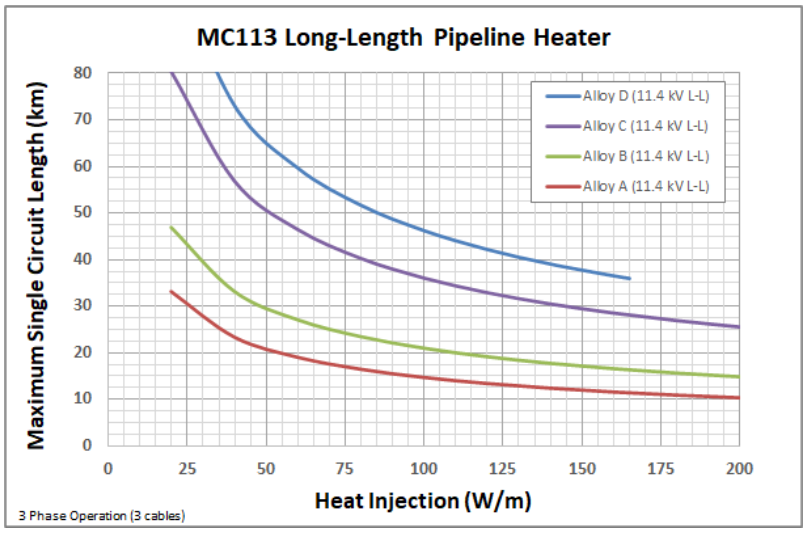
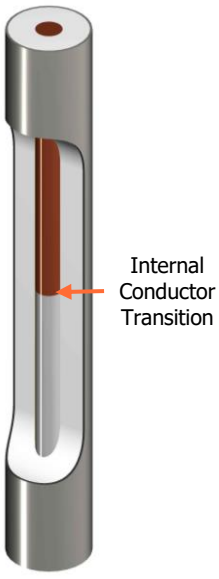
Pipeline Data Sheet – MC113

Salamander
ADVANCED HEATER SOLUTIONS

(A) Conductor
(B) Compressed MgO
(C) Sheath





Salamander Solutions mineral insulated heater cables are manufactured using a continuous methodology, which enables long-length capability. Our patented manufacturing techniques produce mineral insulated cables which are unparalleled in performance, highly robust, and capable of delivering medium voltage power at long-lengths and high temperatures.

With continuous lengths of more than 2 km, external splicing can be minimized or eliminated altogether, greatly improving the reliability of the overall system. Internal transitions of the conductor allow for targeted heating in applications.

Each Salamander mineral insulated cable is designed and fabricated based on the heating requirements for the given application. A complete suite of high integrity cable and end connectors are available.

Pipeline and Subsea Applications:

Pipeline Heating
- Molten Sulphur pipelines and transfer lines
- Bitumen / heavy oil lines
- High viscosity / waxy crude lines

Subsea and Deepwater Flowline Heating
- Flow assurance: hydrate / wax prevention and mitigation
- Extended reach capability: access stranded reserves from existing hosts

Any long-length or high intensity heating requirements in challenging conditions.

Physical Data

Cable Diameter*	1.13-inches (28.7 mm)
Sheath Material	Various Alloys
Conductor Material	CuNi Alloys
Insulation Material	Compressed MgO
Weight*	3.70 kg/m
Min Bend Radius*	1.0 meter
Pulling Tension*	5 metric tons

*single cable

Operating Data

Max Operating Voltage (L-L)	11.4 kV*
Max Current	300 A
Max Temperature (Continuous)	650 °C (1200 °F)
Max Temperature (Intermittent)	700 °C (1300 °F)
Min Storage Temperature	-65 °C (-85 °F)
Min Installation Temperature	-35 °C (-30 °F)

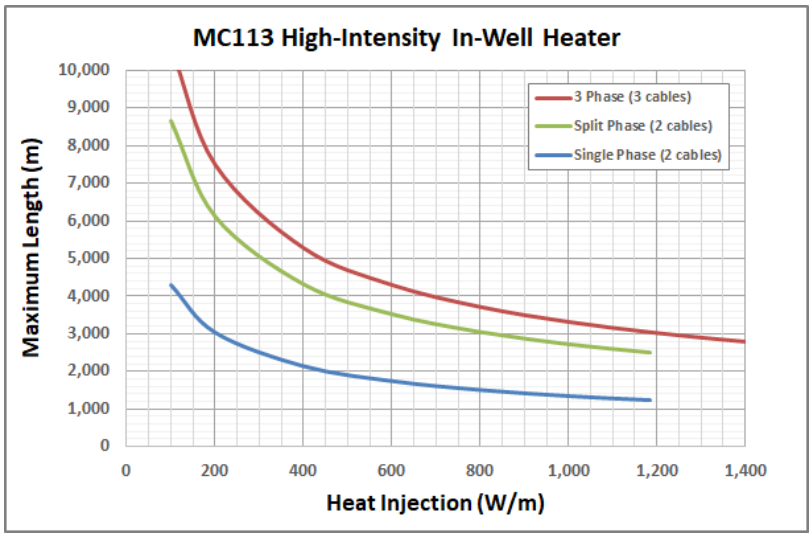
*higher voltage rating than in-well application due to lower temperature operation

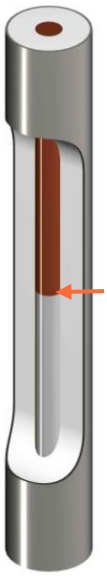
bsi. ISO 9001:2015 Quality Management FM 655348

www.salamandersolutions.com

In-Well Data Sheet – MC113

Salamander
ADVANCED HEATER SOLUTIONS





(A) Conductor
(B) Compressed MgO
(C) Sheath

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With continuous lengths of more than 2 km, external splicing can be minimized or eliminated altogether, greatly improving the reliability of the overall system. Internal transitions of the conductor allow for targeted heating in applications.

Each Salamander mineral insulated cable is designed and fabricated based on the heating requirements for the given application. A complete suite of high integrity cable and end connectors are available.

Applications:

In-Well Heating

- Increases production in "cold flow" heavy oil wells
- Accelerates production and improves SAGD / CSS performance
- Provides flow assurance for waxy wells
- Enables *in situ* conversion of kerogen or *in situ* upgrading of heavy oil

Can address any long-length or high intensity heating requirements in challenging conditions.

Physical Data

Cable Diameter*	1.13-inches (28.7 mm)
Sheath Material	Various Alloys
Conductor Material	CuNi Alloys
Insulation Material	Compressed MgO
Weight*	3.70 kg/m
Min Bend Radius*	1.0 meter
Pulling Tension*	5 metric tons

*single cable

Operating Data

Max Operating Voltage (L-L)	8.66 kV
Max Current	300 A
Max Temperature (Continuous)	650 °C (1200 °F)
Max Temperature (Intermittent)	700 °C (1300 °F)
Min Storage Temperature	-65 °C (-85 °F)
Min Installation Temperature	-35 °C (-30 °F)

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