COMPONENTS GROUP

The Registered Number of this Handbook is :

CH 6268

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Standard Telephones and Cables Limited

COMPONENTS GROUP

EDINBURGH WAY, HARLOW, ESSEX

For technical enquiries please see Page A—2

RECORD OF AMENDMENTS

AMDT. NO.	INSERTED	
	Date	Initials
8	12/11/62	SB
9	8/4/63	SB
10	17/6/63	SB.
11	2/8/63	SB.
12	17/9/63	SB.
13	15/9/63	SB.
14	15/9/63	SB.
15	31/12/63	SK.
16	6/3/64	SK.
17	1/4/64	SK.
18	15/5/64	SK.
19	26/6/64	SK.
20	25/8/66	SJ
21	10/11/64	SJ.
22	25/2/65.	PEva.
23	April 1965.	PEva.
24	26/5/65.	PEva.
25	21/6/65.	PEva.
26	6/8/65	PEva.
27	1/10/65	PEva.
28	10/11/65.	PEva.
29	15/12/65.	PEva.
30	17/1/66.	PEva.
31	11/3/66	PEva.
32	18/4/66.	PEva.
33	1/9/66.	PEva.

RECORD OF AMENDMENTS

AMDT. NO.	INSERTED	
	Date	Initials
31	11/3/66.	P.E.va.
32	18/4/66.	P.E.va.
33	1/9/66.	P.E.va.
34	24/10/66.	P.E.va.
35	6/1/67.	P.E.va.
36	23/2/67.	P.E.va.
37	16/June/67.	P.E.va.
38	28th June, 1967.	P.E.va.
39	18th July, 1967.	P.E.va.
40	2nd October, 1967.	P.E.va.
41	2nd October, 1967.	P.E.va.
42	13th October, 1967.	P.E.va.
43	28th November, 1967.	P.E.va.
44	10th December, 1967.	P.E.va.
45	25th January, 1968.	P.E.va.
46	21st February, 1968.	P.E.va.
47	11th April, 1968.	P.E.va.
48	19th July, 1968.	P.E.va.
49	16th July, 1968.	P.E.va.
50	21st August, 1968.	P.E.va.
51	28th October, 1968.	P.E.va.
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Components Handbook

Volume 1

Infra-Red Filters

Hermetic Seals

Lamps

Vacuum Gauges

Thermal Delay Switches

STC

Preface

This volume is one of a set that provides comprehensive technical information on the full range of components manufactured and marketed by STC Components and S.T.C. Semiconductors Ltd.

A regular amendment service ensures that the data in these volumes is kept up to date with changes and additions. Data marked with an 'M' or 'Maintenance' refer to components that are only supplied as replacements for use in existing equipment and should not be used when designing new equipments.

Enquiries regarding this Handbook service should be addressed to Standard Telephones and Cables Ltd., Department 14531. Components Marketing Division, Edinburgh Way, Harlow, Essex or Telephone Harlow (STD code 0279 6) 26811, Ext. 249.

Technical and commercial enquiries concerning specific products should be addressed to the Sales Office of the appropriate Division.

Ref.	Sales Office Address	Telephone No.	Extensions for enquiries Technical	Commercial
1	**Capacitor Division** Brixham Road, Paignton, Devon	Paignton 50762†	Capacitors 477 Film Circuits 523	 418 418
2	**Electro-Mechanical Division** West Road, Harlow, Essex	Harlow 26811*	643 663	636 542
3	**Magnetic Materials Division** Edinburgh Way, Harlow, Essex	Harlow 26811*	735	735
4	**Modular Electronics Division** Cefndy Road, Rhyl, Flint	Rhyl 4507	13	13
5	**Potentiometer Division** Broad Lane, Leeds 13, Yorkshire	Pudsey 77261	7	15
6	**Quartz Crystal Division** Edinburgh Way, Harlow, Essex	Harlow 26811*	585	560
7	**Rectifier Division** Edinburgh Way, Harlow, Essex	Harlow 26811*	449 253	446 251
8	**Thermistor Division** Edinburgh Way, Harlow, Essex	Harlow 26811*	502	503
9	**Valve Division** Brixham Road, Paignton, Devon	Paignton 50762†	536	532
10	**S.T.C. Semiconductors Ltd.** Footscray, Sidcup, Kent	Footscray 3333‡	524	571

* STD code 0279 6 26811. † STD code 0803 50762. ‡ STD code 01 300 3333.

List of Products

The following list gives the products on which data is included in the Components Handbook, the volume in which the data appears and the Sales Office Code (see previous page) to which technical and commercial enquiries should be addressed.

Product	Handbook Volume	Sales Office
Brimistors (see Thermistors)	7	8
Capacitors	4	1
Crystal Filters	8	6
Diodes and Photo Devices	6A	10
Film Circuits	5	1
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Knobs and Dials	7	5
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Magnetic Materials	9	3
Microwave Oscillators	3	9
Microwave Tubes	3	9
Ministac	5	4
Photo Devices (see Diodes and Photo Devices)	6A	10
Potentiometers	7	5
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Rectifiers, Selenium	5	7
Rectifiers, Silicon	6A	10
Rectifiers, Silicon Assemblies	5	7
Rectifiers, Valve	2C	9
Relays	10	2
Resistors, Carbon Film	7	7
Resistors, Temperature Sensitive (see Thermistors)	7	8
SafeTstaC Selenium Surge Suppressors	5	7
Silistors (see Thermistors)	7	8
Solenoids	10	2
Switches	10	2
Thermal Delay Switches	1	9
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Thermocouples	3	9
Thyristors	6A	10
Transformers	9	3 or 7
Transistors	6B	10
Travelling Wave Tubes	3	9
Vacuum Gauges	1	9
Valves	2A, B and C	9
Varactor Diodes	3	9
Wound Components	9	3 or 7
Zener Diodes (see Diodes and Photo Devices)	6A	10

INFRA-RED
FILTERS

INFRA-RED FILTERS

General Information

INTRODUCTION

During the past twenty years the increasing interest in infra-red analysis has resulted in such improvements to apparatus that it is now possible to record, quickly and automatically, absorption spectra of organic and inorganic substances. Such spectra afford a means of identification. The complete transmission curve is frequently unnecessary and a substance may sometimes be identified by a single frequency band. Thus, if a suitably filtered beam is passed through an unknown substance the degree of absorption could indicate its identity. In the past a limitation to the use of this method has been the restricted range of available filters. The range described in the following pages makes possible a much wider field of application. The requirement for the purpose of these studies is that the material has some characteristic absorption band or emission line in the infra-red.

Infra-red filters are of two types, one depending on inter-reflections at the interfaces of multilayer stacks of films to provide the required transmission characteristics whilst the other relies on absorption within the film or substrate. The former are referred to as multi-layer interference filters and the latter as absorption filters. The wavelength characteristics of interference filters are directly related to the film thickness, whilst those of absorption filters are hardly changed.

MULTILAYER INTERFERENCE FILTERS

Peak filter designs are based on the Fabry Perot etalon in which highly reflecting metallic layers are deposited either side of a transparent parallel-sided spacer layer. The bandwidth and pass wavelength of the filter is determined by the thickness of the spacer layers and the degree of reflection of the metallic layers. The transmission of these filters is limited by the undesirable absorption of the metal layers. An improvement in transmission is obtained by replacing the metallic layers by a stack of quarter wavelength layers of alternately high and low refractive index. These quarter wavelength stacks are characterised by high reflection at the wavelength for which they are optically a quarter wavelength thick. Since these films have very little absorption the filter is of high transmission.

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General Information

CONTINUED

A feature of these filters is the shape of the pass band, which resembles a triangle, and the presence of sidebands at wavelengths nearer the peak. In such a simple design the transmission either side of the peak is generally not sufficiently low. The triangular pass band reduces the transmission of energy of the required wavelengths and so these designs have been further developed to give rectangular pass bands by repetition of the basic design. Such filters are called double half wave (D.H.W.), treble half wave (T.H.W.), etc., according to the number of half wave layers. To overcome the problem of sidebands use is made of the stack of quarter wavelength layers previously referred to. Super positioning of many such stacks and design modifications are used to provide cut-on and cut-off filters to suppress the sidebands associated with the peak filter. These cut-on and cut-off filters if used together provide a filter of broad band-pass or can be used in conjunction with peak filters to suppress the sidebands. Sometimes the use of a cut-off filter can be avoided by the choice of a detector of limited wavelength range.

ABSORPTION FILTERS

Examples of these are materials like quartz and sapphire which are absorbing beyond 4.5 and 6·5 microns and of silicon and germanium which are absorbing at wavelengths below 1·0 and 1·7 microns respectively. These materials are used either separately or as thin films to provide interference filters suppression at long and short wavelengths.

RANGE

It will be appreciated that the transmission curves are typical at the wavelengths shown. The characteristics of multilayer interference filters can be simulated at any wavelength in the range, i.e. the position of the cut-off or cut-on edge or pass wavelength of a peak filter can be at any specified wavelength, but when used at other wavelengths the same filter designs will have slightly differing characteristics; variations will be observed in peak transmission and in the position of sidebands.

General Information

CONTINUED

TRANSMISSION CHARACTERISTICS

The typical characteristics shown in the following pages are for filters at normal incidence and at 25°C. The rate of change of wavelength with angle of incidence for different designs is shown in Graphs 1 and 2. It will be observed that in most applications the use in highly convergent beams is quite feasible. The temperature coefficient of wavelength of these filters is almost negligible, being less than 0·00005 microns per micron per deg. C. A transmission curve is provided with each filter supplied.

CUT-OFF FILTERS

Cut-Off Point: This is defined as the wavelength on the cut-off edge at which the transmission is 10 per cent of the average plateau transmission.

CUT-ON FILTERS

Cut-On Point: This is defined as the wavelength on the cut-on edge at which the transmission is 10 per cent of the average plateau transmission.

TOLERANCE

The standard tolerance on wavelength is ±2 per cent. If requested, closer tolerances can be supplied. The customer can, by increasing the angle of incidence of the radiation, adjust the pass band to shorter wavelengths as shown in Graphs 1 and 2.

STABILITY

No changes in filters characteristics have been detected over a period of two years at room temperature ambient or in temperature cycling 100 times between 150°C and −196°C. The filters will withstand continuous use in an ambient temperature of 60°C.

DIMENSIONS

Filters are normally supplied in a mount. They can, if requested, be supplied unmounted in which case the filter surfaces are unprotected and care should be taken in mounting that the filter surfaces are not scratched. For this reason it is desirable to separate the filters by paper washers.

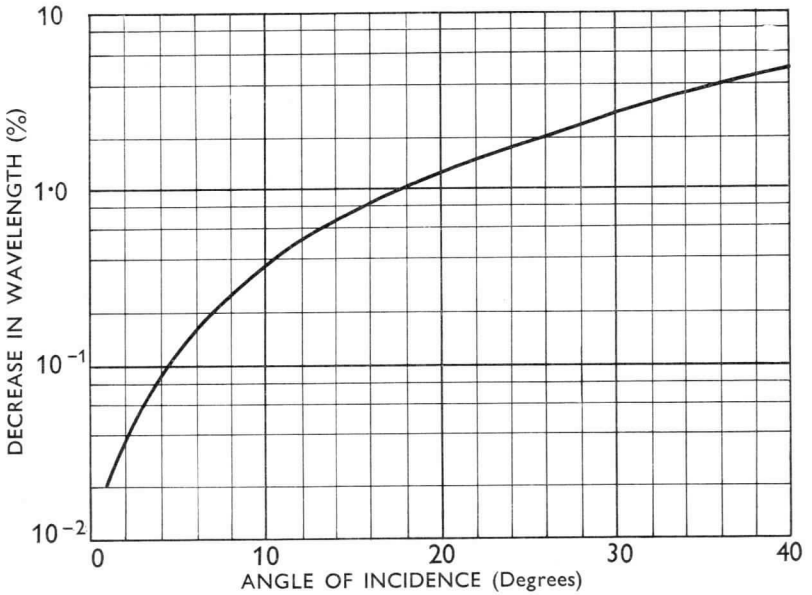
STORAGE AND OPERATING CONDITIONS

These filters may be stored and operated within the temperature range of −40°C to +60°C. At the higher temperatures increased free carrier absorption results in reduced transmission. Care should be taken both in storage and use to prevent moisture reaching the surface of the filters.

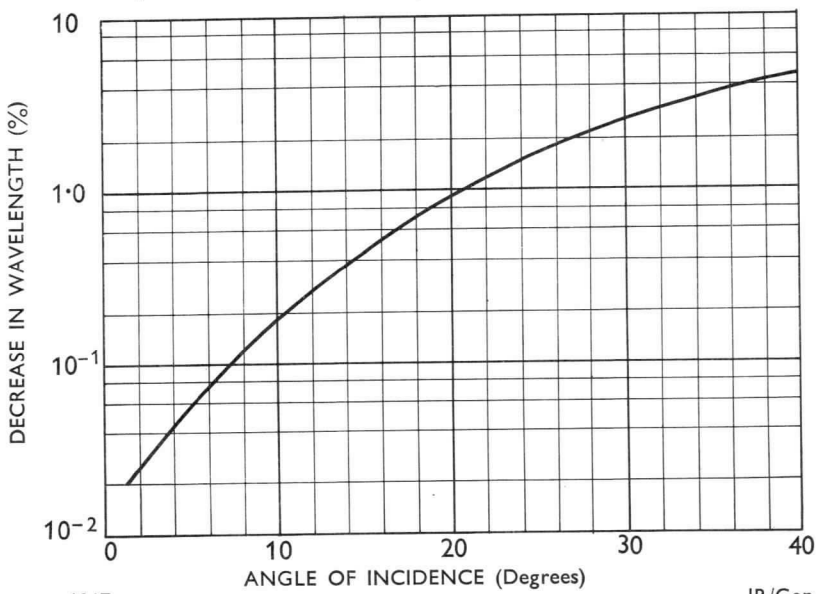
General Information

CONTINUED

Graph 1.—Variation of mean of half transmission points with angle of incidence for peak filters with low refractive index spacer.



Graph 2.—Variation of cut-on point with angle of incidence.

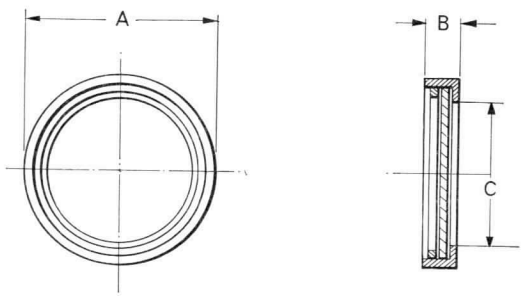


General Information

CONTINUED

FILTER MOUNT

It is recommended that all filters are purchased complete with mount. The standard mount suitable for all filters of 0·875 in (22,2 mm) diameter is of stainless steel and will hold several filters up to a total thickness of 0·1 in (2,54 mm). Thus a peak filter can be supplied with cut-off and cut-on filters for side band suppression, all in one mount.



MOUNTED FILTER

DIMENSIONS

REF.	MILLIMETRES		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	23,52	23,77	0·926	0·936
B	4,51	4,76	0·177	0·187
C	19,60	19,85	0·772	0·782

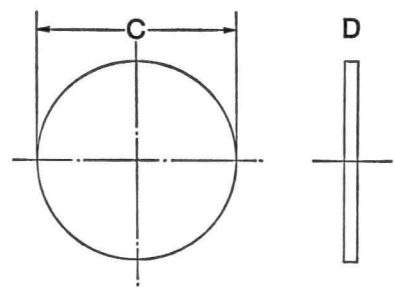
INFRA-RED FILTERS

Code: E5221F

Type:	Interference
Application:	Band pass filter
Peak wavelength:	4·60 microns
Bandwidth:	1·0 microns
Average transmission:	70%
Wavelengths requiring additional attenuation:	None
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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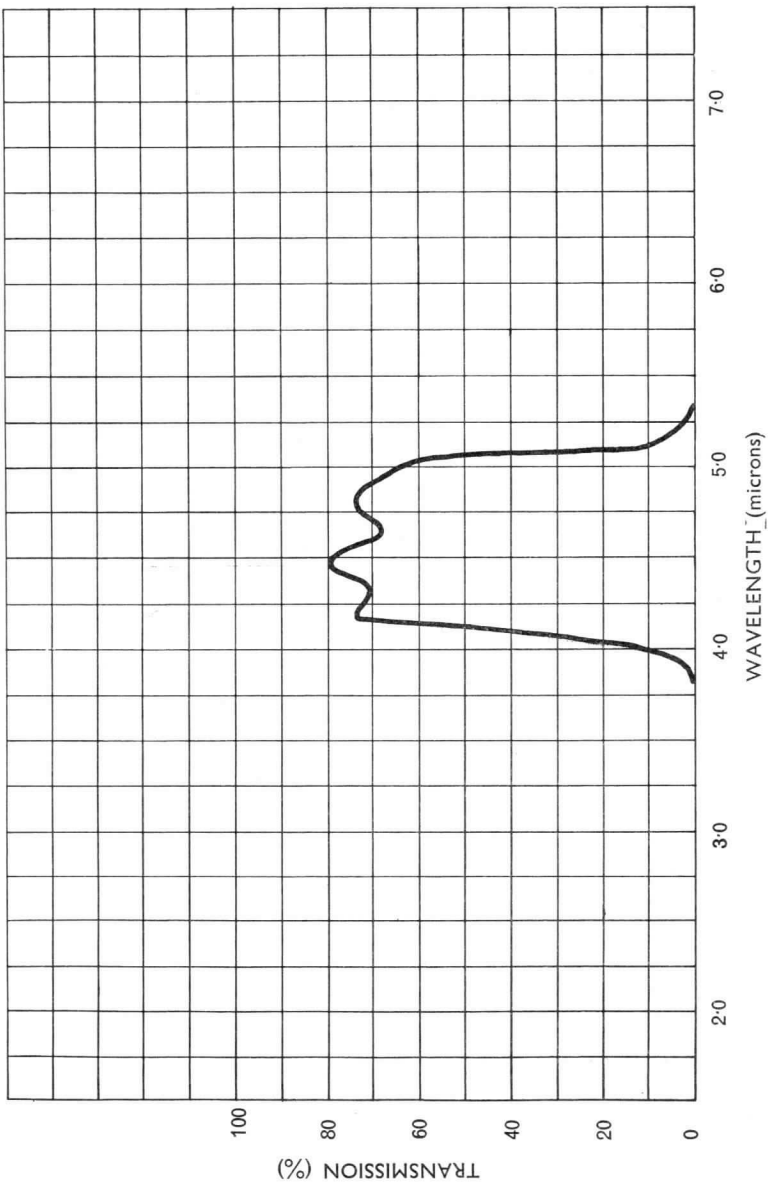
Code: E5221F

CONTINUED

Band Pass Filter E5221F



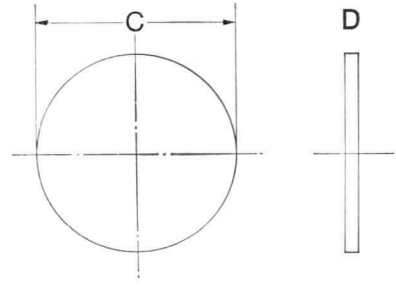
INFRA-RED FILTERS

Code: E5228F

Type:	Interference
Application:	Cut-Off filter
Cut-Off point:	1·85 microns
Average transmission:	60%
Wavelengths requiring additional attenuation:	None
Substrate material:	Chance OW1 glass

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	1,02	0·040



For details of mount see page IR/Gen—5.

