

**Now you can warm up your building
without burning your pocket.**

AVON
ELECTRIC Ltd

SOLARBEAM

QUARTZ HALOGEN RADIANT HEATERS



**Super efficient heating for large work
areas and areas in intermittent use.**

AVON HEATS LIKE SUNSHINE

SOLARBEAM SUPERQUARTZ

A great innovation — clean, efficient 'heating with light'.

Solarbeam radiates through winds, drafts, water, moisture and glass, at the speed of light, from distances up to 7 metres, heating people in places previously impossible or uneconomical to heat.



How Solarbeam halogen quartz infra-red heaters work.

Solarbeam Superquartz also produces light — The 3200 watt model is comparable to a 500 watt light — The 5000 watt model produces approximately 750 watts of light, (Each watt is equal to 7 lumens of light) which is given off as a "soft white" light and is of great benefit during dark winter months.

As a guide, with radiant heat, the higher the radiation source temperature, the "shorter the wavelength" of energy released. "Short wave" is easier to reflect than "long wave" radiation. At 1.2 microns, approximately 90% of all heat emitted by the Solarbeam Superquartz element is radiated from the heater to the heated target. Only 10% is absorbed by the Solarbeam fixture itself. This is easily proved by touching the upper exterior surfaces of a Solarbeam Superquartz cabinet in operation. It is possible to touch the heater without fear of being burnt. Try the above test on other common infra-red heaters, and you **know** you will get burnt.

Most other infra-red heaters (gas, electric or kerosene) absorb 40% or more of their input energy. This absorbed heat is convected upwards to the ceiling, where it adds little benefit to the heated space, but dollars to your operating costs.

A single 3200 watt Solarbeam can provide satisfactory heat where other heaters need 4000 watts equivalent or more. Less energy, fewer heaters, with smaller cables, mean the installed capital costs achievable with Solarbeam Superquartz halogen infra-red, are significantly less than other heating systems.

The advantages and features of Solarbeam.

Solarbeam is 100% Environment Friendly.

Health & Environment

Electricity **takes nothing** from the air **nor adds to it.**

Noxious fumes containing carbon dioxide and high levels of water vapour (condensation) are created by other heating fuels and need exhaust fans to regularly replace the air within the heated space. With Solarbeam, natural air change within the building is sufficient. No carbon dioxide is produced to add to the 'greenhouse effect' and condensation is actually reduced.

Other fuels pollute, deplete ozone and generate carbon dioxide, all of which are harmful to humans and animals.

Safety

Solarbeam Superquartz heaters have no open flame, no fuel lines, no gases, no filters to clean, no noise, no starting procedure; with Solarbeam you just switch it on. Solarbeams comply with NZS 6200 and AS3103.

Heats Large, Poorly Insulated Buildings

These previously impossible heating problems are solved with Solarbeam Superquartz. No energy waste trying to heat unused areas. Drafts and winds (even outdoors) are no problem to Solarbeam.

Instant Heat

No warm up time required.

Simple Cost Effective Installation

Installation costs of a single Solarbeam are comparable to a fluorescent light; minimum capital outlay. Multiple unit installations may require control switch gear. (Fluorescent chain suspension holes prepunched, in each model).

Efficient

Approximately 90% of the SOLARBEAM energy input is converted to heat and radiated to the heating subject, with only minimal losses by convection upwards. SOLARBEAMS Shortwave Radiation (1.2 microns) passes through humid atmospheres which absorb the "long wave" radiation of many other Infra-red Heating Systems.

Reliable

Both Solarbeam Superquartz elements are rated for a 5000 hour life. Space age aluminium reflector has infinite life in normal atmospheres (it cannot rust, tarnish, corrode or become ineffective).

Element terminations are **stainless steel**, spring loaded and of **pure silver**.

Free Light

Solarbeam Superquartz floods the heated area with hundreds of watts of **free** light supplementing or replacing conventional light. A winter bonus, especially for retail premises, this **free soft white light** attracts customers to its source, and in factories dramatically improves winter lighting levels.

Application Guide

Instructions

1. First, use a Metric Scale and draw a simple SIDE VIEW and a PLAN VIEW of the area to be heated.
2. Use Table 1 to ascertain "watts per square metre" required to heat area. Assess whether your application needs "Heat Pattern Overlap" to achieve required result. (Table 3 and Fig.1 illustrates "overlap".)

