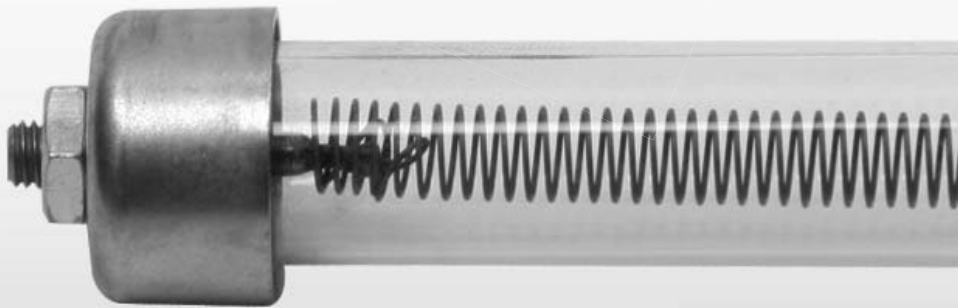
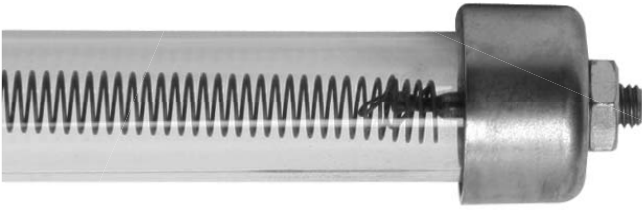


INFRARED RADIANT HEATERS

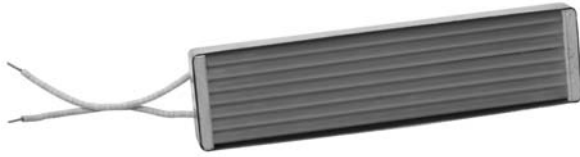
air heaters



WATTCOTM

OVERVIEW

Economic, efficient, and clean, WATTCO™ infrared radiant heaters are designed for comfort heating applications that require radiant heat in indoor, outdoor, and exposed areas through direct infrared heat transfer.



FEATURES

KEY FEATURES

- High operating temperatures
- Quick heat-up and cool-down
- Sheath material:
 - o Metal sheathed fixtures
 - o Quartz tube elements
 - o Quartz lamp elements
 - o Incoloy®
 - o Stainless steel emitter strip
- Special sizes, wattages, and materials available upon request
- Custom-designed to meet the requirements of your application

TYPE of WORK	NORMAL AIR TEMPERATURE	EQUIVALENT TEMP. with INFRARED HEATING
Heavy Work	66-68°F	55-60°F
Light Work	70-72°F	60-65°F
Seated	74-76°F	65-70°F
Swimming Pool	85-90°F	75-80°F



BENEFITS

- Versatile
- Corrosion and oxidation resistant
- Easy to maintain
- Easy to install
- Durable
- Compatible with local power supplies
- Built for safety
- Maximal dielectric strength and heat transfer
- Minimal heat loss
- Maintained wiring cooler
- Clean heat
- Easy service
- Minimal downtime

SERVICE LIFE

Please consider the following factors when determining the expected service life of your radiant heater.

- Watt density
- Operating conditions

Note:

- High ambient temperature applications or high frequent switching processes will affect the service life of your radiant heater
- Inquire about the expected service life of a specific application by calling us at 1-800-4WATTCO (1-800-492-8826)

WARNING

FIRE HAZARD

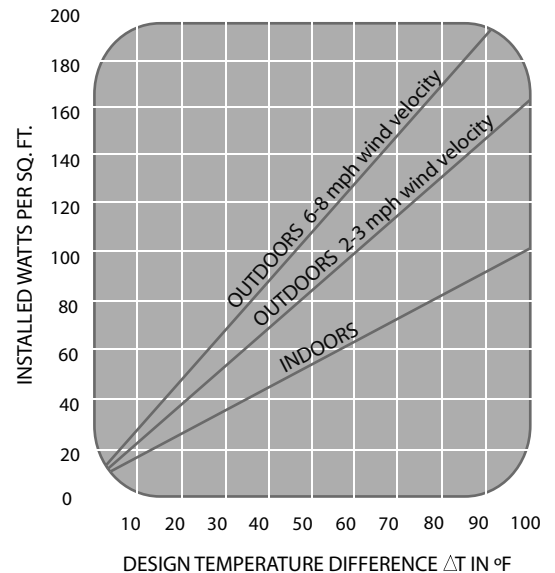
Please take the following warnings into consideration to avoid the risk of fire.

