



BUCAN ELECTRIC HEATING DEVICES INC.

## FINNED TUBULAR HEATERS



### Applications:

- *DRYERS*
- *RECIRCULATION OVENS*
- *FAN-FORCED HEATERS*
- *HEAT TREATING*
- *ANNEALING*

In applications where tubular heaters are exposed to forced convection, placing fins around tubular heaters increases their surface area and thus improves their heat transferring capacity. Finned tubular heaters, compared to regular tubular heaters, run at lower surface temperatures for the same watt densities when placed in identical air streams. Graph1 (page 12) compares watt density, outlet air temperature, and the speed of air flow for regular and finned tubular heaters respectively.

Despite their advantages, finned tubular heaters are not recommended for applications where outlet air temperatures exceed 600°F.

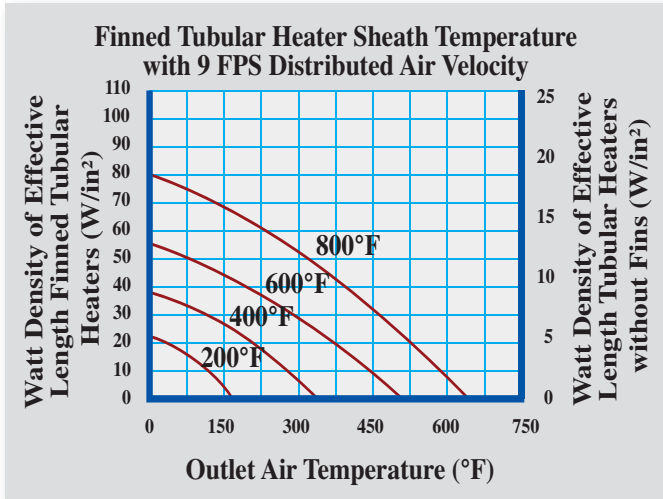
### Material and watt densities

The sheath material of a finned tubular heater and its watt density are two critical factors that affect its durability. The standard finned tubular heaters are made of steel sheath and steel fins (750°F max. surface temperature) since steel is very efficient in heat transfer. These heaters have a plain-surface finish. For corrosive environments or high temperature applications (above 750°F), finned tubular heaters could be made with stainless steel sheath and stainless steel fins.

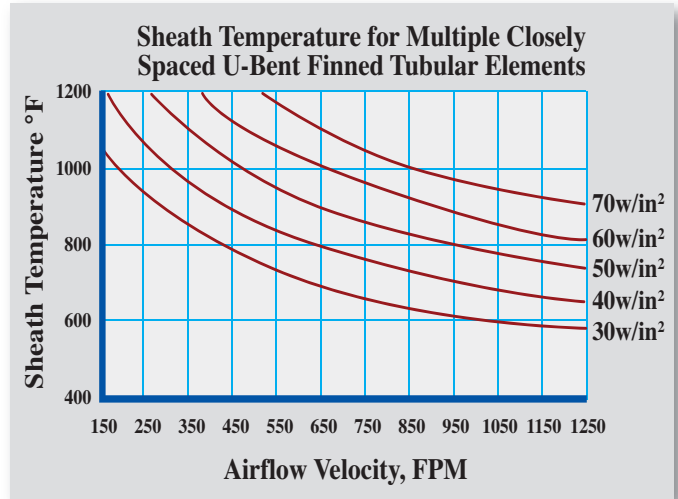
# BUKAN FINNED TUBULAR HEATERS

## Watt Densities

Safe watt densities that keep surface temperatures below allowable limits depend on the speed of the incoming air and its outlet temperature. Graph 2 shows maximum watt densities recommended for a specific sheath temperature and air velocity.



Graph 1



Graph 2

## Physical Characteristics

The outside diameter of fins, their thickness, the spacing between consecutive fins, as well as the element sheath and fin material, play a major role in the effectiveness of heat transfer.