3. Outline the Light Heat Pattern as illustrated in Table 3. . . . making sure that the subjects are heated.
4. Use Table 2 to double check heat effect on your application sketch PLAN VIEW. To work out the number of heaters (H) required for an actual installation, use the following expression:

$$H = \frac{\text{Watts SqM X Area}}{\text{Solarbeam unit capacity}} \quad \left(\begin{array}{l} \text{Do your Calculations with} \\ \text{both sizes of Solarbeams} \\ \text{For most cost effective result} \end{array} \right)$$

3,200w or 5,000 watts

Table 1 for spot heating

Application	Suggested watts per square metre:
SHOPS	90
WORKSHOPS	90
WAREHOUSES	90
FACTORIES	90
CAR SALES SHOWROOMS	90
GARAGES	90
CHURCHES	160
SHOPPING MALLS	100
GYMNASIUMS	75
HALLS	120
EXHIBITIONS	120
ENTRANCES/LOADING BAYS	160
OUTDOORS	180
HANGERS	170

Note:

Table 1 indicates approximate loadings for typical New Zealand and Australian conditions.

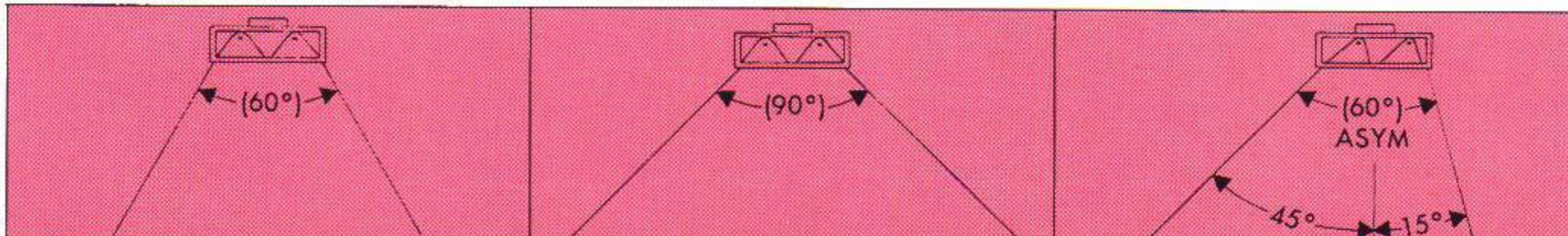
Where there is a high 'chill factor' add 35%.

"Sedentary" type work stations may need **Direct Hot Air** assistance. If size of building and low occupational rates make this impossible, use the 'heat overlap' method to heat subjects from two sides (see figure 1).

Consult your **local Electricity Supply Authority** if **hazardous vapors**, or **explosive dusts** are involved. Heating in such areas is subject to special approval.

Table 2. Approximate Heating Performance

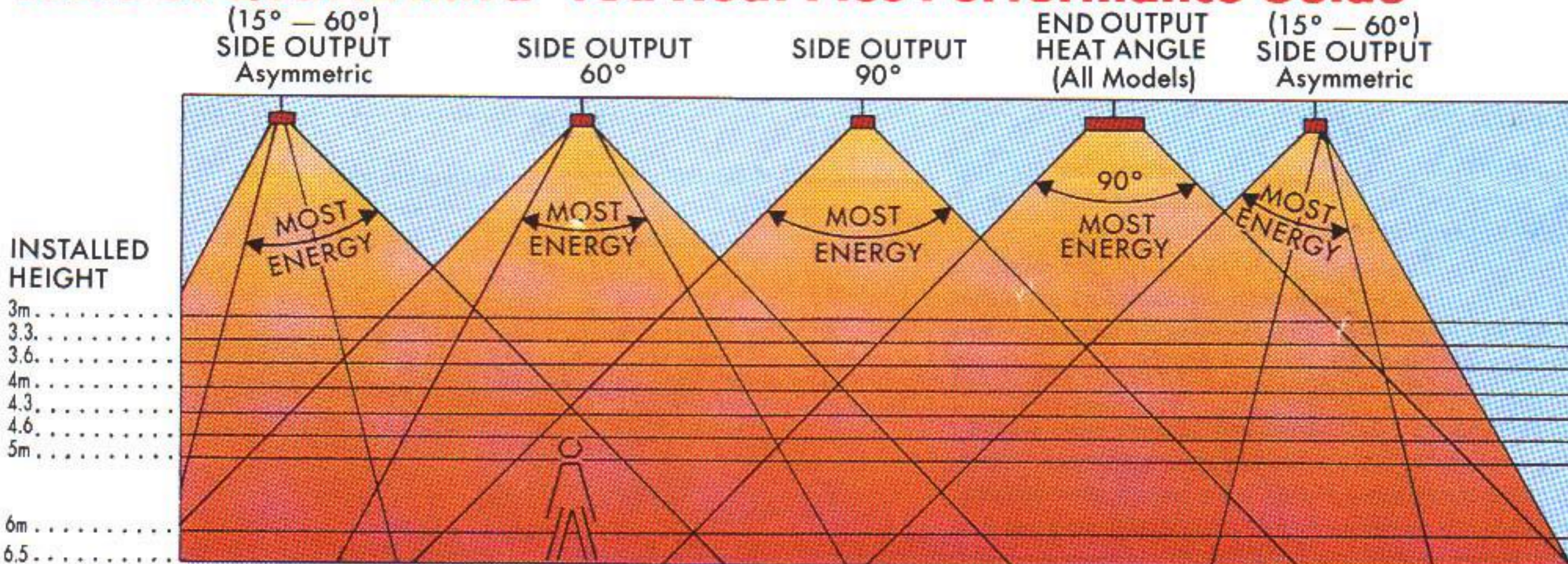
(USING 90% EFFECTIVE RADIATION) USE HEAT PATTERN "OVERLAP" TO DOUBLE HEAT EFFECT FOR "SPOT HEATING" HEAT ANGLES BELOW ARE "END VIEW"



