

Allows Safe Heating of Volatile Silicon Wafer Cleaning Solvents

Watlow's new UNIVERSAL SOLVENT circulation heater consists of a cylindrical-shaped cast part with helical coiled tubes and formed tubular heating elements cast-in. Three Type J thermocouples sense the solvent inlet, solvent outlet and casting core temperatures. The UNIVERSAL SOLVENT circulation heater operates at near 100 percent efficiency while reducing the risk of solvent contamination.

The UNIVERSAL SOLVENT circulation heater provides a safe and efficient means of heating low flash point solvents. Both the heating elements and the solvent tube are cast into the aluminum. The heating elements provide heat to the aluminum mass and the mass transfers this heat to the tube carrying the solvent. The casting can also be surrounded by insulation to minimize heat loss and keep equipment cabinet temperatures low.

A secondary chilled water tube is also cast-in. This tube quickly cools the casting for routine maintenance or lowers the solvent below the flash point.

Safety features of Watlow's UNIVERSAL SOLVENT circulation heater include a NEMA 7 rated (explosion proof) enclosure box covering the electrical connections and a snap-action over temperature protection switch to provide safe shut down. The casting body is Teflon® coated to protect the aluminum in case of accidental contact with solvents.

The UNIVERSAL SOLVENT circulation heater is appropriate for numerous applications and may be customized to meet specific customer needs. For additional sizes or options, please contact Watlow Batavia.

Applications

Semiconductor wet process OEMs

- Wafer cleaning equipment (wet benches)
- Post etch wet strip and photoresist removal applications
- Heating of low flash point solvents such as EKC, ACT and NMP

Teflon® is a registered trademark of E.I. du Pont de Nemours & Company.
UL® is a registered trademark of Underwriter's Laboratories Inc.



Features and Benefits

Fluid path constructed independent from heater sheath

- Solvent is never in contact with heater element
- Indirect heating eliminates hot spots caused by poor flow or start up conditions

Cast aluminum construction

- Accurate process temperature control
- Rugged and durable
- Higher reliability due to less components and nonwelded construction
- Longer heater life

316 SS passivated and electropolished solvent tube

- Provides material compatibility with most semiconductor solvents
- Ensures contamination resistant surface for heated solvent
- Seamless tubing assures higher reliability and cleanliness

Electrical enclosure constructed for hazardous environments

- Reduces risk of accidental combustion of solvent vapors

Operates to 1500 PSI or greater with appropriate fittings

- Economic high pressure operation

Self draining construction

- Eliminates trapped material that may add contamination to the process
- Economic time-saving operation

Agency ratings

- UL®/CSA recognized heater elements
- NEMA 7 Class 1 Divisions 1 and 2, Groups B, C and D electrical enclosure



BAT-USCH-0403

1310 Kingsland Drive
Batavia, Illinois 60510 USA
Phone: +1 (630) 879-2696
FAX: +1 (630) 879-1101
Internet: www.watlow.com
e-mail: info@watlow.com



Specifications

Operating Temperatures

- Ambient to 100°C (212°F)

Electrical

- 208 to 240V~(ac) and 6000 to 8000W single-phase
- 208 to 480V~(ac) and 7500W three-phase

316L SS Seamless Tubes

- 19.05 mm (0.75 in.) O.D., solvent tube - passivated and electropolished
- 6.35 mm (0.25 in.) O.D., cooling water tube

Fitting Connections

- Flaretek® or Swagelok VCR fittings on solvent tube
- National Pipe Thread (NPT) or Swagelok VCR fittings on cooling tube

Sensors/Switches

- 2 cast-in Type J thermocouples sense solvent tube inlet and outlet temperatures
- 1 replaceable Type J thermocouple senses casting core temperature
- Mechanical snap action switches for over temperature protection

Optional Features

- Insulating jacket
- Contact Watlow Batavia for custom inquiries

Casting Dimensions

- Height 215.9 mm (8.5 in.)
Diameter 146.05 mm (5.75 in.)
- Dimensions above do not include tube fittings and mounting bosses

Enclosure Dimensions

- Enclosure rated for Class 1 Division 1 and 2, Groups B, C and D
- Height 127 mm (5 in.)
Diameter 120.65 mm (4.75 in.)

