

CARTRIDGE HEATER DESIGN CHECKLIST PART ONE

Company: _____ Phone Number: _____

Contact Name: _____ Email or Fax: _____

Address: _____

Industry: _____

Heater Dimensions	Electrical Specs	Sheath Material	End-Piece
Diameter:	Voltage: _____	304SS (Std)	Ceramic End-Piece (Std)
1/8" 1/4" 5/16"	Dual Voltage*	316SS (Not available for 5/16" or 1" diameter)	Lava End-Piece
3/8" 1/2" 17/32"	120/240	Incoloy (Not available for 5/16" or 1" diameter)	Mica End-Piece
5/8" 11/16" 3/4"	240/480		
1" 6 mm 6.5 mm	Wattage: _____		
8 mm 10 mm 12 mm	Phase:		
12.5 mm 13 mm 14 mm	Single Phase (Std)		
16 mm 17 mm 19 mm	3 Phase		
20 mm 25 mm	Additional Options:		
Overall Length: _____	Dual Zone		
Heated Length: _____			

Lead Termination	Lead Protection	Options	Options
Lead Length: _____ (10" Std)	None	Ground Wire:	Mechanical Stop
Swaged-In Length	SS Braid	No	No (Std)
Crimped-On Leads	SS Conduit	Yes	Tab Stop
Straight Pins	W/Copper Elbow	Distributed Wattage	Locating Ring
Lead Wire Insulation	W/Copper Coupler	No	Weld Stop
Duraflex (550°C) (Std)	Sleeving	Yes	Insert. Length: _____
Teflon (250°C)	Over Both Leads	Specify Wattage Distribution:	Trim to Length (+/- 1/2")
Silicone (150°C)	Over Each Lead		No (Std)
Lead Configuration	Spring Guard		Yes
Straight (Std)	Strain Relief Clip	Potting:	Approvals:
Right Angle	Ceramic Beads	None (Std)	UL (cRUus)
	Bead Length: _____	Cement Potting	CE
	Lead Terminals	Epoxy Potting	
	None (Std)	RTV Potting	
	Insulated Terminals	Epoxy over RTV Potting	
	Uninsulated Terminals		Some restrictions may apply.

*Dual voltage available on heaters with minimum dimensions of 0.375 in (10 mm) diameter and 6 in (152 mm) long

CARTRIDGE HEATER DESIGN CHECKLIST PART TWO

Internal Thermocouples	Fittings & Flanges (must provide insert length)	
No (Std) Yes Grounded Ungrounded Thermocouple Type Type J Type K Location of Thermocouple Tip Center on Sheath Inside Core T/C Wire Termination Bare Wire Mini-Plug Std Plug	None (Std) Insertion Length: _____ Brass - Single NPT Brass - Double-Ended NPT 304SS Single NPT 304SS Double-Ended NPT 316SS Single-Ended NPT 316SS Double-Ended NPT Custom Fitting Specify Dimensions: _____	304SS Round Flange 1.0" Diameter 1.5" Diameter 2.0" Diameter Custom Flange Specify Dimensions: _____

Calculate minimum unheated lengths based on Overall Heated Lengths

Unheated Lengths (min) based on diameter (with standard swaged leads)							
Heater Length	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Under 3"	0.20	0.20	0.25	0.30	0.39	0.39	0.61
Over 3"	0.81	0.79	0.84	0.84	1.01	1.00	1.27

Unheated Lengths (min) based on diameter (with crimped lead option)							
Heater Length	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Under 3"	0.20	0.20	0.25	0.29	0.54	0.54	0.74
Over 3"	0.20	0.20	0.25	0.29	0.54	0.54	0.81

Unheated Lengths (min) based on diameter (with standard right angle lead option)							
Heater Length	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Under 3"	0.20	0.20	0.25	0.29	0.39	0.39	0.24
Over 3"	0.81	0.79	0.84	0.84	1.01	1.00	0.31
Extension Length	0.25	0.25	0.31	0.37	0.37	0.37	0.75

Example: A 3/8" diameter standard heater with swaged leads has an overall length of 4". The minimum unheated length is equal to 0.84."

If this same heater requires a right angle lead option, the minimum unheated length is equal to 0.84 + 0.31 or 1.15". The maximum heated length in this example is 4.0" - 1.15" = 2.85".

Unheated lengths may be different when stainless steel braid or flexible conduit are used for lead protection.