INSTALLED HEIGHT METRES	FLOOR AREA HEATED SQM	SQUARE METRES SQM	3200 WATT MODEL		5000 WATT MODEL		FLOOR AREA HEATED SQM	SQUARE METRES SQM	3200 WATT MODEL		5000 WATT MODEL	
			WATTS SQM	WATTS SQM	WATTS SQM	WATTS SQM			WATTS SQM	WATTS SQM		
3m	4 x 6.5	26	110	173	6 x 6	36	80	125	4 x 6	24	120	185
3.3	4.3 x 7.1	30	90	150	7 x 7	49	58	91	4.4 x 6.75	29.7	100	152
3.6	5 x 8	40	70	112	8 x 8	64	45	70	5 x 6	30	96	150
4m	5.1 x 8.2	42	68	108	8.5 x 8.5	72	40	62	5.3 x 6.5	34	84	132
4.3	5.2 x 9	46	60	97	9 x 9	81	35	55	6 x 8.5	51	56	88
4.6	5.5 x 10	55	50	82	9.5 x 9.5	90	32	50	6.5 x 9.5	62	46	72
5m	5.9 x 11	65	44	70	10.2 x 10.2	104	27	44	6.6 x 10.5	69	41	65
6m	6.75 x 12	80	36	56	11.5 x 11.5	132	21	34	7.5 x 11.5	86	33	52
6.5	7.5 x 13	97	30	46	12.7 x 12.7	162	17	28	8.6 x 12.5	107	27	42

NOTE: PERFORMANCE TABLES ARE A GUIDE ONLY — ACTUAL PERFORMANCE MAY VARY SLIGHTLY i.e. STANDARD VOLTAGE VARIATIONS, AND LOCAL ATMOSPHERIC CONDITIONS.

Table 3. Quartz Infra-red Heat Plus Performance Guide



Controls for Spot Heating

When the space is not expected to attain normal comfort air temperatures, there is no benefit installing temperature control thermostats. Suitable manual controls include — Elapsed Time Timer (see Accessories), or suitably rated, manual "ON/OFF" wall or ceiling switches.

All heating is safer and more economical when controlled by a time clock, to prevent heaters being left "ON".

Total Heat Control

SOLARBEAMS can be used in conjunction with Super Fan Air Curtains and wall units.

AVON ELECTRIC LTD manufacture a full range of SUPER FAN heaters as a supplement.

Accessories

1. Wire Guards

Stainless Steel guards are supplied with all models. For additional protection i.e. gymnasiums, enquire for details.

2. Additional Element Protection

Solarbeam elements are designed for commercial and industrial use, but they will not tolerate thermal shock such as water splashes. Additional protective 'sleeves' are available.

FIREQUARTZ (glass tubes), that are easily slipped over the elements (at any time by unskilled personnel).

Two colours are available: clear FIREQUARTZ, to retain full light output of Solarbeam, or red FIREQUARTZ, recommended when visible light is unnecessary. Visible light is reduced to a bright red similar to a stoplight on a motor vehicle. Actual heat output is reduced approximately 4%.

3. Wall Brackets

Only suitable for directing Asymmetric heat output downwards from walls. Details available if required.

4. Elapsed Time Timer — with Contactors available if required

Available 15 mins, 30 mins, 60 mins, 1 hr, 2 hr, 4 hr (specify) with number and models of heaters to be controlled.

