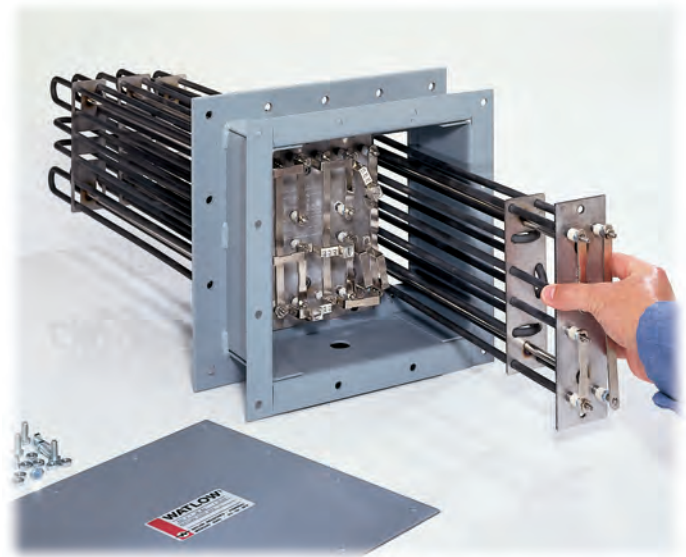


# MODULAR DUCT HEATER

## Process Air Heaters Offer Improved Performance and Increased Power Versatility



Watlow has developed a line of process air heaters that offer improved performance and increased versatility in medium to low temperature applications.

The duct heaters are modular and consist of two parts. The first is a 6kW heater available in either 240V or 480V, single or three-phase.

The second part of the heater consists of the electrical housing that protects each module's termination area. A main flange bolts into the user's ductwork. The heater modules are installed in the housing and main flange via rectangular slots in the main flange. The range of modules can be accommodated in various duct heater assemblies, range from 1-10 modules. A range of 6-60kW, in 6kW increments is achieved.

The new design of the modular duct heater offers increased reliability over traditional duct heaters. The individual modules are removable through the housing of the assembly, which eliminates the need to pull the complete heater from the ductwork. This reduces downtime and costs because the heating elements can be replaced individually.

Performance improvements include quicker response time and reduced infiltration from the air stream being heated into the electrical enclosure.

### Features and Benefits

#### Individual modules removable through housing

- Reduces downtime for replacement of module

#### 27 percent reduction in heat-up time as compared to traditional 0.430 in. (11 mm) diameter duct heater elements

- Assures faster response time

#### Smaller diameter elements 0.315 in. (8 mm)

- Provides a 25 percent lower energy usage on initial heat-up

#### 31 percent lighter weight than traditional tubular duct heaters

- Reduces shipping costs and increased worker safety

#### Greater free cross sectional area

- Lowers pressure drop

#### Improved seal between element and electrical housing

- Lower electrical housing temperature

#### Flexible module wiring

- Provides the ability to sequentially stage modules

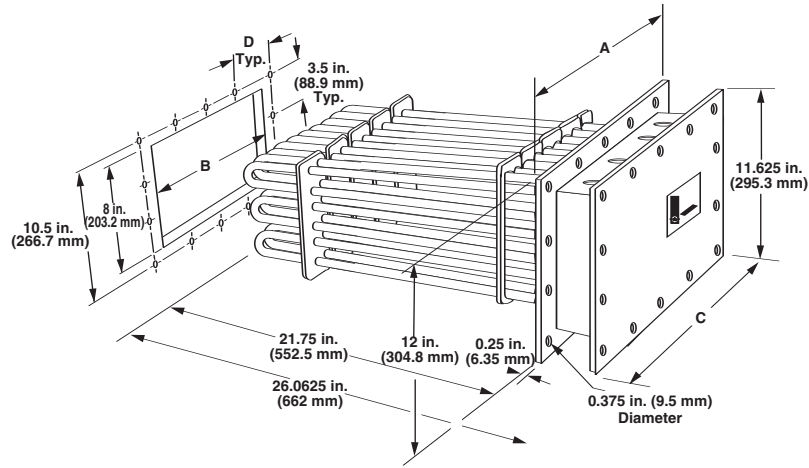


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To be automatically connected to the nearest North American Technical and Sales Office:

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**Application: Air Heating – Maximum Outlet Temperature – 399°C (750°F)**

