

*E. P. Kelly  
(Muller)*

MANUFACTURING EQUIPMENT FOR PRODUCING  
HIGH PRESSURE SODIUM LAMPS

# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Single Head Ceramic Lapping Machine Type HPS100

## General Description

The ceramic tube is held axially within a chuck rotated at about 300 r.p.m. A diamond faced pad is automatically moved across the face of the ceramic to remove about .12 mm per cut. The completed ceramic has ends which are flat and parallel to within .05 mm. The ceramic is hand loaded into the chuck.

The machine requires one operator.

## Output

100 ends per hour.

## Dimensions

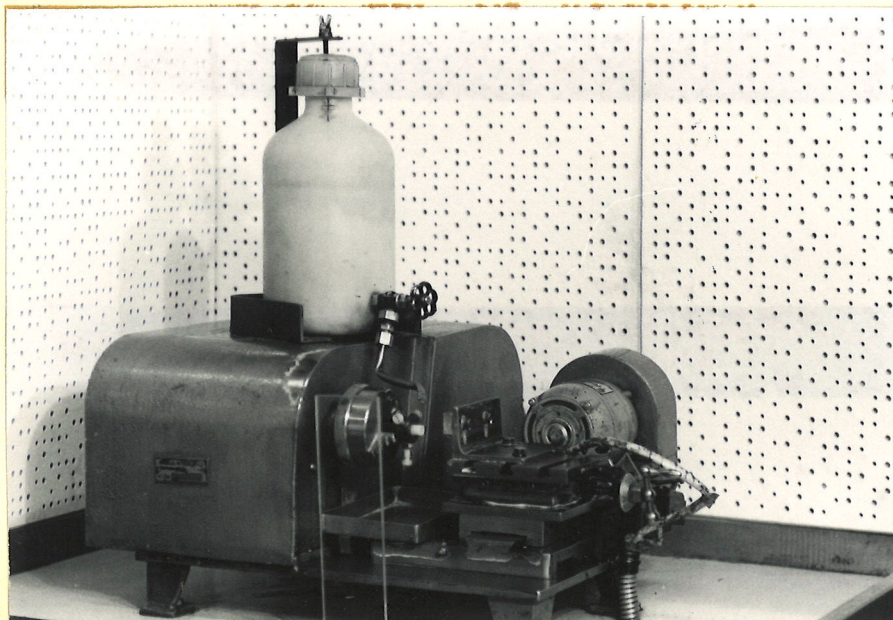
Height : 4 feet 6 inches

Width : 3 feet 1 inch

Depth : 2 feet 2 inches

## Services

240v 50 cycle 2 amps.



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium.

Machine: Automatic End Lapping Machine for Ceramic Type HPS101

### General Description

The machine comprises 3 heads which rotate at around 1200 r.p.m. mounted on a drum which rotates at 1 r.p.m. At one position the ceramic is loaded by hand into the head when it is automatically self-centred and the ends of the ceramic passed across the face of a diamond impregnated pad. On completion of the cycle, the ceramic tube is unloaded by hand.

Both faces of the ceramic are ground during the single rotation of the drum. Both ends of the ceramic are ground flat and parallel to within 0.05 mm.

One operator is required.

### Output

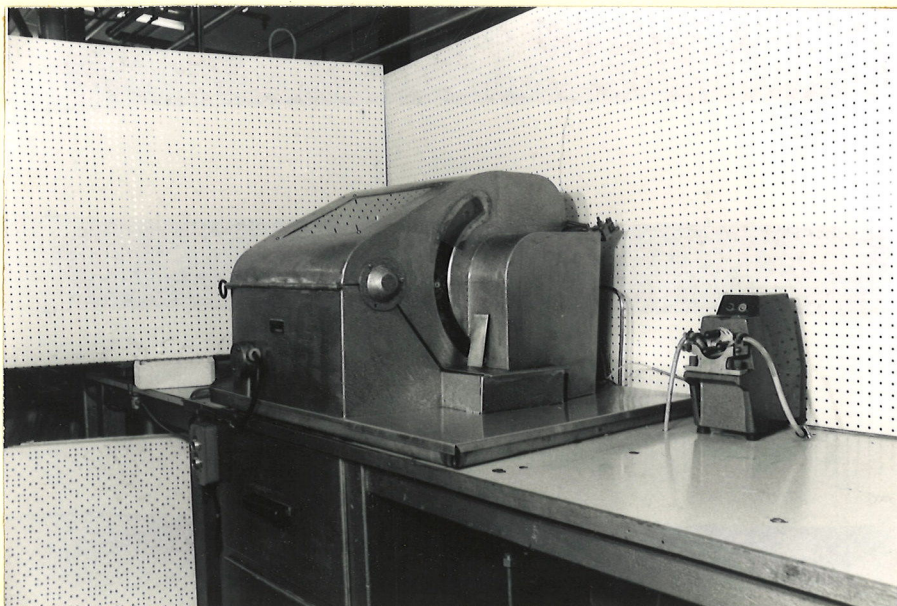
180 pieces of ceramic per hour.