5. Individual Element Operation

For individual element control (3200 watt models only) — specify.

Six models - All with 2 elements

— 3200 WATT & 5000 WATT.
(EACH HAS 2 ELEMENTS)

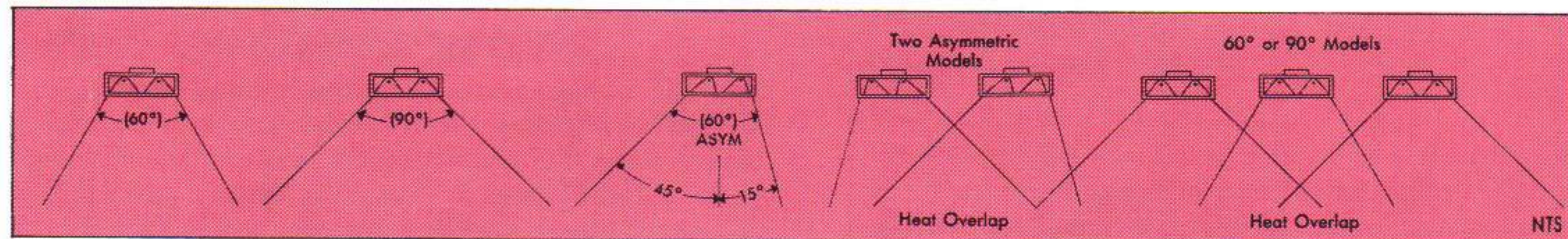
60° — 90° — 60° ASYMMETRIC

Minimum mounting height for comfort heating 3 metres. Where ceilings are under 3 metres contact the manufacturer for advice.

MODEL	HEATER DIMENSIONS				TOTAL WATTS	VOLTAGE	TOTAL AMPS ϕ	Weight	Shipping Data — Each Carton Dimensions		
	Ht.	L	W	Wt					L	W	H
3200 Watts (90°/60°/60° ASYM)	150mm	610mm	270mm	5.5kg	3200	*230 V 1 PHASE	13.7	6.3kg	650mm	x 290mm	x 200mm
5000 Watts (90°/60°/60° ASYM)	150mm	840mm	270mm	7.2kg	5000	*400 V 2 PHASE	12.5	8kg	880mm	x 290mm	x 200mm

* FOR AUSTRALIA 240 VOLT and 415 VOLT, ELEMENTS AVAILABLE, (SPECIFY). AMPS VARY ACCORDINGLY.

Figure 1. Reflectors and Heat Patterns



There are three models —

The angles above are measured from the sides of the fixture — i.e. parallel to the SUPERQUARTZ tube element) — from the "ends" all models are the same — 45° at each end.

Installation

Low cost budget heating may often call for a single heater and the 90° or 60° model may be used for direct overhead heating. The 60° model can be installed higher and deliver the same watts per square metre as the 90° model. 60° models are popular where forklifts, or trucks operate along narrow corridors or where a long length of plant is installed. (eg. aluminium extrusion factory). Both 60° and 90° models evenly distribute their heat over the heated area.

The Asymmetric model is often installed above and slightly behind staff — i.e. a packing bench or machine operator. Here, most heat is directed to the backs of staff (at a bench or machine).

The best heating effect is achieved with a heat source from two directions, and all three models can be installed to achieve a "Heat Overlap" (illustrated above).

Technical

Superquartz lamp colour temperature 2500 K., radiating at 1.2 microns wavelength (approx).

Light output 7 lumens/watt (22000 lumens for 3200 watt, 35000 for 5000 watt).

Element filament temperature (@ 20°C) approx 2100°C.

Superquartz element life rating approximately 5000 hours.

Do not install closer than 1500mm to a vertical surface (all models).

Solarbeams must not be installed less than 2 metres (measured from floor to wire guard.)

Hazardous areas, caution

Ensure intended use is approved by Dept. of Occupational Safety & Health — i.e. Paintshops (**hazardous vapours**), Grainstores (**hazardous dusts**).

Check with your local Electricity Supply Authority.

Can be chain suspended or directly fixed (by hinged wireway bracket) to any supporting surface. Cable entry via 5 alternative 21mm holes in wireway.

Reflector, snapfit, polished, anodised aluminium.

Finish: Mild steel, iron phosphated, with hot orange (BS5252-04-E-53) body, and cream (BS5252-10-B-17) ends, (Baked powder coat). Optional colours available.

Warranty

Entire cabinet (except elements). Two years full replacement.

Element Lamps

36 months from date of installation on a "pro-rata" basis.

E & O E:

All calculations are presented as realistically as possible.