**STC** **SPECIAL VALVES**

3R/167S
3R/167E
3R/167W

# Water-Cooled Industrial Triodes

PROVISIONAL DATA

## Codes: 16P12
## 16P13
## 16P14

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These valves are intended for use in industrial heating equipment. Their filaments are suitable for direct switching. Anode cooling is effected by an integral coil around the anode which obviates the need for a separate water jacket and provides efficient cooling with an economy in water consumption. The difference between the three types of valves is in the position and types of water connectors.

### CATHODE

| | | |
|---|---|---|
| Directly heated thoriated tungsten | | |
| Filament voltage | 8·0 (±5%) | V |
| Filament current—nominal | 26·0 | A |
| Maximum usable emission | 6·0 | A |

### CHARACTERISTICS

| | | |
|---|---|---|
| Amplification factor (At $V_a$ = 5·0 kV, $I_a$ = 400 mA) | 24 | |
| Mutual conductance (At $V_a$ = 5·0 kV, $I_a$ = 400 mA) | 7·5 | mA/V |

### DIRECT INTERELECTRODE CAPACITANCES

| | | |
|---|---|---|
| Grid to anode | 11·5 | pF |
| Grid to filament | 14·5 | pF |
| Anode to filament | 3·8 | pF |

### MOUNTING POSITION

Vertical—base upwards



*Standard Telephones and Cables Limited*

COMPONENTS GROUP

VALVE DIVISION, PAIGNTON, DEVON Tel.: Paignton 58685 Telex: 4251

LONDON SALES OFFICE, FOOTSCRAY, SIDCUP, KENT Tel.: Footscray 3333 Telex: 21836

## MAXIMUM RATINGS

| | | |
|---|---|---|
| D.C. anode voltage (peak value of direct voltage plus ripple) | 8·0 | kV |
| Direct grid voltage | −1·0 | kV |
| Anode dissipation | 3·0 | kW |
| Operating frequency | | |
| Limited by water connexion | 10 | Mc/s |
| Limited by valve | 40 | Mc/s |

## TYPICAL OPERATING CONDITIONS

| | | | |
|---|---|---|---|
| Anode voltage | 5·0 | 6·0 | kV |
| Mean anode current | 1·55 | 1·5 | A |
| Mean grid current | 145 | 135 | mA |
| Bias voltage | −250 | −350 | V |
| Bias resistor | 1·75 | 2·6 | kΩ |
| Peak cathode current | 6·0 | 6·0 | A |
| Peak anode current | 5·0 | 5·0 | A |
| Peak grid current | 1·0 | 1·0 | A |
| Anode dissipation | 2·5 | 2·5 | kW |
| Grid dissipation | 70 | 65 | W |
| Anode efficiency | 69 | 72 | % |
| Power output—oscillator | 5·3 | 6·3 | kW |
| Power output (at 85% transfer efficiency) | 4·5 | 5·35 | kW |

## NOTES ON TYPICAL OPERATION

The typical operating conditions given are for service as a Class C self-oscillator and are calculated for an assumed d.c. anode voltage. Where conditions of service render the valve liable to excessive mains variation, poor regulation of supplies or power supplies with a high peak to mean ratio, care should be taken to see that the limiting values are not exceeded.