- **Do not contact the heater case and the combustible surfaces.**
- **Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).**
- **Use ground fault interrupters in the circuit to reduce the risk of short circuits.**

APPLICATION

Infrared radiant heaters are often regarded as complicated solutions. Making allowances for in-field adjustments to output intensity and heater positioning is mandatory.

Fig. 1 – Recommended installed watts/sq. ft. of floor surface using quartz lamp heaters



Please determine the energy spread in order to optimize your heater.

ENERGY SPREAD

Table 1 will help you establish the effective energy spread for the following fixtures:

- 45°
- 60°
- 70°

Use this information to determine an efficient layout for uniform infrared coverage of the application or area.

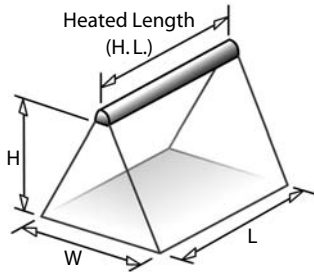


TABLE 1 - RADIANT COVERAGE AT DIFFERENT HEIGHTS
REFER TO THESE LISTINGS TO DETERMINE THE HEATED LENGTH.

TABLE 1
Radiant Coverage at Various Heights

SPREAD	WIDTH (W)	LENGTH (L)
45°	.83H	H + H.L.*
60°	1.15H	"
70°	1.4H	"

SELECTING YOUR WATTCO™ INFRARED RADIANT HEATER

The following sections will help you select the WATTCO™ infrared radiant heater that meets the requirements of your application. Please call us at 1-800-4WATTCO (1-800-492-8826) for further assistance.

Note:

- Compared to quartz tube and metal tube heaters, quartz lamp heaters are the most efficient solutions.
- Avoid using quartz tube or quartz lamp heaters if there is a risk of vibration or mechanical shock.
- Protect terminal ends from extreme moisture and contaminating vapors.
- Use moisture resistant terminal housings to prevent moisture and contamination.
- Request for a two-fixture model, custom mounting frames, and carts if necessary.
- The deep reflector model provides more efficient radiation than the standard mounting height.
- JAD Series heaters come with anodized and chemically brightened extruded aluminum reflector and 200°C supply wires.



JAD SERIES HEATERS

APPLICATIONS	CONSTRUCTION TYPE	FEATURES
Conveyorized or batch type ovens Drying Curing	Single tubular element (Type 1)	The mineral insulated alloy sheath heating element prevents splashing and vibration and provides a longer service life than other source types.
Degreasing, Weld preheating, Roll heating, Drying, Sterilization	Double tubular element (Type 2)	Two series wired heating elements in reflectors
Outdoor installations Washdown exposed areas	Hairpin tubular element with moisture resistant terminal housing (Type 3)	N/A
Industrial applications with medium intensity infrared heat: Paint spray, Booths, Curing, Drying Softening resins, Vinyl and Plastics	Quartz tube (Type 4)	Horizontal mounting for tube fixtures
High intensity heat applications	Double quartz tube elements (Type 5)	Horizontal mounting for tube fixtures
High intensity radiation, on/off heating: Baking, Drying, Curing (paint, varnishes, lacquers, adhesives, softening plastics, food processing)	Quartz lamp element (Type 6)	Horizontal mounting for tube fixtures

