

Easily Adapted to Many Non-Pressurized HVAC Systems

Constructed of sturdy 0.430 in. (11 mm) diameter WATROD™ heating elements mounted to a 1/4 in. (6 mm) thick steel flange, duct heaters are easily adapted to many non-pressurized air-heating systems.

They are easily installed in applications requiring a wide range of temperature versus air flow combinations.

The modular duct heater offers increased reliability. The individual modules are removable through the housing of the assembly, which eliminates the need to pull the complete heater from the duct work. This reduces downtime 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.

Watlow® duct heaters offer advantages over gas or oil fired and open coil electric units with:

- Installation flexibility—no flues or fuel lines
- 100% energy efficient—no energy loss up the flue
- Universal availability of electricity
- Resistance coil in sheath is protected from corrosive environments

Performance Capabilities

- Watt densities up to 40 W/in² (6.2 W/cm²)
- Recommended process temperatures from -20 to 1200°F (-29 to 650°C)
- Catalog P/N wattages to 225kW
- Voltages up to 600VAC

Features and Benefits

Long life alloy 840 sheath

- Resists corrosion/oxidation while protecting resistance coils against contamination

MgO insulation filled elements compacted to rock hard density

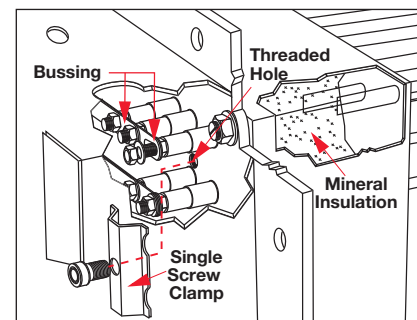
- Maximizes dielectric strength, heat transfer and life

Field replaceable heating elements

- Permits easy service and reduces downtime. Element change-out is made simple by a single screw clamp (D SERIES only)

3 1/2 in. (90 mm) thick mineral insulation

- Keeps wiring cooler and reduces heat loss



Silicone resin seals rated to 221°F (105°C)

- Protects elements against moisture and other contaminants

General purpose terminal enclosure

- Offers easy access to wiring

1/4 in. (6 mm) inside diameter thermowell

- Accepts an optional Type J or K thermocouple for accurate sheath temperature sensing (D SERIES only)

Rigid stainless steel supports

- Prevents element sagging or deformation in various mounting positions

1/4 in. (6 mm) thick steel flange with 3/8 in. (9.5 mm) diameter mounting holes

- Easily bolts to the duct wall

WATROD hairpins are repressed (recompacted) after bending to assure MgO density

- Eliminates hot spots and electrical insulation voids

Stock heaters feature from three to 60 elements

- Meets a wide variety of kilowatt demands

One or three phase voltages

- Meets local power supplies

Maximum 48 amperes per circuit

- Complies with National Electrical Code (NEC)

Duct heaters with general purpose enclosures meet UL® and CSA component recognition to 480 and 600VAC maximum respectively—UL® and CSA file numbers are E52951 and 31388



Duct Heaters

LDH SERIES and D SERIES

Typical Applications

- Drying ovens
- Autoclaves
- Furnaces
- Load banks
- Heat treating
- Reheating
- HVAC
- Paint drying

Choosing a Duct Heater

The English and metric graphs, shown on the following pages, will help you to select the correct duct heater. These graphs include: *Watt Density vs. Air Temperature/Velocity*, *Watt Density vs. Sheath Temperature and Pressure Drop vs. Air Velocity*.

These graphs, with the quick formulas on this page, along with information specific to your application, will determine the correct duct heater specifications. However, if engineering assistance is needed, contact your Watlow representative.