Watt Density W/in <sup>2</sup>	kW	Volts	Phase	No. of Circuits	No. of Modules	Est. Shipping Wt. lbs	Availability	Code No.	Dimensions in.			
									A	B	C	D
26	6	240	1	1	1	35	Assy. Stk.	MDH6SI0	6.50	2.50	5.75	2.50
26	6	240	3	1	1	35	Assy. Stk.	MDH6S3	6.50	2.50	5.75	2.50
26	6	480	1	1	1	35	Assy. Stk.	MDH6S11	6.50	2.50	5.75	2.50
26	6	480	3	1	1	35	Assy. Stk.	MDH6S5	6.50	2.50	5.75	2.50
26	12	240	1	2	2	39	Assy. Stk.	MDH12SI0	8.50	4.75	7.75	3.50
26	12	240	3	1	2	39	Assy. Stk.	MDH12S3	8.50	4.75	7.75	3.50
26	12	480	1	1	2	39	Assy. Stk.	MDH12S11	8.50	4.75	7.75	3.50
26	12	480	3	1	2	39	Assy. Stk.	MDH12S5	8.50	4.75	7.75	3.50
26	18	240	1	3	3	46	Assy. Stk.	MDH18SI0	10.50	7.00	9.75	3.00
26	18	240	3	1	3	46	Assy. Stk.	MDH18S3	10.50	7.00	9.75	3.00
26	18	480	1	1	3	46	Assy. Stk.	MDH18S11	10.50	7.00	9.75	3.00
26	18	480	3	1	3	46	Assy. Stk.	MDH18S5	10.50	7.00	9.75	3.00
26	24	240	1	4	4	67	Assy. Stk.	MDH24S10	12.50	9.25	11.75	2.75
26	24	240	3	2	4	67	Assy. Stk.	MDH24S3	12.50	9.25	11.75	2.75
26	24	480	1	2	4	67	Assy. Stk.	MDH24S11	12.50	9.25	11.75	2.75
26	24	480	3	1	4	67	Assy. Stk.	MDH24S5	12.50	9.25	11.75	2.75
26	30	240	3	2	5	84	Assy. Stk.	MDH30S3	15.75	11.50	15.00	3.56
26	30	480	1	2	5	84	Assy. Stk.	MDH30S11	15.75	11.50	15.00	3.56
26	30	480	3	1	5	84	Assy. Stk.	MDH30S5	15.75	11.50	15.00	3.56
26	36	240	3	2	6	95	Assy. Stk.	MDH36S3	18.00	13.75	17.25	4.13
26	36	480	1	2	6	95	Assy. Stk.	MDH36S11	18.00	13.75	17.25	4.13
26	36	480	3	1	6	95	Assy. Stk.	MDH36S5	18.00	13.75	17.25	4.13
26	42	240	3	3	7	109	Assy. Stk.	MDH42S3	20.25	16.00	19.50	4.69
26	42	480	1	3	7	109	Assy. Stk.	MDH42S11	20.25	16.00	19.50	4.69
26	42	480	3	2	7	109	Assy. Stk.	MDH42S5	20.25	16.00	19.50	4.69
26	48	240	3	4	8	137	Assy. Stk.	MDH48S3	22.50	18.25	21.75	5.25
26	48	480	1	3	8	137	Assy. Stk.	MDH48S11	22.50	18.25	21.75	5.25
26	48	480	3	2	8	137	Assy. Stk.	MDH48S5	22.50	18.25	21.75	5.25
26	54	240	3	3	9	144	Assy. Stk.	MDH54S3	24.75	20.50	24.00	5.81
26	54	480	1	3	9	144	Assy. Stk.	MDH54S11	24.75	20.50	24.00	5.81
26	54	480	3	2	9	144	Assy. Stk.	MDH54S5	24.75	20.50	24.00	5.81
26	60	240	3	4	10	165	Assy. Stk.	MDH60S3	27.00	22.75	26.25	6.38
26	60	480	1	4	10	165	Assy. Stk.	MDH60S11	27.00	22.75	26.25	6.38
26	60	480	3	2	10	165	Assy. Stk.	MDH60S5	27.00	22.75	26.25	6.38

Options include individual modules with optional NEMA 1 housing, high temperature thermocouple kit and blank flange modules.

Modular duct heaters with **1** and **2** modules have conduit openings for **1** - 1 inch NPT fitting.