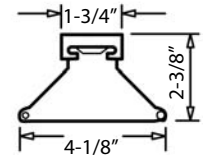
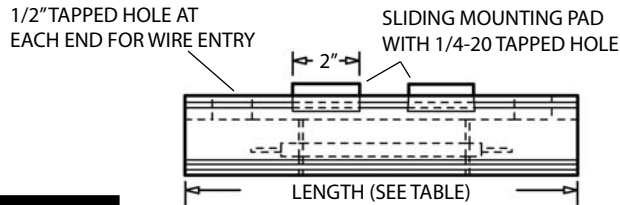


TABLE 1
Type 1 - 60° Spread

JAD Series - TYPE 1 - SINGLE TUBULAR ELEMENT

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.95	120, 208, 240	737	29	508	20	JAD2900R1	1.1	2.5
1.5	"	1041	41	813	32	JAD4115R1	1.5	3.4
1.9	"	1194	47	965	38	JAD4719R1	1.9	4.2
2.0	208, 240, 480, 600	1041	41	813	32	JAD4120R1	1.7	3.8
2.3	"	1194	47	965	38	JAD4723R1	1.9	4.3
3.0	"	1499	59	1270	50	JAD5930R1	2.4	5.2
3.8	"	1803	71	1575	62	JAD7138R1	2.8	6.2

TABLE 2
Type 2 - 60° Spread

JAD Series - TYPE 2 - DOUBLE TUBULAR ELEMENT

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.8	208, 240, 480, 600	737	29	508	20	JAD2918R2	1.6	3.5
3.2	"	1041	41	813	32	JAD4132R2	2.2	4.8
3.8	"	1194	47	965	38	JAD4738R2	2.5	5.4
5.0	"	1499	59	1270	50	JAD5950R2	3.0	6.7
6.2	"	1803	71	1575	62	JAD7162R2	3.6	8.0



WIRE GUARD OPTIONAL

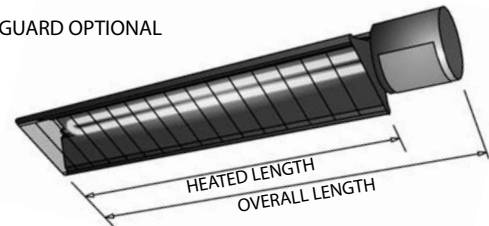


TABLE 3
Type 3 - 60° Spread

JAD Series - TYPE 3 - HAIRPIN TUBULAR ELEMENT WITH MOISTURE RESISTANT TERMINAL HOUSING

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.1*	208, 240, 480, 600	463	18 1/4	356	14	JAD1810R3	1.3	2.9
1.6	"	590	23 1/4	483	19	JAD2316R3	2.2	4.8
2.1	"	743	29 1/4	635	25	JAD2921R3	2.5	5.4
2.5	"	844	33 1/4	737	29	JAD3325R3	2.6	5.8
3.0	"	971	38 1/4	864	34	JAD3830R3	2.9	6.4
3.6	"	1149	45 1/4	1041	41	JAD4536R3	3.2	7.1
4.2	"	1301	51 1/4	1194	47	JAD5142R3	3.5	7.8
5.3	"	1606	63 1/4	1499	59	JAD6353R3	4.1	9.1
6.5	"	1911	75 1/4	1803	71	JAD7565R3	4.7	10.4

*1.1 KW UNIT ALSO AVAILABLE IN 120V

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

TABLE 4
Type 4 - 60° Spread

JAD Series - TYPE 4 - QUARTZ TUBE ELEMENT

Quartz tube fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.8	120, 208, 240	635	25	406	16	JAD2510R4	1.2	2.6
1.6	"	1041	41	813	32	JAD4116R4	1.7	3.8
2.5	208, 240, 480, 600	1499	59	1270	50	JAD5925R4	2.3	5.0
3.1	"	1803	71	1575	62	JAD7131R4	2.6	5.8



TABLE 5
Type 5 - 60° Spread

JAD Series - TYPE 5 - DOUBLE QUARTZ TUBE ELEMENTS

Quartz tube fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.6	120, 208, 240	635	25	406	16	JAD2516R5	1.5	3.2
3.2	"	1041	41	813	32	JAD4132R5	2.1	4.6
5.0	208, 240, 480, 600	1499	59	1270	50	JAD5950R5	2.8	6.1
6.2	"	1803	71	1575	62	JAD7162R5	3.2	7.1