Required Application Information

- Desired outlet air temperature
- Inlet air temperature
- Delta T—the temperature difference between inlet and desired outlet temperature
- Air volume (CFM/CMM) measured at both inlet temperature and pressure
- Air velocity in feet per minute (FPM); meters per minute (MPM) which equals:

English	
$\text{FPM} = \frac{\text{CFM measured at standard conditions}}{\text{Duct cross section area at heater in ft}^2}$	
Metric	
$\text{MPM} = \frac{\text{CMM measured at normal conditions}}{\text{Duct cross section area at heater in m}^2}$	

- Minimum duct heater wattage (kW). This can be determined by:

English	
$\text{kW} = \frac{\text{CFM} \times \text{Delta T (}^\circ\text{F)} \times 1.1 \text{ (safety factor)}}{3000}$	
Metric	
$\text{kW} = \frac{\text{CMM} \times \text{Delta T (}^\circ\text{C)} \times 1.1 \text{ (safety factor)}}{48}$	

Note: The duct heater, or combination of duct heaters, used for the process should be equal to or exceed the minimum wattage calculation.

Air Heaters



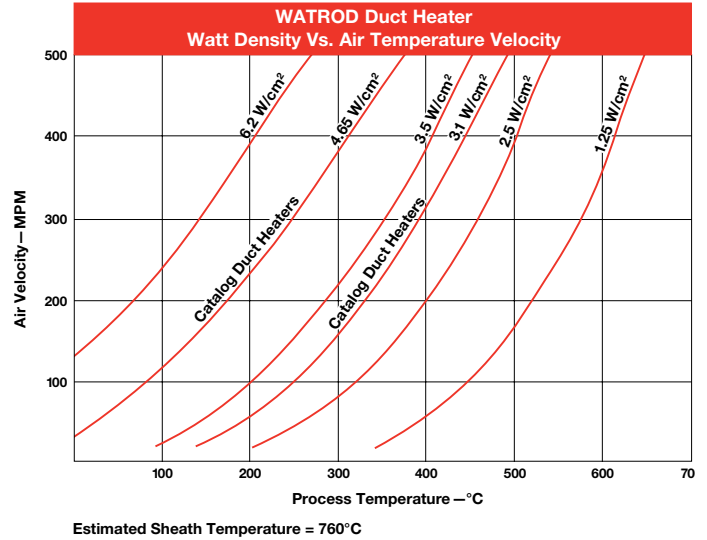
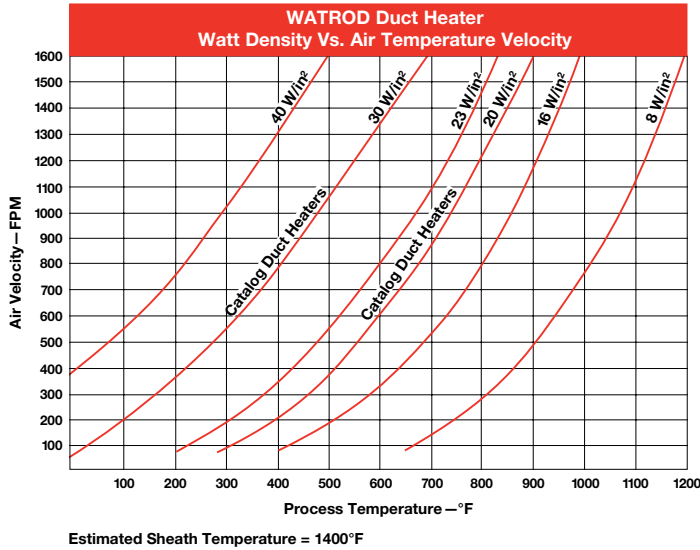
Duct Heaters

