

Agency Certifications, Recognition and Approvals

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WATROD and FIREBAR® Element and Assemblies607



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Agency Recognition

UL® and CSA recognition information charts are provided to ensure:

- Safety parameters in relationship to stated voltage and amperage
- Approved sheath materials, end seals and assembly electrical enclosures

Watlow believes that UL® and CSA recognition information is necessary to confirm the reliability of our heating products in relationship to your application. As such, the accompanying *Agency Recognition* charts illustrate the extent of coverage each heater type provides. Specific end use application information is required for each agency marking. Some products carry U.S. and Canada approvals.



UL® Recognition and Listing

File Number E52951 (UL® 499) – Component Recognition

All information for UL® File #E52951 can be found in the UL® Directory, Volume 2 under “Heaters Miscellaneous” (Classification KSOT2).

Elements (Volume 2, Section 1)

WATROD Diameter		Allowable Part Numbers	Max. Volts	Max. Amps	Max. Watt Density		Min. Bend Radius		Allowable Sheath Materials	End Seal Types
in.	(mm)				W/in ²	W/cm ²	in.	(mm)		
0.210	(6.0)	RK series	250	15	N/A	N/A	1/16	(1.6)	Nickel Alloy 400, 600, 800, 840, 800H, 304, 316 SS, Steel, Titanium, Copper coated steel, Hastelloy C22, C276	Epoxy resin, Lavacone, Silicone resin, Silicone rubber, ULTRAGARD, SF 99, Ceramic potting
0.260	(6.6)	RA series	250	15	N/A	N/A	1/16	(1.6)		
0.315	(8.0)	RB series	480	30	N/A	N/A	1/16	(1.6)		
0.332	(8.5)		480	30	N/A	N/A	3/16	(4.8)		
0.375	(9.5)	RD, RS series	480	30	N/A	N/A	3/16	(4.8)		
0.430	(10.9)	RC series	600	40 ^①	N/A	N/A	5/32	(4.0)		
0.475	(12.0)	RG series	600	40	N/A	N/A	3/16	(4.8)		
0.490	(12.4)	RJ series	600	40	N/A	N/A	3/16	(4.8)		
0.625	(15.9)	RF series	600	40	N/A	N/A	7/16	(11.1)		

^①45 in water applications only.

Note: All end seal types apply to all diameter heaters.

Elements (Volume 2, Section 6)

MULTICOIL Diameter		Allowable Part Numbers	Max. Volts	Max. Amps	Max. Watt Density ^②		Min. Bend Radius		Allowable Sheath Materials	End Seal Types
in.	(mm)				W/in ²	W/cm ²	in.	(mm)		
0.430	(10.9)	U6M series	480 ^③	N/A	N/A	N/A	1/2	(13.0)	Nickel Alloy 800, 840, 304, 316 SS, Steel, Titanium	Epoxy resin, Silicone resin, Silicone rubber, Lavacone, SF-99, Ceramic potting
0.475	(12.0)	U7M series	480	N/A	N/A	N/A	5/8	(15.9)		
0.490	(12.4)	U8M series	480	N/A	N/A	N/A	5/8	(15.9)		
0.625	(15.9)	U9M series	480	N/A	N/A	N/A	3/4	(19.0)		

^② Maximum sheath temperatures apply, contact your Watlow representative

^③ U6M2 series up to 250V

Note: All end seal types apply to all diameter heaters

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WATROD and FIREBAR Element and Assemblies

UL® Recognition and Listing (Continued)

Elements (Volume 2, Section 4)

FIREBAR® Height in. (mm)	Allowable Part Numbers	Max. Volts	Max. Amps	Max. Watt Density W/in² (W/cm²)	Min. Bend Radius		Allowable Sheath Materials	End Seal Types
					Major Axis in. (mm)	Minor Axis in. (mm)		
Air or Immersion Heating								
½ (15.9)	FA, FS series A-xx	480	N/A	50 (5.1)	1 (25)	½ (13) ^③	Nickel Alloy 800, 840, 304 SS	Epoxy resin, Lavacone, Silicone resin, Silicone rubber, SF-99, Ceramic potting
1 (25.0)	FB, FS series	480	N/A	50 (5.1)	1 (25)	½ (13) ^③		
Liquid Immersion Heating Only								
½ (16)	FA, FS series U-xx	480	N/A	160 (24.7)	1 (25)	⅙ (1.6)	Nickel Alloy 800, 840, 304 SS	Epoxy resin, Lavacone, Silicone resin, Silicone rubber, SF-99, Ceramic potting
1 (25)	FB, FS series	480	N/A	160 (24.7)	1 (25)	⅙ (1.6)		

^③1 if >33 W/in².