TABLE 6
Type 6 - 60° Spread

JAD Series - TYPE 6 - QUARTZ LAMP ELEMENT

Quartz tube fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.5	120	356	14	127	5	JAD1405R6	0.9	1.9
1.0	208, 240	483	19	254	10	JAD1910R6	1.0	2.2
1.6	"	635	25	406	16	JAD2516R6	1.2	2.6
2.5	480, 600	864	34	635	25	JAD3425R6	1.5	3.3
3.8	600	1194	47	965	38	JAD4738R6	1.9	4.2

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

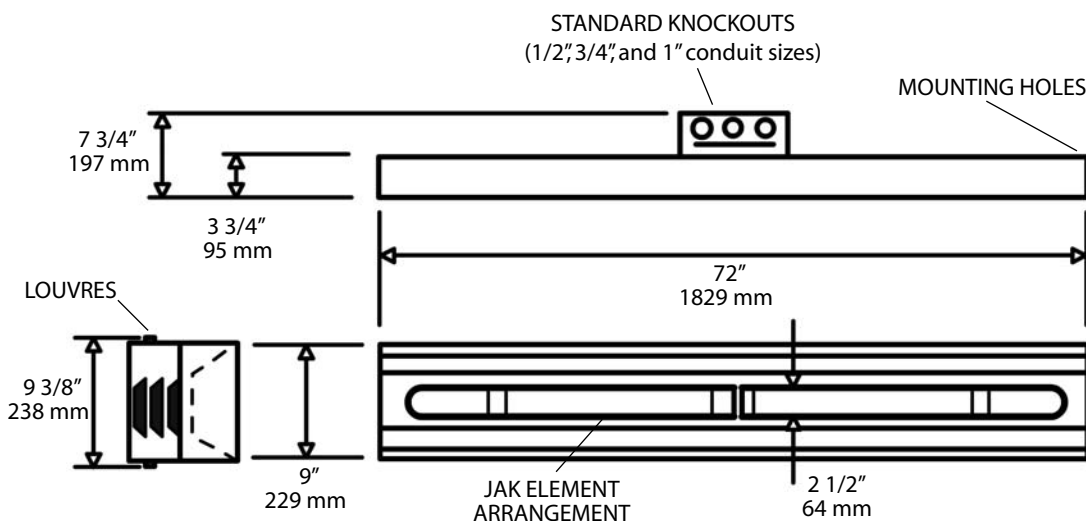
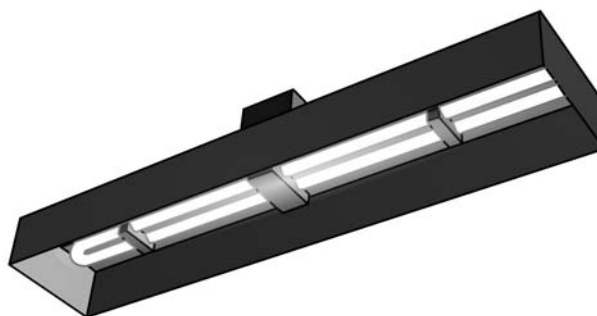
JAK SERIES HEATERS

APPLICATIONS	CONSTRUCTION TYPE	FEATURES
High density rugged heat applications: Process heating Comfort heating	Incoloy® tubular elements	Thermal insulation reduces heat loss and is efficient. Low power required Tarnish free, high lustre, aluminum reflector provided. General purpose and/or weatherproof terminal boxes provided.

TABLE 7
Type JAK - 60° Spread

KW	STANDARD VOLTAGES	CATALOG NUMBER	CATALOG NUMBER	SHIPPING WEIGHT	
		general purpose housing	moisture resistant housing	lb.	kg.
6.4	208, 240, 480, 600	JAK0164	JAK0164MR	38	17.4
8.0	"	JAK0180	JAK0180MR	38	17.4
10.0	"	JAK01100	JAK01100MR	38	17.4

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.