Teflon® Coated Casting/Anodized Electrical Enclosure

- Protects unit from accidental contact with corrosive process solvents

Ordering Information

To order, complete the code number on the right with the information below.

BX8J5N	-	-	-	-
Base	19.05 mm (0.75 in.) O.D. x 12.45 mm (0.049 in.) wall, seamless 316 SS, passivated and electropolished solvent tube. 6.35 mm (0.25 in.) O.D. x 12.45 mm (0.049 in.) wall, seamless 316 SS, cooling tube. NEMA 7, Class 1, Divisions 1 and 2, Groups B, C and D rated electrical enclosure. Type J thermocouple sensors at casting core, solvent inlet and solvent outlet. High limit, auto resetting snap-action switch.			
Heater Voltages and Wattages	100A = 208V, 8000W, single-phase 100B = 240V, 8000W, single-phase 100C = 208V, 6000W, single-phase 100D = 240V, 6000W, single-phase 100E = 208V, 7500W, three-phase 100F = 240V, 7500W, three-phase 100G = 380V, 7500W, three-phase 100H = 480V, 7500W, three-phase			
Solvent Fitting	1 = Flaretek® 2 = Swagelok VCR			
Cooling Fitting	1 = 90° ¼ NPT female 2 = Swagelok VCR			
High Limit Switch	1 = 100°C (212°F) 2 = 185°C (365°F)			
Accessories	0 = None 1 = Insulating jacket			

Flaretek® is a registered trademark of Entegris, Inc.

North American Sales Offices: Atlanta, (770)972-4948 • Austin, (512)249-1900 • Birmingham, (205)678-2358 • Charlotte, (704)573-8446 • Chicago, (847)458-1500 • Cincinnati, (513)398-5500 • Cleveland, (330)467-1423 • Dallas, (972)620-6030 • Denver, (303)798-7778 • Detroit, (248)651-0500 • Eastern Canada, (450)433-1309 • Houston, (281)440-3074 • Indianapolis, (317)575-8932 • Kansas City, (913)897-3973 • Los Angeles, (714)935-2999 • Louisiana, (318)864-2864 • Maryland/Virginia, (215)345-8130 • Minneapolis/Manitoba, (952)892-9222 • Nashville, (615)264-6148 • New England, (603)882-1330 • New York/New Jersey/Philadelphia, (215)345-8130 • New York, Upstate, (716)438-0454 • Ontario, (905)979-3507 • Orlando, (407)351-0737 • Phoenix, (602)298-6960 • Pittsburgh, (412)322-5004 • Portland, (503)245-9037 • Raleigh/Greensboro, (336)766-9659 • St. Louis, (314)878-4600 • Sacramento, (707)425-1155 • San Diego, (714)935-2999 • San Francisco, (408)434-1894 • Seattle, (425)222-4090 • Tampa/St. Petersburg, (407)647-9052 • Tulsa, (918)496-2826 • Western Canada, (604)444-4881 • Wisconsin, North (920)993-2161 • Wisconsin, South (262)723-5990

Asian Sales Offices: Australia, +61 (3) 9335-6449 • China, +86 (21) 6277-2138 • Japan, +81 (03) 5403-4688 • Korea, +82 (02) 575-9804 • Malaysia, +60 (4) 641-5977 • Singapore, +65 777-9488 • Taiwan, +886 (0) 7-288-5168

European Sales Offices: France, +33 (01) 3073-2425 • Germany, +49 (0) 7253-9400-0 • Italy, +39 (02) 458-8841 • Sweden, +46 31 7014959 • United Kingdom, +44 (0) 115-964-0777

Latin American Sales Office: Mexico, +52 (442) 217-6235