Notes: UL® and CSA must be requested at the time the order is placed. All sheath materials and end seal types apply to all diameter heaters.

Assemblies

Refer to applicable WATROD and FIREBAR elements for maximum voltage, watt density and sheath materials.

Heater Type	Allowable Part Numbers	Electrical Enclosure Options
Screw Plug	All catalog models B Series U1 to U9	General purpose or moisture resistant with or without thermostat (Type "3" thermostat excluded)
Flange	All catalog models FE, FG, FH, FK, FL, FM, FN, FO, FP, FR, FS, FT, FW —Series U1 to U9	General purpose or moisture resistant with or without thermostat (Type "3" thermostat excluded)
Circulation	All catalog models CB, CF, CP Series U1 to U9	General purpose or moisture resistant with or without thermostat (Type "3" thermostat excluded)
Over-the-Side	All catalog models OL, OR and VL Series U1 to U9 , except U2 and U4	Moisture resistant with or without thermostat
Duct	All catalog models D6 to D125 , MDH6 to MDH60 , LDH9 to LDH225 Series U1 to U9 and U0, UE	General purpose enclosure only

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File Number E56488 (UL® 1030)—Water Immersion Only (Classification UBJY2). — Component Recognition Elements

WATROD Diameter in. (mm)	Allowable Part Numbers	Max. Volts	Max. # of Bends	Max. Watt Density W/in ² (W/cm ²)	Min. Bend Radius in. (mm)	Allowable Sheath Materials	End Seal Types
0.315 (8.0)	T series Example: T085CN3S	480	7	18.5 (120)	1/8 (3.2)	Nickel Alloy 800, 840, 304, 316 SS	Epoxy, Silicone rubber, Silicone resin
0.375 (9.5)		480	7	18.5 (120)	1/8 (3.2)		
0.430 (10.9)		575	7	18.5 (120)	5/16 (7.9)		
0.475 (12.0)		575	7	18.5 (120)	5/16 (7.9)		
0.490 (12.4)		575	7	18.5 (120)	5/16 (7.9)		
0.625 (15.9)		575	7	18.5 (120)	5/16 (7.9)		

FIREBAR® Height in. (mm)	Allowable Part Numbers	Max. Volts	Max. # of Bends	Max. Watt Density W/in ² (W/cm ²)	Min. Bend		Allowable Sheath Materials	End Seal Types
					Major Axis in. (mm)	Minor Axis in. (mm)		
1 (25)	T series Example: T085HN3W	250	N/A	80 (12.4)	1 (25)	5/32 (4)	Nickel Alloy 800, 304 SS	Epoxy, Silicone rubber, Silicone resin

Note: All sheath materials and end seal types apply to all diameter heaters.

Assemblies

Refer to applicable WATROD and FIREBAR elements for maximum voltage, watt density and sheath materials.

Heater Type	Allowable Part Numbers	Electrical Enclosure Options
Screw Plug	Models T3, T5, T6, T7, T8, T9 Example: T336xxxx	General purpose without thermostat
Flange	Models T3, T5, T6, T7, T8, T9 Example: T621xxxx	General purpose without thermostat

Note: UL® and CSA must be requested at the time the order is placed.

File Number MH26554 (UL® 574)—Electric Oil Heaters (Classification MDST2). — Component Recognition or Listing (Consult factory if UL® Listed marking is desired)

Elements

For reference only, marking applies only to assemblies noted below.