## Codes: 16P12
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## 16P14

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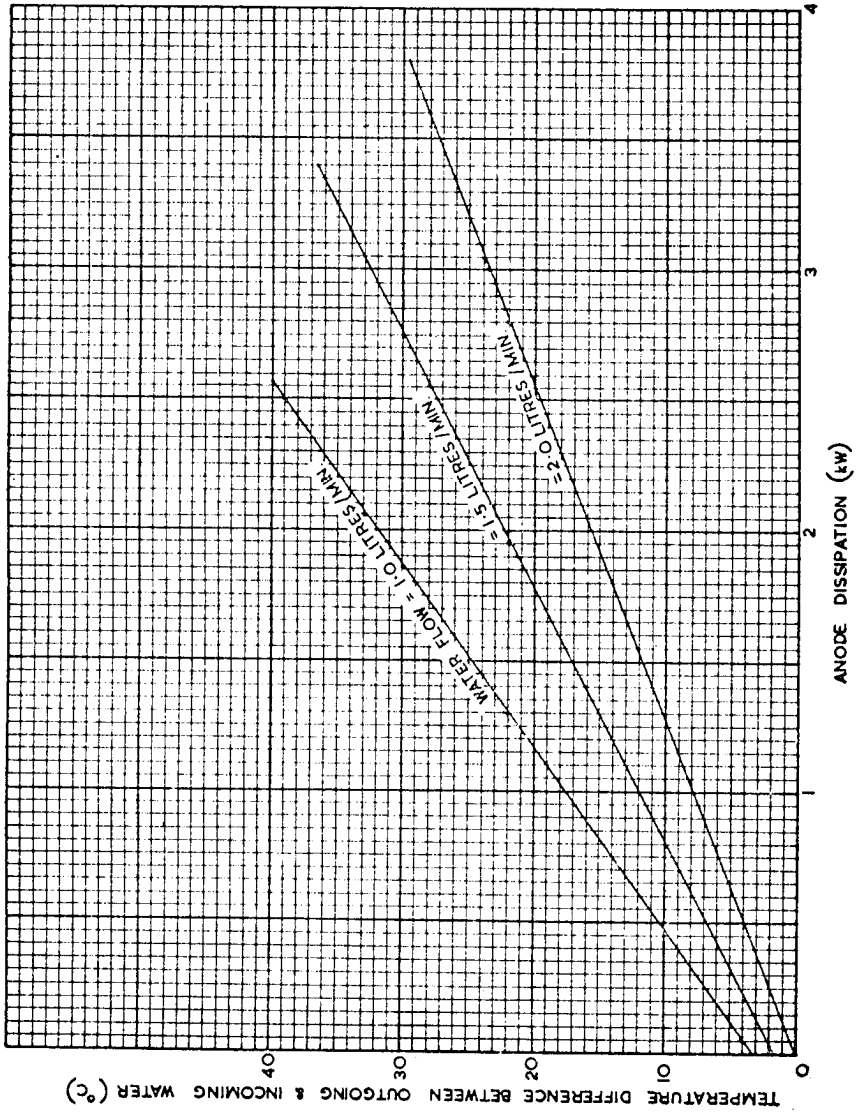