LDH SERIES and D SERIES

Watt Density vs. Air Temperature/Velocity

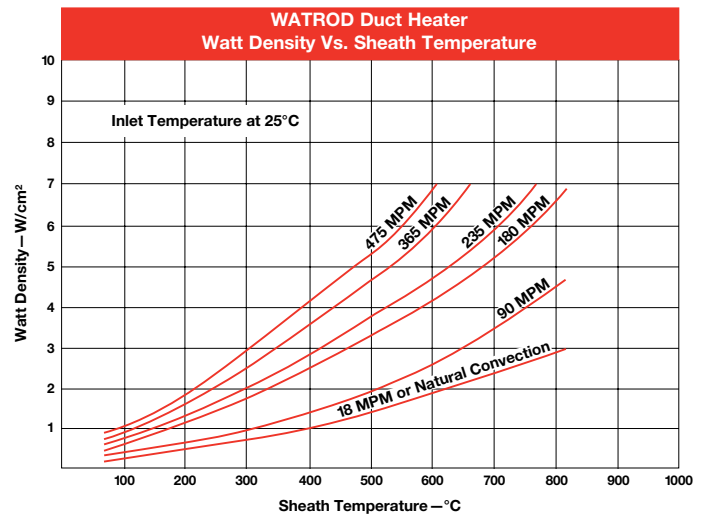
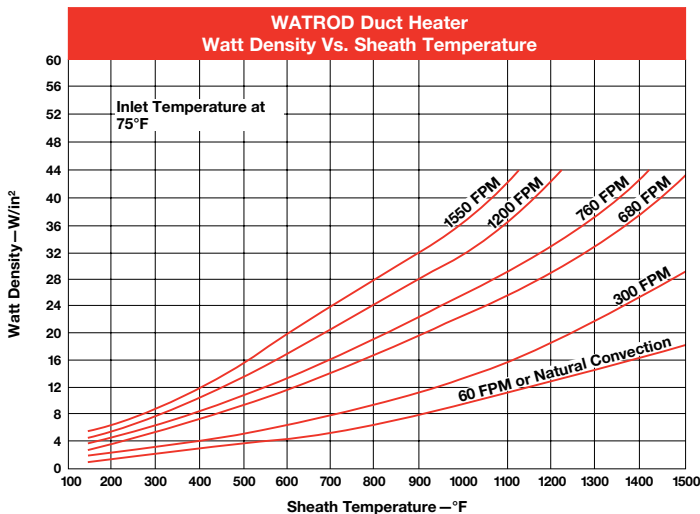
To decide watt density requirements, first determine the desired outlet air temperature and velocity in feet per minute. Then, follow the lines on the graph for velocity and process temperature to the watt density

curve's intersecting point. This shows the recommended watt density based on a maximum sheath temperature of 1400°F (760°C). **For longer heater life, lower watt densities should be chosen.**



Watt Density vs. Sheath Temperature

The *Watt Density vs. Sheath Temperature* graph shows the air velocity (FPM or MPM) required to operate a WATROD duct heater at specific watt densities or sheath temperatures. Also depicted is the appropriate watt density vs. sheath temperature at a specified air flow.





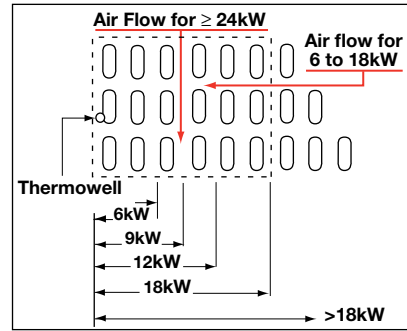
Duct Heaters

LDH SERIES and D SERIES

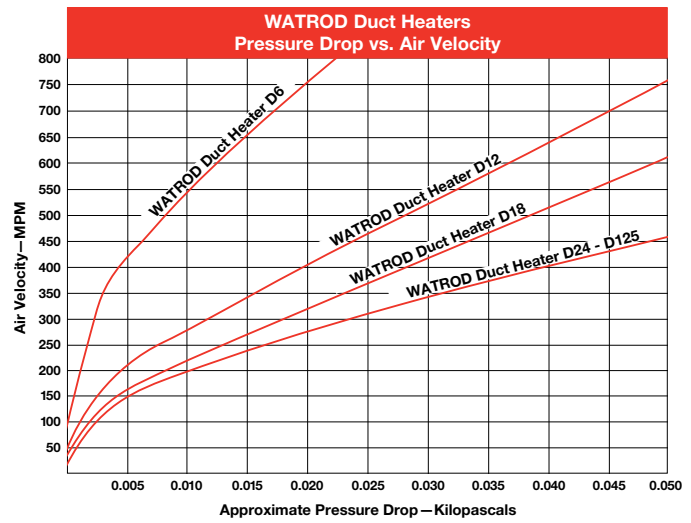
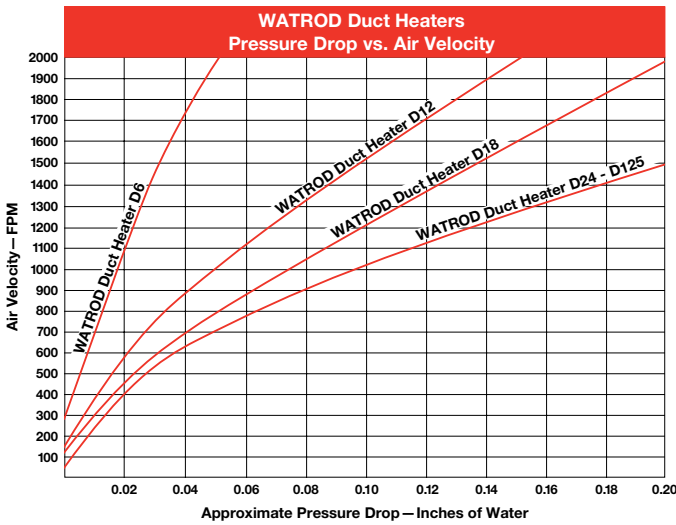
Pressure Drop vs. Air Velocity