### Dimensions

Height : 4 feet  
Width : 2 feet 10 inches  
Depth : 2 feet

### Services

240v 50 cycles 5 amps  
High pressure air 0.5 cu. metres per hour at 3 KgCM<sup>2</sup>



# **S.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321  
Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: End Disc Brazing Unit Type HPS130

### General Description

The machine is designed to braze together the metal components in the end assemblies of Solarcolour lamps. The assemblies are hand loaded into susceptors which are individually loaded into one of 32 heads mounted on an indexing table. The table is arranged to index 4 positions at a time and at one station, induction heating coils are automatically lowered over the 4 heads to carry out the heating cycle.

The whole operation is carried out in an atmosphere of high purity argon.

One operator is required to work the machine.

Induction heating power is provided from a 30 kw generator with automatic power and time controllers.

### Output

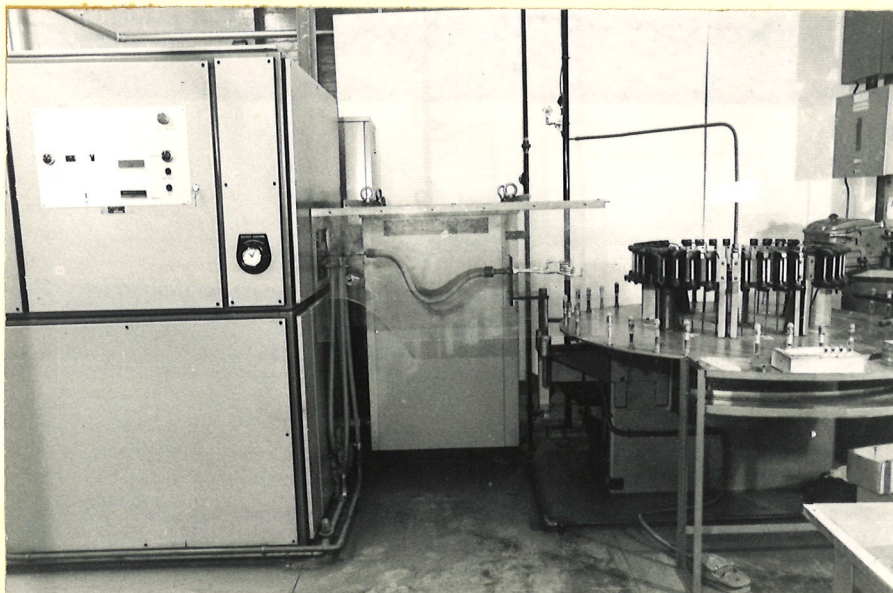
150 ends per hour.

### Dimensions

Height : 6 feet 4 inches  
Width : 12 feet 11 inches  
Depth : 7 feet

### Services

415v 3 phase, 240v single phase, 50 cycle 100 amps  
Water 1000 litres per hour at 3 kg. CM<sup>2</sup>  
Water temperature 25 to 30°C  
Argon 300 litres per hour at atmospheric pressure  
High pressure air 20 litres per hour at 3 kg CM<sup>2</sup>



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Seal Brazing Machine Type HPS150

### General Description

The machine is designed to form and melt the tri-metal alloy which forms the seal between the end discs and ceramic in a Solarcolour high pressure sodium lamp.

