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Data Sheet
Heating cable

RS stock numbers
665-7450, 665-7453, 665-7457, 665-7466, 665-7469, 665-7463, 665-7586, 703-3186, 703-3202, 703-3215, 703-3218, 703-3212, 703-3221, 703-3224, 703-3136, 703-3139, 703-3133, 703-3142, 703-3145, & 703-3149

RS Cut to length heat tracing system

The **RS** heater cable is a parallel resistance, cut to length on site self regulating heating cable designed for frost protection and low temperature maintenance.

The heating tape adjusts heat output to equal the heat loss from the pipe work. As pipe temperature falls under no-flow conditions or due to decreases in external or internal temperature, the output increases. As the pipe temperature increases under flow conditions or as a result of increasing external or internal temperature so output decreases.

The **RS** Heater Cable is designed to be cut from reel lengths and site terminated to suit pipework.

The heating tape has a core comprising two bus-wire conductors contained within an extruded semi-conductive self limiting heater core with an outer insulating polyolefin sheath.

The tape has an earth protection screen in the form of a Foil Jacket covering a multi strand earth lead.

The tape is finished with a further protective thermoplastic outer sheath over the earth screen.

Features
- Cut to length
- Easy to terminate
- Suitable for internal and external heating applications

Specification
Location_____Non hazardous areas

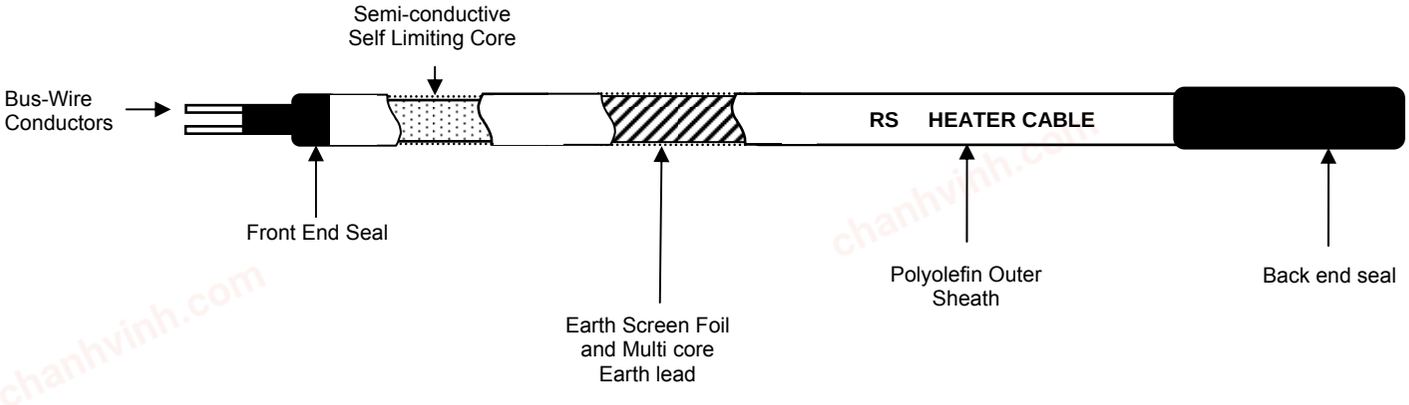
Construction
Conductors_____Copper stranded 1.23mm²
Core_____Semi-conductive Polymer.
Outer Sheath_____Polyolefin
Width_____13mm
Thickness_____5mm

Withstand temperatures
Energised_____65ºC
Un-energised_____80ºC

Ratings: Wattage @10ºC

240V
___10watts/m (**665-7450, 665-7453, 665-7457, 703-3186**)
Max circuit Length_____200m
___20watts/m (**665-7466, 665-7469, 665-7463, 665-7586**)
Max circuit Length_____155m
_____30watts/m (**703-3206, 703-3215, 703-3218**)
Max circuit Length_____120m
_____40watts/m (**703-3212, 703-3221, 703-3224**)
Max circuit Length_____100m

