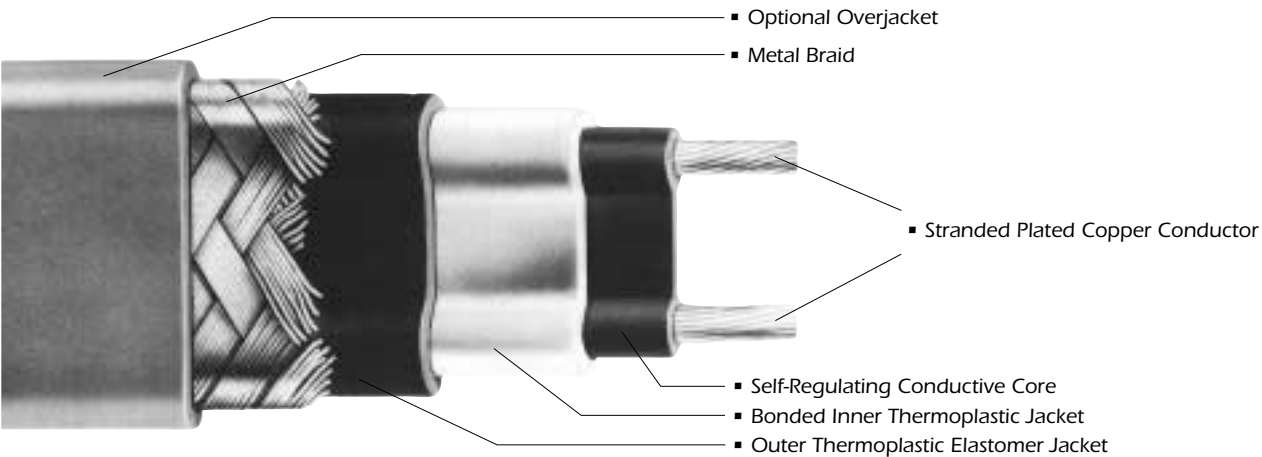


# SERGE BARIL CCA

## SELF-REGULATING HEATER CABLE

## SPECIFICATION/APPLICATION INFORMATION



3 CCA-1B 3 CCA-2B  
6 CCA-1B 6 CCA-2B  
8 CCA-1B 8 CCA-2B



### Description:

Serge Baril CCA self-regulating heater cable is a parallel circuit electric heater strip. An irradiation cross-linked conductive polymer core material is extruded over the multi-stranded, tin-plated, 18-gauge copper bus wires. The conductive core material increases or decreases its heat output in response to

temperature changes. Two jackets provide extra dielectric strength, moisture resistance and protection from impact and abrasion damage. The inner thermoplastic jacket is extruded over and bonded to the core material. A thermoplastic elastomer jacket is then extruded over the inner bonded jacket.

A tinned copper braid is installed over the second jacket, providing a continuous ground path and is required on all heaters. An optional UV stabilized polyolefin overjacket is available to cover the braid for wet applications.

### Principle of Operation:

The parallel bus wires apply voltage along the entire length of the heater cable. The conductive core provides an infinite number of parallel conductive paths permitting the cable to be cut to any length in the field with no dead or cold zones developing. The heater cable derives its self-regulating characteristic from the inherent properties of the

conductive core material. As the core material temperature increases, the number of conductive paths in the core material decreases, automatically decreasing the heat output. As the temperature decreases, the number of conductive paths increases, causing the heat output to increase. This occurs at every point along the length of the cable, adjusting the

power output to the varying conditions along the pipe. The self-regulating effect allows the cable to be overlapped without creating hot spots or burnout. As the cable self-regulates its heat output, it provides for the efficient use of electric power, producing heat only when and where it is needed, and also limiting the maximum sheath temperature.

### Application:

Serge Baril CCA self-regulating heater cable is ideal for use in maintaining fluid flow under low ambient conditions. Freeze protection and low watt density process temperature systems such as product pipelines, fire protection, process water, dust suppression systems, hot water and structure anti-icing are typical applications for this product.

For other than metal pipe heating, see the appropriate application guide.

The base product is supplied with a tinned copper braid that may be used in both general applications and in dry, non-corrosive ordinary areas. It is also used to provide a conductive ground path when cable is installed on non-conductive surfaces, such as plastic or painted pipe.

**Option:** (replace -B by:)

**-BA** A tinned copper metal braid with a modified polyolefin overjacket is available for wet applications. It is also recommended where mechanical abuse is a problem.



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Maximum maintain temperature: 150°F (65°C)  
 Maximum exposure temperature: ■ Energized 150°F (65°C) ■ Intermittent power off 185°F (85°C)

**Circuit breaker selection:** The circuit breaker is sized based on the maximum length (feet or meters) of cable that may be connected at the specific start-up temperature. The maximum heater segment is the longest length of heater allowable between the power connection point and the end seal. More than one segment may be connected to a single breaker as long as the maximum heater length per breaker size is not exceeded.

