

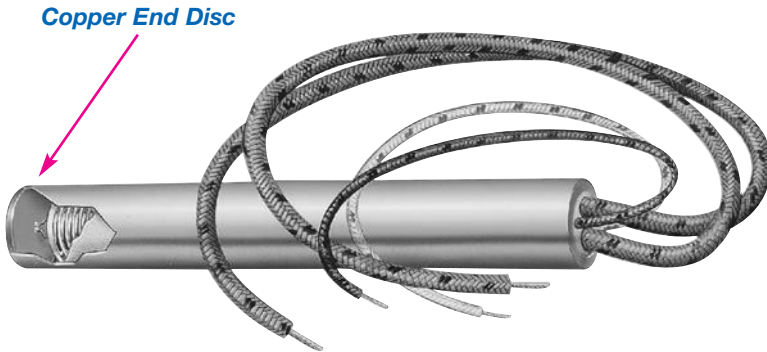
# Cartridge Heaters



## Hi-Density Pennybottom™

### Hi-Density Pennybottom™ Cartridge Heaters with Built-In Thermocouple

Designed for Trouble-Free Performance and Improved Efficiency



The unique feature of the Pennybottom™ cartridge heater is the use of a flat copper end disc to maximize heat transfer and improve temperature sensing. It has been proved through extensive field testing that heat at the tip can be increased by up to 30°F. The Pennybottom™ cartridge heater also includes a Type J thermocouple at the end disc. The junction is grounded to the flat copper end disc, providing excellent temperature control at the gating area, eliminating freeze-ups or drool, thus producing quality molded parts.

Additional features of Pennybottom™ heaters include minimum cold sections and computer designed distributed wattage. Pennybottom™ heaters are manufactured under the same design specifications and rigid quality control workmanship as the Hi-Density cartridge heater line. The swaging operation during the manufacturing process produces a rugged and durable cartridge heater for greater reliability and exceptionally long operating life.

#### Design Features

- \* Pennybottom™ Copper Flat End Disc
- \* Hi-Density Swaged Construction
- \* Grounded Type J Thermocouple at the Copper End Disc
- \* 36" High Temperature Leads for both Heater and Thermocouple
- \* Minimum Cold Sections
- \* OEM Replacements Available From Stock for Runnerless Molding Systems



**Note:** The cartridge heaters listed in this section include Pennybottom™ and Hi-Density cartridge heaters configured for specific tasks in the plastic injection molding environment with extra long leads, Teflon® or fiberglass insulation, with and without thermocouples, grounded at the end disc or in the middle of the heater.

#### PENNYBOTTOM™ HEATER SPECIFICATIONS

Nominal Diameter	1/4"		3/8"		1/2"	
	in	(mm)	in	(mm)	in	(mm)
Actual Diameter	.246	(6.30)	.371	(9.42)	.496	(12.60)
Diameter Tolerance	±.002	(.051)	±.002	(.051)	±.002	(.051)
Minimum Length	1	(25.40)	1	(25.40)	1-1/4	(31.75)
Maximum Length	36	(914)	48	(1219)	60	(1524)
Length Tolerance Heaters up to 5" (127 mm) long	± 3/32	(2.4)	± 3/32	(2.4)	± 3/32	(2.4)
Length Tolerance Heaters over 5" (127 mm) long	±2% of Sheath Length					
Camber Tolerance Heaters to 12" (305 mm) long	.010" (.254 mm) per Foot of Length					
Camber Tolerance Heaters over 12" (305 mm) long	.020" (.508 mm) per Foot of Length					