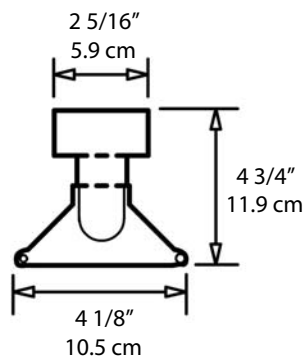
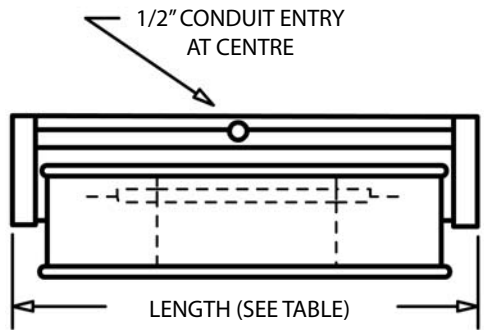
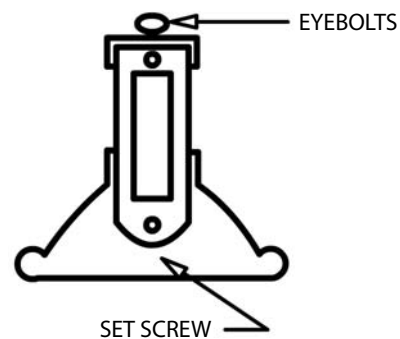
WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:
Do not contact the heater case and the combustible surfaces.
Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).
Use ground fault interrupters in the circuit to reduce the risk of short circuits.

JAV SERIES HEATERS

APPLICATIONS	CONSTRUCTION TYPE	FEATURES
Indoor spot heating: Churches Garages Indoor pools	Single tubular element (Type 1)	Extruded aluminum, anodized and chemically brightened reflectors. Swivel bracket and set screw adjustment, and eyebolts provided.
Small indoor areas that require intense heat.	Double tubular element (Type 2)	N/A
Indoor and outdoor applications for fast heat up: Canopies Patios Garages	Quartz tube (Type 4)	Horizontal mounting for tube fixtures.
Indoor and outdoor comfort heating applications with mounting height over 15ft. and small compact unit.	Quartz lamp (Type 6)	Horizontal mounting for tube fixtures.

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.



Note:

- No tilting accessories required.
- Adjust the set screw at one end to meet the degree horizontal tilting you wish.
- Heater is supplied with eyebolts with holes for chain mounting.

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

TABLE 8
Type 1 - 60° Spread

JAV Series - TYPE 1 - SINGLE TUBULAR ELEMENT

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
.95	120, 208, 240	800	31.5	508	20	JAV3101R1	2.3	5.1
1.5	"	1105	43.5	813	32	JAV4315R1	3.1	6.8
1.9	"	1257	49.5	965	38	JAV4919R1	3.6	8.0
2.0	208, 240, 480, 600	1105	43.5	813	32	JAV4321R1	3.3	7.2
2.3	"	1257	49.5	965	38	JAV4923R1	3.7	8.1
3.0	"	1562	61.5	1270	50	JAV6130R1	4.5	9.9
3.8	"	1867	73.5	1575	62	JAV7338R1	5.3	11.7

TABLE 9
Type 2 - 60° Spread

JAV Series - TYPE 2 - DOUBLE TUBULAR ELEMENT

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.8	208, 240, 480, 600	800	31.5	508	20	JAV3118R2	2.7	6.0
3.2	"	1105	43.5	813	32	JAV4332R2	3.7	8.2
3.8	"	1257	49.5	965	38	JAV4938R2	4.2	9.2
5.0	"	1562	61.5	1270	50	JAV6150R2	5.2	11.4
6.2	"	1867	73.5	1575	62	JAV7362R2	6.1	13.5

TABLE 10
Type 4 - 60° Spread

JAV Series - TYPE 4 - QUARTZ TUBE

Quartz tube fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.8	120, 208, 240	699	27.5	406	16	JAV2708R4	2.2	4.9
1.6	"	1105	43.5	813	32	JAV4316R4	3.2	7.1
2.5	208, 240, 480, 600	1562	61.5	1270	50	JAV6125R4	4.4	9.7
3.1	"	1867	73.5	1575	62	JAV7331R4	5.1	11.3