The arc tube assemblies are pre-mounted in jigs and placed 6 at a time in one of 8 independently controlled vacuum stations. An induction heating unit is mounted in the centre of the 8 vacuum stations and arranged to index to each vacuum station in turn.

The indexing of the induction heating generator is controlled manually and the coil box lowered manually at each station as required. The rotation of the induction generator is power driven and the time-temperature cycle produced by the induction generator is automatically controlled. The arc tube jigs are manually loaded and unloaded into the vacuum stations, but the vacuum cycle is automatically controlled and monitored.

One operator is required to load and unload jigs. A second operator is required to load and unload the vacuum units.

### Output

30 arc tubes per hour.

### Dimensions

Height : 7 feet 10 inches

Diameter: 18 feet

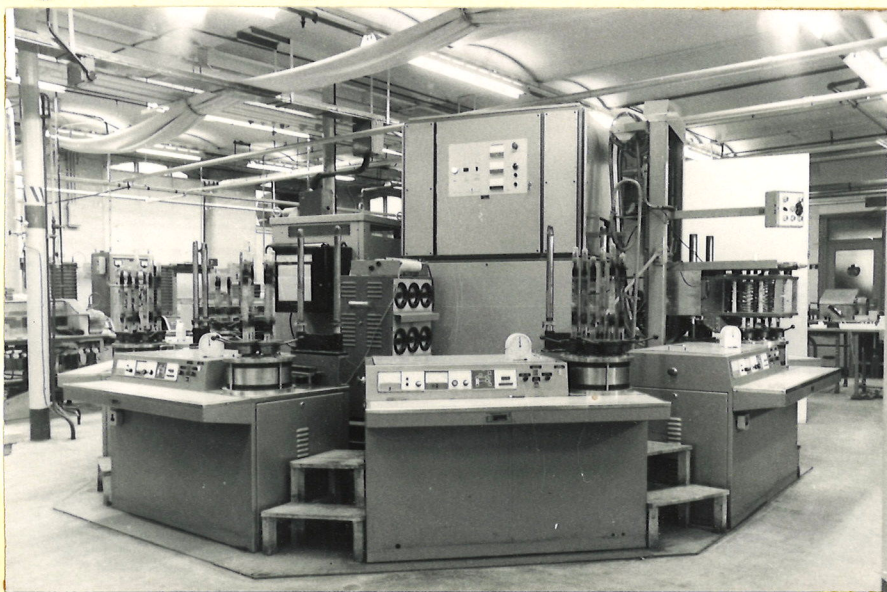
### Services

415v 3 phase 240v single phase 50 cycles 100 amps

Water 1000 litres per hour at 3 kg CM<sup>2</sup>

Water temperature 25 - 30°C

Argon 20 litres per hour at atmospheric pressure



# **S.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Inner Pump Type HPS160

### General Description

3 independent vacuum systems are mounted on a single framework to evacuate, fill with xenon, sodium and mercury, the arc tubes of a Solarcolour high pressure sodium lamp.

Arc tubes are manually loaded into a compression head and the vacuum sequence is manual. At the end of the cycle, the pumping stem is closed and cold welded automatically.

One operator can operate two 3 head units.

### Output

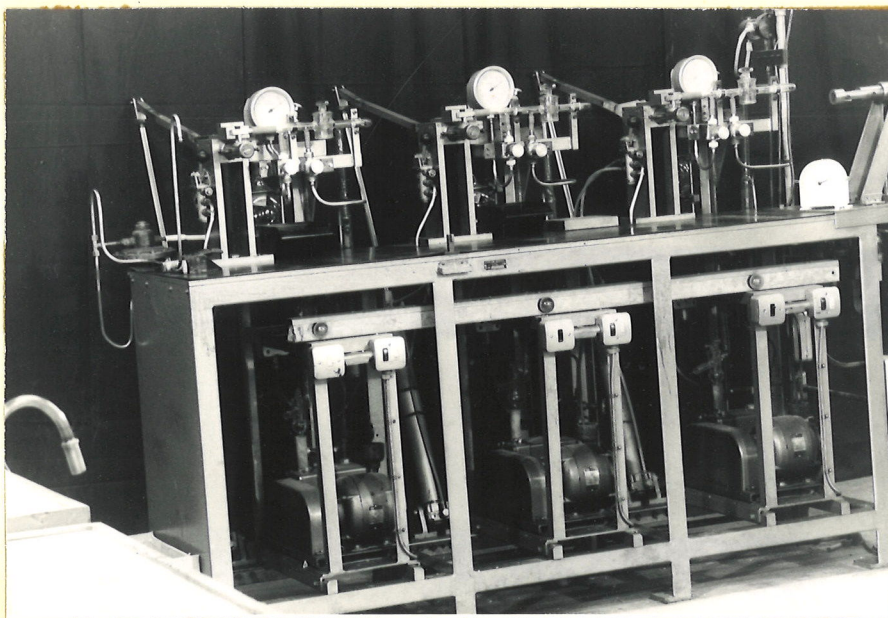
18 per hour per 3 headed unit.