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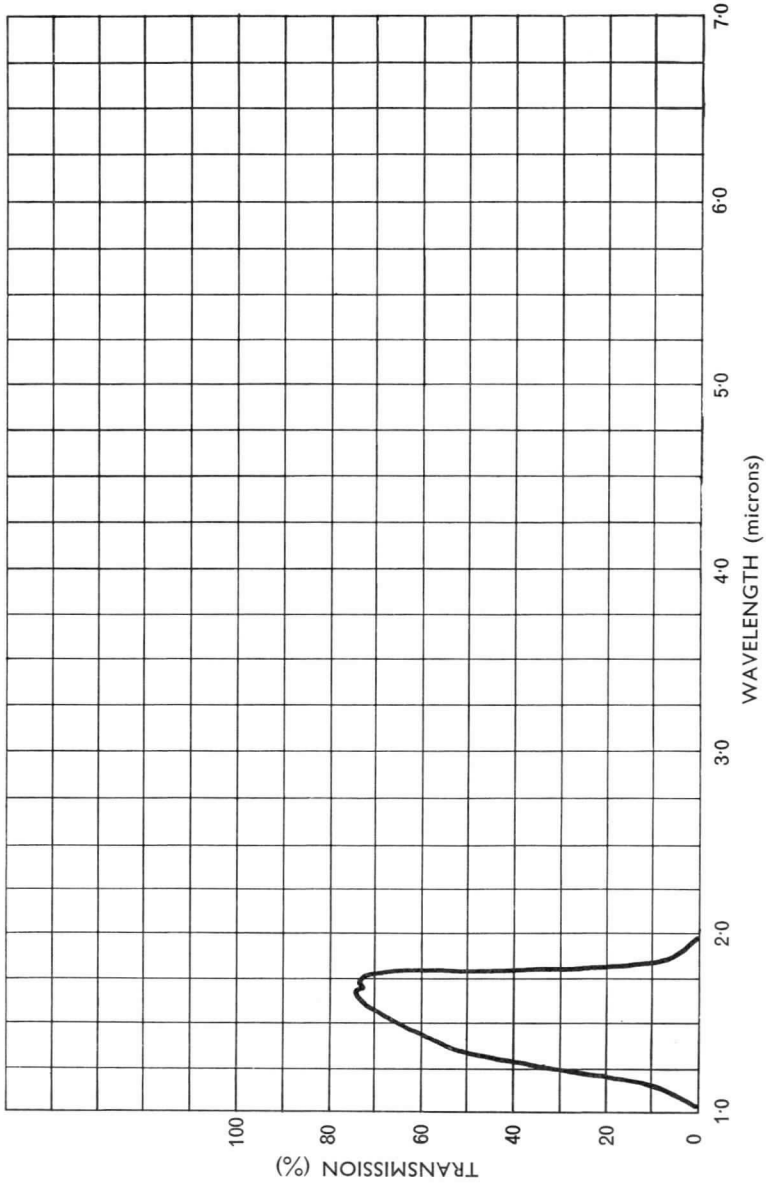
Code: E5228F

CONTINUED

Interference Cut-off Filter E5228F



STC

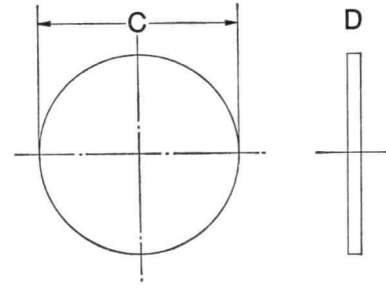
INFRA-RED FILTERS

Code: E5230F

Type:	Interference
Application:	Cut-On filter
Cut-On point:	4·95 microns
Average transmission:	60%
Wavelengths requiring additional attenuation:	None
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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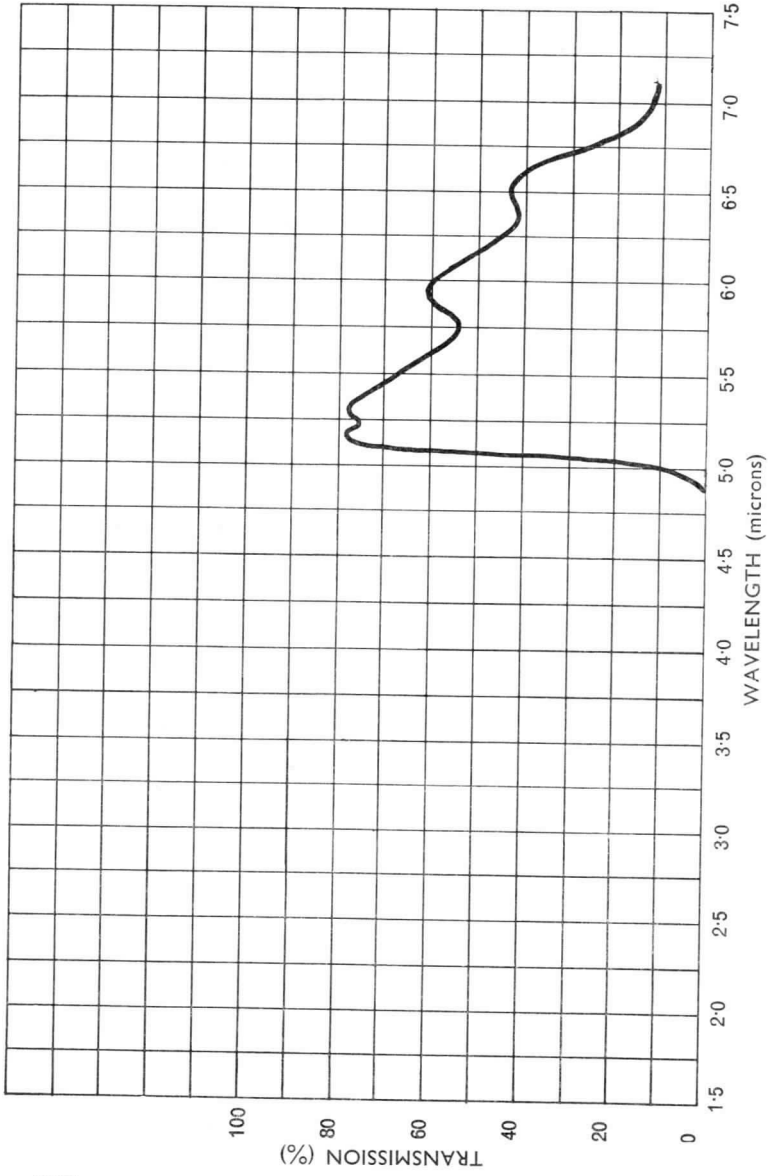
Code: E5230F

CONTINUED

Cut-On Filter E5230F



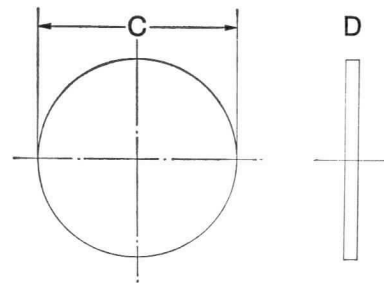
INFRA-RED FILTERS

Code: E5231F

Type:	Interference
Application:	Cut-On filter
Cut-On point:	3·42 microns
Average transmission:	75%
Wavelengths requiring additional attenuation:	None
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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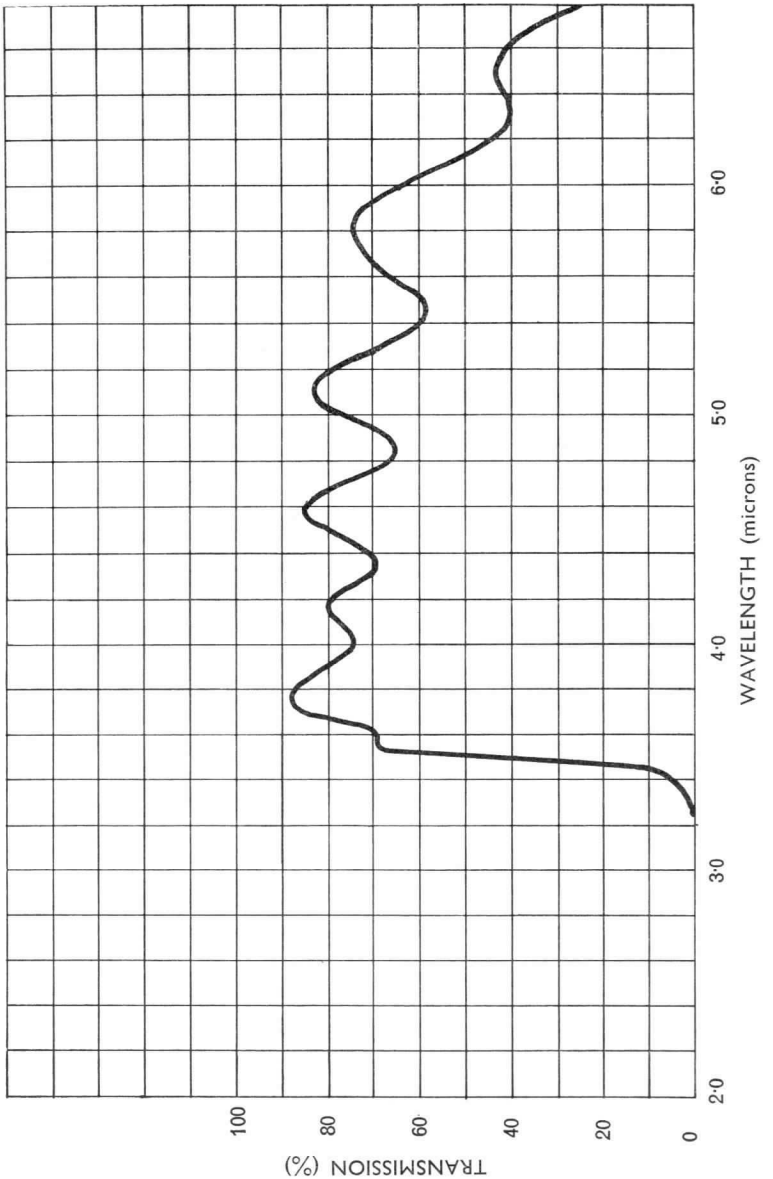
Code: E5231F

CONTINUED

Cut-On Filter E5231F



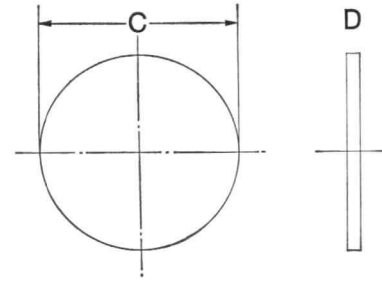
INFRA-RED FILTERS

Code: E5232F

Type:	Interference
Application:	Cut-On filter
Cut-On point:	1·92 microns
Average transmission:	80%
Wavelengths requiring additional attenuation:	None
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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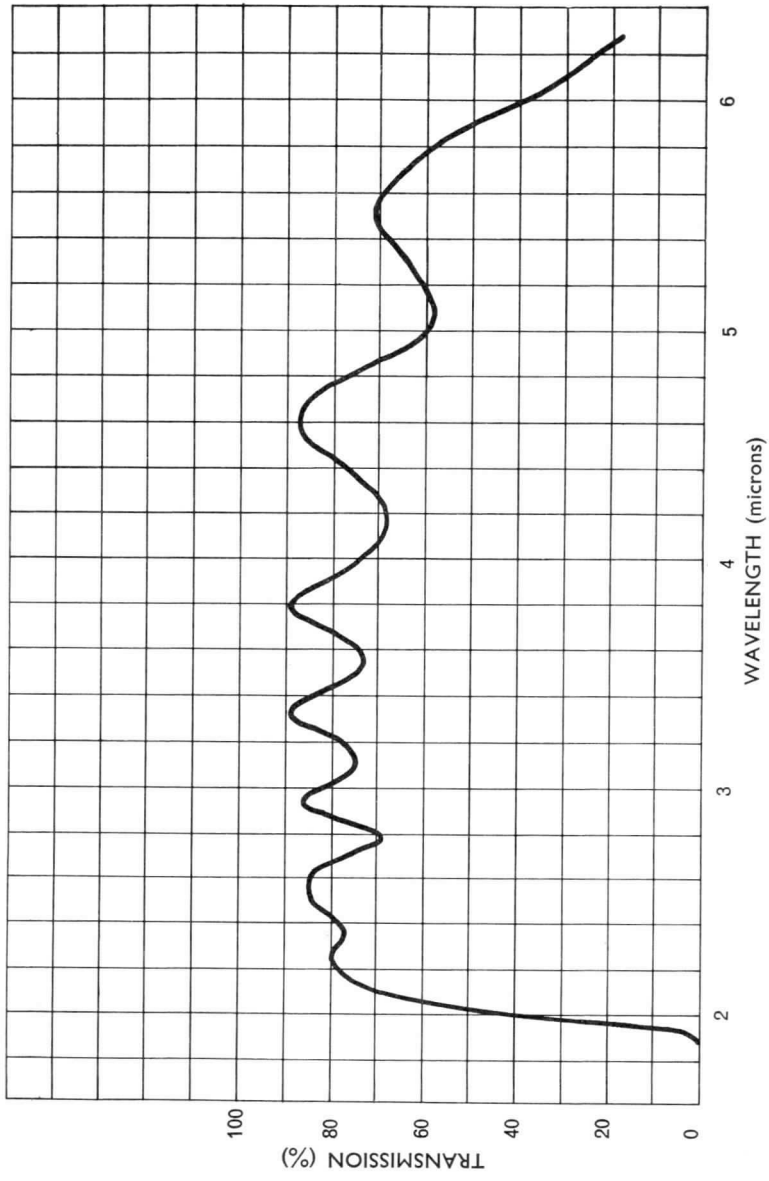
STC

Code: E5232F

CONTINUED

Cut-On Filter E5232F



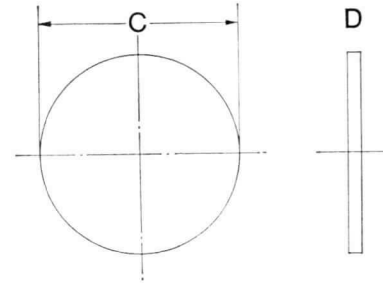
INFRA-RED FILTERS

Code: E5237F

Type:	Interference
Application:	Cut-On filter
Cut-On point:	2·90 microns
Average transmission:	75%
Wavelengths requiring additional attenuation:	None
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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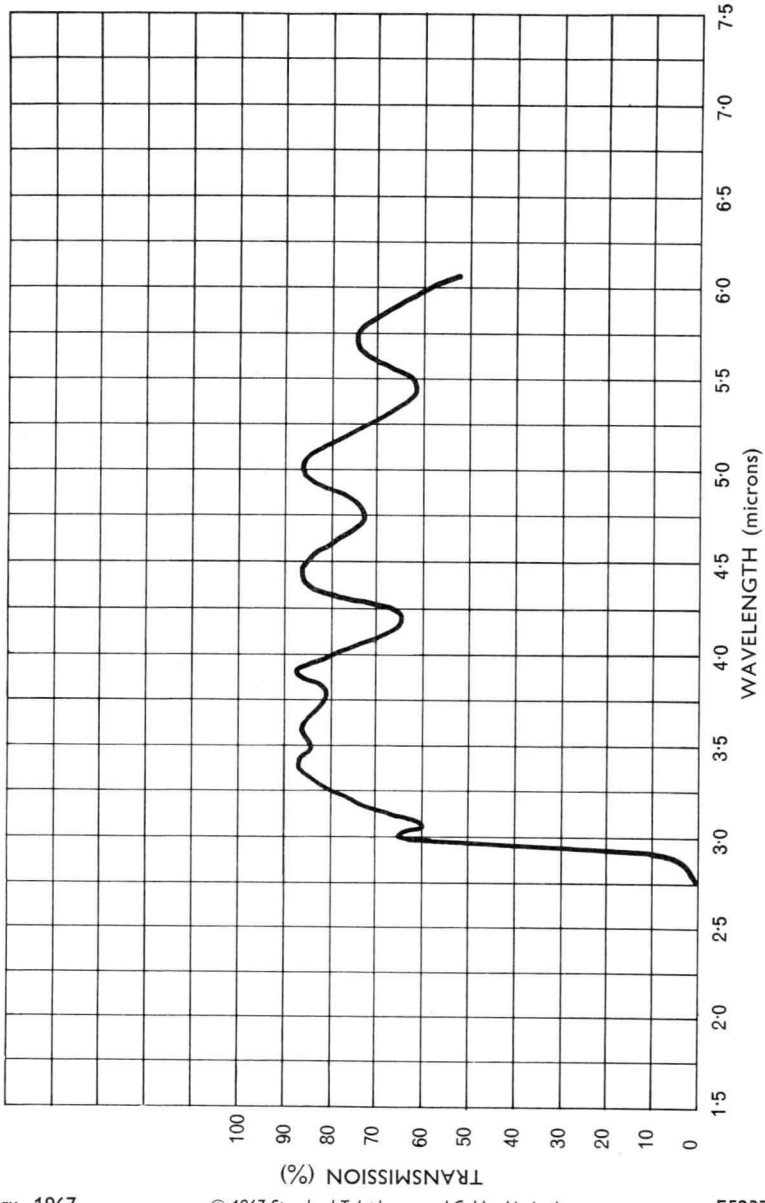
STC

Code: E5237F

CONTINUED

Interference Cut-On Filter E5237F



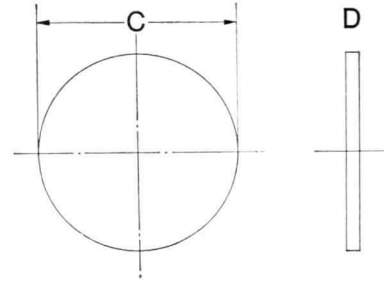
INFRA-RED FILTERS

Code: E5257F

Type:	Interference
Application:	Peak filter
Peak wavelength:	4·51 microns
Bandwidth:	1·9% of peak wavelength
Average transmission:	60%
Wavelengths requiring additional attenuation:	<3·6 microns
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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Code: E5257F

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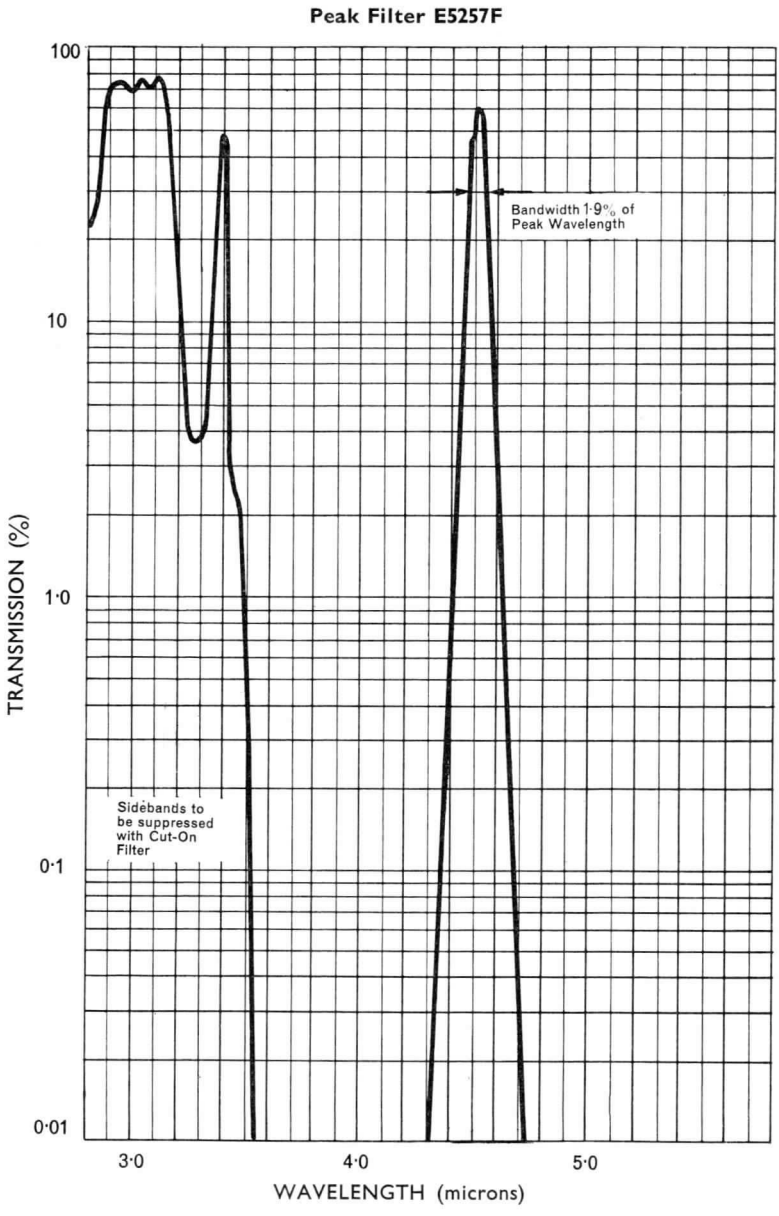