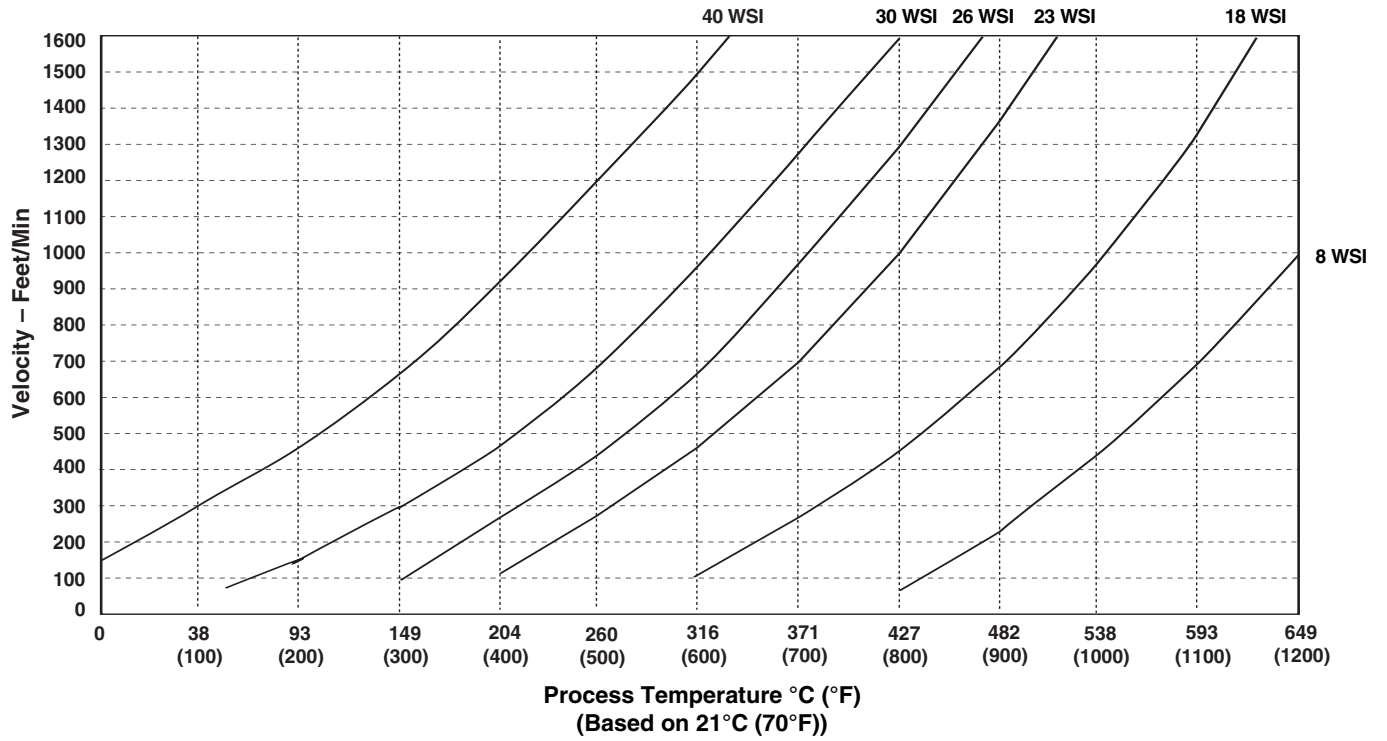
Modular duct heaters with **3, 4, 5,** and **7** modules have conduit openings for **2** - 1 inch NPT fittings.

Modular duct heaters with **6, 8, 9,** and **10** modules have conduit openings for **2** - 1 ¼ inch NPT and **2** - 1 inch NPT fittings.