TUBE DIAMETER	FIN THICKNESS	FINS PER INCH	FIN WIDTH	*TOTAL SQ. INCH PER LINEAR INCH	*MAX SHEATH LENGTH	*OUTSIDE DIAMETER OF FINS
0.260"	0.020"	5	0.375"	8.30"	240"	1.01"
0.315"		5		9.20"		1.07"
0.375"		5		10.10"		1.13"
0.430"		5		10.83"		1.18"
0.475"		5		11.60"		1.23"

\*Dimensions are subject to change

## KILOWATTS TO HEAT AIR

Air at standard pressure & temperature

$$KW = \frac{CFM \times \Delta T (\text{°F})}{3000} \times 1.2$$

Compressed Air

$$KW = \frac{CFM \times \text{Density (lbs/ft}^3\text{)} \times \Delta T (\text{°F})}{228} \times 1.2$$

Note: CFM and Density measurements are at inlet temperature and pressure conditions

# BUKAN FINNED TUBULAR HEATERS

## Optional features

- **RUSTPROOF COATING**
- **STAINLESS STEEL FINS AND TUBULAR SHEATH MATERIAL**
- **NICKEL PLATING**
- **SPECIAL MOUNTING ACCESSORIES**
- **VARIOUS SHAPES**

## Mounting Attachments

Threaded fittings, if required, are the standard mounting attachments supplied with finned tubular heaters. These fittings are brazed or crimped onto the heaters. For special applications, finned tubular heaters can be made with mounting brackets that have special designs.

## STANDARD ITEMS

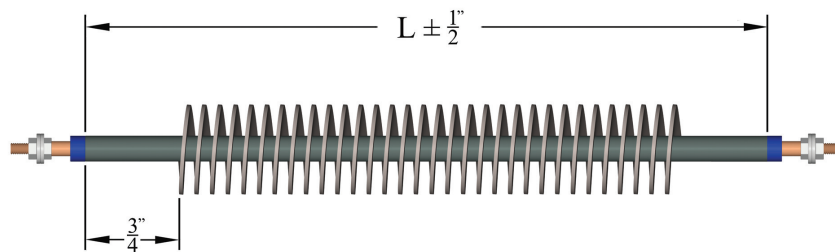
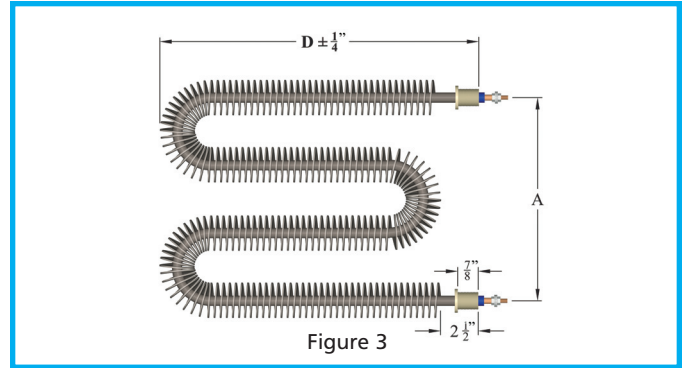
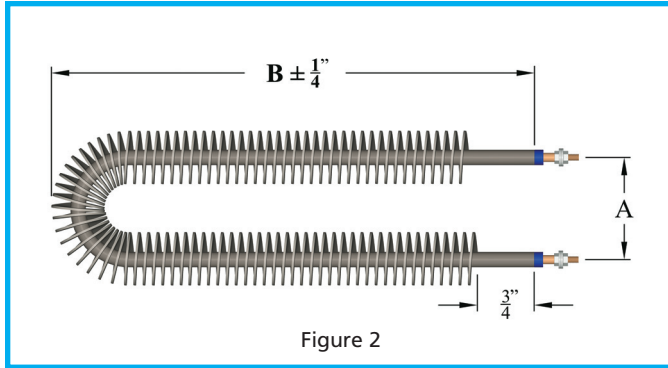


Figure 1

### STRAIGHT FINNED TUBULAR ELEMENT (Figure 1)

KW	STANDARD VOLTAGES	DIMENSION L		CATALOG NUMBER	
		mm	inch	SHEATH DIA. 0.315" FIN DIA. 1.07"	SHEATH DIA. 0.430" FIN DIA. 1.18"
1	120, 208, 240	480	18.8	STF31	-
2	120, 208, 240	865	34	STF32	-
2	120, 208, 240, 480, 600	675	26.5	-	STF42
3	120, 208, 240	1245	49	STF33	-
3	120, 208, 240, 480, 600	990	39	-	STF43
4	208, 240	1625	64	STF34	-
4	208, 240, 480, 600	1310	51.5	-	STF44
5	208, 240	2005	78.9	STF35	-
5	208, 240, 480, 600	1626	64	-	STF45
6	208, 240	2385	93.9	STF36	-
6	208, 240, 480, 600	1945	76.5	-	STF46
7	208, 240, 480, 600	2260	89	-	STF47
8	208, 240, 480, 600	2580	101.5	-	STF48

