERED BY 2 PM** CST



Type HW-900 — Right-angle plug design

Part Number: EHD-101-103



Type H-900 — Straight plug design

Part Number: EHD-101-102



H900 and HW900 plugs can be prewired and fitted with armor cable or wire braid leads.

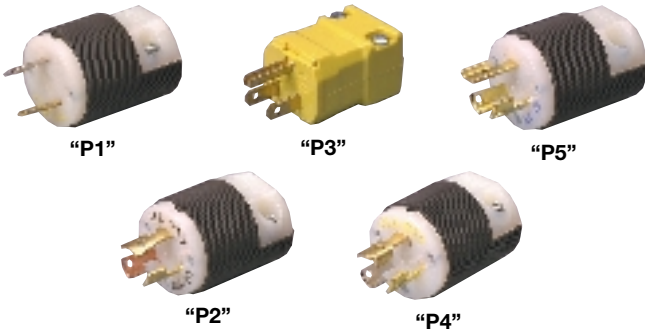
Part Number will be assigned when ordering.



Type UT-900 — Cup Assembly

Part Number: EHDR-1001

## Stock Heavy Duty Quick Disconnect Plugs and Receptacles



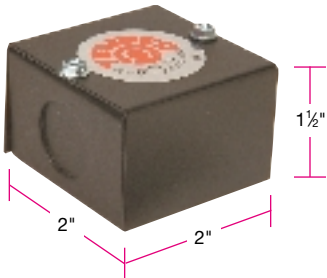
Reference	NEMA P or R	Amps	Volts	Plug Part No.	Receptacle Part No.
P1 twist lock	L1-15	15A	125V	EHD-102-102	EHD-103-101
P2 twist lock	N/A	10A 15A	250V 125V	EHD-102-107	EHD-103-103
P3 straight	L5-15	15A	125V	EHD-102-103	EHD-103-102
P4 twist lock	L5-15	15A	125V	EHD-102-113	EHD-103-104
P5 twist lock	L6-15	15A	250V	EHD-102-121	EHD-103-107

## Stock General Purpose Terminal Boxes

Terminal boxes used on the following heaters:

Mica Band • Ceramic Band • Mi-Plus® • Channel Strip • Finned Strip • Mica Strip

Can be field retrofit or factory installed.

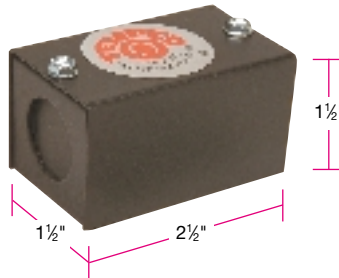


Mount box on mica, ceramic, or MI-Plus band heaters or mica strip heaters to cover exposed screw terminals and wiring.

For use on **Standard T3 Screw Termination** with 10-32 studs.

Terminal mounting centers: 7/8"  
Standard knockout: 5/8" diameter

Part Number: HSGR-1011

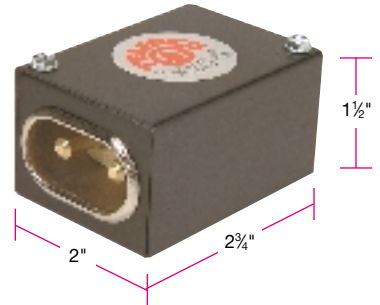


Mount box on mica, ceramic, or MI-Plus band heaters or mica strip heaters to cover exposed screw terminals and wiring.

For use on **Standard T2 Screw Termination** with 10-32 studs.

Terminal mounting centers: 7/8"  
Standard knockout: 5/8" diameter

Part Number: HSGR-1013



Enclosure box with EHDR-1001 cup assembly and jumpers to attach connector to screw terminals. Use with plug type 900. Mount box on mica, ceramic, or MI-Plus band heaters or mica strip heaters to cover exposed screw terminals and wiring.

For use on **Standard T3 Screw Termination** with 10-32 studs.

Terminal mounting centers: 7/8"

Part Number: EHDR-1002

Other style boxes such as PVC, drawn aluminum, or explosion proof are available; consult Tempco with your requirements.





## Stock Heater Accessories



### High Temperature Manganese Nickel Hook-Up Bus Bar

Alloy bus bar is perforated to fit screw terminals of most heaters.

Current Capacity: 35 amps at 300°F (149°C)

Dimensions: approximately 1/32" thick x 1/2" wide, 1 1/32" x 7/32" slots

**Part Number:** EHD-118-101

**Order by the foot:** 5 ft. minimum

### High Temperature Terminal Lugs

Lugs are used for high temperature service up to 1200°F (649°C).

Wire size: 14-16 ga.