# Codes: 16P12
# 16P13
# 16P14

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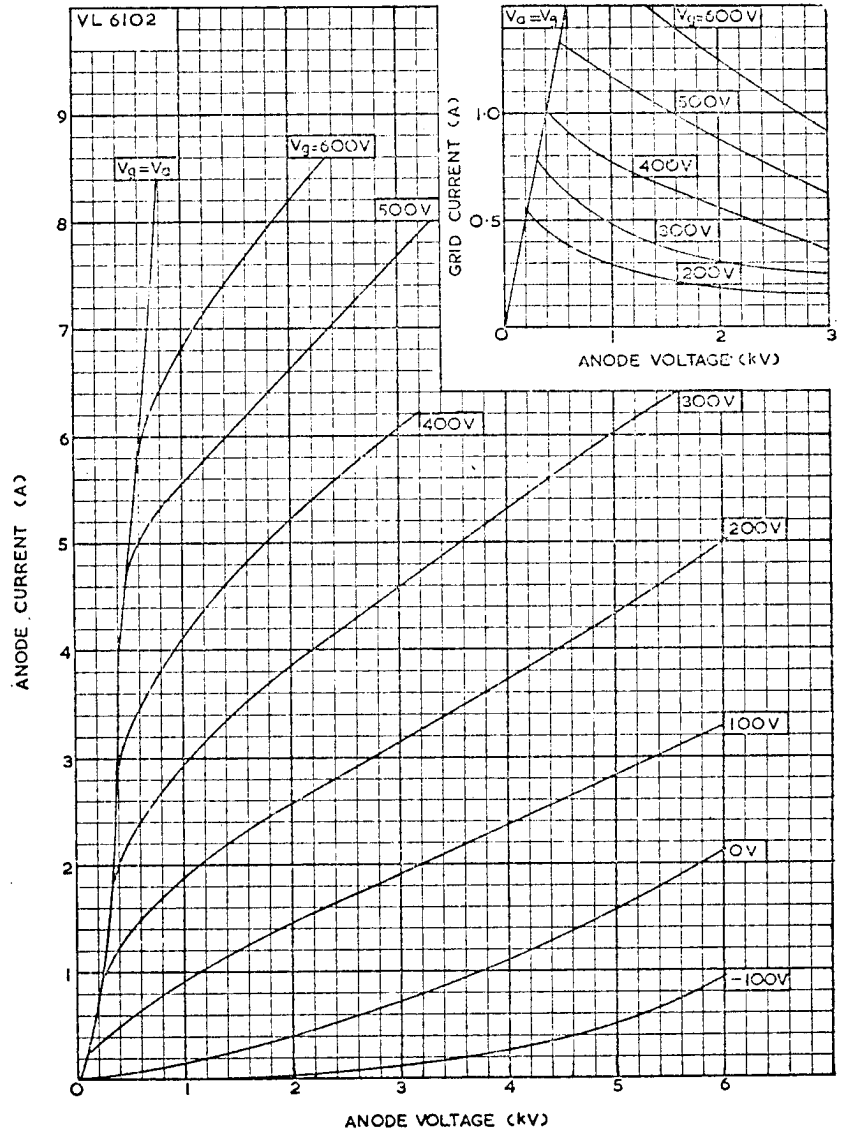

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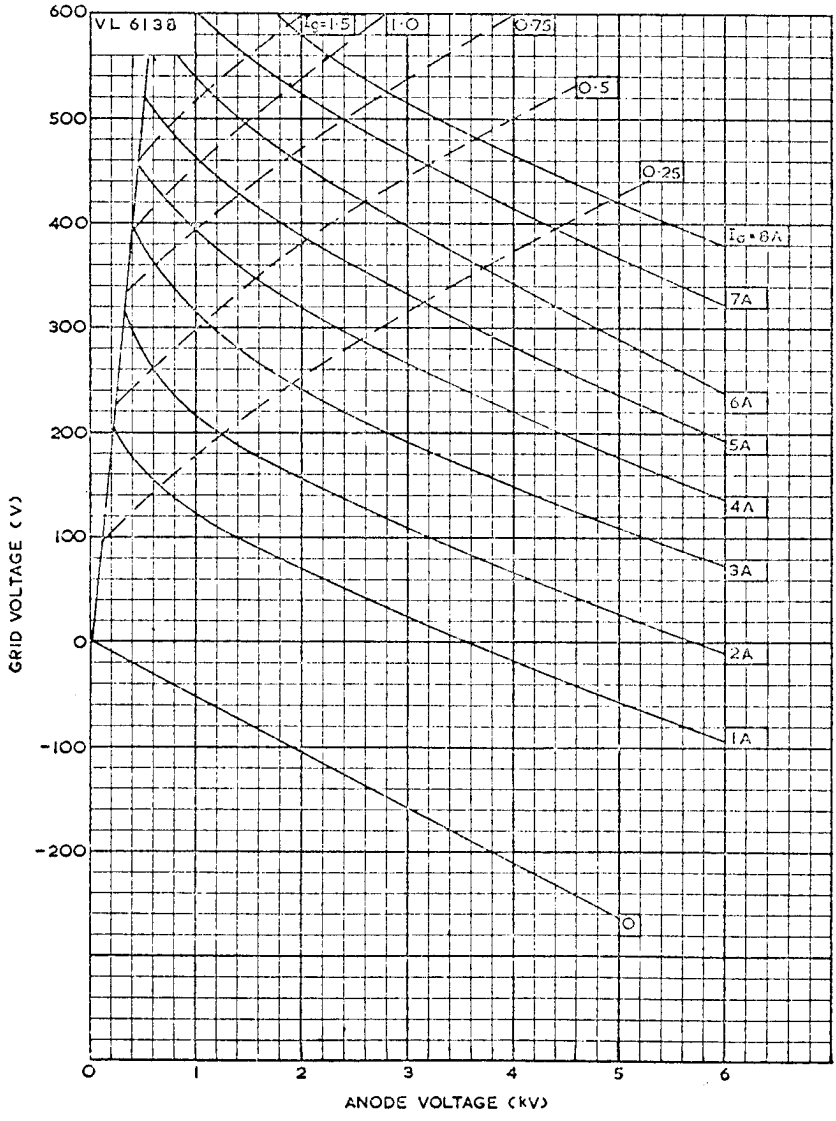