# BUKAN FINNED TUBULAR HEATERS



## U-SHAPED FINNED TUBULAR ELEMENT (Figure 2)

KW	STANDARD VOLTAGES	DIMENSION B		DIMENSION A		CATALOG NUMBER	
		mm	inch	mm	inch	SHEATH DIA. 0.315" FIN DIA. 1.07"	SHEATH DIA. 0.430" FIN DIA. 1.18"
1	120, 208, 240	225	8.9	40	1.5	FTF31	-
2	120, 208, 240	415	16.4	40	1.5	FTF32	-
2	120, 208, 240, 480, 600	330	13.1	50	2.0	-	FTF42
3	120, 208, 240	610	23.9	40	1.5	FTF33	-
3	120, 208, 240, 480, 600	490	19.4	50	2.0	-	FTF43
4	208, 240	800	31.4	40	1.5	FTF34	-
4	208, 240, 480, 600	650	25.6	50	2.0	-	FTF44
5	208, 240	990	38.9	40	1.5	FTF35	-
5	208, 240, 480, 600	810	31.9	50	2.0	-	FTF45
6	208, 240	1180	46.4	40	1.5	FTF36	-
6	208, 240, 480, 600	970	38.1	50	2.0	-	FTF46
7	208, 240, 480, 600	1130	44.4	50	2.0	-	FTF47
8	208, 240, 480, 600	1285	50.6	50	2.0	-	FTF48

## W-SHAPED FINNED TUBULAR ELEMENT (Figure 3)

KW	STANDARD VOLTAGES	DIMENSION D		DIMENSION A		CATALOG NUMBER	
		mm	inch	mm	inch	SHEATH DIA. 0.315" FIN DIA. 1.07"	SHEATH DIA. 0.430" FIN DIA. 1.18"
1	120, 208, 240	140	5.5	115	4.5	FTF31W	-
2	120, 208, 240	235	9.3	115	4.5	FTF32W	-
2	120, 208, 240, 480, 600	185	7.3	150	6.0	-	FTF42W
3	120, 208, 240	330	13.0	115	4.5	FTF33W	-
3	120, 208, 240, 480, 600	265	10.4	150	6.0	-	FTF43W
4	208, 240	425	16.8	115	4.5	FTF34W	-
4	208, 240, 480, 600	345	13.5	150	6.0	-	FTF44W
5	208, 240	520	20.5	115	4.5	FTF35W	-
5	208, 240, 480, 600	420	16.6	150	6.0	-	FTF45W
6	208, 240	615	24.3	115	4.5	FTF36W	-
6	208, 240, 480, 600	505	19.8	150	6.0	-	FTF46W
7	208, 240, 480, 600	580	22.8	150	6.0	-	FTF47W
8	208, 240, 480, 600	660	26.0	150	6.0	-	FTF48W

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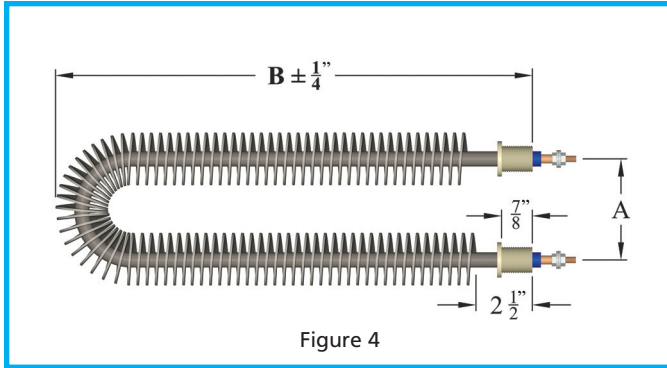