The rate at which pressure drops through the duct heater is critical for properly sizing blowers and pumps. *The Pressure Drop vs. Air Velocity* graph gives recommended maximum velocities in feet per minute and meters per minute according to the air velocity and duct heater size.

To determine the pressure drop through the duct heater, follow the air velocity (FPM or MPM) over to the appropriate curve, which identifies the duct heater size. Then, take the intersecting point down to the approximate pressure drop value.



Note: Viewing from the element ends—the recommended air flow direction through element bundle changes at >18kW.



Air Heaters



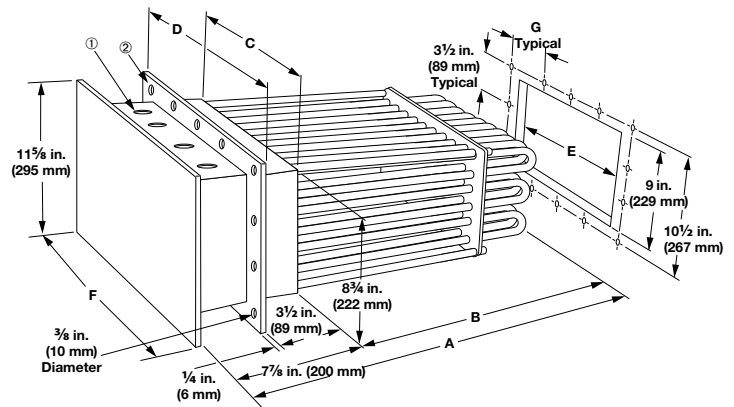
Duct Heaters



D SERIES

Application: High Temperature Air 800°F (427°C)

- Removable alloy 840 WATROD elements
 - Without thermostat
 - General purpose enclosure
 - Steel flange
- ① 6 and 12 element heaters have (1) 1 inch NPT conduit opening; 18, 24, 30 and 42 element heaters have (2) 1 inch NPT conduit openings; 36, 48, 54 and 60 element heaters have (2) 1 inch NPT and (2) 1 1/4 inch conduit openings
- ② All flanges are 12 inches wide



# of Elem.	Volts	kW	Ph	# Circ	Part Number	WATCONNECT P/N		Ship Wt. lbs. (kg)	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.	"E" Dim.	"F" Dim.	"G" Dim.
						J T/C	K T/C		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
20 W/in² (3.1 W/cm²)															
6	240	6.0	1	1	D6S10S	C/F	C/F	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	240	6.0	3	1	D6S3S	C2-50	C2-92	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	480	6.0	1	1	D6S11S	C/F	C/F	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	480	6.0	3	1	D6S5S	C2-43	C2-35	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
12	240	12.0	1	1	D12S10S	C/F	C/F	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	240	12.0	3	1	D12S3S	C2-236	C2-214	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	480	12.0	1	1	D12S11S	C/F	C/F	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	480	12.0	3	1	D12S5S	C2-43	C2-35	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
18	240	18.0	1	2	D18S10S	C/F	C/F	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	240	18.0	3	1	D18S3S	C2-236	C2-214	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	480	18.0	1	1	D18S11S	C/F	C/F	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	480	18.0	3	1	D18S5S	C2-43	C2-35	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
24	240	24.0	1	2	D24S10S	C/F	C/F	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	240	24.0	3	2	D24S3S	C2-218	C2-224	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	480	24.0	1	1	D24S11S	C/F	C/F	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	480	24.0	3	1	D24S5S	C2-225	C2-226	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
30	240	30.0	3	2	D30S3S	C2-218	C2-224	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)
30	480	30.0	1	2	D30S11S	C/F	C/F	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)
30	480	30.0	3	1	D30S5S	C2-225	C2-226	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)