WATROD Diameter in. (mm)	Allowable Part Numbers	Max. Volts	Max. Amps	Max. Watt Density W/in ² (W/cm ²)	Min. Bend Radius in. (mm)	Allowable Sheath Materials	End Seal Types
0.260 (6.6)	Series 1-xx	250	15	23 (3.56)	1/16 (1.6)	Steel,	Epoxy resin,
0.315 (8.0)	Series 3-xx	480	30	23 (3.56)	1/16 (1.6)	Nickel Alloy 400,	Silicone resin,
0.375 (9.5)	Series 5-xx	480	30	23 (3.56)	3/16 (4.8)	600, 800, 840,	Silicone rubber,
0.430 (10.9)	Series 6-xx	600	40	23 (3.56)	5/32 (4.0)	304, 316 SS,	Lavacone
0.475 (12.0)	Series 7-xx	600	40	23 (3.56)	3/16 (4.8)	Titanium	
0.490 (12.4)	Series 8-xx	600	40	23 (3.56)	3/16 (4.8)		
0.625 (15.8)	Series 9-xx	600	40	23 (3.56)	7/16 (11.1)		

Note: All sheath materials and end seal types apply to all diameter heaters.

Assemblies

Refer to applicable WATROD elements for maximum voltage, watt density and sheath materials.

Heater Type	Allowable Part Numbers	Electrical Enclosure Options
Screw Plug	Models BCS and BGS Series 1-xx thru 9-xx , excluding series 2-xx and 4-xx	Enclosure Types 1 or 4, with or without thermostat. Thermostat shall be Watlow Type 1, 2, 2A, 4, 5A, 7A, 12, 12A

Note: UL® and CSA must be requested at the time the order is placed.


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Declaration of Conformity

The Low Voltage Directive (LVD) (73/23/EEC) states that electrical and electronic equipment placed on the market in the European Union (EU) must be safe. The CE Marketing Directive (93/68/EEC) for the LVD came into force on January 1, 1995, subject to a two-year transition period. All heaters operating on a supply voltage of between 50 and 1000VAC and between 75 and 1500VDC fall within the scope of the LVD.

The Self Declaration of Conformity shown on the right, backed by our risk assessment and technical file, assure that the product series shown on the Declaration meet the EU requirements. The declaration is not applicable to any of our heaters intended for use in an explosive atmosphere, or for radiological and medical purposes. For heaters intended for use in an explosive environment, see the *ATEX section* of page 612.



Declaration of Conformity

Watlow Industries
6 Industrial Loop Road
Hannibal, MO 63401
USA

Declares that the following product(s):

Product(s) Code Number(s):	Description
Series R, may be followed by additional letters and numbers	WATROD Element
Series F, may be followed by additional letters and numbers	FIREBAR Element
Series B, may be followed by additional letters and numbers	Screw Plug
Series D*, may be followed by additional letters and numbers	Duct Heater
Series LDH*, may be followed by additional letters and numbers	LDH Duct Heater
Series M*, may be followed by additional letters and numbers	Modular Duct Heater
Series F, may be followed by additional letters and numbers	Flange Heater
C prefix to Series B and F	Circulation Heater
Series O and V, may be followed by additional letters	Over-the-Side Heater
Misc. Catalog Numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 & F may be followed by a series of numbers, dashes and/or letters. May be preceded by "U".	Miscellaneous

* Series D and M Heaters not to be used in water or liquid applications
RATED VOLTAGE: up to 480 VAC
RATED FREQUENCY: 50/60 Hz

Meets the essential requirements of the following European Union Directives(s) using the relative section(s) of the normalized standards and related documents shown:

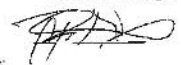
2006/95/EC Low Voltage Directive

Safety of household and similar electrical appliances
EN 60335-2-30 Part 2: Particular requirements for room heaters
EN 60335-2-63 Part 2: Particular requirements for commercial electric water boilers and liquid heaters
 Reference Watlow Technical File No. D100706101

Watlow Industries
6 Industrial Loop Road
Hannibal, Missouri, USA 63401

Place of Issue: **Hannibal, MO, USA** Name of Authorized Representative: **Rob Gilmore**

Date of Issue: **26 March 2008** Title of Authorized Representative: **Product Manager**


 Signature of Authorized Representative:

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CSA Certification

File Number LR 31388

All information for CSA file LR 31388 can be found in the CSA *List of Certified Electrical Equipment* catalog, Volume II, under Heaters—Miscellaneous.