### Dimensions

Height : 5 feet  
Width : 6 feet 6 inches  
Depth : 3 feet 8 inches

### Services

415v 50 cycles 5 amps  
Water 100 litres per hour at 3 kg CM<sup>2</sup>  
Argon atmospheric pressure 2 litres per hour  
Xenon .4 litres per hour



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Outer Sealing-In Type HPS190

### General Description

The machine is designed to "drop" seal tubular or ellipsoidal bulbs for the whole range of Solarcolour lamps 250w to 1 kw in hard glass.

Pinches and bulbs are hand loaded. The machine has 9 heads with automatic neck moulding at one position.

One operator is required to load components and unload the sealed in lamps.

### Output

135 per hour.

### Dimensions

Height : 6 feet 2 inches

Width : 4 feet 6 inches

Depth : 4 feet

### Services

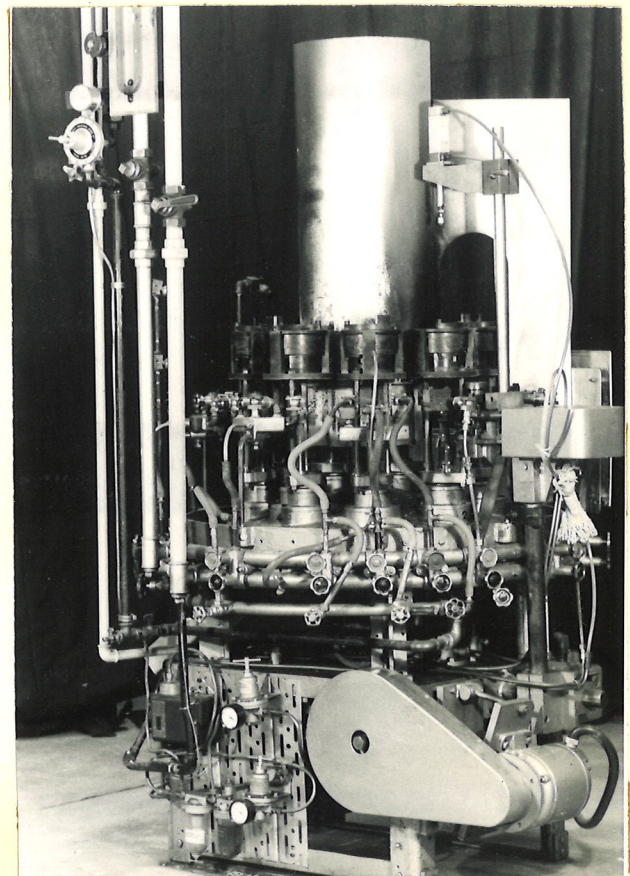
240v single phase 50 cycle  
5 amps

Gas - town gas or Natural gas  
.03 kg CM<sup>2</sup> 4000 l.p.h.

Oxygen - .3 kg CM<sup>2</sup>  
1000 l.p.h.

High Pressure Air - 6 kg CM<sup>2</sup>  
300 l.p.h.

Low Pressure Air - .15 kg CM<sup>2</sup>  
2000 l.p.h.



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Outer Pump Type HPS200

## General Description

The outer pump is designed to evacuate the outer jacket to a pressure of better than  $10^{-4}$  mm. It is a bench type unit connected to a common vacuum system and with facilities for running the arc tube during the vacuum cycle and for baking the outer bulb at the same time.