Heater	Start-up temp.		Max. Length Vs. Circuit Breaker Size															
			120V								240V							
	15A		20A		30A		40A		15A		20A		30A		40A			
	°F	°C	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m		
<b>3CCA</b> Max. segment length 120V=221 ft / 67.3 m 240V=533 ft / 162.5 m	40	4	286*	87.2*	382*	116.5*	573*	174.7*	764*	232.9*	573*	174.7*	764*	232.9*	1146*	349.4*	1528*	465.8*
	-4	-20	190	58.0	254*	77.4*	381*	116.2*	508*	154.9*	381	116.2	508	154.9	762*	232.3*	1016*	309.7*
	-22	-30	165	50.3	220	67.1	330*	100.6*	440*	134.1*	330	100.6	440	134.1	660*	201.2*	881*	268.6*
	-40	-40	145	44.2	193	58.8	289*	88.1*	385*	117.4*	289	88.1	385	117.4	578*	176.2*	771*	235.1*
<b>6CCA</b> Max. segment length 120V=165 ft / 50.3 m 240V=425 ft / 129.6 m	40	4	179*	54.6*	239*	72.9*	359*	109.4*	479*	146.0*	359	109.4	479*	146.0*	718*	218.9*	957*	291.7*
	-4	-20	123	37.5	164	50.0	246*	75.0*	328*	100.0*	246	75.0	328	100.0	492*	150.0*	657*	200.3*
	-22	-30	108	32.9	144	43.9	216*	65.8*	287*	87.5*	216	65.8	287	87.5	431*	131.4*	575*	175.3*
	-40	-40	95	29.0	127	38.7	190*	57.9*	254*	77.4*	190	57.9	254	77.4	381	116.2	508*	154.9*
<b>8CCA</b> Max. segment length 120V=142 ft / 43.3 m 240V=347 ft / 105.8 m	40	4	144*	43.9*	191*	58.2*	287*	87.5*	383*	116.8*	287	87.5	383*	116.8*	574*	175.0*	766*	233.5*
	-4	-20	100	30.5	133	40.5	199*	60.7*	266*	81.1*	199	60.7	266	81.1	399*	121.6*	532*	162.2*
	-22	-30	88	26.8	117	35.7	175*	53.3*	234*	71.3*	175	58.3	234	71.3	351*	107.0*	468*	142.7*
	-40	-40	78	23.8	104	31.7	155*	47.3*	207*	63.1*	155	47.3	207	63.1	311	94.8	414*	126.2*

\* These lengths exceed the maximum segment length and require more than one segment per breaker. For longer maximum circuit lengths under specific applications, consult the factory.

- Notes:**
1. Circuit Breakers are sized per article 427-4 of N.E.C.
  2. When using 240 volt product at 208, 220, or 277 volts, use the circuit adjustment factors shown in the voltage adjustment table.
  3. When using 2 or more heater cables of different wattage ratings in parallel on a single circuit breaker, use the 15A column amperage, divide it by the maximum length to arrive at an amps/foot (amps/meter) figure for each cable. You can then calculate the circuit breaker sizes for these combination loads. These include the N.E.C. sizing factor in Article 427-4.
  4. Heater cables with B and BA constructions contain a metal ground shield as required by Article 427-23 of the N.E.C.

**CAUTION:** To minimize the danger of a wet wire fire (arcing fault) if the heating cable is damaged or improperly installed, both the Canadian and the National Electrical Code (NEC 1996) require the use of a ground fault protection device (GFPD) at all times in conjunction with the installation of heat tracers.

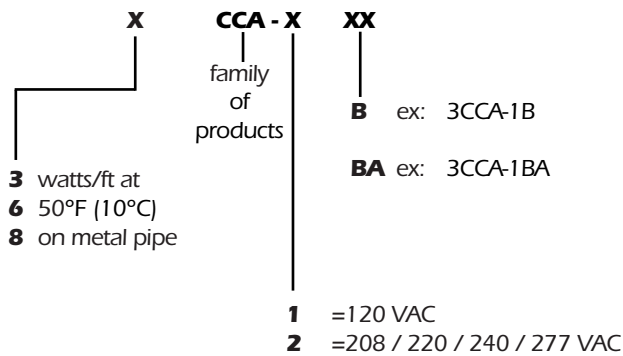


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# SPECIFICATION/APPLICATION INFORMATION

### HEATER SELECTION CATALOG NUMBER



### Typical applications

( For other than pipe or vessel tracing, see the appropriate application sheet)

#### Heater with copper braid (non-corrosive areas)

- Pipe freeze protection
- Tank freeze protection
- Maintain temperature on product pipelines
- Sprinkler freeze protection
- Hot water systems

#### Heater with copper braid and protective overjacket

- Same as with braid, plus
- Drains, roofs & gutters
- Comfort and space heating