110V
_____10watts/m (**703-3136, 703-3139, 703-3133**)
Max circuit Length_____78m
_____20watts/m (**703-3142, 703-3145, 703-3149**)
Max circuit Length_____50m



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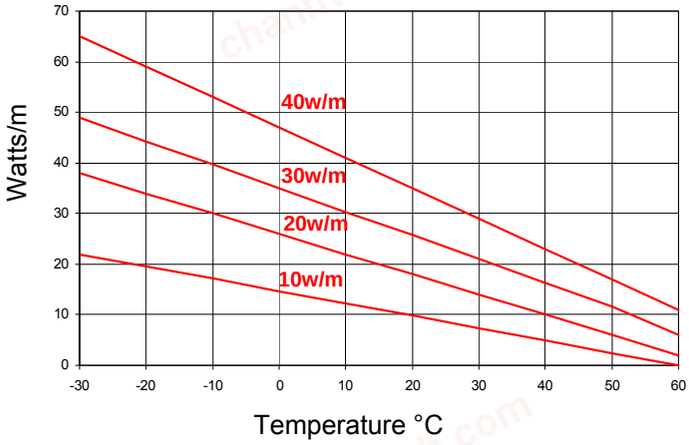
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Electrical

Circuit Breaker type C to EN60898
A 30mA trip Residual Current Circuit Device (RCCB) or Earth Leakage Circuit Breaker (ELCB) is recommended for use with heating tapes.

Output



To calculate heat loss per metre of pipe:-

$$\text{Heat losses W/m} = \frac{2\pi k\,(T_p - T_a)}{\ln\left(\frac{D_2}{D_1}\right)}$$

where:-

k = Thermal Conductivity of insulation layer at its mean temperature
T_p = Maintain Temperature
T_a = Minimum Ambient temp
D_1 = Inside Diameter of the Insulation Layer
D_2 = Outside Diameter of the Insulation Layer

Thermal Conductivity (*k*) for Mineral/Glass Fibre

Mean Temperature °C	10	50	100	200
k	0.032	0.035	0.43	0.062

A Design Factor Allowance should be taken of:
Maximum heater resistance tolerance (± 10%) and
Voltage variation (± 6%)

$= \frac{1.1}{(0.94)^2}$ = 1.25 x Heat Loss.
A further design factor of 10% may be added.

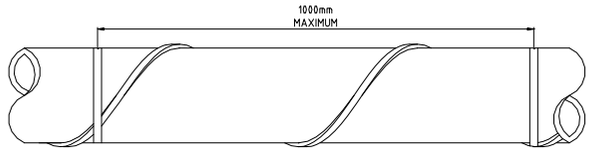
Installation

- Heating tape should be installed on clean, dry pipe free from burrs, weld splatter or any rough, sharp projections.
- Heating tape may be straight traced or spiralled along the pipe. If straight traced, the heating tape should be held in place with adhesive tape at 300mm intervals. For spiral tracing, fixing at 1m intervals is suitable.
- Use the correct adhesive tape suitable for the temperature application.
- A 30mA trip Residual Current Circuit Device (RCCB) or Earth Leakage Circuit Breaker (ELCB) is recommended for use with heating tapes.
- If in doubt about electrical installation consult a qualified electrician.
- Use mineral or glass fibre insulation and ensure that it is kept dry for maximum efficiency.
- Fit warning labels supplied on the outside of thermal insulation at approximately 3-meter intervals.
- For PVC, ABS, Polythene and other 'Plastic' pipes use heating tape not exceeding 12 watts per meter and having an earth screen covering. It is recommended that heating tape be covered in 50mm wide adhesive aluminium foil. An RCC or ELCB unit must be used in conjunction with this type of installation.
- It is recommended that all Heating tape should be installed in conjunction with a thermostatic controller.
- Heating cable should be terminated using **RS 665-7431** termination kit.