Screw Size	Part Number
#12	TER-111-101
#10	TER-110-104
#8	TER-109-101

**Order by the piece:** 25 pc. minimum



### Fiberglass Tape

A superior pressure sensitive adhesive tape consisting of fiberglass cloth impregnated with a thermosetting silicone.

Thickness: 7 mil. Length: 36 yards

Maximum Temperature: 356°F (180°C)

Width	Part Number
1/2"	TAP-101-101
1/4"	TAP-101-102



**SAME DAY SHIPMENT**  
on stock items **2 PM**  
**ORDERED BY 2 CST**

## "Irreversible" Temperature Strips and Indicators

### SPECIFICATIONS

**Material:** Polyester for up to 160°C/320°F  
Polyimide for above 160°C/320°F

**Accuracy:** ± 1°C below 100°C/212°F  
± 1% above 100°C/212°F

**Pressure Sensitive Adhesive:**

Double sided low tack adhesive up to 160°C/320°F

**Label Color:** Black printing on blue background

**Temperature Reached:**

Indicated in change from white to black

### 5-Point "Clock" Multipoint Indicators

Temperature Point (°F)	Part Number
140, 150, 160, 170, 180	NTS20180
190, 200, 210, 220, 230	NTS20230
240, 250, 261, 270, 280	NTS20280
290, 300, 310, 320, 330	NTS20330
340, 350, 360, 370, 380	NTS20380
390, 400, 410, 420, 435	NTS20435
450, 466, 480, 490, 500	NTS20500



Size: 0.5" x 0.5"

**Note:** Ordered in packs of 10 temperature clock labels per pack.

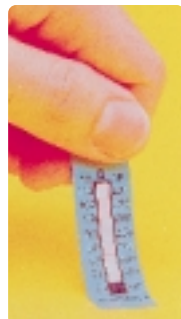
### "Single" Point Indicators

Temperature Point °F	°C	Part Number
129	54	NTS30129
149	65	NTS30149
160	71	NTS30160
171	77	NTS30171
180	82	NTS30180
199	93	NTS30199
219	104	NTS30219
230	110	NTS30230
241	116	NTS30241
250	121	NTS30250
261	127	NTS30261
270	132	NTS30270
280	138	NTS30280
289	143	NTS30289
300	149	NTS30300



Size: 0.5" x 0.5"

**Note:** Ordered in packs of 50 temperature indicators per pack.



Size: 2" x 0.7"

**Note:** Ordered in packs of 10 temperature strips per pack.

**Standard lead time is Stock to 2 weeks.**

### "Multi-Level" Strip Indicators

Type	Temperature Points	Part Number
8 Level	°F: 100, 105, 110, 115, 120, 130, 140, 150 °C: 37, 40, 43, 46, 49, 54, 60, 65	NTS10150
8 Level	°F: 160, 170, 180, 190, 200, 210, 220, 230 °C: 71, 77, 82, 88, 93, 99, 104, 110	NTS10230
8 Level	°F: 240, 250, 260, 270, 280, 290, 300, 310 °C: 116, 121, 127, 132, 138, 143, 149, 154	NTS10310
8 Level	°F: 320, 330, 340, 350, 360, 370, 380, 390 °C: 160, 166, 171, 177, 182, 188, 193, 199	NTS10390
9 Level	°F: 400, 410, 420, 435, 450, 465, 480, 490, 500 °C: 204, 210, 216, 224, 232, 241, 249, 254, 260	NTS10500
5 Level	°F: 480, 490, 500, 536, 554 °C: 249, 254, 260, 280, 290	NTS10554



# Insulation Blankets

## Insulation Blankets



**High Temperature Insulation Systems Save Money!**

Modular Insulation Blankets are a new concept in insulation systems that will allow you to insulate most typical plastic molding machines with ease.

Tempco offers a line of **Modular Insulating Blankets** designed to contain the heat generated by industrial elements in various applications, thereby conserving both the energy necessary to generate the heat and to cool the ambient environment.

Simply measure the outside diameter of your heater bands and the width between thermocouples. The distance between thermocouples is critical because the modular blankets are sized to fit between them. To insulate an 8" width, you might utilize a series of blankets, for instance a 2" and 6" part.

### Example

- The length of the plastic injection machine barrel to insulate is 48".
- From the hopper end, the thermocouple breaks needed are at 8", 18", 28", 38", 46" and 48".  
This would give insulation distances of 8", 10", 10", 10", 8", and 2".

For the (2) 8" distances, use two 4" blankets each.

