

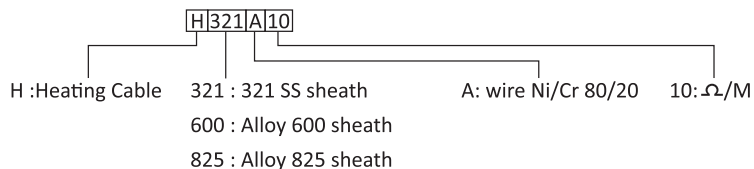
## PYRO MI HTC

Pyro MI heating cables with 80/20 Ni/Cr heating wire & sheath materials of SS321, Alloy 600 or Alloy 825, offer a wide range corrosion resistant & fairly wide output capability.

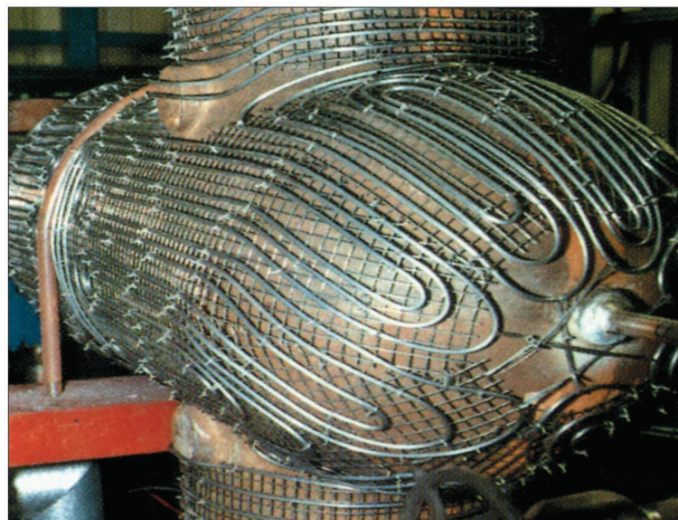
Best results are obtained by applying these HTCs external to piping or Equipment surface for trace heating or "indirect heating", however nothing prevents these HTCs to be immersed or embedded on the inside wall of the vessels to provide a "direct" heat source.

Pyro MI HTCs are available for surface temperature up to 600 Deg C & can be supplied in a wide range of Resistance values per M

Pyro HTC Code



Trace Heating and Insulation in Corrosive Environment



450°C Heat Treatment Application

## Applications up to 600°C

Consult Factory for surface Temp above 600° C



H321 A 10.0



H321 A 6.3



H321 A 4.0



H321 A 2.5



H321 A 1.6



H321 A 1.0



H321 A 0.63



H321 A 0.4



H321 A 0.25



H321 A 0.16

## Technical Data

Max. Process Temp.	energised 600°C
Max. withstand Temp.	de-energised 1000°C
Min. Installation Temp.	minus 60°C
Cable Diameters	3.2mm to 6.5mm nominal
Cable Sheath	Inconel 600
Min. Bending radius	Dia. x 6
Power Connection Cables	1.3 metres long, 2.5mm copper sheathed terminated with M20 Brass compression glands

## Installation Guide

- Install a straight line trace for pipework heating if practical
- Apply cable to the underside of the pipework
- Never allow loops or adjacent cable runs to touch or cross over each other - this will eliminate localised hotspots
- Form a sufficient loop into an 'S' configuration at valves
- Provide a suitable loop bend when crossing over flanges and in-line connections
- Ensure brazed joints are not applied directly onto surfaces in excess of 500°C
- Locate copper lead-in cables away from temperatures in excess of 250°C

Heating Cable Reference	A 10.0	A 6.3	A 4.0	A 2.5	A 1.6	A 1.0	A 0.63	A 0.4	A 0.25	A 0.16	
Cable Diameter (mm)	3.2	3.2	3.2	3.6	3.8	4.1	4.5	5.0	5.6	6.5	
Resistance (ohms/metre)	10	6.3	4	2.5	1.6	1	0.63	0.40	0.25	0.16	
Production Coil Length (Mtrs)	350	350	350	260	230	200	170	140	110	80	
Weight 1000 Metres (Kg)	37	38	38	45	51	61	76	94	125	190	
Sheath Area per metre (sq cm)	100.54	100.54	100.54	113.11	119.4	128.8	141.4	157	176	204.23	
Recommended maximum power output at given surface temperatures	SURFACE TEMPERATURES										
	100 Deg.C	170	170	190	214	226	243	268	298	332	387
	200 Deg.C	144	144	160	180	190	204	225	251	280	326
	300 Deg.C	108	108	120	135	142	153	169	188	210	243
	400 Deg.C	60	60	70	79	83	89	98	109	122	142
500 Deg.C	15	15	20	22	23	25	28	31	35	40	