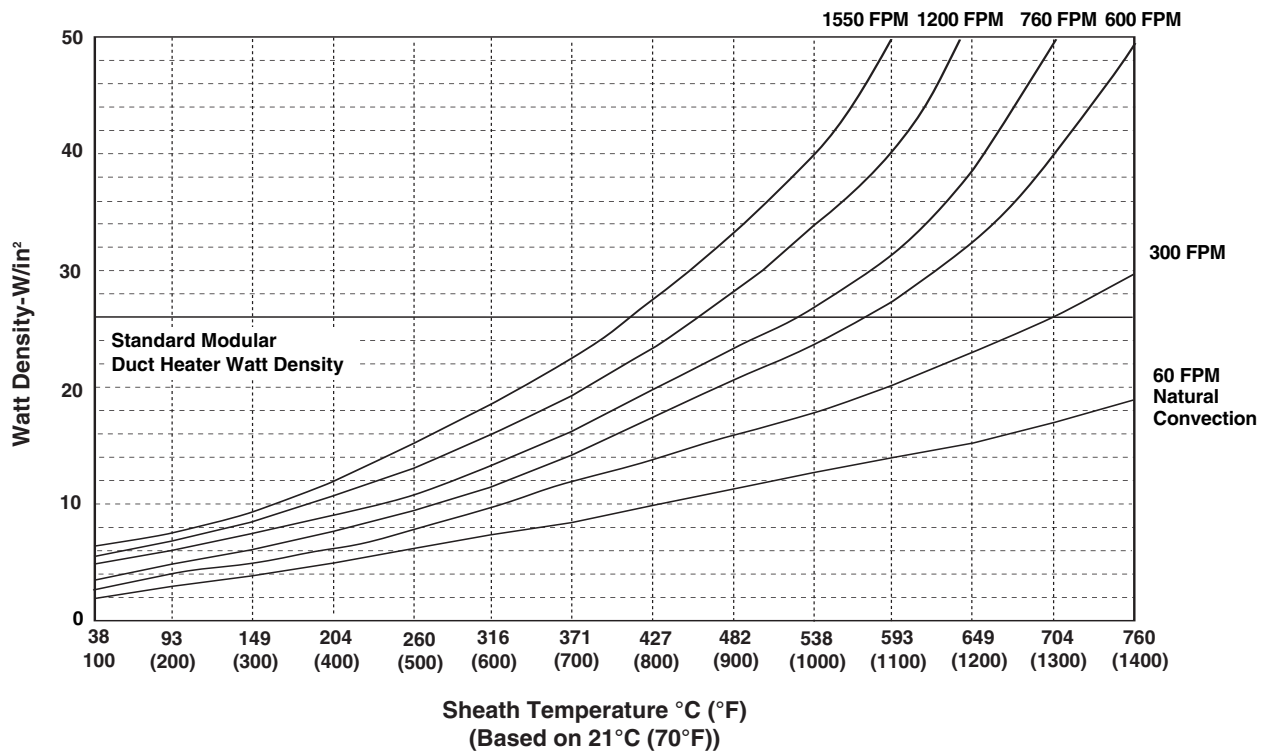
**Note:**

- **Same Day Shipment** up to **two pieces**. Over **two pieces**, please contact factory for RAPID SHIP details. Items for Same Day Shipment must be ordered by 12 p.m. CST.

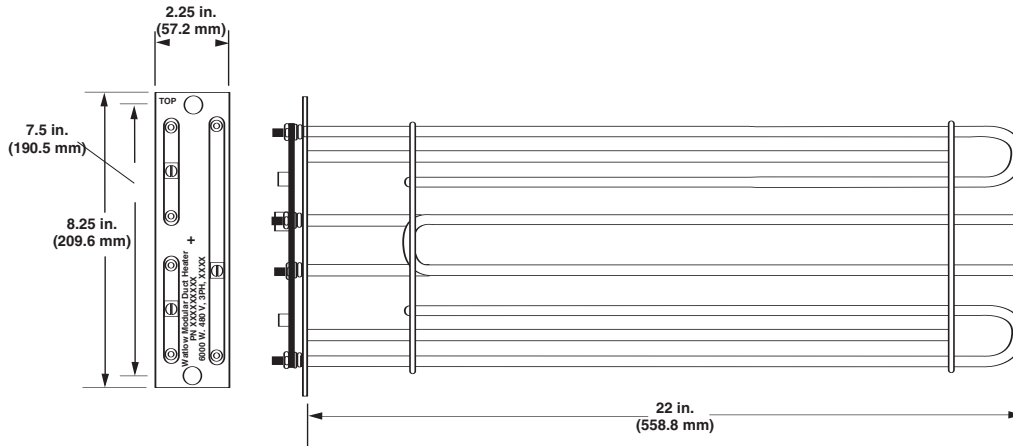
## Velocity Versus Process Temperature



## Watt Density Versus Sheath Temperature



## Individual Module Dimensions



## Specifications

- Module rating - 240 or 480V~(ac), 6kW, three-phase or one-phase
- Watt Density - 26 W/in<sup>2</sup>
- Elements - 0.315 inch dia. Incoloy® elements
- High-limit thermocouple installed by drilling premarked hole in flange
- 6-60kW range when mounted in duct heater assembly

## Application Information

- Maximum sheath temperature = 760°C (1200°F)
- Maximum outlet temperature = 398°C (750°F)

## Applications

- Low temperature ovens
- Parts drying
- Semiconductor clean room environmental heating
- Plastic curing
- Load banks
- Heated air knives
- Food dehydration
- Heat shrink tunnels

Your Authorized Watlow Distributor is:

## Options

### Terminal Enclosures

Terminal enclosures are available in NEMA 1 and 4 configurations.

### High-Limit Thermocouples

High-limit thermocouples can be supplied on specified modules or shipped as a kit. Available thermocouples are Types J and K.

### Blank Module Covers

Module covers are available for covering blank slots on the main flange. This allows for adding heater module at a later time to allow higher wattage outputs.

Watlow Code Number	Description
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### Replacement Modules

<b>M63</b>	6kW, 240 volts, 3-phase
<b>M610</b>	6kW, 240 volts, 1-phase
<b>M65</b>	6kW, 480 volts, 3-phase
<b>M611</b>	6kW, 480 volts, 1-phase

### High Limit Thermocouple Kits

<b>MTCJ</b>	Type J (0-1000°F)
<b>MTCK</b>	Type K (0-2000°F)

### Blank Module Covers

<b>MBLK</b>	Cover slots in main flange
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### Note:

- **Same Day Shipment** up to **10 pieces**. Over **10 pieces**, please contact factory for RAPID SHIP details. Items for Same Day Shipment must be ordered by 12 p.m. CST.

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