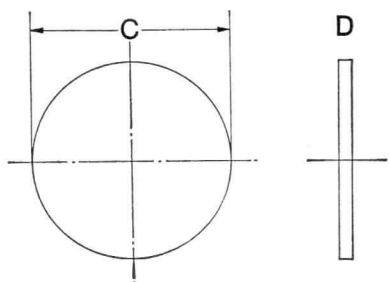
INFRA-RED FILTERS

Code: E5261F

Type:	Interference
Application:	Peak filter
Peak wavelength:	4·42 microns
Bandwidth:	0·8% of peak wavelength
Average transmission:	44%
Wavelengths requiring additional attenuation:	<3·7 microns
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

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Code: E5261F

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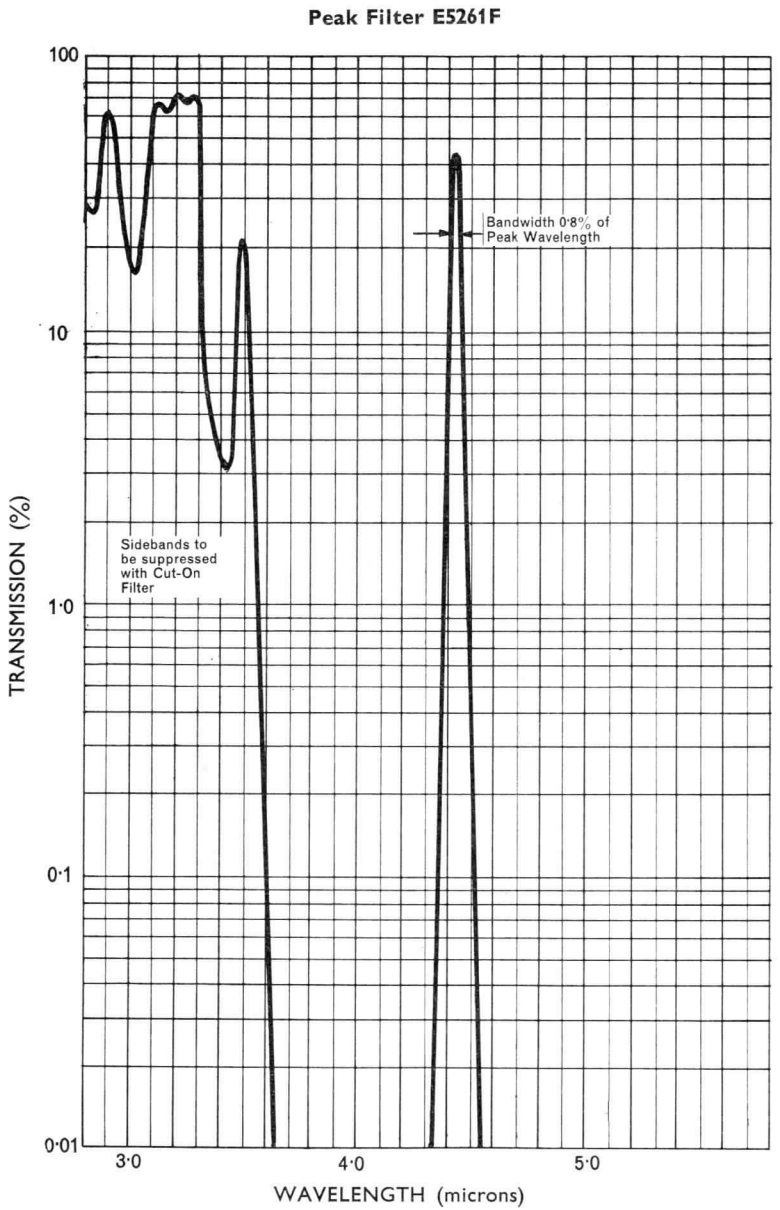


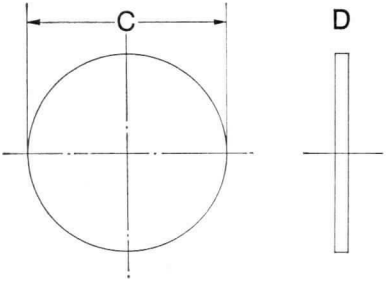
INFRA-RED FILTERS

Code: E5277F

Type:	Interference
Application:	Peak filter
Peak wavelength:	4·36 microns
Bandwidth:	11·8% of peak wavelength
Average transmission:	75%
Wavelengths requiring additional attenuation:	<3·3 microns
Substrate material:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



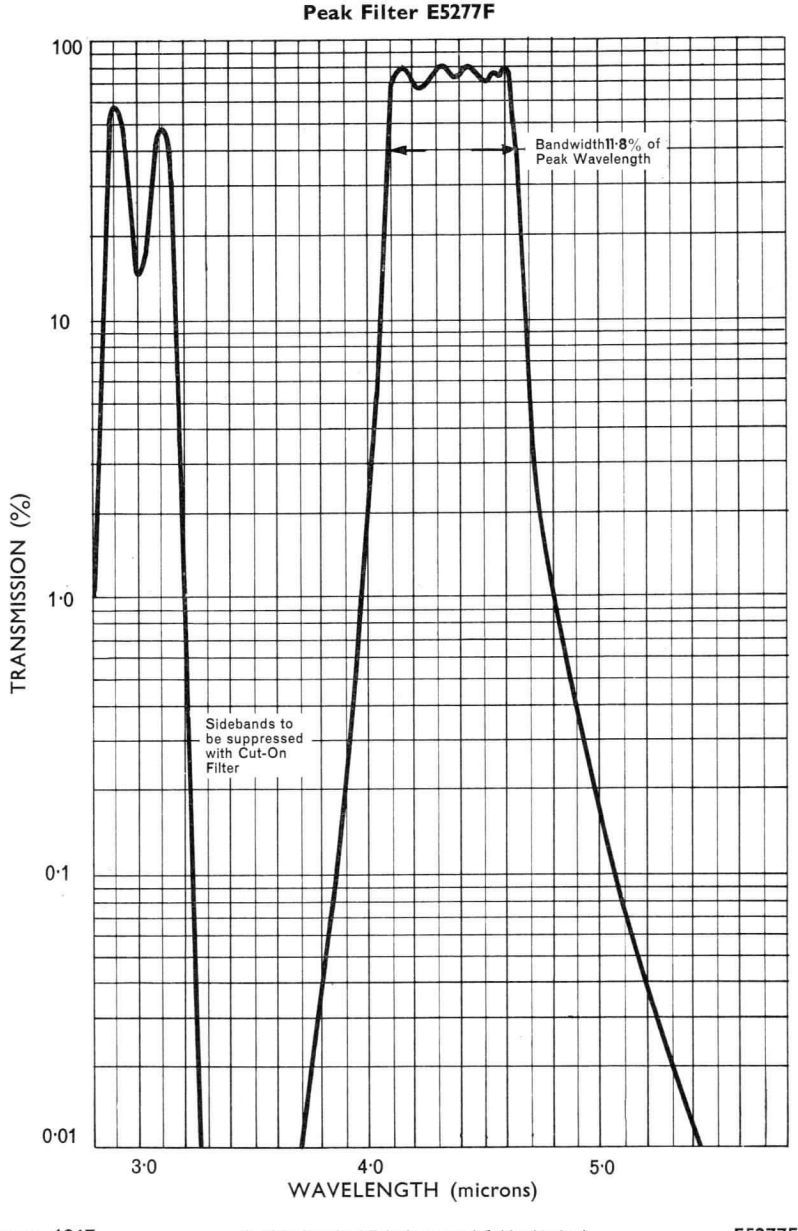
For details of mount see page IR/Gen—5.

Standard Telephones and Cables Limited
Rectifier Division, Edinburgh Way, Harlow, Essex
Tel.: Harlow (STD code: OBS 96) 26811 Telex: 81146
C O M P O N E N T S G R O U P

STC

Code: E5277F

CONTINUED



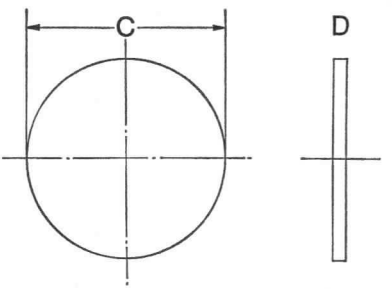
INFRA-RED FILTERS

Code: E5299F

Type:	Interference
Application:	Cut-Off filter
Cut-Off point:	5·45 microns
Average transmission:	80%
Wavelengths requiring additional attenuation:	None
Substrate materials:	Sapphire

DIMENSIONS

	mm	in
C	22,225 ± 0,013	0·875 ± 0·005
D	0,43	0·017



For details of mount see page IR/Gen—5.

Standard Telephones and Cables Limited
Rectifier Division, Edinburgh Way, Harlow, Essex
Tel.: Harlow (STD code: OBS 96) 26811 Telex: 81146
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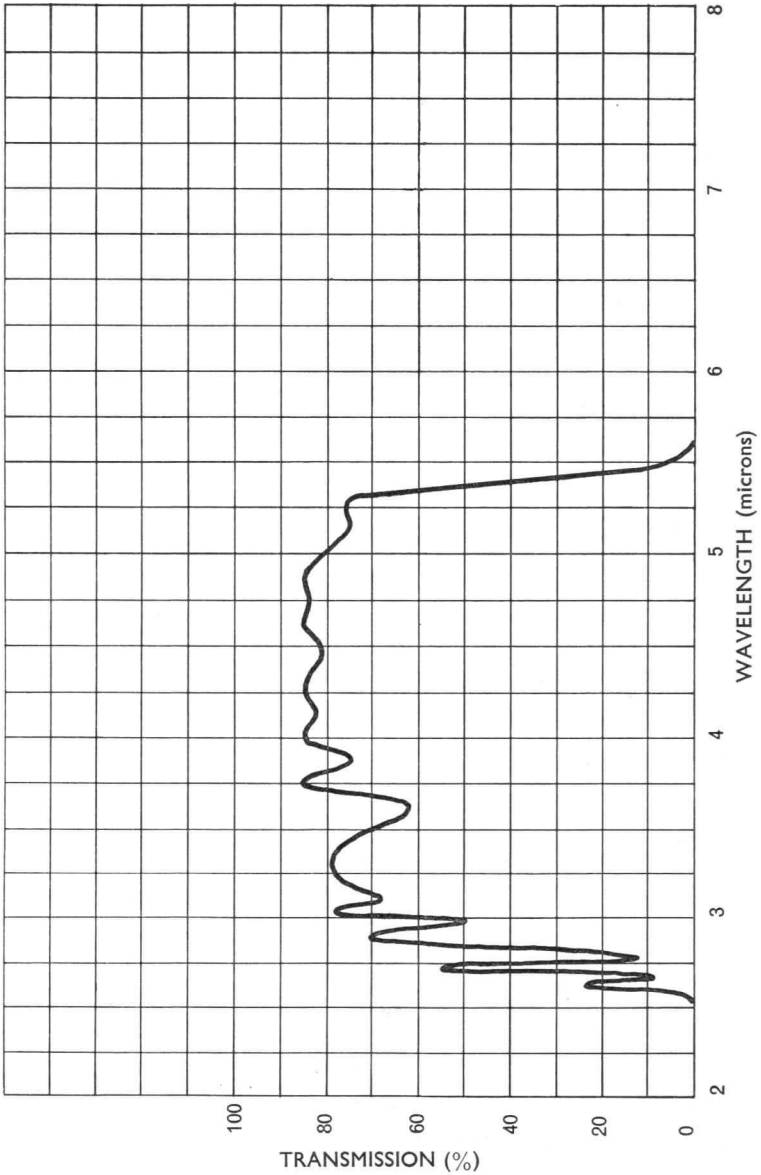
STC

Code: E5299F

CONTINUED

Interference Cut-Off Filter E5299F



HERMETIC SEALS

HERMETIC SEALS

Introduction

MATERIALS

Matched seals use an iron–nickel–cobalt alloy and borosilicate glass which are chosen for their equal thermal expansion coefficients and result in satisfactory operation over a temperature range of −40°C to +350°C. Matched seals are most suitable for high voltage applications and are light and compact. The standard range includes compression type seals which are available for special applications. Compression seals are stronger, mechanically, than matched seals. Advice is freely available from the Application and Engineering Departments on the choice of a suitable seal.

Properties of iron–nickel–cobalt alloy leads.

Composition 54 per cent Fe, 29 per cent Ni, 17 per cent Co.	
Electrical Resistivity	49 micro-ohm cm.
	or
	294 ohms/cir. mil. ft.
Thermal Conductivity	0.046 cal/cm sec °C
Magnetic Permeability at 7 000 gauss	3 700
Coefficient of Expansion	59×10^{-7} (20°—500°C)

Properties of borosilicate glass

Dielectric Constant at 1 Mc/s	5
Tan δ at 1 Mc/s	2.5×10^{-3}
Thermal Conductivity	0.002 cal/cm sec °C
Coefficient of Expansion	57×10^{-7} (20°—500°C)

INSTALLATION

Seals may be soldered using any soft solder and flux. Sudden heat changes should be avoided as dissimilar heat conductivities in the materials concerned can result in the cracking of the glass. Alternative methods of installation are by ovening, induction heating, infra-red heating or brazing. When installing, temperatures in excess of 400°C should be avoided.

FINISH

Standard finish—tinned.
Other finishes are available on request.

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

Introduction

CONTINUED

ELECTRICAL MEASUREMENTS

Capacitance measurements are made at 1 Mc/s in accordance with RCL331. Values are given on the appropriate data sheets.

Proof voltage is measured at an ambient temperature of 15°—25°C with a relative humidity of not more than 80 per cent at 760 mm Hg, and also 60 per cent at 120 mm Hg pressure.

GENERAL

The Valve Division Applications Department at Paignton will be glad to help in answering specific inquiries in connection with STC hermetic seals.

Standard works which are recommended on the subject are *Glass-to-Metal Seals* by J. H. Partridge published by the Society of Glass Technology and *Materials Technology for Electron Tubes* by W. H. Kohl published by Reinhold Publishing Corporation, New York.

HERMETIC SEALS

General Information

Description	Code	Max. Current (A)	Proof Voltage (r.m.s. 50 c/s) At 760 mm 80% r.h.	Proof Voltage (r.m.s. 50 c/s) At 120 mm 60% r.h.	Min. Resistance (M Ω)	Capacitance (pF)
General purpose, single terminal seals with wire terminations.	HS1D HS1E HS1F HS1G HS1H HS1P	5	1 500	600	1 000	1
General purpose, single terminal seals with eyelet termination	HS1·5A	8	2 000	666	1 000	1·4
	HS1·5B	8	2 000	666	1 000	1·4
	HS2A	10	5 000	1 700	1 000	2·1
	HS2C	10	2 500	800	1 000	1·8
	HS3A	10	10 000	3 300	1 000	2·7
	HS3C	10	10 000	3 300	1 000	2·7
Tubular-end seals	HS1K	—	1 500	600	1 000	1
	HS1Q	—	1 500	600	1 000	1
Rectifier seals	H1G30	—	1 100*	—	1 000	—
	H1G34 (VK34A)	—	1 500*	—	1 000	—
	H1G46 (VK46A)	—	1 500*	—	1 000	—
	H2G41 (VK41A)	5	—	—	1 000	1·2
	H2G43 (VK43A)	5	750	250	1 000	1·2
	TED832	—	1 500*	—	1 000	—
Fly-lead seal	HS1M	—	—	—	1 000	—
Crystal-base seals	HL2B/2	5	750	250	1 000	1·2
	HL2F	5	750	250	1 000	1·2

*75% r.h.

HERMETIC SEALS

Code: H2G41 (VK41A)

DESCRIPTION

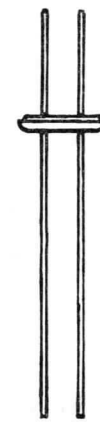
Crystal base seal. Style J

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx.	1·1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dip
Dimensions	As shown in outline drawing



Actual Size

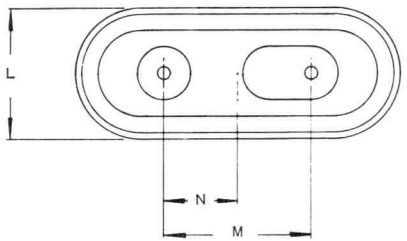
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: H2G41 (VK41A)

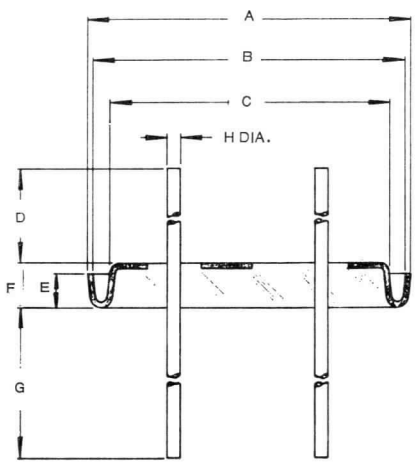
CONTINUED

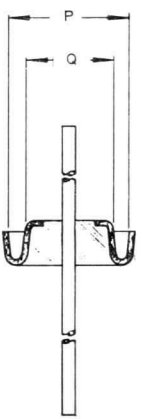
H2G41 (VK41A) Outline



DIM.	INCHES	MILLIMETRES
A	0.418 MIN. 0.428 MAX.	10,62 MIN. 10,87 MAX.
B	0.400 MIN.	10,16 MIN.
C	0.370 MAX.	9,40 MAX.
D	0.550 ± 0.050	13,97 ± 1,27
E	0.045 ± 0.005	11,43 ± 0,13
F	0.060 ± 0.005	1,52 ± 0,13
G	1.500 MIN.	38,1 MIN.
H	0.017 + 0.002 − 0.001	0,43 + 0,05 − 0,03
L	0.166 MIN. 0.176 MAX.	4,22 MIN. 4,47 MAX.
M	0.184 MIN. 0.200 MAX.	4,67 MIN. 5,08 MAX.
N	0.096 ± 0.005	2,44 ± 0,13
P	0.148 MIN.	3,76 MIN.
Q	0.118 MAX.	3,00 MAX.