Recommended maximum power output at given surface temperatures in watts per metre of cable is based on a sheath operating temperature of approx 550°C

The majority of mineral insulated heating units are designed to dissipate approximately 100 watts per metre of cable to ensure longevity of service. With high watts/metre output of cable the M.T.B.F is reduced

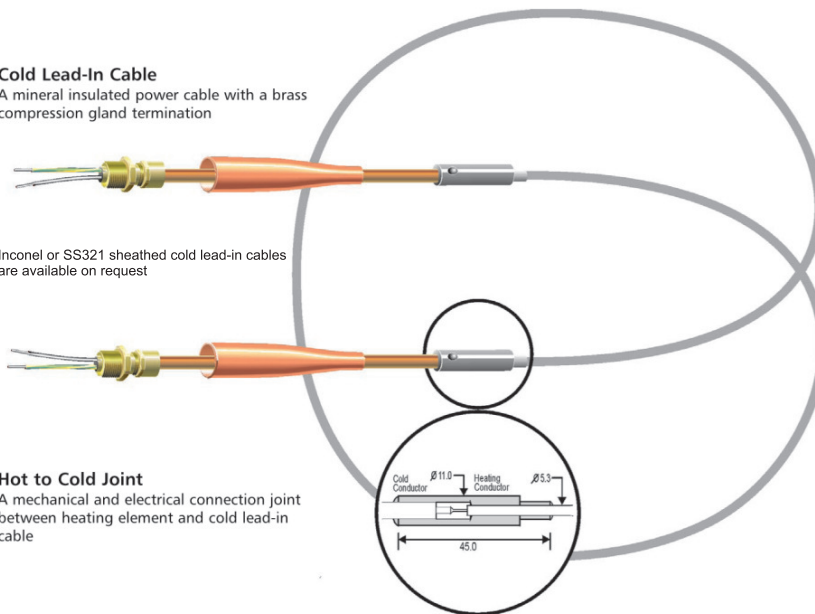
### Cold Lead-In Cable

A mineral insulated power cable with a brass compression gland termination

Inconel or SS321 sheathed cold lead-in cables are available on request

### Hot to Cold Joint

A mechanical and electrical connection joint between heating element and cold lead-in cable



MI HTC cable units, seamless through out & with their cold lead in cables integral with heating cable can be offered, where a brazed joint is not suitable due to corrosive conditions. Special termination seals Ceramic to Metal can be offered for guaranteeing high IR in high humid atmospheres

## Securement / Fixings

### PIPEWORK

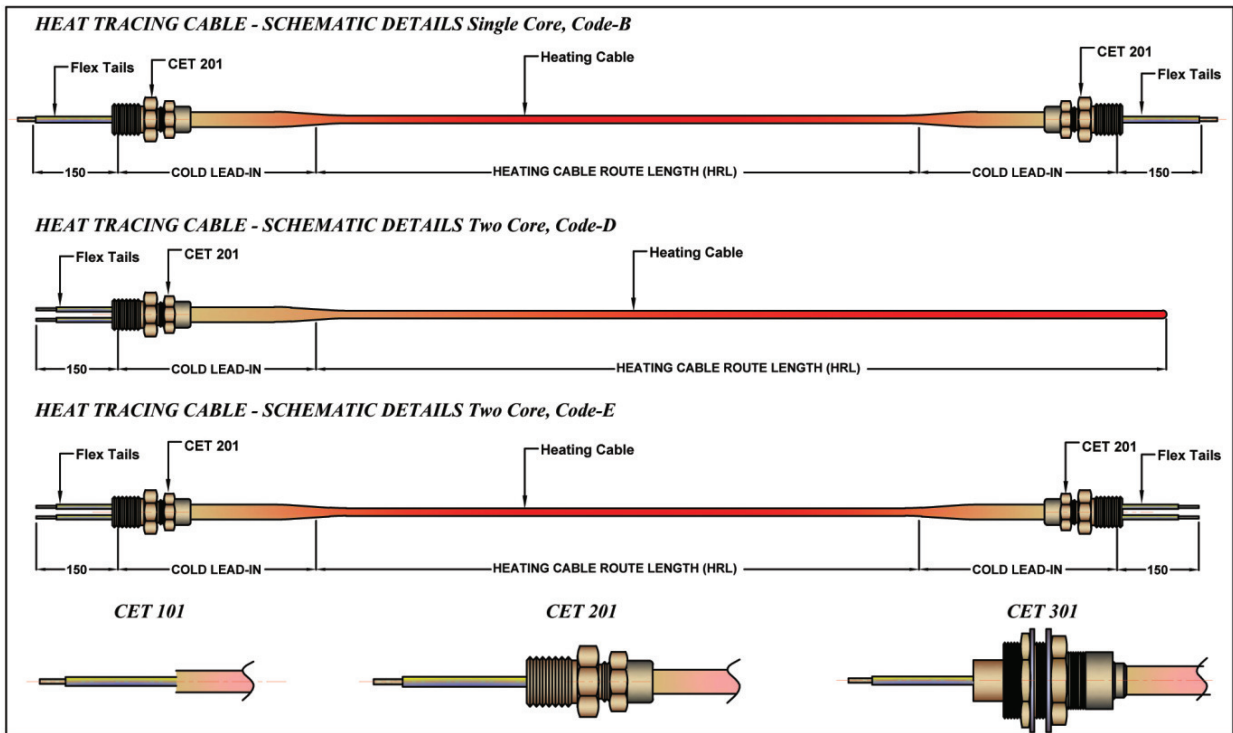
- ≤ 150mm n.b. - Stainless Steel Tie wire
- > 150mm n.b. - Stainless Steel Banding