TABLE 11
Type 6 - 60° Spread

JAV Series - TYPE 6 - QUARTZ LAMP

Quartz lamp fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.5	120	419	16.5	127	5	JAV1605R6	1.5	3.4
1.0	208, 240	547	21.5	254	10	JAV2110R6	1.9	4.1
1.6	"	699	27.5	406	16	JAV2716R6	2.2	4.9
2.5	480, 600	927	36.5	635	25	JAV3625R6	2.8	6.2
3.8	600	1257	49.5	965	38	JAV4938R6	3.6	8.0

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

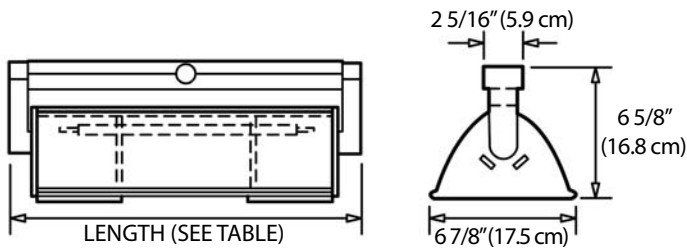
JAB SERIES HEATERS

APPLICATIONS	CONSTRUCTION TYPE	FEATURES
Indoor applications with larger and more solidly built unit required: Arenas Indoor comfort heating applications: Factory work stations Isolated service booths	Incoloy® tubular elements (Type 1)	Good temperature control is necessary in comfort heating applications
Indoor and outdoor installations that require high heat concentration	Hairpin tubular element with moisture resistant terminal housing (Type 3)	No tilting fixture
Indoor and outdoor areas that require high density at high mounting heights: Racetracks Outdoor stadiums Parking garage ramps Aircraft hangars High bay industrial buildings	Quartz tube (Type 4)	Horizontal mounting for tube fixtures
Indoor and outdoor areas that require high density at high mounting heights: Racetracks Outdoor stadiums Parking garage ramps Aircraft hangars High bay industrial buildings	Quartz lamp (Type 6)	Horizontal mounting for tube fixtures

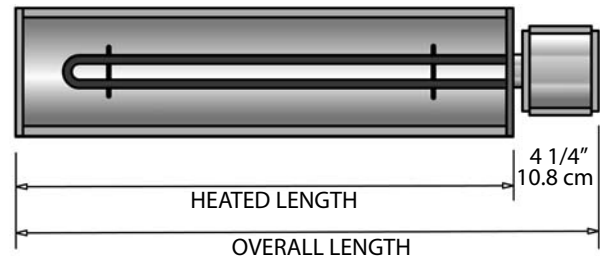
WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.



Deep reflector provides radiation in high heights



TYPE R - HAIRPIN TUBULAR ELEMENT WITH MOISTURE RESISTANT TERMINAL HOUSING (Page 12.9)



WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

TABLE 12
Type 1 - 45° Spread

JAB Series - TYPE 1 - INCOLOY® TUBULAR ELEMENT

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
.95	120, 208, 240	800	31.5	508	20	JAB3109R1	3.5	7.7
1.5	"	1105	43.5	813	32	JAB4315R1	4.6	10.2
1.9	"	1257	49.5	965	38	JAB4919R1	5.4	11.9
2.0	208, 240, 480, 600	1105	43.5	813	32	JAB4321R1	4.8	10.6
2.3	"	1257	49.5	965	38	JAB4923R1	5.4	11.9
3.0	"	1562	61.5	1270	50	JAB6130R1	6.6	14.6
3.8	"	1867	73.5	1575	62	JAB7338R1	7.9	17.3