Sealed in lamps are hand loaded into the compression heads and hand sealed off.

One operator can work two 4 way units.

## Output

16 per unit per hour.

## Dimensions

Height : 8 feet 8 inches  
Width : 6 feet 8 inches  
Depth : 4 feet 4 inches

## Services

415v 3 phase, 250v single phase 50 cycles, 8 amps.  
Water 50 litres per hour 3 kg CM<sup>2</sup>  
Gas - town gas or Natural gas at .035 kg CM<sup>2</sup> 2000 l.p.h.  
Air - low pressure 0.1 kg CM<sup>2</sup> 50 l.p.h.



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Capping Type HPS210

## General Description

The machine is designed to insert a ring of high temperature capping cement into the cap which is then hand threaded on to the lamp before being loaded on to one head of a 30 head indexing heating unit.

Gas heating gives a controlled time-temperature cycle to cure the cement and the machine is designed to handle all Solarcolour lamps from 250w to 1 kw.

One operator is required.

## Output

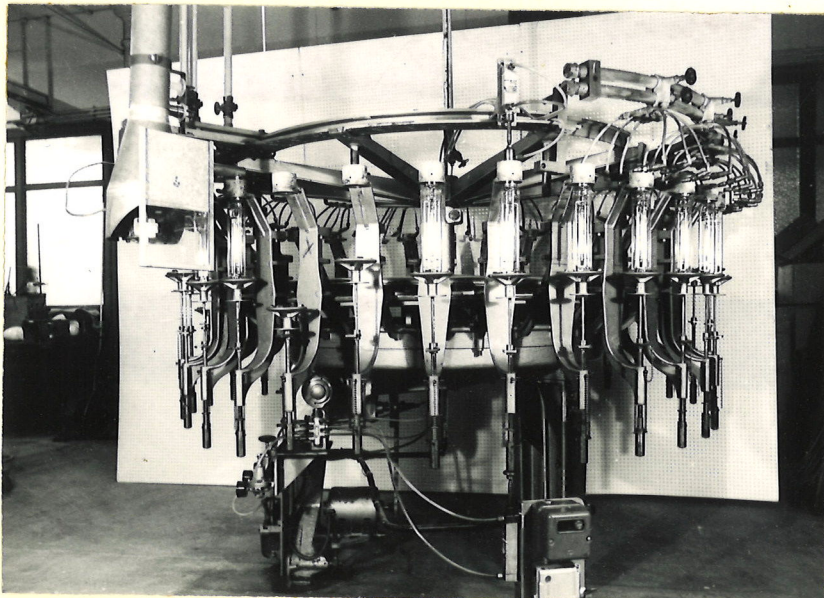
200 per hour.

## Dimensions

Height : 5 feet 10 inches  
Width : 8 feet 4 inches  
Depth : 7 feet 4 inches

## Services

415v 3 phase 50 cycles 2 amps  
Gas - town gas or Natural gas at .035 kg CM<sup>2</sup> 4000 l.p.h.  
Low pressure air - .15 kg CM<sup>2</sup> 8000 l.p.h.  
High pressure air - 2 kg CM<sup>2</sup> 500 l.p.h.



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Ageing Unit 120 way Type HPS220

## General Description

The machine is designed to operate Solarcolour type high pressure sodium lamps in the range 310 to 400w and to age them until they are stable and can be checked for tube voltage.

The lamp is hand loaded and unloaded with facilities for selecting any individual lamp for tube voltage measurement on a voltmeter common to the whole rack.

One operator can handle 8 racks.

## Output

30 lamps per hour.