CONTINUED

Notes:

- See *Watt Density vs. Air Temperature/Velocity* charts on page 379 to confirm suitability in the application.
- C/F - Contact factory, go to www.watlow.com/en/contact-us

Air Heaters



Duct Heaters

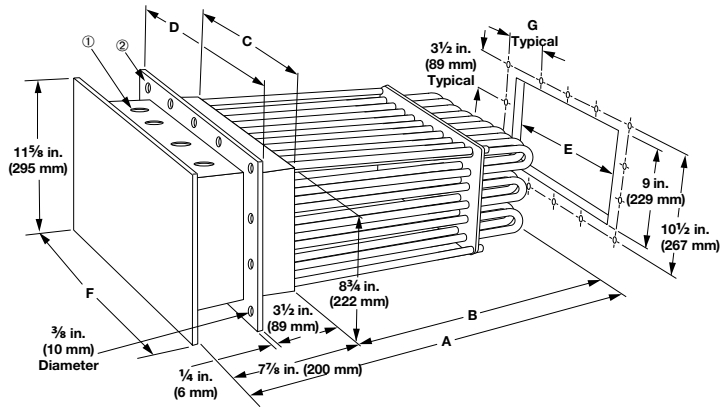


D SERIES

Application: High Temperature Air 800°F (427°C)

- Removable alloy 840 WATROD elements
- Without thermostat
- General purpose enclosure
- Steel flange

- ① 6 and 12 element heaters have (1) 1 inch NPT conduit opening; 18, 24, 30 and 42 element heaters have (2) 1 inch NPT conduit openings; 36, 48, 54, and 60 element heaters have (2) 1 inch NPT and (2) 1 1/4 inch conduit openings
- ② All flanges are 12 inches wide



# of Elem.	Volts	kW	# Ph	# Circ	Part Number	WATCONNECT P/N		Ship Wt. lbs. (kg)	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.	"E" Dim.	"F" Dim.	"G" Dim.
						J T/C	K T/C		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
20 W/in² (3.1 W/cm²)															
36	240	36.0	3	2	D36S3S	C2-218	C2-219	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
36	480	36.0	1	2	D36S11S	C/F	C/F	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
36	480	36.0	3	1	D36S5S	C2-225	C2-226	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
42	240	42.0	3	2	D42S3S	C/F	C/F	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
42	480	42.0	1	2	D42S11S	C/F	C/F	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
42	480	42.0	3	2	D42S5S	C2-229	C2-230	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
48	240	48.0	3	4	D48S3S	C4-148	C4-149	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
48	480	48.0	1	2	D48S11S	C/F	C/F	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
48	480	48.0	3	2	D48S5S	C2-229	C2-230	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
54	240	54.0	3	3	D54S3S	C4-144	C4-145	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
54	480	54.0	1	3	D54S11S	C/F	C/F	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
54	480	54.0	3	2	D54S5S	C2-229	C2-230	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
60	240	60.0	3	4	D60S3S	C4-148	C4-149	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	60.0	1	4	D60S11S	C/F	C/F	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	60.0	3	2	D60S5S	C2-229	C2-230	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	240	75.0	3	4	D75S3S	C4-148	C4-149	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	75.0	1	4	D75S11S	C/F	C/F	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	75.0	3	2	D75S5S	C2-229	C2-230	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	100.0	3	4	D100S5S	C4-156	C4-157	290 (132)	40 ³ / ₈ (1025.5)	32 ¹ / ₂ (826)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	125.0	3	4	D125S5S	C4-156	C4-157	310 (141)	49 ³ / ₈ (1254.1)	41 ¹ / ₂ (1054)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)

Notes:

- See *Watt Density vs. Air Temperature/Velocity* charts on page 379 to confirm suitability in the application.
- C/F - Contact factory, go to www.watlow.com/en/contact-us

Air Heaters



Duct Heaters

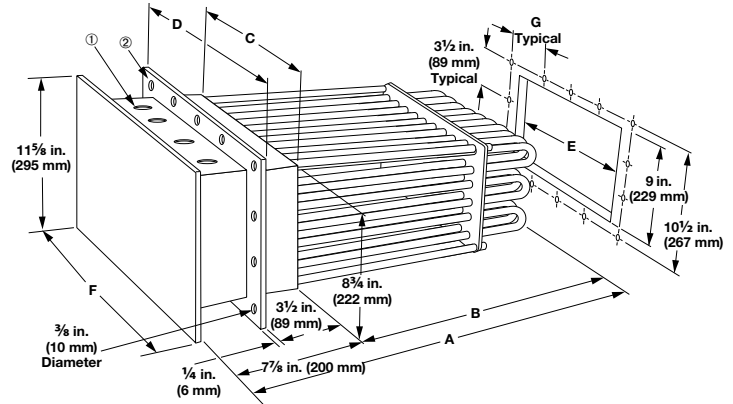


D SERIES

Application: Medium Temperature Air 750°F (399°C)

- Removable alloy 840 WATROD elements
- Without thermostat
- General purpose enclosure
- Steel flange

- ① 6 and 12 element heaters have (1) 1 inch NPT conduit opening; 18, 24, 30 and 42 element heaters have (2) 1 inch NPT conduit openings; 36, 48, 54, and 60 element heaters have (2) 1 inch NPT and (2) 1 1/4 inch conduit openings
- ② All flanges are 12 inches wide



# of Elem.	Volts	kW	Ph	# Circ	Part Number	WATCONNECT P/N		Ship Wt. lbs. (kg)	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.	"E" Dim.	"F" Dim.	"G" Dim.
						J T/C	K T/C		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
30 W/in² (4.7 W/cm²)															
6	240	9.0	1	1	D6SX10S	C/F	C/F	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	240	9.0	3	1	D6SX3S	C2-50	C2-92	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	480	9.0	1	1	D6SX11S	C/F	C/F	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
6	480	9.0	3	1	D6SX5S	C2-43	C2-35	50 (23)	27 ⁷ / ₈ (708)	20 (508)	2 ³ / ₄ (70)	6 ¹ / ₂ (165)	3 (76)	5 ³ / ₄ (146)	2 ¹ / ₂ (64)
12	240	18.0	1	2	D12SX10S	C/F	C/F	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	240	18.0	3	1	D12SX3S	C2-236	C2-214	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	480	18.0	1	1	D12SX11S	C/F	C/F	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
12	480	18.0	3	1	D12SX5S	C2-43	C2-35	55 (25)	27 ⁷ / ₈ (708)	20 (508)	4 ³ / ₄ (121)	8 ¹ / ₂ (215)	5 (127)	7 ³ / ₄ (197)	3 ¹ / ₂ (89)
18	240	27.0	1	3	D18SX10S	C/F	C/F	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	240	27.0	3	2	D18SX3S	C2-218	C2-224	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	480	27.0	1	2	D18SX11S	C/F	C/F	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
18	480	27.0	3	1	D18SX5S	C2-225	C2-226	65 (30)	27 ⁷ / ₈ (708)	20 (508)	6 ³ / ₄ (171)	10 ¹ / ₂ (267)	7 (178)	9 ³ / ₄ (248)	3 (76)
24	240	36.0	1	4	D24SX10S	C/F	C/F	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	240	36.0	3	2	D24SX3S	C2-218	C2-219	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	480	36.0	1	2	D24SX11S	C/F	C/F	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
24	480	36.0	3	1	D24SX5S	C2-225	C2-226	95 (43)	27 ⁷ / ₈ (708)	20 (508)	8 ³ / ₄ (222)	12 ¹ / ₂ (318)	9 (229)	11 ³ / ₄ (298)	2 ³ / ₄ (70)
30	240	45.0	3	5	D30SX3S	C4-144	C4-145	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)
30	480	45.0	1	2	D30SX11S	C/F	C/F	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)
30	480	45.0	3	2	D30SX5S	C2-229	C2-230	120 (55)	27 ⁷ / ₈ (708)	20 (508)	10 ³ / ₄ (273)	14 ¹ / ₂ (368)	11 (279)	13 ³ / ₄ (349)	3 ¹ / ₄ (83)