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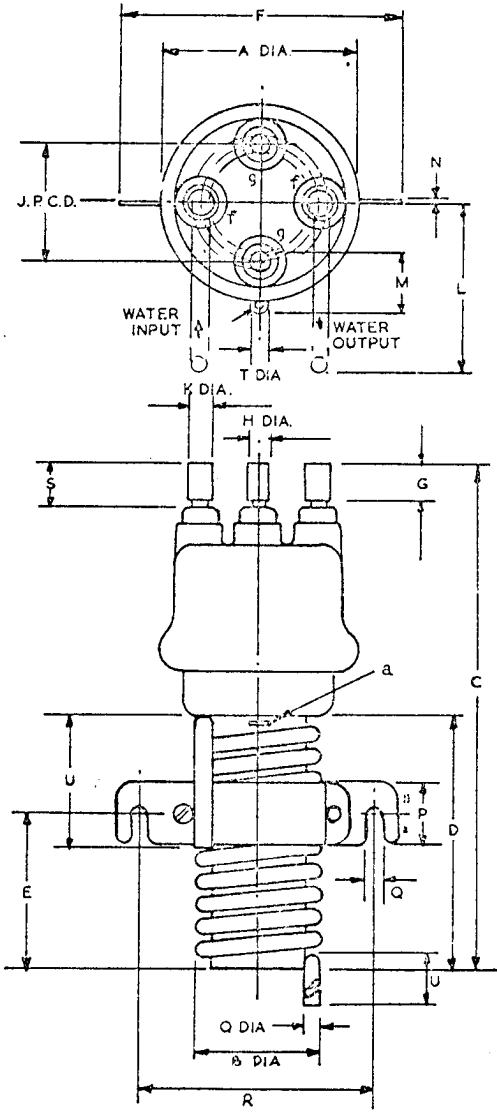
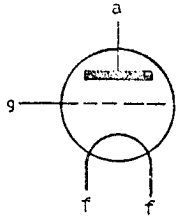
## 16P12 Outline




| DIM. | INCHES | MILLIMETRES |
|---|---|---|
| A | 3·150 MAX. | 80,00 MAX. |
| B | 2 1/16 MAX | 52,4 MAX |
| C | 8 3/8 MAX. | 212,7 MAX. |
| D | 4 15/64 ± 1/16 | 106,8 ± 1,6 |
| E | 2 1/2 ± 1/32 | 63,5 ± 0,8 |
| F | 4 9/16 MAX. | 115,9 MAX. |
| G | 19/32 MIN. | 15,0 MIN. |
| H | 0·312 ±0·005 | 7,94 ± 0,13 |
| J | 1·890 ±0·010 | 48,00 ± 0,25 |
| K | 0·375 ±0·005 | 9,53 ± 0,13 |
| L | 2 3/4 APPROX. | 69,9 APPROX. |
| M | 1 APPROX | 25,4 APPROX. |
| N | 0·064 ± 0·005 | 1,63 ± 0,13 |
| P | 1 ± 1/32 | 25,4 ± 0,8 |
| Q | 1/4 ± 1/64 | 6,4 ± 0,4 |
| R | 3 3/4 ± 1/32 | 95,3 ± 0,8 |
| S | 3/4 MAX. | 19,0 MAX. |
| T | 5/16 APPROX | 7,9 APPROX |
| U | 2 1/8 APPROX | 54,0 APPROX. |