Figure 4

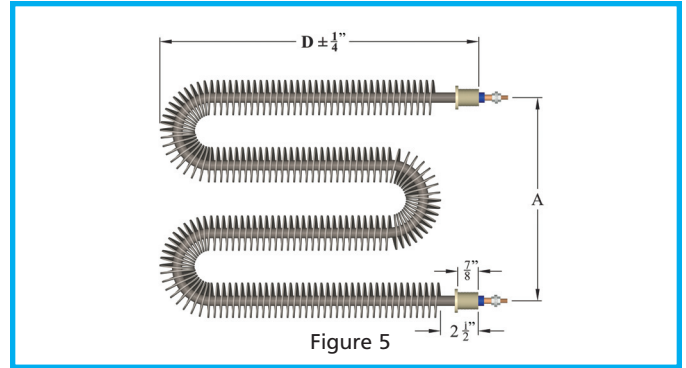


Figure 5

## U-SHAPED FINNED TUBULAR ELEMENT WITH THREADED FITTINGS (Figure 4)

KW	STANDARD VOLTAGES	DIMENSION B		DIMENSION A		CATALOG NUMBER	
		mm	inch	mm	inch	SHEATH DIA. 0.315" FIN DIA. 1.07"	SHEATH DIA. 0.430" FIN DIA. 1.18"
1	120, 208, 240	260	10.3	40	1.5	FTF31M	-
2	120, 208, 240	450	17.8	40	1.5	FTF32M	-
2	120, 208, 240, 480, 600	365	14.5	50	2.0	-	FTF42M
3	120, 208, 240	645	25.3	40	1.5	FTF33M	-
3	120, 208, 240, 480, 600	525	20.8	50	2.0	-	FTF43M
4	208, 240	835	32.8	40	1.5	FTF34M	-
4	208, 240, 480, 600	685	27.0	50	2.0	-	FTF44M
5	208, 240	1025	40.3	40	1.5	FTF35M	-
5	208, 240, 480, 600	845	33.3	50	2.0	-	FTF45M
6	208, 240	1215	47.8	40	1.5	FTF36M	-
6	208, 240, 480, 600	1005	39.5	50	2.0	-	FTF46M
7	208, 240, 480, 600	1165	45.8	50	2.0	-	FTF47M
8	208, 240, 480, 600	1320	52.0	50	2.0	-	FTF48M

## W-SHAPED FINNED TUBULAR ELEMENT WITH THREADED FITTINGS (Figure 5)

KW	STANDARD VOLTAGES	DIMENSION D		DIMENSION A		CATALOG NUMBER	
		mm	inch	mm	inch	SHEATH DIA. 0.315" FIN DIA. 1.07"	SHEATH DIA. 0.430" FIN DIA. 1.18"
1	120, 208, 240	175	6.9	115	4.5	FTF31WM	-
2	120, 208, 240	270	10.7	115	4.5	FTF32WM	-
2	120, 208, 240, 480, 600	220	8.7	150	6.0	-	FTF42WM
3	120, 208, 240	365	14.4	115	4.5	FTF33WM	-
3	120, 208, 240, 480, 600	300	11.8	150	6.0	-	FTF43WM
4	208, 240	460	18.2	115	4.5	FTF34WM	-
4	208, 240, 480, 600	380	14.9	150	6.0	-	FTF44WM
5	208, 240	555	21.9	115	4.5	FTF35WM	-
5	208, 240, 480, 600	455	18.0	150	6.0	-	FTF45WM
6	208, 240	650	25.7	115	4.5	FTF36WM	-
6	208, 240, 480, 600	540	21.2	150	6.0	-	FTF46WM
7	208, 240, 480, 600	615	24.2	150	6.0	-	FTF47WM
8	208, 240, 480, 600	695	27.4	150	6.0	-	FTF48WM

# BUCAN FINNED TUBULAR HEATERS

*To order finned tubular heaters please specify:*

- *Element diameter and sheath material*
- *Fin material*
- *Terminal type*
- *Total sheath length*
- *Cold section at each end*
- *Voltage and wattage*
- *Bending configuration drawings (or catalog number)*
- *Quantity*
- *Mounting characteristics and accessories (if required)*
- *Special moisture resistant seal (if required)*