BASIC DIMS. ARE INCHES





HERMETIC SEALS

Code: H2G43 (VK43A)

DESCRIPTION

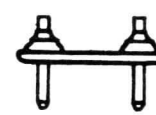
Crystal base seal. Style J

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dip
Dimensions	As shown in outline drawing



Actual Size

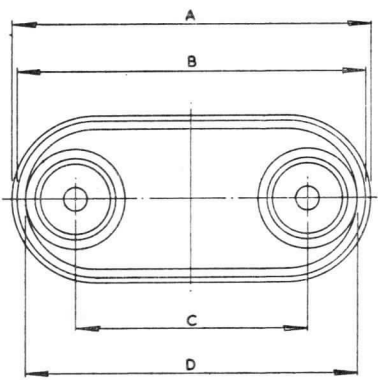
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: H2G43 (VK43A)

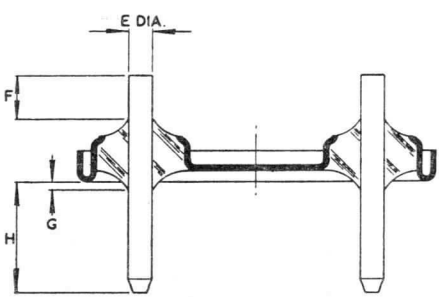
CONTINUED

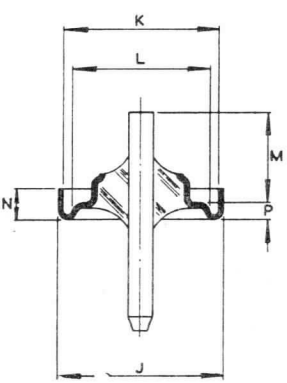
H2G43 (VK43A) Outline



DIM.	INCHES		MILLIMETRES	
A	0·745	MIN.	18,92	MIN.
	0·752	MAX.	19,10	MAX.
B	0·721	MIN.	18,31	MIN.
C	0·478	MIN.	12,14	MIN.
	0·494	MAX.	12,55	MAX.
D	0·684	MIN.	17,37	MIN.
	0·688	MAX.	17,48	MAX.
E	0·050	± 0·002	1,27	± 0,05
F	0·075	MIN.	1,90	MIN.
G	0·030	MAX.	0,76	MAX.
H	0·238	+ 0·010 − 0·015	6,05	+ 0,25 − 0,38
J	0·340	MIN.	8,64	MIN.
	0·347	MAX.	8,81	MAX.
K	0·316	MIN.	8,03	MIN.
L	0·274	MIN.	6,96	MIN.
	0·283	MAX.	7,19	MAX.
M	0·187	± 0·010	4,75	± 0,25
N	0·065	± 0·010	1,65	± 0,25
P	0·040	± 0·005	1,02	± 0,13

BASIC DIMS. ARE INCHES





HERMETIC SEALS

Code: H2GK (LS6003)

DESCRIPTION

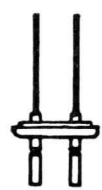
Crystal base seal. Style K

RATINGS

Current, maximum	1	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	500	V
Capacitance, approximately	0·5	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dipped
Dimensions	As shown in outline drawing



Actual Size

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
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C O M P O N E N T S G R O U P

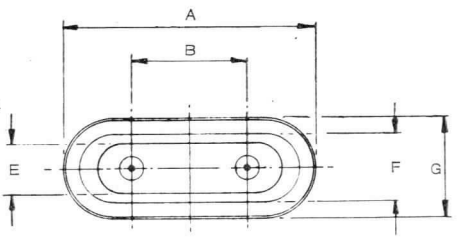
STC

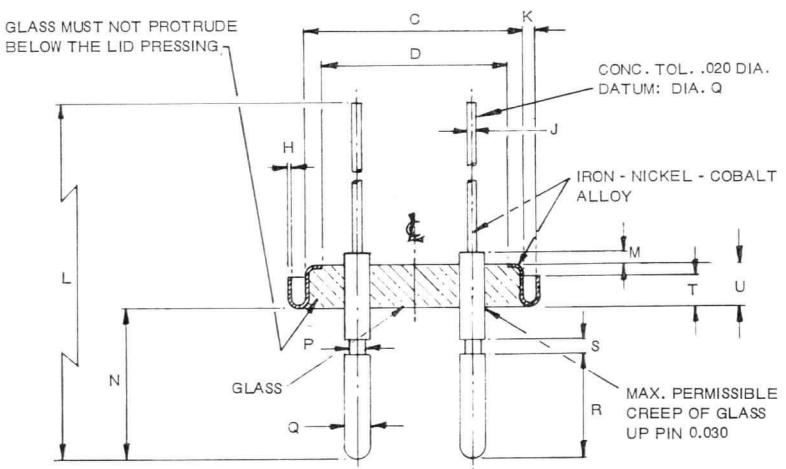
Code: H2GK (LS6003)

CONTINUED

H2GK Outline

MATERIAL: AS SHOWN
FINISH: ELECTRO - TINNED AND FLOWED
TOLERANCES TO BS 308.1964





DIMENSION	INCHES	MILLIMETRES	DIMENSION	INCHES	MILLIMETRES
A	$0.418^{+0.010}_{-0.000}$	$10{,}617^{+0{,}254}_{-0{,}000}$	L	0.875 ± 0.100	22,225 ± 2,54
B	0.184 MIN. 0.200 MAX.	4,674 MIN. 5,080 MAX.	M MAX.	0.050	1,270
C	0.364 ± 0.003	9,245 ± 0,076	N	$0.238^{+0.010}_{-0.015}$	$6{,}045^{+0{,}254}_{-0{,}381}$
D	0.308	7,823	P DIA.	$0.030^{+0.002}_{-0.003}$	$0{,}762^{+0{,}051}_{-0{,}076}$
E	0.084	2,133	Q DIA.	0.040 ± 0.002	1,016 ± 0,051
F	0.113 ± 0.003	2,870 ± 0,076	R	$0.175^{+0.010}_{-0.000}$	$4{,}445^{+0{,}254}_{-0{,}000}$
G	$0.166^{+0.010}_{-0.000}$	$4{,}216^{+0{,}254}_{-0{,}000}$	S	$0.025^{+0.000}_{-0{,}010}$	$0{,}635^{+0{,}000}_{-0{,}254}$
H	0.007	0,178	T	0.045	1,143
J DIA.	$0.017^{+0.002}_{-0.001}$	$0{,}432^{+0{,}051}_{-0{,}025}$	U	0.060	1,524
K MIN.	0.015	0,381			

HERMETIC SEALS

Code: HL2D

DESCRIPTION

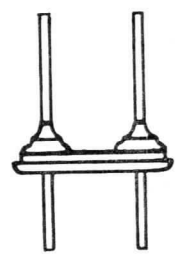
Crystal base seal. Style C

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	500	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dip
Dimensions	As shown in outline drawing



Actual Size

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Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
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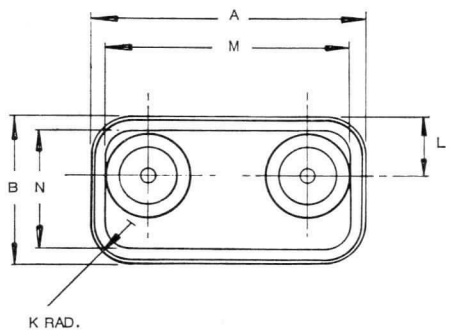
STC

Code: HL2D

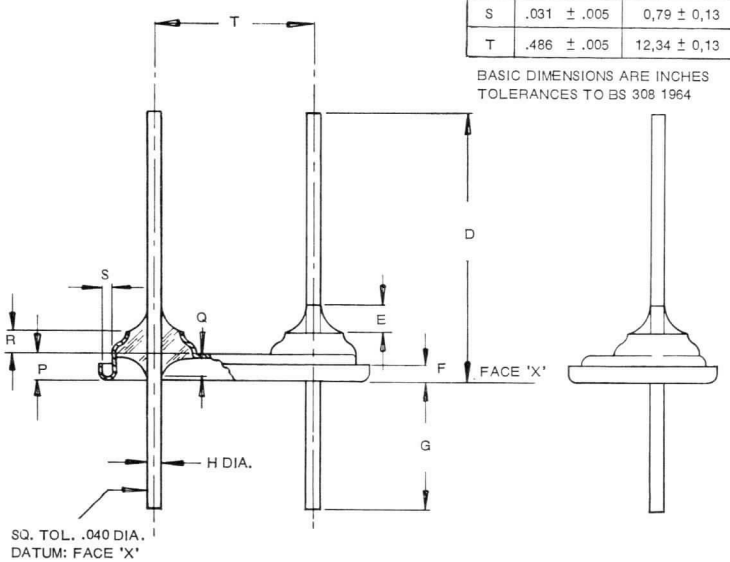
CONTINUED

HL2D Outline



DIM.	INCHES	MILLIMETRES
A	.812 + .000 − .008	20,62 + 0,00 − 0,20
B	.437 + .000 − .008	11,10 + 0,00 − 0,20
D	.820 ± .020	20,83 ± 0,51
E	.080 MAX.	2,03 MAX.
F	.055 ± .020	1,40 ± 0,51
G	.400 + .000 − .020	10,16 + 0,00 − 0,51
H	.040 ± .001	1,02 ± 0,03
K	.120 ± .005	3,05 ± 0,13
L	.180 MIN. .187 MAX.	4,57 MIN. 4,75 MAX.
M	.730 MAX.	18,54 MAX.
N	.355 MAX.	9,02 MAX.
P	.080 + .020 − .010	2,03 + 0,51 − 0,25
Q	.050 MAX.	1,27 MAX.
R	.070 ± .010	1,78 ± 0,25
S	.031 ± .005	0,79 ± 0,13
T	.486 ± .005	12,34 ± 0,13

BASIC DIMENSIONS ARE INCHES
TOLERANCES TO BS 308 1964



FINISH: HOT TIN DIPPED

HERMETIC SEALS

Code: HL2E

DESCRIPTION

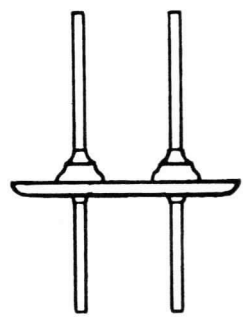
Crystal base seal. Style B

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dip
Dimensions	As shown in outline drawing



Actual Size

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
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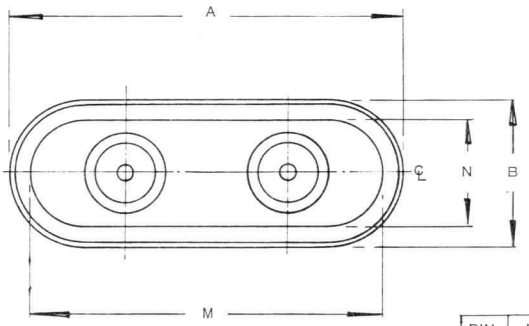
STC

Code: HL2E

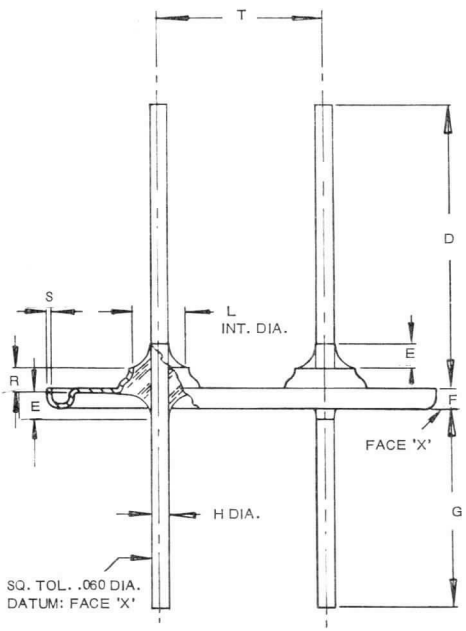
CONTINUED

HL2E Outline



DIM.	INCHES	MILLIMETRES
A	1.178 MIN. 1.186 MAX.	29,92 MIN. 30,12 MAX.
B	.446 MIN. .454 MAX.	11,33 MIN. 11,53 MAX.
D	7/8 +0 −1/8	22,23 +0,00 −3,18
E	.075 MAX.	1,91 MAX.
F	.060 +.020 −.010	1,52 +0,51 −0,25
G	.610 +.000 −.030	15,49 +0,00 −0,76
H	.050 +.005 −.002	1,27 +0,13 −0,05
L	.145 ± .005	3,68 ± 0,13
M	1.040 ± .010	26,42 ± 0,25
N	.308 ± .010	7,82 ± 0,25
R	.075 +.015 −.005	1,91 +0,38 −0,13
S	.010 ± .005	0,25 ± 0,13
T	.500 ± .005	12,70 ± 0,13

BASIC DIMENSIONS ARE INCHES
TOLERANCES TO BS 308 1964



FINISH: HOT TIN DIPPED

HERMETIC SEALS

Code: HL2F

DESCRIPTION

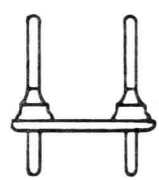
Crystal base seal. Style D

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	10 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Hot tin dip
Dimensions	As shown in outline drawing



Actual Size

Standard Telephones and Cables Limited

Valve Division, Brixham Road, Paignton, Devon

Telephone: Paignton 50762 Telex: 4230

London Sales Office, Telephone: 01-300 3333 Telex: 21836

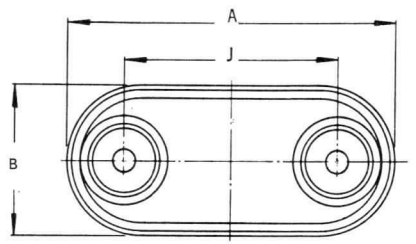
C O M P O N E N T S G R O U P

STC

Code: HL2F

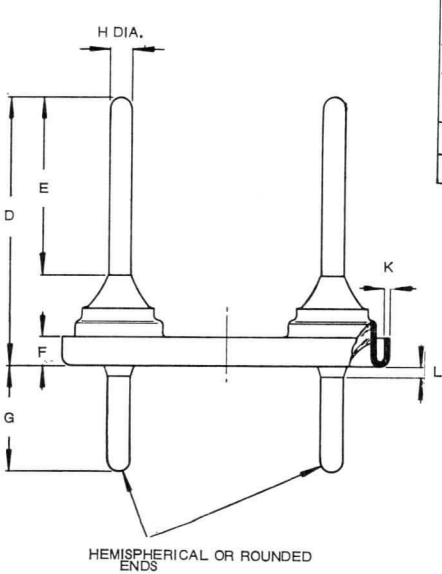
CONTINUED

HL2F Outline



DIM.	INCHES		MILLIMETRES	
A	0.745 MIN. 0.752 MAX.		18,92 MIN. 19,10 MAX.	
B	0.340 MIN. 0.347 MAX.		8,64 MIN. 8,81 MAX.	
D	0.587 ± 0.040		14,91 ± 1,02	
E	3/8 MIN.		9,5 MIN.	
F	0.065 ± 0.010		1,65 ± 0,25	
G	0.238	+ 0.010 − 0.015	6,05	+ 0,25 − 0,38
H	0.050 ± 0.002		1,27 ± 0,05	
J	0.478 MIN. 0.494 MAX.		12,14 MIN. 12,55 MAX.	
K	0.010 ± 0.003		0,25 ± 0,08	
L	0.030 MAX.		0,76 MAX.	

BASIC DIMS. ARE INCHES



MATERIALS:-
SHELL & PINS
NICKEL-IRON-COBALT ALLOY
GLASS BEAD
CLEAR BOROSILICATE

HERMETIC SEALS

Code: HL2J

DESCRIPTION

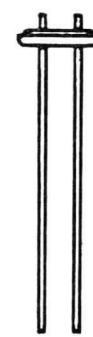
Crystal base seal. Style J

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Tinned. Standard finish
Dimensions	As shown in outline drawing



Actual Size

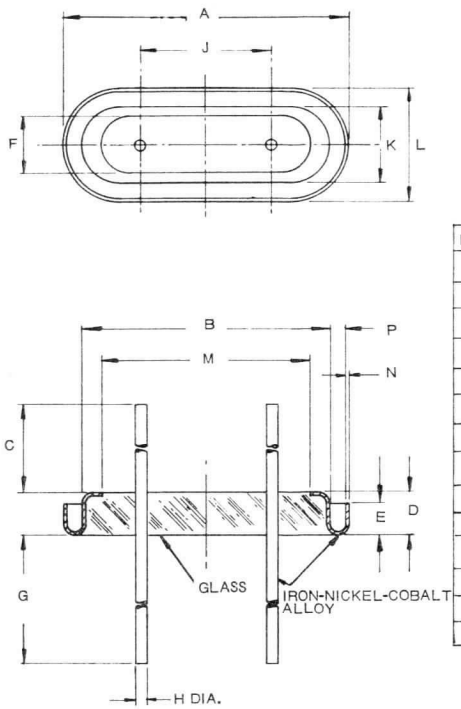
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HL2J

CONTINUED

HL2J Outline



DIM.	INCHES	MILLIMETRES
A	0.418 $^{+0.010}_{-0.000}$	10,62 $^{+0,25}_{-0,00}$
B	0.364 ± 0.003	9,25 ± 0.08
C	0.075 ± 0.010	1.91 ± 0,25
D	0.060	1,52
E	0.045	1,14
F	0.084	2,13
G	1.500 MIN.	38,1 MIN.
H	0.017 $^{+0.002}_{-0.001}$	0,43 $^{+0.05}_{-0.03}$
J	0.192 ± 0.005	4,88 ± 0.13
K	0.113 ± 0.003	2,87 ± 0.08
L	$^{+0.010}_{-0.000}$	4,22 $^{+0.25}_{-0.00}$
M	0.308	7,82
N	0.007	0,18
P	0.015 MIN.	0,38 MIN.

BASIC DIMENSIONS ARE INCHES
FINISH: HOT TIN DIP
MATERIAL:- AS SHOWN

HERMETIC SEALS

Code: HL8A

DESCRIPTION

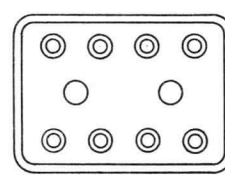
Multiple terminal seal for relays or other devices

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	750	V
at 120 mm	250	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing



Actual Size

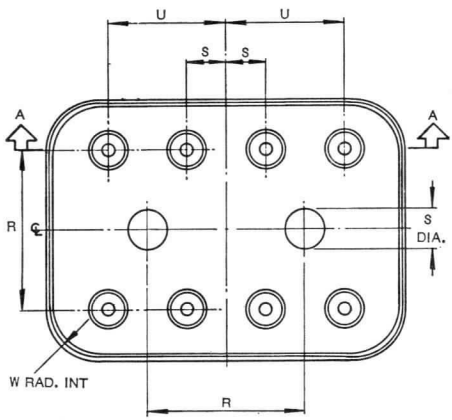
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HL8A

CONTINUED

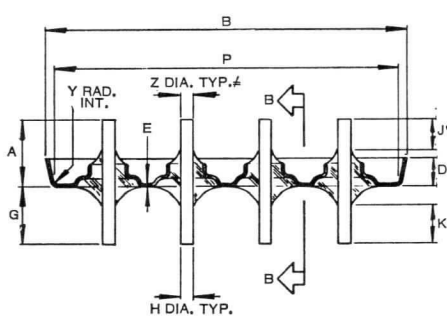
HL8A Outline



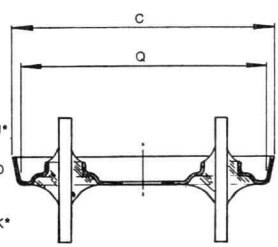
DIM.	INCHES	MILLIMETRES
A	.218 +.020 −.010	5,54 +0,51 −0,25
B	1.137 - MAX.	28,88 MAX.
C	.825 MAX.	20,96 MAX.
D	.095 +.020 −.015	2,41 +0,51 −0,38
E	.010 ± .002	0,25 ± 0,05
G	.187 +.020 −.010	4,75 ± 0,51 −0,25
H	.040 ± .002	1,02 ± 0,05
J	.090 MIN.	2,29 MIN.
K	.110 MIN.	2,79 MIN.
P	1.098 MIN. 1.103 MAX.	27,89 MIN. 28,02 MAX.
Q	.786 MIN. .791 MAX.	19,96 MIN. 20,09 MAX.
R	.500 ± .010	12,70 ± 0,25
S	.125 ± .005	3,18 ± 0,13
U	.375 ± .005	9,53 ± 0,13
W	.156 NOM.	3,96 NOM.
Y	.010 NOM.	0,25 NOM.
Z	.039 ± .001	0,99 ± 0,03

* DENOTES: LENGTH CLEAR OF GLASS

BASIC DIMENSIONS ARE INCHES



SECTION 'A-A'



SECTION 'B-B'