HEATING TAPE STRAIGHT TRACED FIXED AT MAX 300MM



HEATING TAPE SPIRALLY TRACED FIXED AT 1000MM



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Instruction Leaflet
Bendienungsanleitung
Hojas de instrucciones
Feuille d'instructions
Foglio d'instruzioni
Betjeningsvejledning
Instructies
Instruktionsfolder

Heating Cable Termination Kit GB

Heizband-Abschluss-Set D

Kit de terminals para cable de calentamiento E

Kit de terminal de cable chauffant F

Kit di terminazione cavo di riscaldamento I

Aftslutningssæt til varmekabler DK

Aansluitset voor verwarmingskabel NL

Anslutningssats till värmekabel SE

GB

665-7472 for use with Heating Cables:

665-7450, 665-7453, 665-7457, 665-7466, 665-7469, 665-7463, 665-7586, 703-3186, 703-3202, 703-3215, 703-3218, 703-3212, 703-3221, 703-3224, 703-3136, 703-3139, 703-3133, 703-3142, 703-3145, & 703-3149

The information contained within this data sheet regarding applications and installation of RS Parallel Heating Tape is for guidance only. The user must satisfy himself that the tape is suitable for the intended application and does not contravene any safety requirements. If in doubt consult BS EN 62395 or other appropriate specifications or regulations.

When used with Heat cable (**RS** stock no. 665-7450, 665-7453, 665-7457, 665-7466, 665-7469, 665-7463, 665-7586, 703-3186, 703-3202, 703-3215, 703-3218, 703-3212, 703-3221, 703-3224, 703-3136, 703-3139, 703-3133, 703-3142, 703-3145, & 703-3149) this kit will be sufficient for three sets of terminations. The kit consists of the following:

- 3 Back end seal
- 3 Front end seal
- 3 Earth heat shrink
- 3 Warning labels
- 3 M25 Glands c/w sealing grommet

RS Kit Ref 665-7586 consists of the following:

- 30m Self Regulating Heating Tape 20w/m @10ºC 240v
- 1 Back end seal
- 1 Front end seal
- 1 Roll fixing tape
- 5 Warning labels

RS Kit Ref 703-3186 consists of the following:

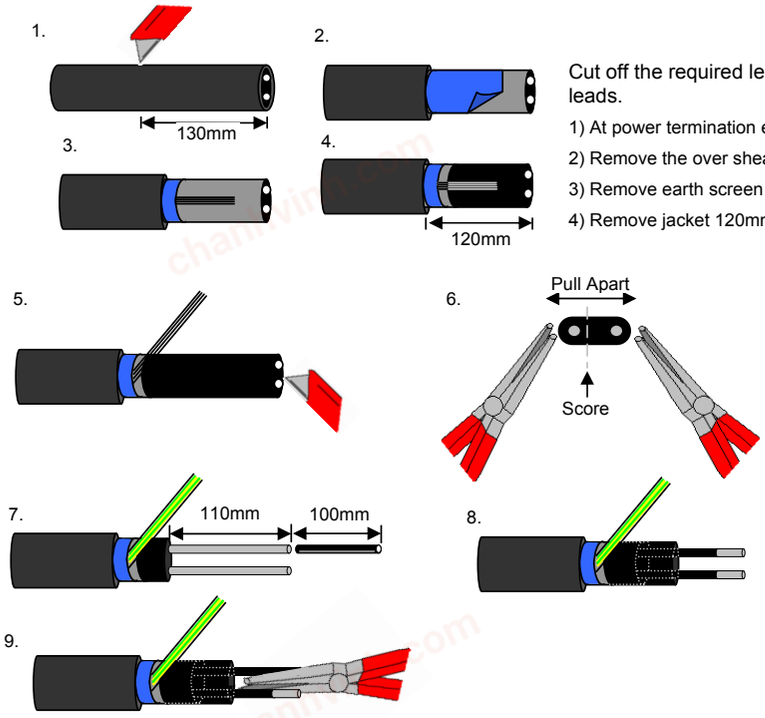
- 30m Self Regulating Heating Tape 10w/m @10ºC 240v
- 1 Back end seal
- 1 Front end seal
- 1 Roll fixing tape
- 5 Warning labels

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FRONT TERMINATION



Cut off the required length of heating tape from roll allowing for integral cold leads.