CONTINUED

Notes:

- See *Watt Density vs. Air Temperature/Velocity* charts on page 379 to confirm suitability in the application.
- C/F - Contact factory, go to www.watlow.com/en/contact-us

Air Heaters



Duct Heaters

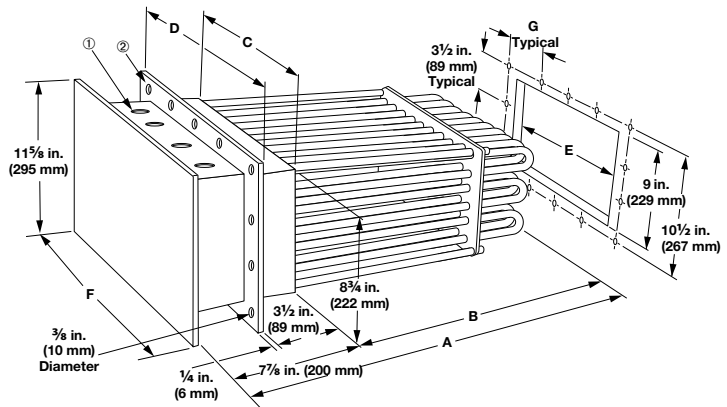


D SERIES

Application: Medium Temperature Air 750°F (399°C)

- Removable alloy 840 WATROD elements
- Without thermostat
- General purpose enclosure
- Steel flange

- ① 6 and 12 element heaters have (1) 1 inch NPT conduit opening; 18, 24, 30 and 42 element heaters have (2) 1 inch NPT conduit openings; 36, 48, 54, and 60 element heaters have (2) 1 inch NPT and (2) 1 1/4 inch conduit openings
- ② All flanges are 12 inches wide



# of Elem.	Volts	kW	Ph	# Circ	# Part Number	WATCONNECT P/N		Ship Wt. lbs. (kg)	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.	"E" Dim.	"F" Dim.	"G" Dim.
						J T/C	K T/C		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
30 W/in² (4.7 W/cm²)															
36	240	54.0	3	3	D36SX3S	C4-144	C4-145	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
36	480	54.0	1	3	D36SX11S	C/F	C/F	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
36	480	54.0	3	2	D36SX5S	C2-229	C2-230	135 (62)	27 ⁷ / ₈ (708.0)	20 (508)	12 ³ / ₄ (324)	16 ¹ / ₂ (419)	13 (330)	15 ³ / ₄ (400)	3 ³ / ₄ (95)
42	240	63.0	3	7	D42SX3S	C4-148	C4-149	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
42	480	63.0	1	3	D42SX11S	C/F	C/F	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
42	480	63.0	3	2	D42SX5S	C2-229	C2-230	155 (71)	27 ⁷ / ₈ (708.0)	20 (508)	14 ³ / ₄ (375)	18 ¹ / ₂ (470)	15 (381)	17 ³ / ₄ (451)	4 ¹ / ₄ (108)
48	240	72.0	3	4	D48SX3S	C4-148	C4-149	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
48	480	72.0	1	4	D48SX11S	C/F	C/F	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
48	480	72.0	3	2	D48SX5S	C2-229	C2-230	195 (89)	27 ⁷ / ₈ (708.0)	20 (508)	16 ³ / ₄ (425)	20 ¹ / ₂ (521)	17 (432)	19 ³ / ₄ (502)	4 ³ / ₄ (121)
54	240	81.0	3	6	D54SX3S	C/F	C/F	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
54	480	81.0	1	6	D54SX11S	C/F	C/F	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
54	480	81.0	3	3	D54SX5S	C4-152	C4-153	205 (93)	27 ⁷ / ₈ (708.0)	20 (508)	18 ³ / ₄ (476)	22 ¹ / ₂ (572)	19 (483)	21 ³ / ₄ (552)	5 ¹ / ₄ (133)
60	240	90.0	3	5	D60SX3S	C/F	C/F	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	90.0	1	4	D60SX11S	C/F	C/F	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	90.0	3	4	D60SX5S	C4-156	C4-157	235 (107)	27 ⁷ / ₈ (708.0)	20 (508)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	240	115.0	3	10	D75SX3S	C/F	C/F	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	115.0	1	5	D75SX11S	C/F	C/F	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	115.0	3	4	D75SX5S	C4-156	C4-157	260 (118)	32 ⁷ / ₈ (835.0)	25 (635)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	150.0	3	4	D100SX5S	C4-156	C4-157	290 (132)	40 ³ / ₈ (1025.5)	32 ¹ / ₂ (826)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)
60	480	190.0	3	5	D125SX5S	C/F	C/F	310 (141)	49 ³ / ₈ (1254.1)	41 ¹ / ₂ (1054)	20 ³ / ₄ (527)	24 ¹ / ₂ (622)	21 (533)	23 ³ / ₄ (603)	5 ³ / ₄ (146)