FINISH: ELECTRO-TINNED & FLOWED

≠ DENOTES: INNER WIRES NOT TINNED

HERMETIC SEALS

Code: HL8B

DESCRIPTION

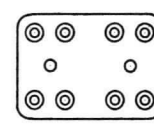
Multiple terminal seal for relays and other devices

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	500	MΩ
Proof voltage (r.m.s. 50 Hz) at 760 mm	750	V

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing



Actual Size

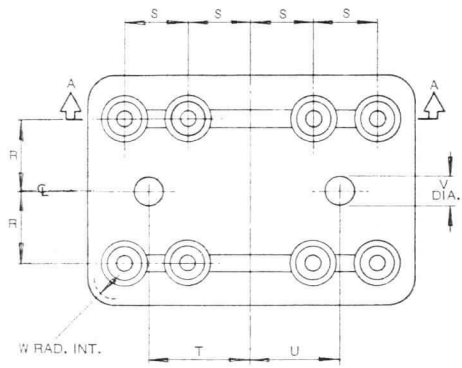
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HL8B

CONTINUED

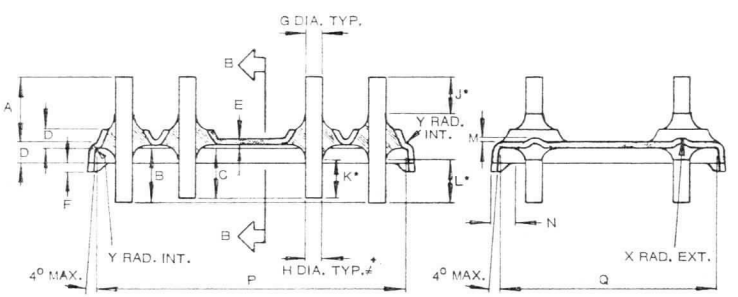
HL8B Outline



DIM.	INCHES		MILLIMETRES	
A	.160	± .005	4,06	± 0,13
B	.131	± .005	3,33	± 0,13
C	.120	+ .010 − .003	3,05	+ 0,25 − 0,08
D	.050	± .005	1,27	± 0,13
E	.015	± .002	0,38	± 0,05
F	.020	± .005	0,51	± 0,13
G	.040	± .002	1,02	± 0,05
H	.039	± .001	0,99	± 0,03
J	.080	MIN.	2,03	MIN.
K	.090	MIN.	2,29	MIN.
L	.100	MIN.	2,54	MIN.
M	.007	MIN.	0,18	MIN.
N	.055	± .005	1,40	± 0,13
P	.739 .744	MIN. MAX.	18,77 18,90	MIN. MAX.
Q	.520 .525	MIN. MAX.	13,21 13,34	MIN. MAX.
R	.175	± .005	4,45	± 0,13
S	.150	± .005	3,81	± 0,13
T	.243	± .005	6,17	± 0,13
U	.211	± .005	5,36	± 0,13
V	.070	± .005	1,78	± 0,13
W	.046	± .005	1,17	± 0,13
X	.030	± .005	0,76	± 0,13
Y	.010	± .005	0,25	± 0,13

BASIC DIMENSIONS ARE INCHES

* DENOTES: LENGTH CLEAR OF GLASS



SECTION 'A – A'

SECTION 'B–B'

FINISH: ELECTRO-TINNED & FLOWED

≠ DENOTES: INNER WIRES NOT TINNED

HERMETIC SEALS

Code: HL8C

DESCRIPTION

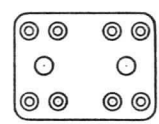
Multi-terminal seal for relays and other devices

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	500	MΩ
Proof voltage (r.m.s. 50 Hz) at 760 mm	750	V
Capacitance, approx.	1·2	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing



Actual Size

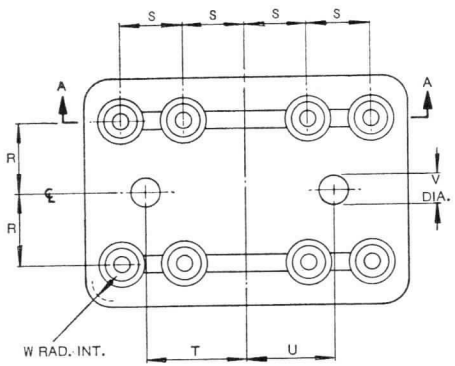
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HL8C

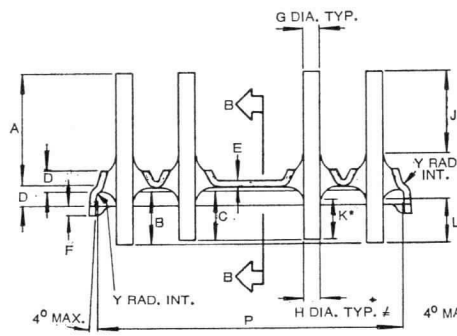
CONTINUED

HL8C Outline

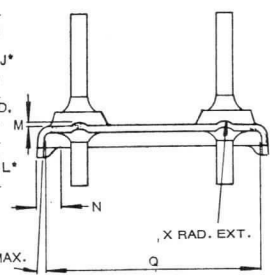


DIM.	INCHES	MILLIMETRES
A	0·267 ± 0·005	6,78 ± 0,13
B	0·131 ± 0·005	3,33 ± 0,13
C	0·120 + 0·010 − 0·003	3,05 + 0,25 − 0,08
D	0·050 ± 0·005	1,27 ± 0,13
E	0·015 ± 0·002	0,38 ± 0,05
F	0·020 ± 0·005	0,51 ± 0,13
G	0·040 ± 0·002	1,02 ± 0,05
H	0·039 ± 0·001	0,99 ± 0,03
J	0·187 MIN.	4,75 MIN.
K	0·090 MIN.	2,29 MIN.
L	0·100 MIN.	2,54 MIN.
M	0·007 MIN.	0,18 MIN.
N	0·055 ± 0·005	1,40 ± 0,13
P	0·739 MIN. 0·744 MAX.	18,77 MIN. 18,90 MAX.
Q	0·520 MIN. 0·525 MAX.	13,21 MIN. 13,34 MAX.
R	0·175 ± 0·005	4,45 ± 0,13
S	0·150 ± 0·005	3,81 ± 0,13
T	0·243 ± 0·005	6,17 ± 0,13
U	0·211 ± 0·005	5,36 ± 0,13
V	0·070 ± 0·005	1,78 ± 0,13
W	0·046 ± 0·005	1,17 ± 0,13
X	0·030 ± 0·005	0,76 ± 0,13
Y	0·010 ± 0·005	0,25 ± 0,13

BASIC DIMS. ARE INCHES
* DENOTES:-
LENGTH CLEAR OF GLASS



SECTION 'A-A'



SECTION 'B-B'

FINISH: ELECTRO-TINNED & FLOWED
≠ DENOTES: INNER WIRES NOT TINNED

HERMETIC SEALS

Code: HS1D

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

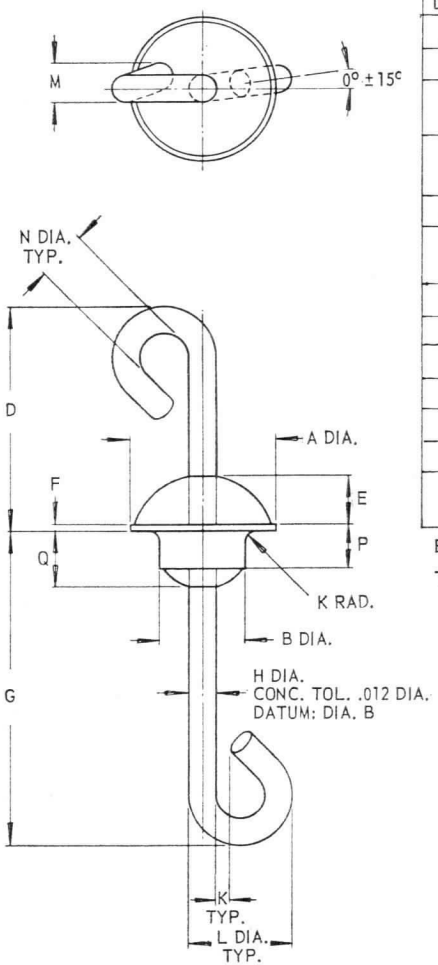
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1D

CONTINUED

HS1D Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.332 $^{+.000}_{-.050}$	8,43 $^{+0,00}_{-1,27}$
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.465 $^{+.000}_{-.050}$	11.81 $^{+0,00}_{-1,27}$
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.156 MAX.	3,96 MAX.
M	.050 MAX.	1,27 MAX.
N	.050 MIN.	1,27 MIN.
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

HERMETIC SEALS

Code: HS1E

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

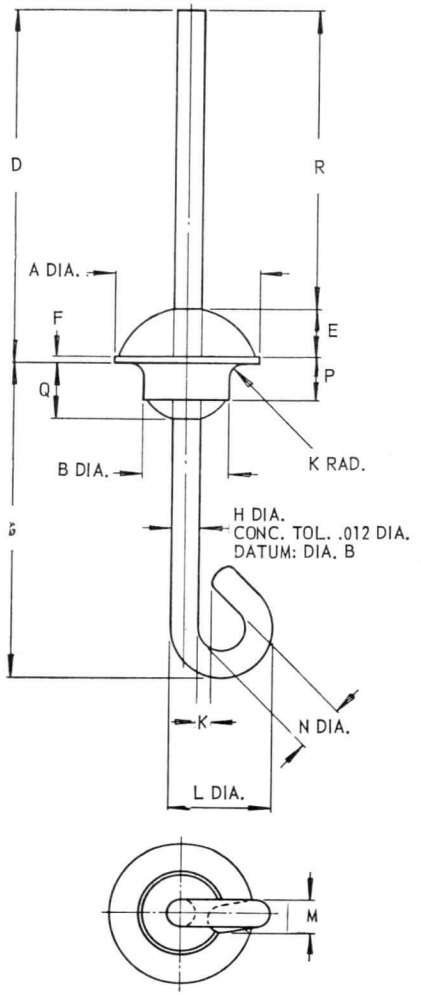
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1E

CONTINUED

HS1E Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.526 MAX.	13,36 MAX.
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.465 $^{+\ .000}_{-\ .050}$	11,81 $^{\pm\ 0,00}_{-\ 1,27}$
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.156 MAX.	3,96 MAX.
M	.050 MAX.	1,27 MAX.
N	.050 MIN.	1,27 MIN.
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.
R	.381 MIN.	9,68 MIN.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1F

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

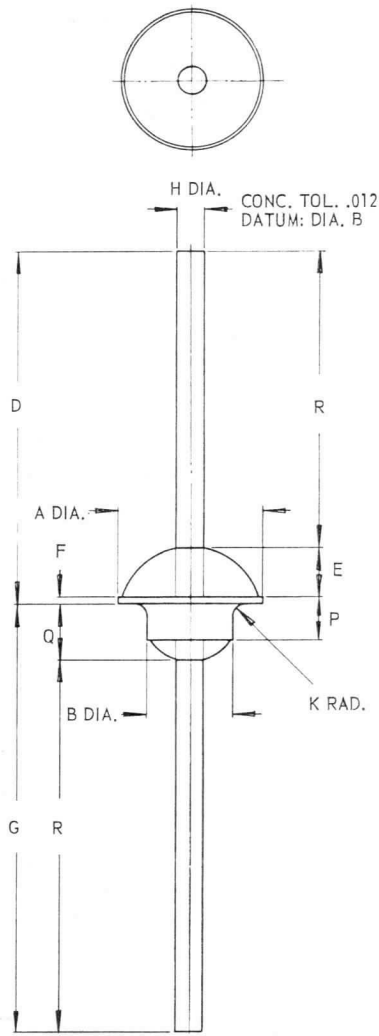
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1F

CONTINUED

HS1F Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.526 MAX.	13,36 MAX.
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.659 MAX.	16,74 MAX.
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.
R	.381 MIN.	9,68 MIN.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1G

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

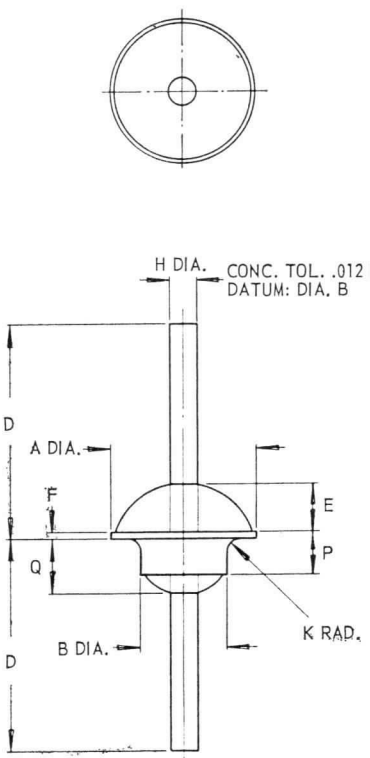
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1G

CONTINUED

HS1G Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.313 $^{+.000}_{-.025}$	7,95 $^{+0,00}_{-0,64}$
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1H

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

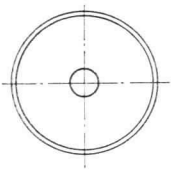
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1H

CONTINUED

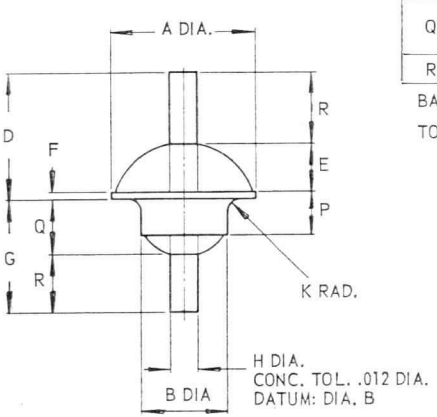
HS1H Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.187 ± .010	4,75 ± 0,25
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.166 $^{+.005}_{-.010}$	4,22 $^{+0,13}_{-0,25}$
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.
R	.063 MIN.	1,60 MIN.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964



FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1K

DESCRIPTION

Tubular end seal for capacitors and other small components

RATINGS

Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

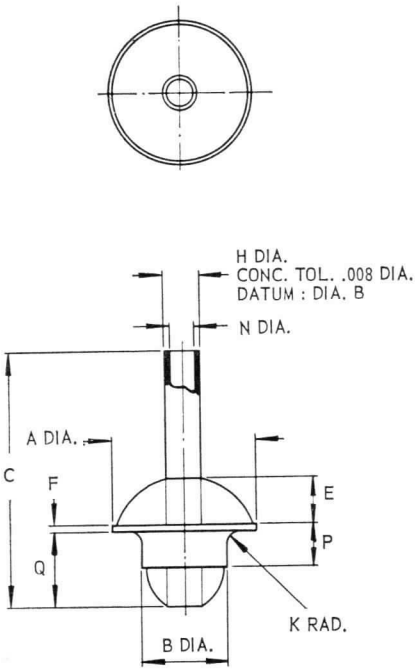
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1K

CONTINUED

HS1K Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
C	.378 ± .020	9,60 ± 0,51
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
H	.050 $^{+.001}_{-.002}$	1,27 $^{+0,03}_{-0,05}$
K	.020 MAX.	0,51 MAX.
N	.040 $^{+.002}_{-.001}$	1,02 $^{+0,05}_{-0,03}$
P	.063 ± .015	1,60 ± 0,38
Q	.110 $^{+.010}_{-.015}$	2,79 $^{\pm 0,25}_{-0,38}$

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308: 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1M

DESCRIPTION

Fly lead seal

RATING

Insulation resistance, minimum	1 000	MΩ

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned flowed
Dimensions	As shown in outline drawing

Actual Size

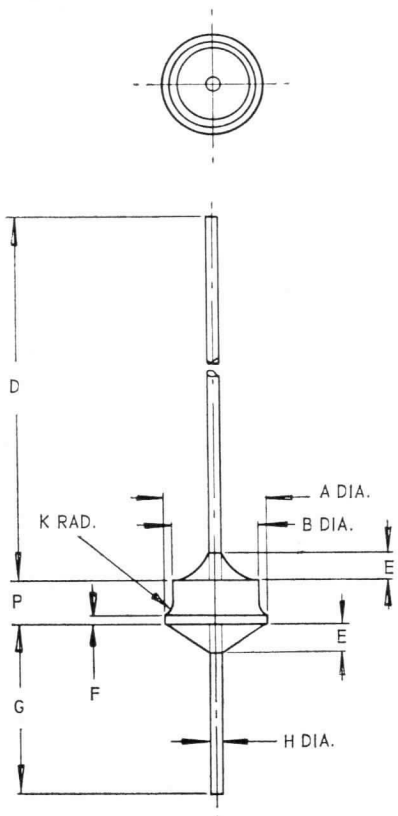
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1M

CONTINUED

HS1M Outline



DIM	INCHES	MILLIMETRES
A	.150 ± .005	3,81 ± 0,13
B	.125 ± .005	3,18 ± 0,13
D	2.000 ± .030	50,8 ± 0,76
E	.040 MAX.	1,02 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.250 ± .020	6,35 ± 0,51
H	.020 ± .001	0,51 ± 0,03
K	.020 MAX.	0,51 MAX.
P	.063 ± .015	1,60 ± 0,38

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: HOT TIN DIP

HERMETIC SEALS

Code: HS1P

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	5	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

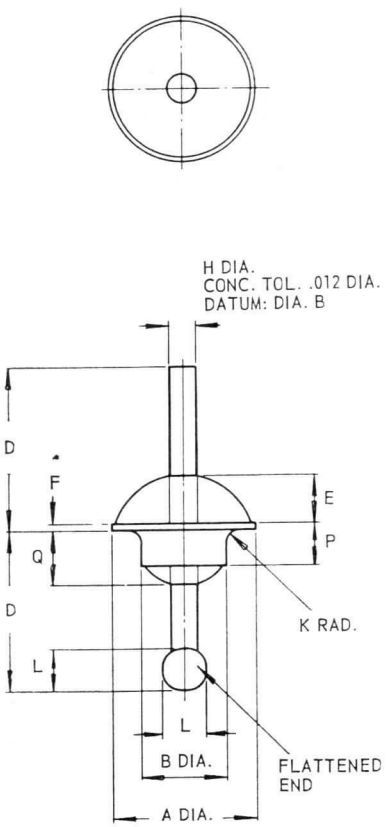
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1P

CONTINUED

HS1P Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.240 ± .015	6,10 ± 0,38
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
H	.040 ± .001	1,02 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.062 ± .005	1,57 ± 0,13
P	.063 ± .015	1,60 ± 0,38
Q	.073 MIN. .098 MAX.	1,85 MIN. 2,49 MAX.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1Q

DESCRIPTION

Tubular end seal for capacitors and other small components

RATINGS

Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	1 500	V
at 120 mm	600	V
Capacitance, approx.	1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

Standard Telephones and Cables Limited

Valve Division, Brixham Road, Paignton, Devon

Telephone: Paignton 50762 Telex: 4230

London Sales Office, Telephone: 01-300 3333 Telex: 21836

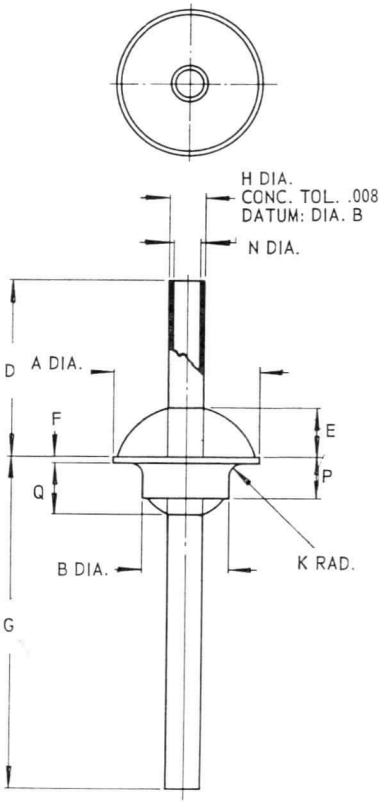
C O M P O N E N T S G R O U P

STC

Code: HS1Q

CONTINUED

HS1Q Outline



DIM	INCHES	MILLIMETRES
A	.210 ± .010	5,33 ± 0,25
B	.125 ± .005	3,18 ± 0,13
D	.261 ± .020	6,63 ± 0,51
E	.050 MIN. .100 MAX.	1,27 MIN. 2,54 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.490 ± .020	12,45 ± 0,51
H	.050 $^{+.001}_{-.002}$	1,27 $^{+0,03}_{-0,05}$
K	.020 MAX.	0,51 MAX.
N	.040 $^{+.002}_{-.001}$	1,02 $^{+0,05}_{-0.03}$
P	.063 ± .015	1,60 ± 0,38
Q	.069 MIN. .094 MAX.	1,75 MIN. 2,39 MAX.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1·5A