### VESSELS AND TANKS

- Circular  
Pre-punched fixing or stainless steel band
- Rectangular & Flat Surfaces  
Weldmesh grids or pre-punched fixing band

# Mineral Insulated Swaged Down Heating Cables & Units SW151# Series

Sw151# Series



Pyro MI "Swaged" down Heating Cables are totally seamless without any brazed joints and are meant for use in very harsh environment & high temperature applications for a long period of time. These are available in various sheath and conductor materials and can be supplied as pre-designed and engineered Trace Heaters.

Glands and Pull boxes (Terminal boxes) can be supplied with Ex'd certification, which should enable the Trace Heater to be used in a potentially hazardous atmosphere. Accessories such as Temperature Sensor or completely designed power supply panel with temperature controls can also be supplied

## Model de-coding chart

SW151# Series			Pull Box (Terminal Box)	
<b>Code</b>	<b>Heater Type</b>		<b>Code</b>	<b>Material &amp; Protection class</b>
SW	Swaged Down		D0	Die cast Al, IP:66
<b>Code</b>	<b>No. of Cores</b>		D1	304 SS, IP:66
B	Single Core Heating Unit		D2	316 SS, IP:66
D	Two core heating Unit		Ce0	Die cast Al, IP:66, Exe
E	Two core heating Unit		Ce1	304SS, IP:66, Exe
<b>Code</b>	<b>Sheath Material</b>		Ce2	316SS, IP:66, Exe
321	321 SS		Cd0	Die cast Al, IP:66, Exd
316L	316L SS		Cd1	304SS, IP:66, Exd
310	310 SS		Cd2	316SS, IP:66, Exd
600	Alloy 600		NOTE : Pull boxes will be provided with entries suitable for termination glands	
825	Alloy 825		<b>Code</b>	<b>Termination Glands</b>
400	Cupro Ni 70/30		N	None
122	Copper		M20	MIG Gland , M20x1.5(M)
<b>Conductor Material</b>			1/2"N	MIG Gland , 1/2"NPT(M)
<b>Code</b>	<b>Material</b>	<b>Resistivity <math>\mu</math>ohms cm</b>	<b>Resistance Values (NiCr 80/20)</b>	
A	Ni Cr 80/20	108.00	<b>Code</b>	<b>Heating Cable ohm/M</b>
B	Ni Cu	49.00		<b>Cold Lead-in cable ohm/M</b>
D	Cu Ni Alloy	10.00	10.00	10.00
C	Copper	1.68	6.30	6.30
<b>Cold end Termination</b>			4.00	4.00
CET 101	Cold end with Bare Tails		2.50	2.50
CET 201	Brazed pot with high Temperature epoxy Seal & Flextails		1.60	1.60
CET 301	Brazed pot with Ceramic to Metal Seal & Flextails		1.00	1.00
			0.63	0.63
			0.40	0.40
			0.25	0.25
			0.16	0.16

TYPICAL MODEL NO : SW151# -SW-B-321-A-CET 201-6.3-M20-Ce0

All the MI cables & heating units are manufactured at our facility in Goa, which has been set up as a Joint Venture with MICC Ltd., a group company of TRM Ltd. UK. We receive technical support on manufacturing practices as well as on application engineering from them on a continuous basis.