TABLE 13
Type 3 - 60° Spread

JAB Series - TYPE 3 - HAIRPIN TUBULAR ELEMENT WITH MOISTURE RESISTANT TERMINAL HOUSING

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.6	208, 240, 480, 600	590	23 1/4	483	19	JAB2316R3	2.9	6.3
2.1	"	742	29 1/4	635	25	JAB2921R3	3.4	7.4
3.0	"	971	38 1/4	864	34	JAB3830R3	4.1	9.0
4.2	"	1301	51 1/4	1194	47	JAB5142R3	5.1	11.3
5.3	"	1606	63 1/4	1499	59	JAB6353R3	6.1	13.5
6.5	"	1911	75 1/4	1803	71	JAB7565R3	7.1	15.6

TABLE 14
Type 4 - 45° Spread

JAB Series - TYPE 4 - QUARTZ TUBE ELEMENT

Quartz tube fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.8	120, 208, 240	699	27.5	406	16	JAB2708R4	3.3	7.2
1.6	"	1105	43.5	813	32	JAB4316R4	4.8	10.6
2.5	208, 240, 480, 600	1563	61.5	1270	50	JAB6125R4	6.5	14.3
3.1	"	1867	73.5	1575	62	JAB7331R4	7.6	16.8

TABLE 15
Type 6 - 45° Spread

JAB Series - TYPE 6 - QUARTZ LAMP ELEMENT

Quartz lamp fixtures must be mounted horizontally

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
0.5	120	419	16.5	127	5	JAB1605R6	2.2	4.9
1.0	208, 240	547	21.5	254	10	JAB2110R6	2.7	6.0
1.6	"	699	27.5	406	16	JAB2716R6	3.3	7.2
2.5	480, 600	927	36.5	635	25	JAB3625R6	4.1	9.1
3.8	600	1257	49.5	965	38	JAB4938R6	5.4	11.8

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.

JAM SERIES HEATERS

APPLICATIONS	CONSTRUCTION TYPE	FEATURES
Large unheated factories: Sawmills Ice rinks Gymnasiums	Incoloy® tubular elements (Type 1)	Double reflector heaters with JAM fixtures. One element/reflector for maximum reflector efficiency. 45° or 70° energy spreads. Mounted with swivel.

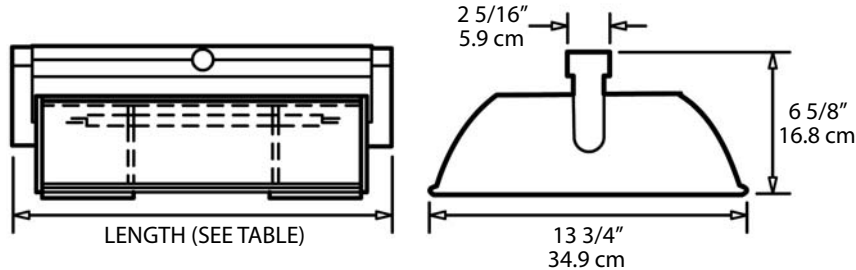


TABLE 16
Type 1 - 45° Spread

KW	STANDARD VOLTAGES	OVERALL LENGTH		HEATED LENGTH		CATALOG NUMBER	SHIPPING WEIGHT	
		mm	in.	mm	in.		kg	lb.
1.9	120, 208, 240	800	31.5	508	20	JAM3119R1	6.5	14.3
3.0	"	1105	43.5	813	32	JAM4330R1	8.6	19.0
3.8	"	1257	49.5	965	38	JAM4938R1	10.1	22.2
4.0	208, 240, 480, 600	1105	43.5	813	32	JAM4340R1	9.0	19.8
4.6	"	1257	49.5	965	38	JAM4946R1	10.1	22.3
6.0	"	1562	61.5	1270	50	JAM6160R1	12.4	27.3
7.6	"	1867	73.5	1575	62	JAM7376R1	14.7	32.4

WHEN ORDERING, PLEASE SPECIFY: Quantity, catalogue no., voltage, and wattage.

WARNING – FIRE HAZARD

Please take the following warnings into consideration to avoid the risk of fire:

Do not contact the heater case and the combustible surfaces.

Space energized heaters in order to prevent high combustible surface temperatures (194°F/90°C).

Use ground fault interrupters in the circuit to reduce the risk of short circuits.