## Dimensions

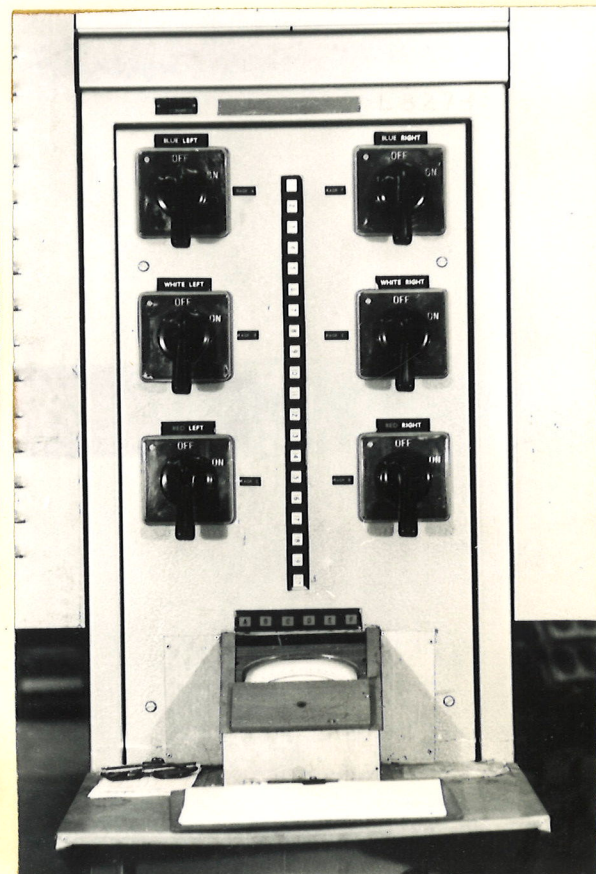
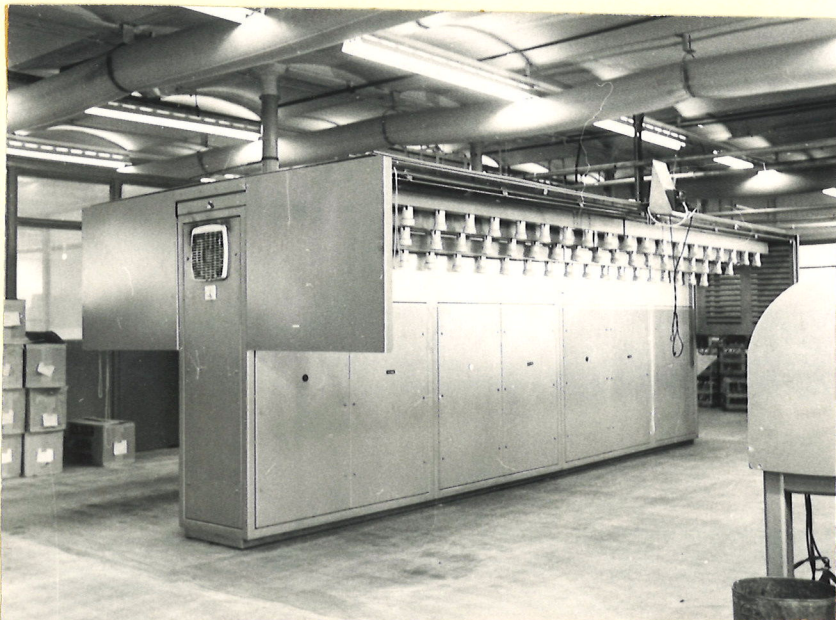
Height : 6 feet 7 inches

Width : 20 feet

Depth : 10 feet 2 inches

## Services

415v 50 cycles 500 amps.



# **G.E.C.** (LAMPS & LIGHTING) LTD.

A SUBSIDIARY OF THE GENERAL ELECTRIC COMPANY LIMITED OF ENGLAND

P.O. Box 17, EAST LANE, WEMBLEY, MIDDLESEX

Telephone: 01-904 4321

Telex: 22418

2.6.71.

## Machine Specification

Lamp Type: High Pressure Sodium

Machine: Ageing Unit 12 way Type HPS221

## General Description

The machine is designed to operate Solarcolour type high pressure sodium lamps in the range 600 to 1 kw and to age them until they are stable and can be checked for tube voltage.

The cap is hand loaded and unloaded with facilities for selecting any individual lamp for tube voltage measurement on a voltmeter common to the whole rack.

One operator can handle 8 racks.

## Output

3 per hour

## Dimensions

Height : 6 feet 9 inches

Width : 11 feet 8 inches

Depth : 3 feet 3 inches

## Services

415v 50 cycles 60 amps.