BASIC DIMS. ARE INCHES



## Code: 16P13

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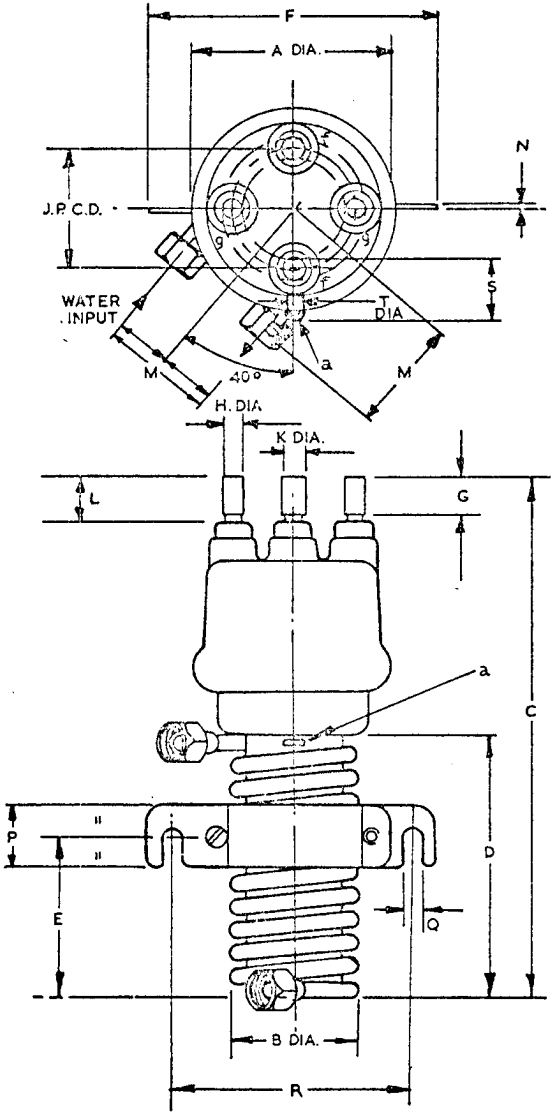
### 16P13 Outline



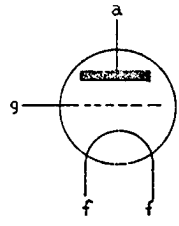

BASIC DIMS. ARE INCHES

| DIM. | INCHES | MILLIMETRES |
|---|---|---|
| A | 3·150 MAX. | 80,00 MAX. |
| B | $2\frac{1}{16}$ MAX. | 52,4 MAX. |
| C | $6\frac{3}{8}$ MAX. | 212,7 MAX. |
| D | $4\frac{13}{64} \pm \frac{1}{16}$ | 106,8 ± 1,6 |
| E | $2\frac{1}{2} \pm \frac{1}{32}$ | 63,5 ± 0,8 |
| F | $4\frac{9}{16}$ MAX. | 115,9 MAX. |
| G | $\frac{19}{32}$ MIN. | 15,0 MIN. |
| H | 0·312 ± 0·005 | 7,94 ± 0,13 |
| J | 1·890 ± 0·010 | 48,00 ± 0,25 |
| K | 0·375 ± 0·005 | 9,53 ± 0,13 |
| L | $\frac{3}{4}$ MAX. | 19,0 MAX. |
| M | $1\frac{3}{4}$ APPROX. | 44,45 APPROX |
| N | 0·064 ± 0·005 | 1,63 ± 0,13 |
| P | 1 ± $\frac{1}{32}$ | 25,4 ± 0,8 |
| Q | $\frac{1}{4} \pm \frac{1}{64}$ | 6,4 ± 0,4 |
| R | $3\frac{3}{4} \pm \frac{1}{32}$ | 95,3 ± 0,8 |
| S | 1 APPROX | 25,4 APPROX |
| T | $\frac{5}{16}$ APPROX | 7,9 APPROX |