Elements

Heater Type— Diameter/Height in. (mm)	Allowable Part Numbers	Max. Volts	Max. Watt Density W/in ² (W/cm ²)		Allowable Sheath Materials ^④	End Seal Type (All Diameters)
WATROD:						
0.260 (6.6)	All catalog models, 1-xx	250	120	(18.5)	Nickel Alloy 400, 600, 800, 840, 304, 316 SS, Steel, Copper coated steel	Epoxy resin, Lavacone, Silicone resin, Silicone rubber, ULTRAGARD, Ceramic, Silicone fluid
0.315 (8.0)	All catalog models, 3-xx	480	120	(18.5)		
0.375 (9.5)	All catalog models, 5-xx	600	120	(18.5)		
0.430 (10.9)	All catalog models, 6-xx	600	120	(18.5)		
0.475 (12.0)	All catalog models, 7-xx	600	120	(18.5)		
0.490 (12.4)	All catalog models, 8-xx	600	120	(18.5)		
0.625 (15.9)	All catalog models, 9-xx	600	120	(18.5)		
FIREBAR:						
½ (15.9)	FA, FS models, 4-xx	480	120	(18.5)	Nickel Alloy 800, 840 304 SS	Epoxy resin, Lavacone, Silicone resin, Silicone rubber Ceramic, Silicone fluid
1 (25.0)	FB, FS models, 2-xx	480	120	(18.5)		
MULTICELL:						
	Contact Watlow					

^④Some sheath materials not available on all diameters. Contact your Watlow representative.

Note: Heating elements are certified only for use in equipment where the acceptability of the construction combination is determined by the Canadian Standards Association.

Note: All sheath materials and end seal types apply to all diameter heaters.

Assemblies

Heater Type	Allowable Part Numbers	Electrical Enclosure Options
Screw Plug	Catalog series "B" Series 1-xx to 9-xx	General purpose with or without thermostat Enclosure 4 with or without thermostat
Flange	Catalog series "F" Series 1-xx to 9-xx	General purpose with or without thermostat Enclosure 4 with or without thermostat ^⑤
Circulation	Catalog series "C" Series 1-10 to 9-10	General purpose with or without thermostat Enclosure 4 with or without thermostat ^⑤
Over-the-Side	Catalog series "OL" and "OR" Series 1-30 to 9-30	Enclosure 4 with or without thermostat
Duct	Catalog series "D", "LDH" and "MDH" Series 1-1 to 9-1	General purpose enclosure only

^⑤4, 5, 6 and 8 inch flange size only.

File Number LR 61707—Heater Assemblies—Miscellaneous—For Hazardous Locations

Heater Type	Allowable Part Numbers	Electrical Enclosure Options
Screw Plug	Catalog series "B" Series 1-xx to 9-xx	Class 1, Div. 1 and 2, Groups B, C and D and enclosure 4 with or without thermostat
Flange	Catalog series "F" Series 1-xx to 9-xx, 700, 701, 702, 703, 704, 713, 714	Class 1, Div. 1 and 2, Groups B, C and D and enclosure 4 with or without thermostat
Circulation	Catalog series "C" Series 1-10 to 9-10	Class 1, Div. 1 and 2, Groups B, C and D and enclosure 4 with or without thermostat

Note: UL[®] and CSA must be requested at the time the order is placed.

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ATEX Certification

Certificate Number KEMA 07ATEX0172X

Assemblies

Heater Type	Code Number Designation	Electrical Enclosure Options
Flange	Series FX	EX II 2G Ex d IIB + H ₂ T6...T1

Note: ATEX must be requested at the time that the order is placed.

IECEx Certification

Certificate Number IECEx CSA 09.0010

Assemblies

Heater Type	Code Number Designation	Electrical Enclosure Options
Flange	Series FX	Ex d 11B + H ₂ T1...T6 Gb; -40°C <Tamb <40°C