INDIA

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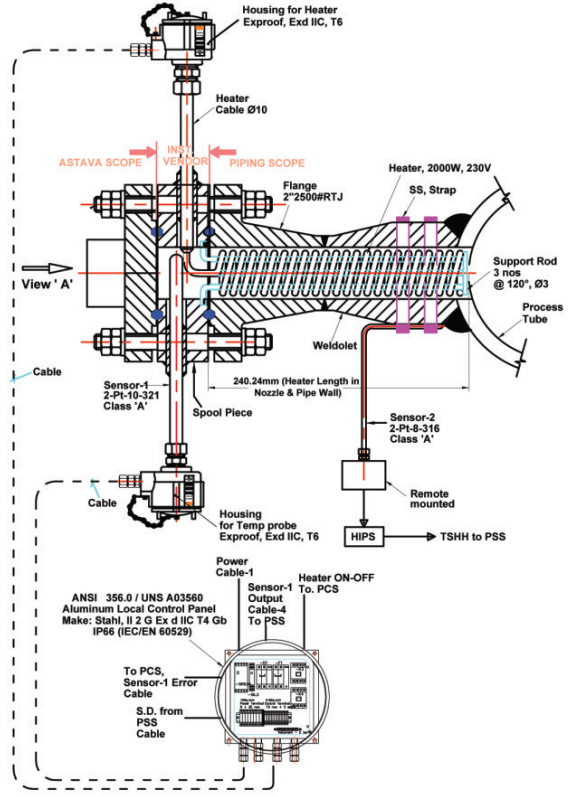
# Mineral Insulated Swaged Down Heating Cables & Units SW151# Series

## SW151# Series

Nominal values of Wattage out put of Single core heating cable standardised lengths units

Heating Cable Type	Conductor Material	Nominal Sheath OD		Wattage of Heater Unit				
		Heating	Cold Lead in	Heating Length M	Wattage	Watt/M	Surface Area Sq CM	Wattage density W/SqCM
SWB321-A(CET)10	80/20 Ni /Cr	3.2	6.4	5.00	1051	150	503	2.1
				7.50	722	76	754	1.0
				10.00	550	46	1005	0.5
				15.00	372	22	1508	0.2
SWB321-A(CET)6.3	80/20 Ni /Cr	3.2	6.4	5.00	1670	239	503	3.3
				7.50	1146	121	754	1.5
				10.00	873	73	1005	0.9
				15.00	591	35	1508	0.4
SWB321-A(CET)4.0	80/20 Ni /Cr	3.2	6.4	5.00	2642	377	503	5.3
				7.50	1811	191	754	2.4
				10.00	1378	115	1005	1.4
				15.00	932	55	1508	0.6
SWB321-A(CET)2.5	80/20 Ni /Cr	3.4	6.4	10.00	2190	183	1068	2.1
				12.50	1770	122	1335	1.3
				15.00	1485	87	1602	0.9
				20.00	1123	51	2137	0.5
SWB321-A(CET)1.6	80/20 Ni /Cr	3.6	8	12.50	2796	193	1414	2.0
				15.00	2341	138	1697	1.4
				17.50	2014	103	1979	1.0
				20.00	1767	80	2262	0.8
SWB321-A(CET)1.0	80/20 Ni /Cr	3.9	8	15.00	3731	219	1838	2.0
				17.50	3211	165	2144	1.5
				20.00	2818	128	2451	1.1
				25.00	2264	84	3063	0.7
SWB321-A(CET)0.63	80/20 Ni /Cr	4.3	8	15.00	5872	345	2027	2.9
				17.50	5059	259	2364	2.1
				20.00	4444	202	2702	1.6
				25.00	3575	132	3378	1.1
SWB321-A(CET)0.40	80/20 Ni /Cr	4.7	8	20.00	6957	316	2953	2.4
				22.50	6207	253	3323	1.9
				25.00	5603	208	3692	1.5
				30.00	4691	147	4430	1.1
SWB321-A(CET)0.25	80/20 Ni /Cr	5.3	9.5	25.00	8986	333	4163	2.2
				30.00	7520	235	4996	1.5
				35.00	6465	175	5828	1.1
				40.00	5669	135	6661	0.9
SWB321-A(CET)0.16	80/20 Ni /Cr	6.5	9.5	25.00	9014	334	5106	1.8
				30.00	7539	236	6127	1.2
				35.00	6479	175	7148	0.9
				40.00	5680	135	8169	0.7

## Specially Designed Products - Nozzle Heater



Values in the table above are also applicable for Single Core heating units with Ni /Cr, 80/20 heating wires & in sheath materials such as SS316L, Alloy 600 & Alloy 825.

Heating design for "heat loss compensation " or for raising the temperature can be provided by us based on the process data submitted to us.

Our Scope would include providing mounting hardware to fix these heating units on the pipe lines or vessels , Temperature Sensors , Controllers or entire Power supply & control unit , providing site support for erection , insulation cladding & site commis

### Power supply control unit , Ex d IIC T6



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