Notes:

- See *Watt Density vs. Air Temperature/Velocity* charts on page 379 to confirm suitability in the application.
- C/F - Contact factory, go to www.watlow.com/en/contact-us

Air Heaters



Duct Heaters

D SERIES

Replacement Elements

Replaceable heating elements provide easy field service and reduce downtime. Element change-out is made simple by a single screw clamp.

To order replacement elements, specify the **replacement element part number** (from the table) that corresponds to the original Watlow duct heater part number. Then, specify **quantity**.

Replacement Elements

Original Duct Heater Part Numbers	Replacement Element		Original Duct Heater "A" Dim.		Replacement Element Part Number	Est. Net Wt.	
	Volts	Watts	in.	(mm)		lbs	(kg)
20 W/in² (3.1 W/cm²)							
D6S3 to D60S3	240	1000	27 ⁷ / ₈	(708.0)	D6240	1.0	(0.5)
D6S5 to D60S5	480	1000	27 ⁷ / ₈	(708.0)	D6480	1.0	(0.5)
D75S3	240	1250	32 ⁷ / ₈	(835.0)	D75240	1.0	(0.5)
D75S5	480	1250	32 ⁷ / ₈	(835.0)	D75480	1.0	(0.5)
D100S5	480	1667	40 ³ / ₈	(1025.5)	D100480	1.4	(0.7)
D125S5	480	2083	49 ³ / ₈	(1254.1)	D125480	1.7	(0.8)
30 W/in² (4.7 W/cm²)							
D6SX3 to D60SX3	240	1500	27 ⁷ / ₈	(708.0)	D6X240	1.0	(0.5)
D6SX5 to D60SX5	480	1500	27 ⁷ / ₈	(708.0)	D6X480	1.0	(0.5)
D75SX3	240	1917	32 ⁷ / ₈	(835.0)	D75X240	1.0	(0.5)
D75SX5	480	1917	32 ⁷ / ₈	(835.0)	D75X480	1.0	(0.5)
D100SX5	480	2500	40 ³ / ₈	(1025.5)	D100X480	1.4	(0.7)
D125SX5	480	3167	49 ³ / ₈	(1254.1)	D125X480	1.7	(0.8)

Air Heaters



Duct Heaters

LDH SERIES and D SERIES

Part Number

Stock Duct Part Number	Optional Terminal Enclosures	Optional Process Sensors	Sheath Limit Sensors

Stock Duct Part Number

Note: Catalog part numbers include optional enclosures. To order optional enclosures or sensors, substitute the appropriate suffix.

Optional Terminal Enclosures

S = General purpose enclosure

W = Moisture resistant enclosure

Note: Catalog listing is a general purpose enclosure. Substitute enclosure options are noted.

Optional Bulb & Capillary Thermostats or Thermocouple Process Sensors

PJ = Type J process thermocouple in thermowell

PK = Type K process thermocouple in thermowell

Sheath Limit Sensors

HJ = Type J high-limit thermocouple

HK = Type K high-limit thermocouple

Example Part Number: D6SX10 S J HJ