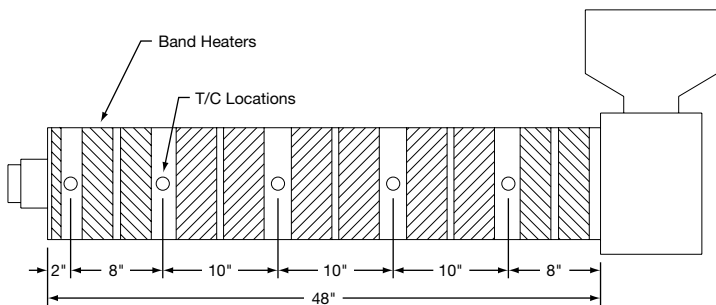
For the (3) 10" distances use one 4" and one 6" blanket each.

For the 2" distance, use one 2" blanket.

**To summarize,  
the total requirement is: one 2" blanket  
seven 4" blankets  
three 6" blankets**

### Typical Applications

- Injection Molding
- Extrusion Barrels and Blow Molding
- Pre Heaters
- Hoppers and Driers
- Hot Oil Lines
- Manifolds
- Melt Pipe Dies and Adapters



### SPECIFICATIONS

#### Hot Face/Inside Fabric

- Material: Silica Fabric
- Thickness: .042"
- Maximum Temperature: 2000°F (1093°C) continuous

#### Cold Face/Outside Fabric

- Material: Teflon® Impregnated Fiberglass Cloth
- Maximum Temperature: 500°F (260°C)
- Thickness: .016

#### Insulation

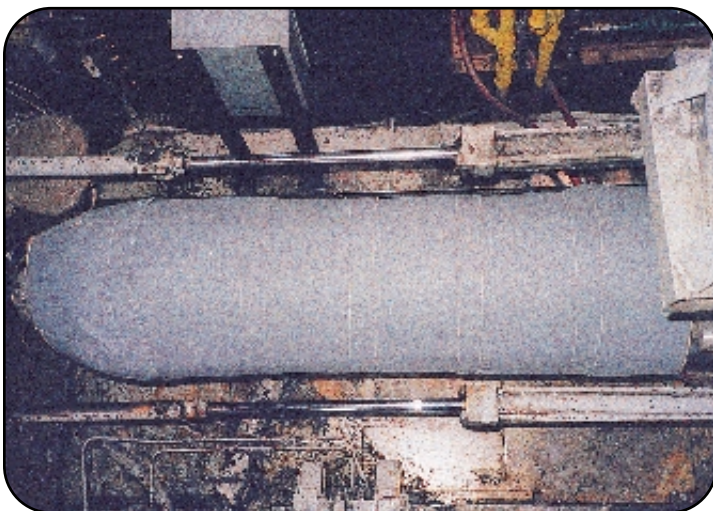
- Material: Ceramic Fiber
- Thickness: 1"
- Maximum Temperature: 2300°F (1260°C)

#### Straps

- Material: Teflon® Impregnated Fiberglass Cloth

#### Buckles

- Nickel Plated steel wire with loose roller to allow ease of tightening of straps





### How to Determine Potential Savings

1. Determine:
  - Barrel length
  - Diameter of barrel over heaters
  - Operating temperature

2. Determine barrel surface area (sq. ft.) by the following formula:

$$\text{Circumference} = 2\pi R = \pi D$$

$$A = \frac{\text{Circumference (in.)} \times \text{Barrel Length (in.)}}{1.44} = \text{sq. ft.}$$

3. Calculate Heat Losses:

- Referring to the Heat Loss for Barrels chart, determine heat losses with and without insulation at operating temperature.
- Multiply heat loss value (watts/sq. ft.) **without** insulation by barrel surface area (sq. ft.)
- Multiply heat loss value (watts/sq. ft.) **with** insulation by barrel surface area (sq. ft.)

#### Determine Savings:

- Subtract total heat loss with insulation from heat loss without insulation.
- Divide difference by 1000 to determine KWH savings.

#### Determine yearly savings:

KWH saved × KWH rate × running hours per day × days per week × 4.3 weeks per month × 12 months.

#### HEAT LOSS FOR BARRELS (Watts/Sq. ft.)

Operating Temperature		No Insulation	w/Insulation	
°F	°C		1 inch	1.5 inch
325	163	210	20.9	14.0
350	177	243	23.4	15.6
400	204	313	29.0	19.0
425	218	350	31.5	21.0
450	232	387	34.3	22.9
475	246	425	37.2	24.8
500	260	465	40.1	25.8
550	288	550	46.5	28.3
600	316	660	54.1	32.1

### Typical Potential Savings from Using Modular Insulation Blankets

**Parameters:** Barrel Length: 48"  
 Barrel Diameter Over Heaters: 6½"  
 Operating Temperature: 450°F (232°C)

- Use Barrel Surface and calculate the Surface Area (Surface Area = 6.8 sq. ft.)