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	8	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	2 000	V
at 120 mm	666	V
Capacitance, approx.	1·4	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

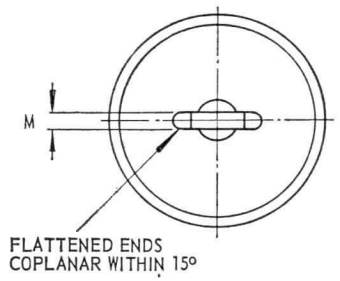
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS1·5A

CONTINUED

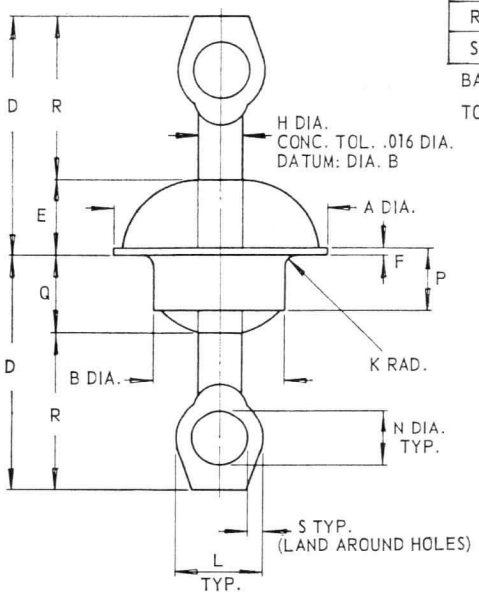
HS1·5A Outline



DIM	INCHES	MILLIMETRES
A	.312 ± .003	7,92 ± 0,08
B	.190 ± .010	4,83 ± 0,25
D	.350 ± .025	8,89 ± 0,64
E	.110 MIN.	2,79 MIN.
F	.010 ± .002	0,25 ± 0,05
H	.064 ± .001	1,63 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.125 ± .005	3,18 ± 0,13
M	.025 NOM.	0,64 NOM.
N	.064 MIN.	1,63 MIN.
P	.093 ± .015	2,36 ± 0,38
Q	.100 MIN.	2,54 MIN.
R	.187 MIN.	4,75 MIN.
S	.016 MIN.	0,41 MIN.

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308 : 1964



FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS1·5C

DESCRIPTION

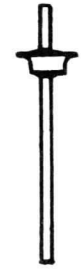
Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	8	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50Hz)		
at 760 mm	2 000	V
at 120 mm	666	V
Capacitance, approx.	1·4	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing overleaf



Actual Size

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Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
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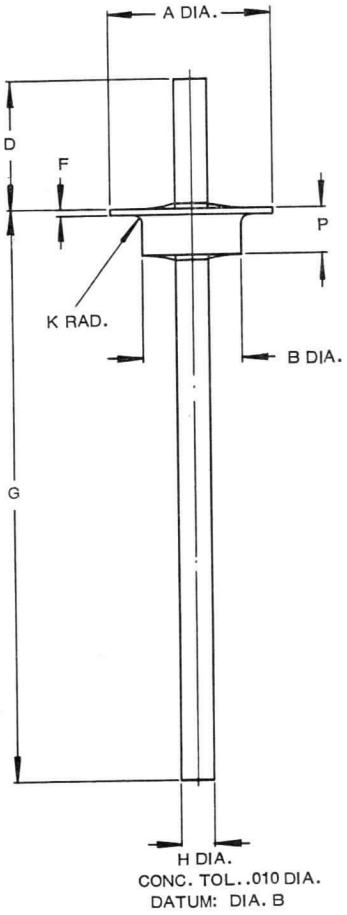
STC

Code: HS1·5C

CONTINUED

HS1·5C Outline



DIM.	INCHES	MILLIMETRES
A	.312 ± .010	7,92 ± 0,25
B	.190 ± .010	4,83 ± 0,25
D	.250 ± .060	6,35 ± 1,52
F	.010 ± .002	0,25 ± 0,05
G	1.100 ± .100	27,94 ± 2,54
H	.064 ± .001	1,63 ± 0,03
K	.020 MAX.	0,51 MAX.
P	.093 ± .015	2,36 ± 0,38

BASIC DIMENSIONS ARE INCHES

TOLERANCES TO BS 308: 1964

FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS2A

DESCRIPTION

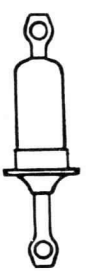
Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	10	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	5 000	V
at 120 mm	1 700	V
Capacitance, approx.	2·1	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing



Actual Size

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

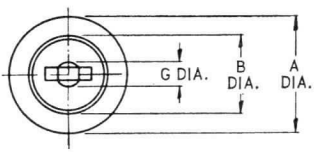
STC

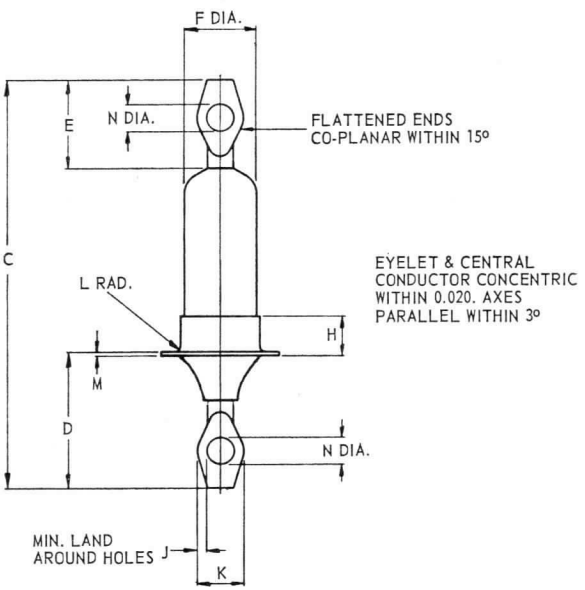
Code: HS2A

CONTINUED

HS2A Outline

MATERIAL:- IRON-NICKEL-COBALT ALLOY, & BOROSILICATE GLASS
FINISH:- ELECTRO-TINNED & FLOWED
RATING
CURRENT: 10 amp MAX.
RESISTANCE 1000m MIN.
PROOF VOLTAGE 760 mm 5000 V.
R.M.S. 50 c/s 120 mm 1700 V.
CAPACITANCE: APPROX. 2.1 pf.
SEE KS 1042 FOR FULL
TEST CONDITIONS





DIM	INCHES	MILLIMETRES	DIM	INCHES	MILLIMETRES
A	0.375 ± 0.004	9,525 ± 0,102	H	0.125 ± 0.015	3,175 ± 0,381
B	0.250 ± 0.008	6,350 ± 0,203	J	0.021 MIN.	0,533 MIN.
C	1.311 MAX.	33,298 MAX.	K	0.163 MAX.	4,140 MAX.
D	0.503 MAX.	12,776 MAX.	L	0.020 MAX.	0,508 MAX.
E	0.218 MIN.	5,537 MIN.	M	0.010 ± 0.002	0,254 ± 0,051
F	0.250 MAX.	6,350 MAX.	N	0.085 MIN.	2,159 MIN.
G	0.080 ± 0.005	2,032 ± 0,127			

HERMETIC SEALS

Code: HS2B

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	10	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	5 000	V
at 120 mm	1 700	V
Capacitance, approx.	1·8	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
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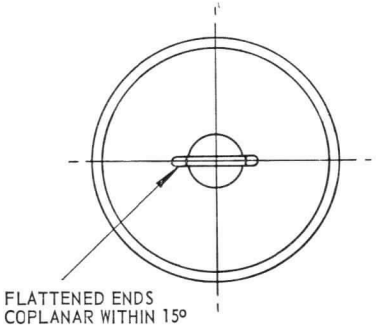
STC

Code: HS2B

CONTINUED

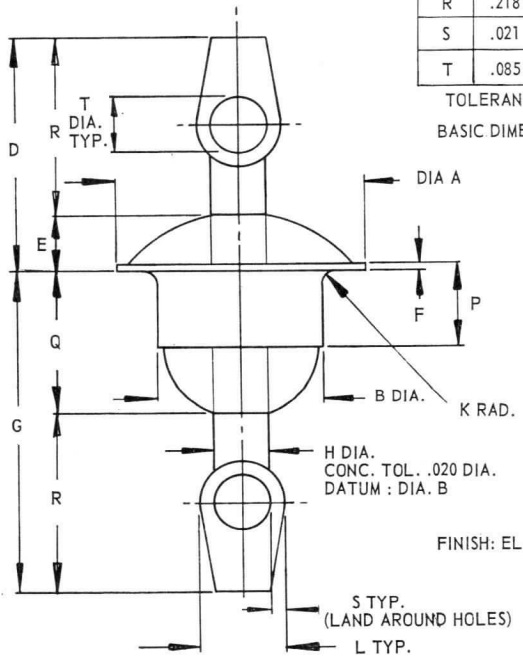
HS2B Outline



DIM	INCHES	MILLIMETRES
A	.375 ± .004	9,53 ± 0,10
B	.250 ± .008	6,35 ± 0,20
D	.355 $^{+.000}_{-.050}$	9,02 $^{+0,00}_{-1,27}$
E	.080 MIN.	2,03 MIN.
F	.010 ± .002	0,25 ± 0,05
G	.512 $^{+.000}_{-.050}$	13,00 $^{+0,00}_{-1,27}$
H	.080 ± .001	2,03 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.160 ± .005	4,06 ± 0,13
P	.125 ± .015	3,18 ± 0,38
Q	.220 MIN.	5,59 MIN.
R	.218 MIN.	5,54 MIN.
S	.021 MIN.	0,53 MIN.
T	.085 MIN.	2,16 MIN.

TOLERANCES TO BS 308 1964

BASIC DIMENSIONS ARE INCHES



FINISH: ELECTRO-TINNED & FLOWED

HERMETIC SEALS

Code: HS2H

DESCRIPTION

Single terminal seal for transformers and general purpose applications

RATINGS

Current, maximum	10	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz)		
at 760 mm	2 000	V
at 120 mm	600	V
Capacitance, approx.	1·8	pF

MECHANICAL DATA

Materials	Iron-nickel-cobalt alloy and borosilicate glass
Finish	Electro-tinned and flowed
Dimensions	As shown in outline drawing

Actual Size

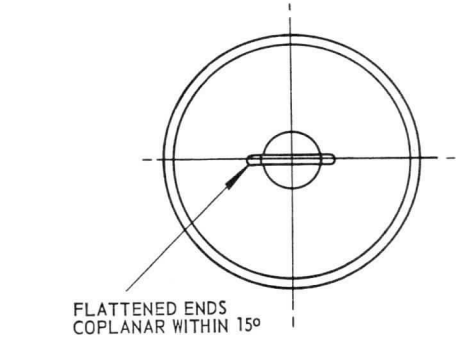
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: HS2H

CONTINUED

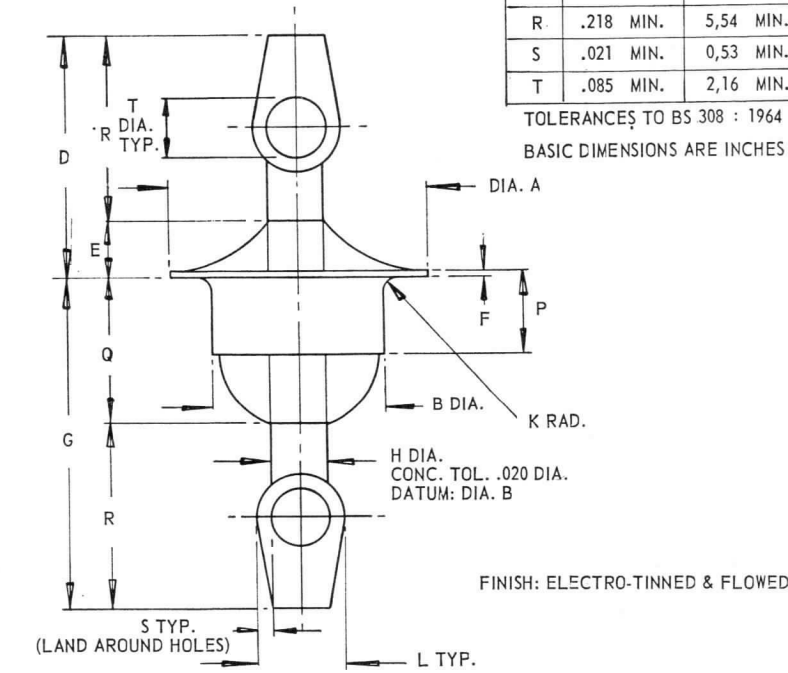
HS2H Outline



DIM	INCHES	MILLIMETRES
A	.375 ± .004	9,53 ± 0,10
B	.250 ± .008	6,35 ± 0,20
D	.355 +.000 −.050	9,02 ± 0,00 − 1,27
E	.080 MAX.	2,03 MAX.
F	.010 ± .002	0,25 ± 0,05
G	.512 +.000 −.050	13,00 +0,00 − 1,27
H	.080 ± .001	2,03 ± 0,03
K	.020 MAX.	0,51 MAX.
L	.160 ± .005	4,06 ± 0,13
P	.125 ± .015	3,18 ± 0,38
Q	.220 MIN.	5,59 MIN.
R	.218 MIN.	5,54 MIN.
S	.021 MIN.	0,53 MIN.
T	.085 MIN.	2,16 MIN.

TOLERANCES TO BS 308 : 1964

BASIC DIMENSIONS ARE INCHES



HERMETIC SEALS

Code: HS3A

DESCRIPTION

Single terminal seal for transformers and general purpose applications.

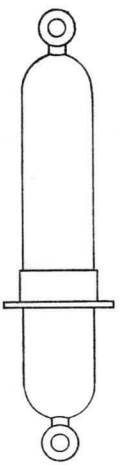
RATINGS

Current, maximum	10	A
Insulation resistance, minimum	1 000	MΩ
Proof voltage (r.m.s. 50 Hz):		
at 760 mm	10 000	V
at 120 mm	3 300	V
Capacitance, approx.	2·7	pF

MECHANICAL DATA

Materials Iron-nickel-cobalt alloy and borosilicate glass
Finish Electro-tinned and flowed
Dimensions As shown in outline drawing

Actual size



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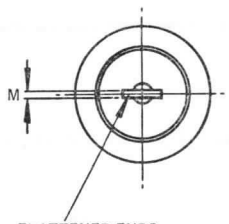
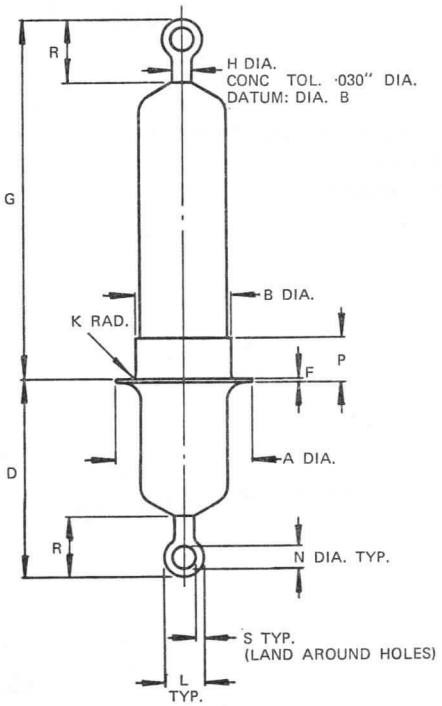
STC

Code: HS3A

CONTINUED

HS3A Outline





DIM.	INCHES	MILLIMETRES
A	.563 ± ·010	14,30 ± 0,25
B	·380 ± ·010	9,65 ± 0,25
D	·816 + ·000 − ·050	20,73 + 0,00 − 1,27
F	·010 ± ·002	0,25 ± 0,05
G	1·495 + ·000 − ·050	37,97 + 0,00 − 1,27
H	·080 ± ·005	2,03 ± 0,13
K	·020 MAX.	0,51 MAX.
L	·160 ± ·005	4,06 ± 0,13
M	·032 NOM.	0,81 NOM.
N	·085 MIN.	2,16 MIN.
P	·187 ± ·015	4,75 ± 0,38
R	·218 MIN.	5,54 MIN.
S	·021 MIN.	0,53 MIN.

METRIC DIMENSION DERIVED FROM ORIGINAL INCH DIMENSION

TOLERANCES TO BS 308: 1964

FINISH: ELECTRO-TINNED & FLOWED

LAMPS

STC

SPECIAL VALVES

Ballast Lamps

In telephone and other equipment it is often essential that the current in a circuit should remain substantially constant notwithstanding voltage fluctuations. A Ballast Lamp may be used to supply this constant current.

The types listed below are mainly for use in the filament circuit of telephone repeater valves.

The B1C/1E is a special version of the 4003A type mounted between clips for use in mobile equipment.

The 4006 series are equivalent to the G.P.O.1 and 1S Resistance Barretters.

Reference	Code	Current (A)	Voltage (V)
B1B/1E	4006A	0.080	11 max.
B1C/1E	B1C/1E (CV433)	0.88 to 1.07	3 to 9.5
*B2B/2C	4004B (CV2329)	0.23 to 0.27	3 to 9

* The socket code is 4012B for this type.

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Ballast Lamps

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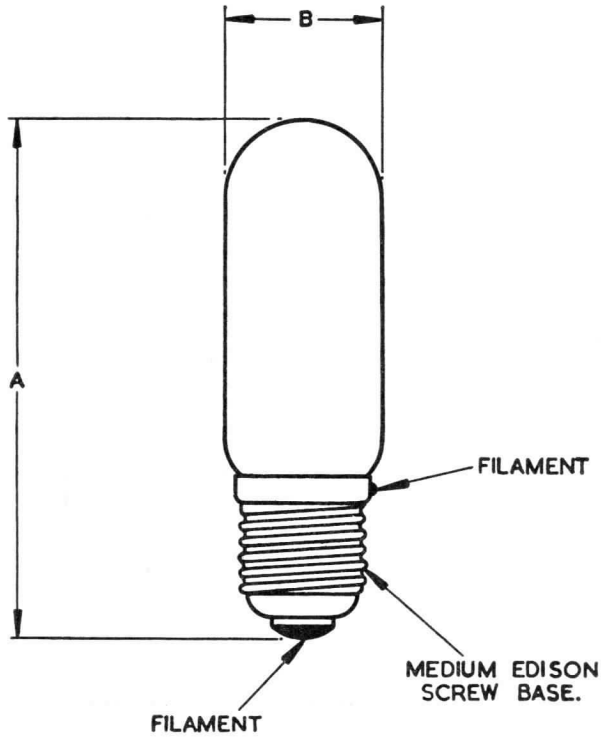
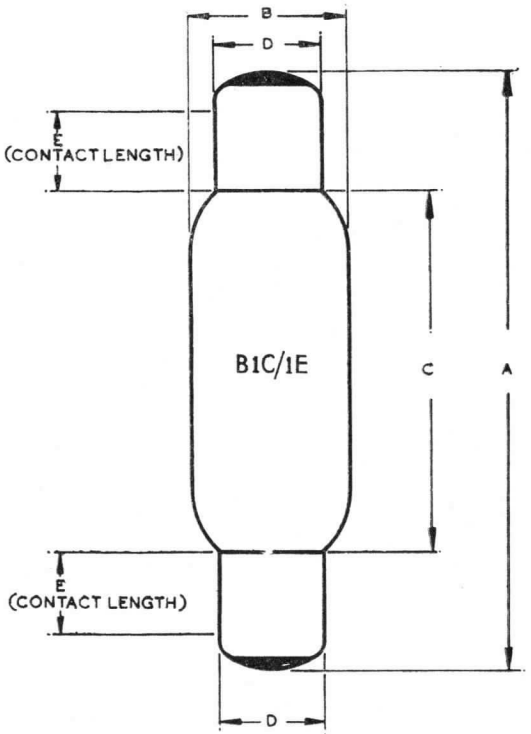


TYPE	DIM.	MILLIMETRES	INCHES
4004B 4120AA 4121AB	A	104.8 MAX.	$4\frac{1}{8}$ MAX.
	B	31.8 MAX.	$1\frac{1}{4}$ MAX.