1) At power termination end of tape prepare cold lead. Remove outer sheath for 130mm.

2) Remove the over sheath to expose the earth screen foil.

3) Remove earth screen foil back to expose the multi strand earth wire.

4) Remove jacket 120mm to expose the black internal core.

5) Make a small score down the internal side of the conductor wires, approx 5mm. **DO NOT CUT CONDUCTOR WIRES**

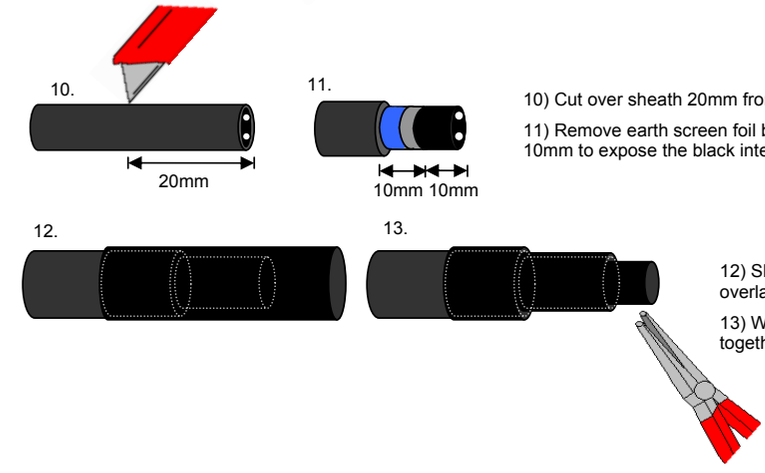
6) Grip either side of the score line with pliers and separate, repeat for the second conductor wire. Once both conductor wires are separated remove any remaining black internal core.

7) Slide a small black heat shrink length over each of the conductor wires and the green and yellow heat shrink length over the multi strand earth wire. Shrink with heat gun.

8) Slide the large heat shrink over the two conductor wires and up to the earth wire. Shrink with heat gun.

9) While the large heat shrink is still warm squeeze together between the conductor wires.

REAR TERMINATION



10) Cut over sheath 20mm from the end of the tape.

11) Remove earth screen foil back and remove the multi strand earth wire. Remove jacket 10mm to expose the black internal core.

12) Slide the large heat shrink over the end of the tape and overlap the outer jacket/over sheath. Shrink with heat gun.

13) While the large heat shrink is still warm squeeze flat together with pliers to seal end of tape.

- Intended use(s) Freeze protection and temperature maintenance, hot water lines, oil and chemical lines, sprinkler system mains and supply piping (as listed in Clause 1 BS EN 62395).
- Ground-fault equipment protection is required for each circuit
- De-energize all power circuits before installation or servicing
- Keep ends of trace heaters and kit components dry before and during installation
- Caution: Do not use in areas subject to high mechanical loads or impact, This heating tape is intended for use in applications with low risk of mechanical damage.
- The metal sheath, braid, screen or equivalent electrically conductive covering of the trace heater must be connected to an earth terminal
- The presence of the trace heaters shall be made evident by the posting of caution signs or markings at appropriate locations and/or at frequent intervals along the circuit.
- Heating tape should be installed on clean, dry pipe free from burrs, weld splatter or any rough, sharp projections.
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- Use the correct adhesive tape suitable for the temperature application.
- If in doubt about electrical installation consult a qualified electrician.
- Use mineral or glass fibre insulation and ensure that it is kept dry.
- Fit warning labels supplied on the outside of thermal insulation at approximately 3-meter intervals.
- For PVC, ABS, Polythene and other 'Plastic' pipes use heating tape not exceeding 12 watts per meter and having an earth screen covering. It is recommended that heating tape be covered in 50mm wide adhesive aluminium foil. An RCC or ELCB unit must be used in conjunction with this type of installation.

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