#### Heat Losses:

- At 450°F (232°C) with No Insulation, heat loss is 387 W/sq. ft.; with 1" of ceramic fiber insulation, heat loss is 34.3 W/sq. ft.
- 387 W/sq. ft. × 6.8 sq. ft. = 2632 watts/uninsulated
- 34.3 W/sq. ft. × 6.8 sq. ft. = 233 watts/Insulated

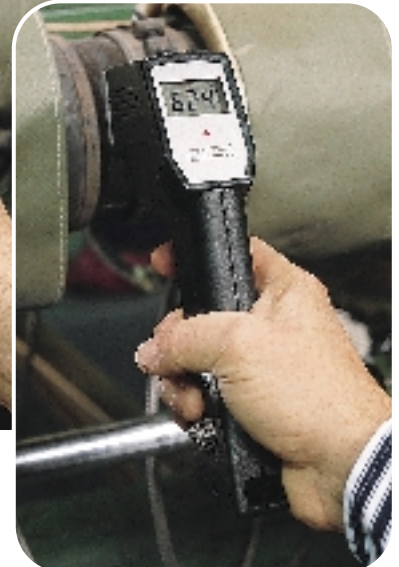
#### Savings:

$\frac{2632 \text{ Watts w/o Insulation} - 233 \text{ Watts w/insulation}}{1000 \text{ W/KW}}$   
 = 2.40 KWH Savings × \$.05/KWH\* × 24 hours × 5 days/wk × 4.3 wks/month × 12 months = **\$743.04 savings per year**

\* Use Your Local Utilities Electrical Rate



Insulated barrel temperature: 159°F (71°C)



Bare barrel temperature: 624°F (329°C)

Inner Diameter	Width	Part Number
4"	2"	BLK00402
	4"	BLK00404
	6"	BLK00406
5"	2"	BLK00502
	4"	BLK00504
	6"	BLK00506
6"	2"	BLK00602
	4"	BLK00604
	6"	BLK00606
7"	2"	BLK00702
	4"	BLK00704
	6"	BLK00706
8"	2"	BLK00802
	4"	BLK00804
	6"	BLK00806
9"	2"	BLK00902
	4"	BLK00904
	6"	BLK00906
10"	2"	BLK01002
	4"	BLK01004
	6"	BLK01006
11"	2"	BLK01102
	4"	BLK01104
	6"	BLK01106
12"	2"	BLK01202
	4"	BLK01204
	6"	BLK01206

### How To Order

After determining the diameter and width of the insulation blankets required, select the **Part Number** from the chart above that matches your requirements.

**Standard lead time is Stock to 2 weeks.**



## “Drool Discs” for Injection Molding Machines Nozzle Protection



Plastic injection mold “drool” out the end of the barrel nozzle, especially when purging or at any other time can be very damaging to the nozzle itself or the heater bands.

*The Drool Disc™ is so cost efficient, you can put one on every press in the plant!*

### The Drool Disc™...

**Installs in seconds** with no downtime or modification to your injection machine.

**High temperature composite** can withstand temperatures up to 700°F (371°C).

**Standard diameter is 6"**

### Materials

- Modified closed-cell copolymer
- Foam, cast directly between a lightweight fiberglass layer and a slightly heavier fiberglass layer
- Laser cut and coated with silicone resin
- Overall thickness— 3 mm

### Product Features

- Excellent radiant heat shield
- Excellent thermal properties
- Excellent weatherability
- Non-Toxic
- Fire Resistant

**SAME DAY SHIPMENT**  
on stock items **2 PM**  
ORDERED BY **2** CST



### Stock Items

Exact Nozzle Body O.D.	Part Numbers
7/8"	DDA00014
1"	DDA00100
1 1/8"	DDA00102
1 1/4"	DDA00104
1 3/8"	DDA00106
1 1/2"	DDA00108
1 5/8"	DDA00110
1 3/4"	DDA00112
1 7/8"	DDA00114
2"	DDA00200
2 1/8"	DDA00202
2 1/4"	DDA00204
2 3/8"	DDA00206
2 1/2"	DDA00208

**Now,**  
a high temperature composite disc that can protect your nozzle and heater bands from damaging plastic drool

### How To Order

First, determine the exact nozzle body diameter the Drool Disc center mounting hole requires. Then choose the **Part Number** of the Drool Disc from the table above that matches the diameter needed.

**Ordered in boxes of 10 discs per box.**

### INSTRUCTIONS FOR USE

1. Install the **Drool Disc™** over the nozzle tip.
2. The black side of the **Drool Disc™** faces the nozzle heater band.
3. Push the **Drool Disc™** until it rests against the front of the nozzle heater band.
4. It is critical that the **Drool Disc™** fits snugly over the nozzle.