NOTE: BASIC FIGURES ARE INCHES

SPECIAL VALVES

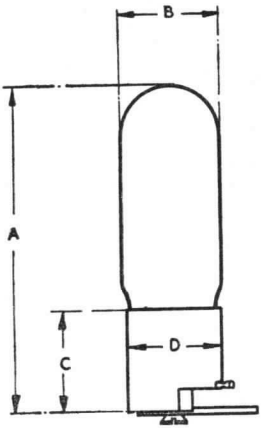
Ballast Lamps

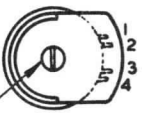


DIM	MILLIMETERS	INCHES
A	78·6 MAX.	3 3/32 MAX.
B	22·2 MAX.	7/8 MAX.
C	49·5 MAX.	1·95 MAX.
	44·5 MIN.	1·75 MIN.
D	14·8 MAX.	0·58MAX.
	13·8 MIN.	0·54MIN.
E	10·7 MIN.	27/64 MIN.

NOTE: BASIC FIGURES ARE INCHES

Ballast Lamps

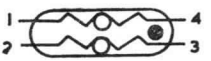




TYPE	SCREW (No. 4 BA x ¼ ZINC PLATED)
4006A&AS	COUNTER SUNK HEAD
4006B	CHEESE HEAD

BASING ARRANGEMENT

TAG No.	ELECTRODE
1 & 4	FILAMENT
2 & 3	FILAMENT



DIM	MILLIMETRES	INCHES
A	85·5 MAX	3·37 MAX
B	26·1 MAX	1·03 MAX
C	26·0 NOM	1·025 NOM
D	23·5 NOM	0·926 NOM

NOTE: BASIC FIGURES ARE INCHES

SPECIAL VALVES

Monitor Cathode Ray Tubes

Codes: VLS492AB
VLS492AG

CATHODE

Indirectly heated, oxide-coated		
Heater voltage	2	V
Nominal current	1.8	A

DIRECT INTERELECTRODE CAPACITANCES

X_1 plate to X_2 plate	0.8	pF
Y_1 plate to Y_2 plate	4.3	pF
X_1 plate to all other electrodes	6.6	pF
Y_1 plate to all other electrodes	6.0	pF
Control grid to all other electrodes	8.5	pF

CHARACTERISTICS

Screen colour { VLS492AB	Blue	
Screen colour { VLS492AG	Green	
Focusing method	Electrostatic	
Deflection method	Electrostatic	
Sensitivity, (where V_{a_2} = Second anode voltage)		
X plates	$\frac{110}{\sqrt{V_{a_2}}}$	mm/V
Y plates	$\frac{120}{\sqrt{V_{a_2}}}$	mm/V

MECHANICAL DATA

Maximum overall length	6.75 in	171,5	mm
Maximum seated height	6.2 in	157,2	mm
Maximum bulb diameter	1.6 in	41,3	mm
Useful screen diameter, approx.		32	mm
Base		Medium shell octal	
Net weight		3.5	oz
		100	g

TYPICAL OPERATING CONDITIONS

Second anode voltage	500	1 000	V
First anode voltage	100	200	V
Grid voltage	0 to −5	−5 to −10	V

COMPONENTS GROUP

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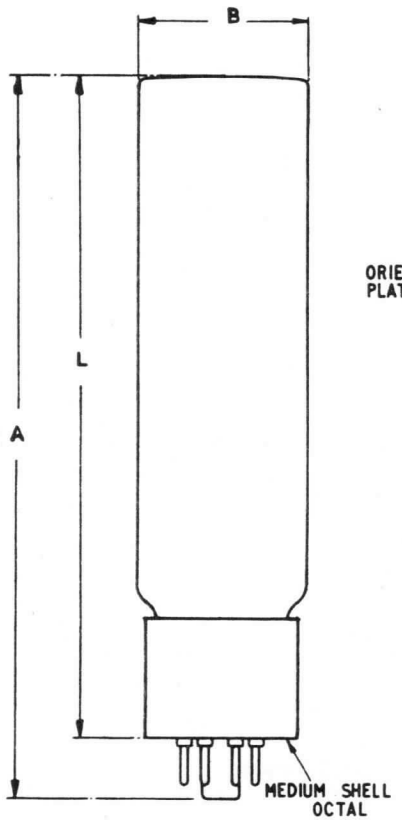
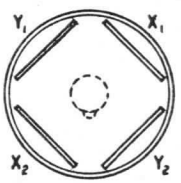
SPECIAL VALVES

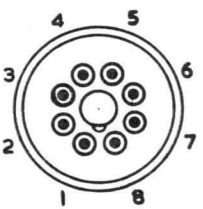
Monitor Cathode Ray Tubes

Codes: VLS492AB
VLS492AG





ORIENTATION OF THE DEFLECTOR PLATES AS VIEWED FROM THE SCREEN END



BASING

1 HEATER & CATHODE
2 X_1 PLATE
3 Y_2 PLATE & ANODE$_2$
4 Y_1 PLATE
5 X_2 PLATE
6 ANODE$_1$
7 GRID
8 HEATER

DIM.	MILLIMETRES	INCHES
A	171,5 MAX.	$6\frac{3}{4}$ MAX.
B	41,3 MAX.	$1\frac{5}{8}$ MAX.
L	157,2 MAX.	$6\frac{3}{16}$ MAX.

NOTE: BASIC DIMENSIONS ARE INCHES

SPECIAL VALVES

Cathode Ray Tube

Code: C10SS/2G (CV2794)

The C10SS/2G is an improved " wire in " version of the 4096AG Cathode Ray Tube which is now obsolete.

CATHODE

Indirectly heated, oxide-coated		
Heater voltage	2	V
Nominal current	1.7	A

DIRECT INTERELECTRODE CAPACITANCES

X_1 plate to X_2 plate	7.5	pF
Y_1 plate to Y_2 plate	0.7	pF
X_1 plate to all other electrodes	3.6	pF
Y_1 plate to all other electrodes	3.7	pF
Control grid to all other electrodes	3.8	pF

CHARACTERISTICS

Screen colour	Green	
Screen persistence	Medium	
Focusing method	Electrostatic	
Deflection method	Electrostatic	
Sensitivity, approx.	140	mm/V
	V_{a_2}	
Cut off voltage (at V_{a_2} 1 kV)	−30	V
Maximum first anode current	300	μA

MECHANICAL DATA

Maximum overall length	7.1	in	180	mm
Maximum overall diameter	2.8	in	70	mm
Maximum neck diameter	1.6	in	40	mm
Useful screen diameter, approx.	2.4	in	60	mm
Base			B10A/A	
Net weight			3.5	oz
			97	g

TYPICAL OPERATING CONDITIONS

Second anode voltage	0.8 to 2.0	kV
First anode voltage	$\frac{1}{8}$ of V_{a_2} voltage	
Control grid bias	0 to −30	V

COMPONENTS GROUP

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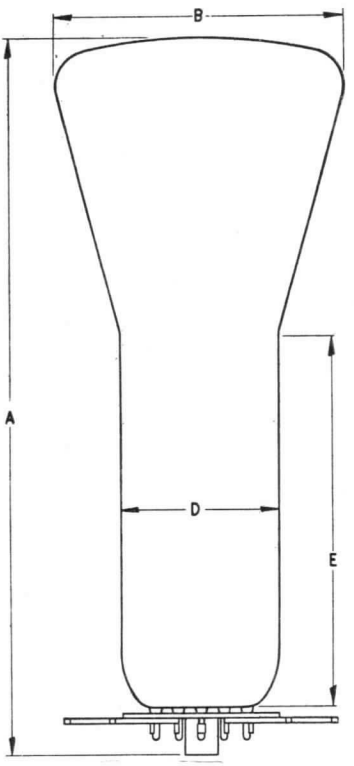
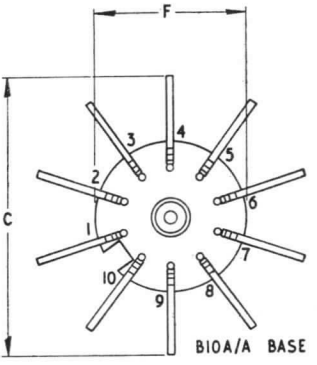
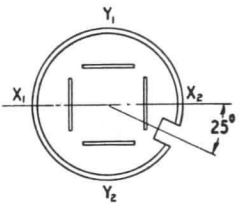
SPECIAL VALVES

Cathode Ray Tube

Code: C10SS/2G (CV2794)







ORIENTATION OF DEFLECTOR PLATES AS VIEWED FROM SCREEN END

DIM.	MILLIMETRES	INCHES
A	180 MAX.	7.1 MAX.
B	70,0 MAX.	2.76 MAX.
C	71,4 MAX.	$2\frac{13}{16}$ MAX.
D	40,0 MAX.	1.58 MAX.
E	110 APPROX.	$4\frac{11}{32}$ APPROX.
F	36,5 NOM.	$1\frac{7}{16}$ NOM.

NOTE: BASIC FIGURES ARE INCHES

BASING

1	HEATER
2	Y_1 PLATE
3	ANODE 2
4	X_1 PLATE
5	CATHODE
6	GRID
7	Y_2 PLATE
8	ANODE 1
9	X_2 PLATE
10	HEATER

Tungsten Filament Circuit Element

Code: L100/1G

The L100/1G is a sub-miniature tungsten filament non-linear circuit element for use in voltage sensitive bridge circuits and similar devices.

MECHANICAL DATA

Maximum overall length, less leads	1	in	25,4	mm
Maximum diameter	0.4	in	10,16	mm
Minimum lead length	1.25	in	31,7	mm
Base	None			
	Leads for wiring directly into circuit			
Net weight			0.05	oz
			1.5	g

CHARACTERISTICS

	Min.	Nom.	Max.	
Voltage for 5 mA filament current	45	50	55	mV
Voltage for 15 mA filament current	360	400	440	mV
Voltage for 50 mA filament current	3·6	4	4·4	V
Inductance		0·05		μH

MAXIMUM RATINGS

Maximum working voltage	6	V

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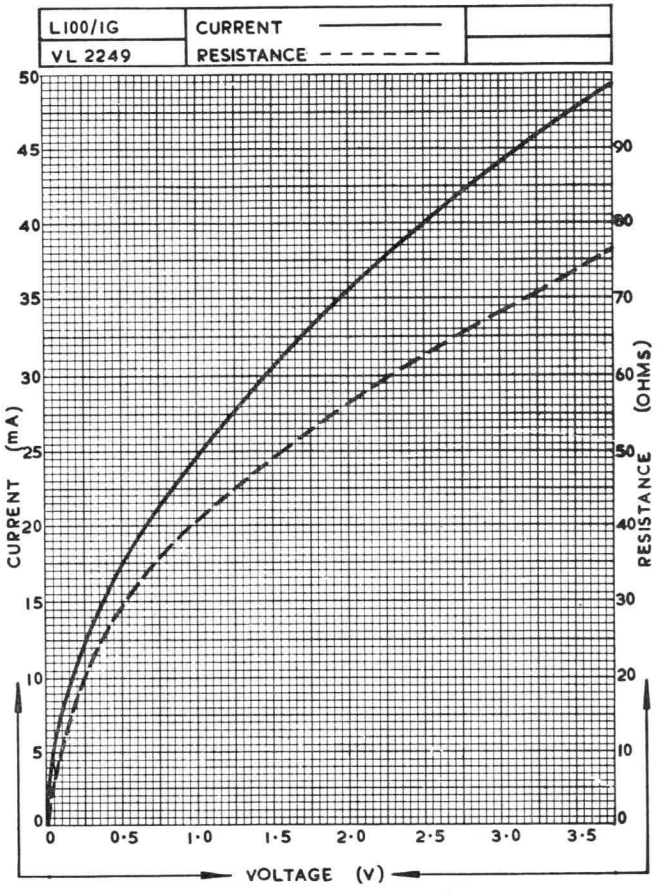
L100/1G
VL 2249
CURRENT
RESISTANCE
CURRENT (mA)
RESISTANCE (OHMS)
VOLTAGE (V)
0
5
10
15
20
25
30
35
40
45
50
0
10
20
30
40
50
60
70
80
90
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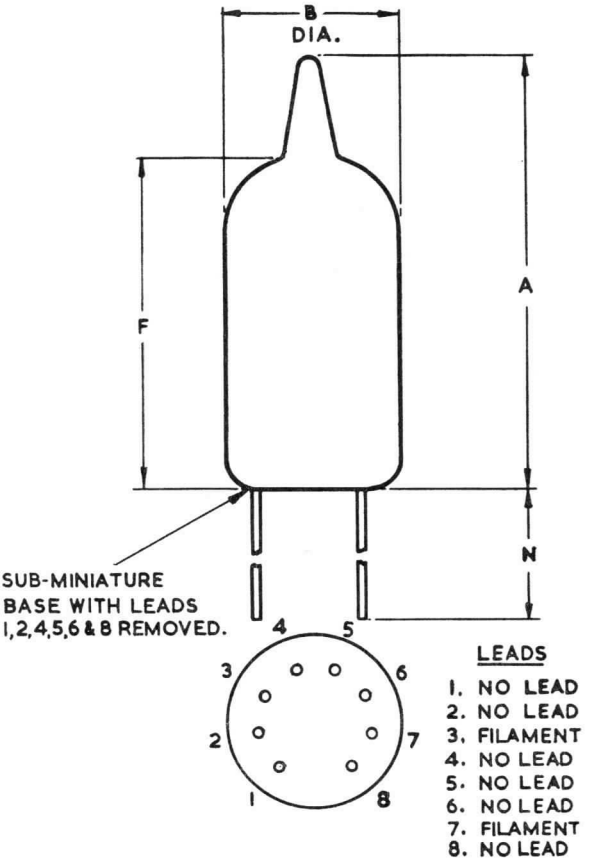
2·5
3·0
3·5



DIM.	MILLIMETRES	INCHES
A	25,4 MAX.	1 MAX.
B	10,16 MAX.	0.400 MAX.
F	20,6 MAX.	$\frac{13}{16}$ MAX.
N	31,7 MIN.	$1\frac{1}{4}$ MIN.

SPECIAL VALVES

Bolometer Lamp

Code: L101/1G

The L101/1G is a bolometer lamp suitable for measuring power at microwave frequencies up to 5 000 Mc/s.

MECHANICAL DATA

Maximum overall length, less leads	1.01 in	25,65	mm
Maximum diameter	0.18 in	4,87	mm
Minimum lead length	$1\frac{3}{8}$ in	34,9	mm
Base	None; cunife leads are provided for wiring directly into the bolometer mount.		
Net weight		0.028	oz
		0,8	g

CHARACTERISTICS

Nominal resistance at 10 mA filament current	70	ohms
Nominal resistance for 1 watt dissipation	92.5	ohms
Nominal sensitivity	0.01 to 0.03	ohms/mW

MAXIMUM RATINGS

Maximum power dissipation	1	W

NOTE.—Leads should not be soldered within $\frac{1}{8}$ in. (4 mm) of the glass bulb.

The data shown in the characteristic curve represents D.C. power dissipation for a bolometer lamp freely mounted in air, and is given solely as a guide; performance will be dependent, to some extent, upon the method of mounting the bolometer lamp.

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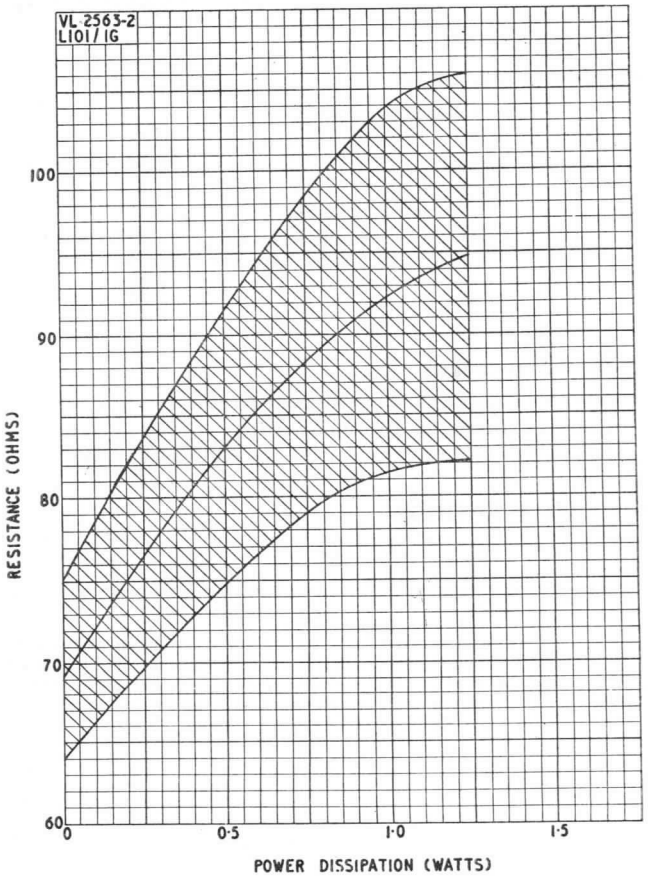
SPECIAL VALVES

Bolometer Lamp

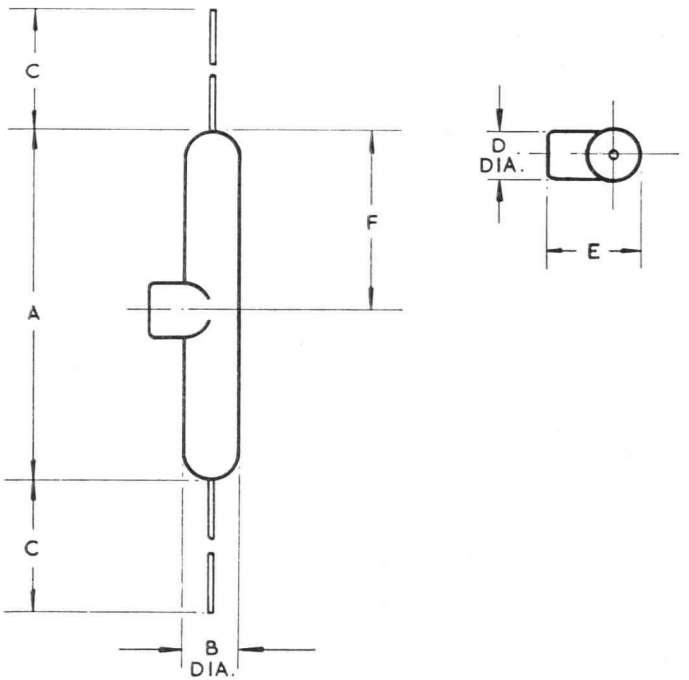
Code: L101/1G



SPECIAL VALVES

Bolometer Lamp

Code: L101/1G



DIM.	MILLIMETRES	INCHES
A	24,38 ± 1,27	0.960 ± 0.050
B	3,81 ± 0,76	0.150 ± 0.030
C	34,9 MIN.	$1\frac{3}{8}$ MIN.
D	4,06 MAX.	0.160 MAX.
E	6,86 MAX.	0.270 MAX.
F	12,7 ± 5,5	$\frac{1}{2} \pm \frac{7}{32}$

NOTE: BASIC FIGURES ARE INCHES

SPECIAL VALVES

Twin-Filament Resistance Lamp

Code: L102/2K

The L102/2K is a miniature resistance lamp containing two similar filaments, which may be used separately as protective devices in series with circuit elements of relatively low resistance.