INTEGRAL WATER JACKET CONNEXIONS

ENOTS $\frac{1}{4}$" DIA. UNION NIPPLES
REF. No. B1746D

ENOTS $\frac{1}{4}$" BSP UNION NUTS
REF. No. B1745D



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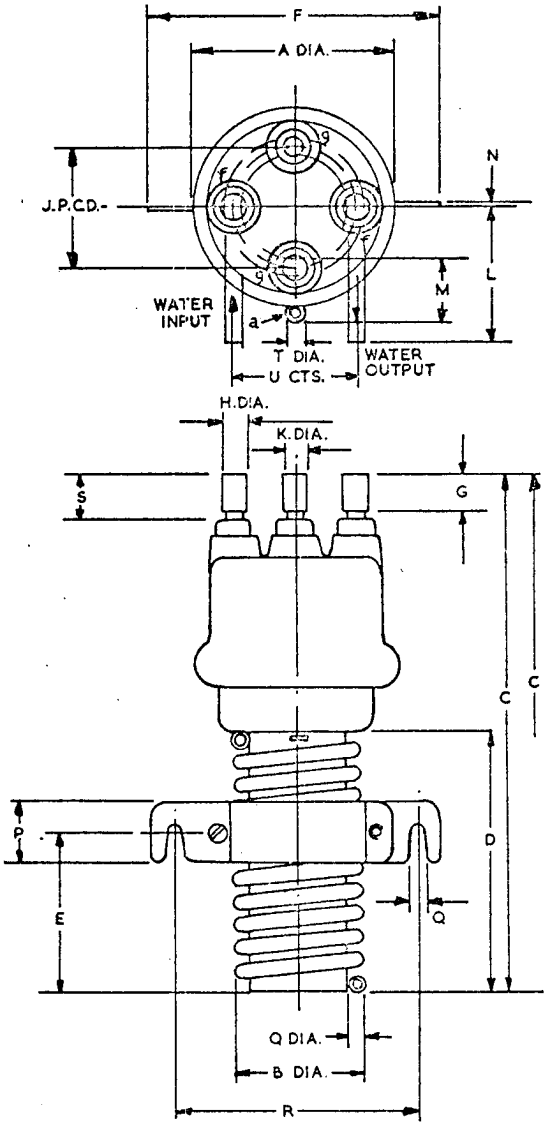
## 16P14 Outline




| DIM. | INCHES | MILLIMETRES |
|---|---|---|
| A | 3·150 MAX. | 80,00 MAX. |
| B | $2\ 1/16$ MAX. | 52,4 MAX. |
| C | $8\ 3/8$ MAX. | 212,7 MAX. |
| D | $4\ 13/64 \pm 1/16$ | 106,8 ± 1,6 |
| E | $2\ 1/2 \pm 1/32$ | 63,5 ± 0,8 |
| F | $4\ 9/16$ MAX. | 115,9 MAX. |
| G | $19/32$ MIN. | 15,0 MIN. |
| H | 0·312 ± 0·005 | 7,94 ± 0,13 |
| J | 1·890 ± 0·010 | 48,00 ± 0,25 |
| K | 0·375 ± 0·005 | 9,53 ± 0,13 |
| L | $2\ 1/8 \pm 1/8$ | 54,0 ± 3,2 |
| M | 1 APPROX | 25,4 APPROX |
| N | 0·064 ± 0·005 | 1,63 ± 0,13 |
| P | $1 \pm 1/32$ | 25,4 ± 0,8 |
| Q | $1/4 \pm 1/64$ | 6,4 ± 0,4 |
| R | $3\ 3/4 \pm 1/32$ | 95,3 ± 0,8 |
| S | $3/4$ MAX. | 19,0 MAX. |
| T | $5/16$ APPROX | 7,9 APPROX |
| U | $1\ 3/4$ NOM. | 44,45 NOM. |

BASIC DIMS. ARE INCHES