Each filament has a low resistance at low current and a high resistance at high voltage. In the event of a circuit fault, the filament will withstand the full supply voltage and limit the supply current to a safe value.

MAXIMUM RATINGS

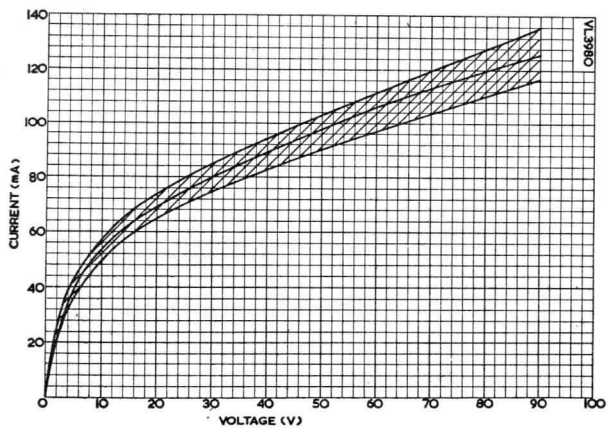
Maximum applied voltage (a.c. or d.c.) across filaments.

(a)	Single or parallel connected	85	V
(b)	Series connected	170	V

The maximum voltage between any two pins should not exceed 450V (peak or d.c.).

NOTE.—A fuse should be fitted in series with each filament as additional protection; it should fuse at 250mA.

CHARACTERISTIC (each filament)



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Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

STC

Code: L102/2K

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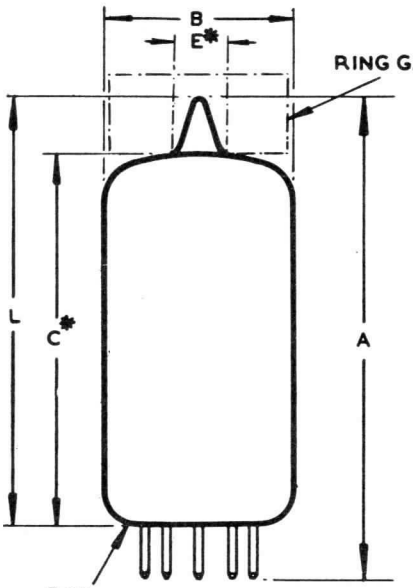

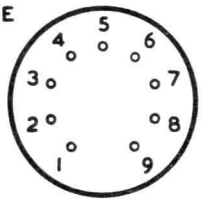

BASING

1. I.C.
2. FILAMENT.1.
3. FILAMENT.1.
4. I.C.
5. N.C.
6. I.C.
7. FILAMENT 2.
8. FILAMENT 2.
9. I.C.

	DIM.	MILLIMETRES	INCHES
	A	56,0 MAX.	$2\frac{7}{32}$ MAX.
	B	22,2 MAX.	$\frac{7}{8}$ MAX.
*	C	39,5 ± 2,4	$1\frac{9}{16} \pm \frac{3}{32}$
	L	49,0 MAX.	$1\frac{13}{16}$ MAX.
*	E	11,1	$\frac{7}{16}$

NOTE: BASIC DIMENSIONS ARE INCHES

*DENOTES: MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF "E" IN T DIA.

VACUUM GAUGES

SPECIAL VALVES

STC

Ionization Gauges

Ref.: M103/3G

Code: M103/3G

CATHODE

Two tungsten filaments each rated at:

Nominal voltage	For 20 mA grid current at grid voltage 110 V, collector voltage −10 V	6	V
Nominal current		2.4	A

It is intended that only one filament is used. The second is included as a spare electrode.

CHARACTERISTICS

Pressure range (approx.)	10^{-3} to 10^{-7}	Torr
Sensitivity (I_c/I_g per Torr)	10	

DESCRIPTION OF OPERATION

Under normal operating conditions, a positive direct voltage is applied to the grid. The collector, or anode, is biased negative with respect to the cathode. Gas molecules present in the gauge are ionized by collision with electrons in the cathode-grid space. The positive ions are collected by the negative collector and the collector current may be amplified to give a direct gas pressure reading on a suitably calibrated meter.

TYPICAL OPERATING CONDITIONS

Direct collector voltage	−10	V
Direct grid voltage	110	V
Direct grid current	20	mA
Direct collector current at 20 mA grid current and 1×10^{-5} Torr pressure	2	μA

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OPERATING NOTES

Before using the gauge the electrodes should be degassed. The envelope material is C9 glass which may be heated up to 450°C.

* The grid and collector electrodes are degassed by electron bombardment. With a direct voltage of about 100 volts applied to the grid and collector strapped together, the filament voltage should be increased to not more than 8 volts to give a grid current of 60 mA. The collector current will be about 200 mA. This bombardment causes the grid and collector to glow red and should be maintained for a few minutes to allow the gas to be pumped away. The filament voltage should then be reduced to its normal value, making the gauge ready for normal operation.

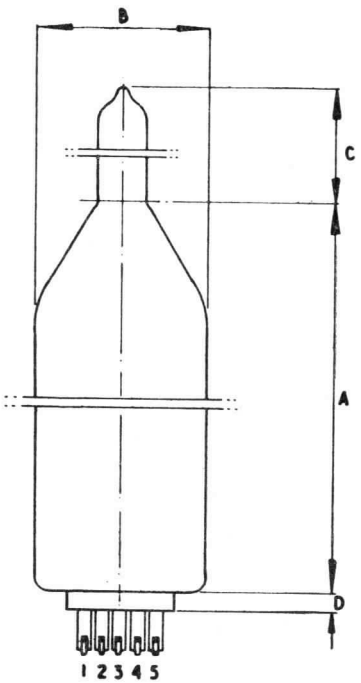
* Bombardment may be carried out only if the condition of the vacuum is such that only a small amount of ionization is visible in the gauge. Bombardment under poor vacuum conditions will result in rapid destruction of the emission.

Glass C9

Net weight

4.4 oz

126 g



	LEADS	
FIG.	ELECTRODE	COLOUR OF SLEEVE
1	GRID	BLACK
2	FILAMENT	YELLOW
3	COMMON FIL. LEAD	GREEN
4	FILAMENT	YELLOW
5	COLLECTOR	RED

DIM.	MILLIMETRES	INCHES
*A	195,3 MIN.	$7\frac{11}{16}$ MIN.
	204,8 MAX.	$8\frac{1}{16}$ MAX.
B	37,4 MIN.	$1\frac{15}{32}$ MIN.
	38,9 MAX.	$1\frac{17}{32}$ MAX.
C	101,6 APPROX.	4 APPROX.
D	3,9 MAX.	$\frac{5}{32}$ MAX.

NOTE: BASIC FIGURES ARE INCHES.

*Approximately $2\frac{1}{2}$ in (65 mm) of this bulb is free for glass working.

SPECIAL VALVES

STC

PROVISIONAL DATA

Ref.: M130/1D

Pirani Gauge

Code: M130/1D

These Pirani Gauges are supplied in pairs matched for resistance and intended for use in two adjacent arms of a Wheatstone Bridge circuit; one sealed as supplied and one connected to the vacuum system. The device is suitable for air pressure measurements in the range 10^{-1} to 10^{-3} Torr.

MECHANICAL DATA

Base	Intermediate Shell Octal		
Glass bulb	Soda Lime		
Maximum length excluding tubulation	$3\frac{11}{16}$ in	93,7	mm
Maximum diameter	$1\frac{5}{16}$ in	33,3	mm
Net weight	$1\frac{1}{4}$ oz	35	g

ELECTRICAL DATA

	Min.	Nom.	Max.	
Filament resistance (sealed tube)*	110	125	140	Ω
Applied filament voltage	5	7	10	V

* These tubes are exhausted to a pressure of the order of 10^{-6} Torr. In a given tube resistance variations are negligible for pressures below 10^{-4} Torr.

APPLICATION NOTES

1. Equipment

1.1. *Circuit.* A suitable circuit for using a pair of these gauges is shown in Fig. 1.

1.2. *Layout.* To compensate for variation in ambient temperature the sealed and open gauge should be placed as close to each other as possible and the leads connecting them to the rest of the circuit should be matched and follow the same path.

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2. Calibration

2.1. Open one gauge and seal it to a vacuum system and pump to a vacuum better than 10^{-4} Torr.

2.2. Switch on the bridge supply, allow at least two minutes for a steady state to be reached, then set the bridge voltage (Fig. 1 switch S2 position 1).

2.3. Switch S2 to position 2 and set bridge balance approximately for zero current.

2.4. Switch S2 to position 3 and make a fine zero adjustment for bridge balance.

2.5. Reduce the vacuum and calibrate the meter against a Macleod Gauge to obtain a calibration chart similar to Fig. 2.

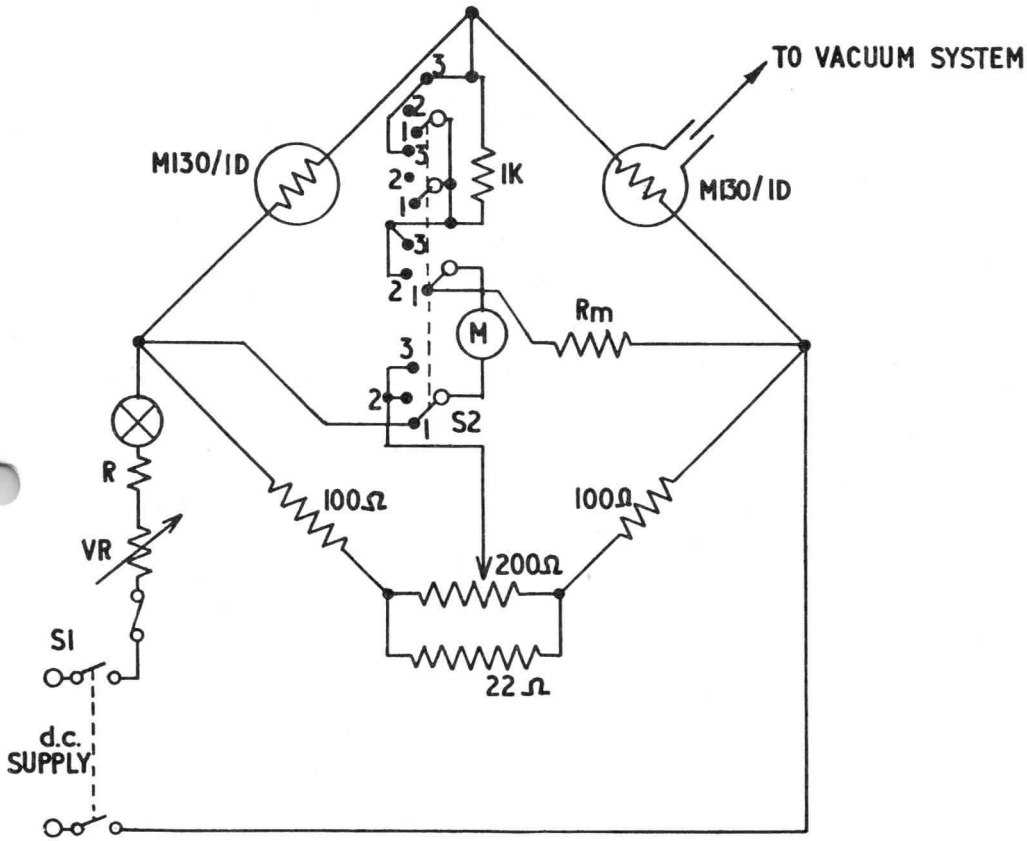
3. Use

3.1. Check the bridge voltage after at least two minutes warm-up time.

3.2. Take initial readings on the coarse range.

3.3. Switch to fine range only when the meter current on the coarse range falls below 0.2 mA.

FIG. 1. TYPICAL OPERATION CURRENT



Mam Millimeter 1mA F.S.D.

R_m is a resistor to enable milliammeter to be used as a voltmeter 20V F.S.D.

Values of resistors R and VR are chosen so that the input supply voltage may be reduced and adjusted to 14 V at 120 mA.

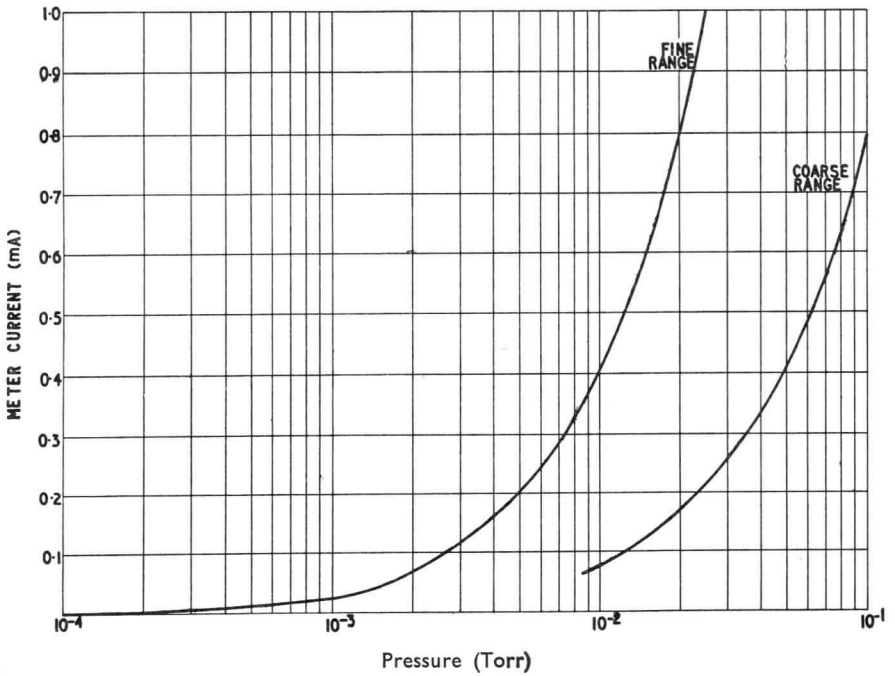
S2 is a 4 gang, three-way switch which connects meter M to read as follows:

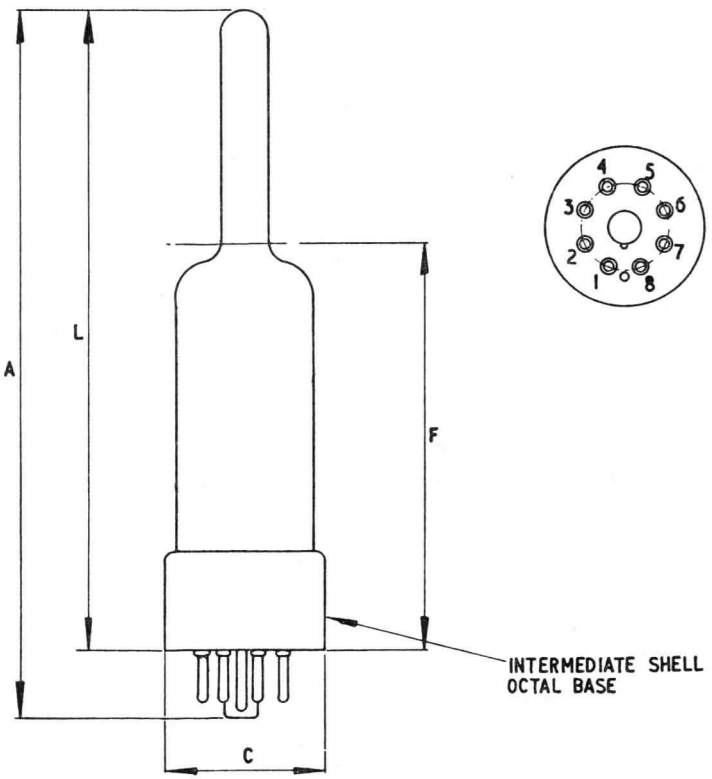
Position 1 applied bridge voltage.

Position 2 bridge off-balance current: coarse range.

Position 3 bridge off-balance current: fine range.

FIG. 2.—TYPICAL CALIBRATION CURVES RELATED TO CIRCUIT OF FIG. 1





NOTE.—BASIC DIMENSIONS ARE INCHES

DIM.	INCHES	MILLIMETRES
A	$5\frac{13}{16}$ MAX.	147,64 MAX.
C	$1\frac{5}{16}$ MAX. DIA.	33,34 MAX. DIA.
L	$5\frac{1}{4}$ MAX.	133,35 MAX.
F	$3\frac{1}{8}$ MAX.	79,4 MAX.

SPECIAL VALVES

Ionisation Gauge

Code: M152/2E

This gauge is of the Bayard & Alpert type with a sensitivity of approximately 10μA collector per 1mA grid current per micron mercury pressure of air.

MECHANICAL DATA

Dimensions, Basing	As shown in outline drawing
Envelope	Kodial glass
Tabulation	Kodial and C.9 glass
Mounting position	Any in which the plane of the filament is vertical

CATHODE

Tungsten filaments (two, only one used at a time)

Filament voltage*	2 to 10	V
Filament current, nominal at 6V	4·7	A
nominal at 8V	5·6	A

*The filament voltage must be set precisely for each mode of operation and finely controlled since the required grid current in each case is obtained at a particular filament voltage: this is achieved by use of suitable control circuits.

LIMIT RATINGS

	Outgassing	As gauge	
Filament voltage, max.	10	7	V
Collector voltage	−200 to +750	−200 to 0	V
Grid voltage, max.	+750	+750	V
Grid current, max.†	200	0·1	mA
Grid dissipation, max.	80	—	W
Cathode current, max.†	200	0·1	mA
Glass temperature	450	—	°C
Gas pressure‡	1	—	μ

†Without appreciable pump action.
‡Maximum value before application of filament voltage.

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STC

Code: M152/2E

CONTINUED

TYPICAL OPERATING CONDITIONS

	Outgassing	As gauge	
Filament voltage. Adjust to give	$P_g = 65W$	$I_g = 10\mu A$	
Filament current, approx.	8	4·5	A
Collector voltage	+500*	−100	V
Collector current	—*	Read	
Grid voltage	+500	+150	V
Grid current	100*	0·01	mA
Grid dissipation	65	—	W

*Grid and collector strapped

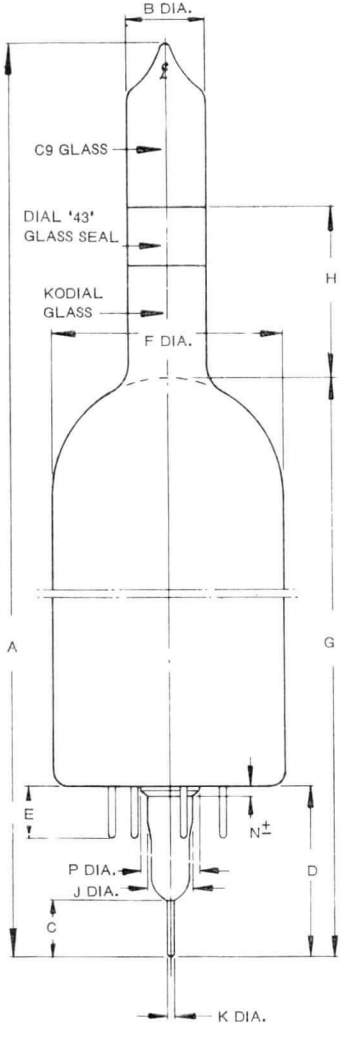
OPERATING NOTES

1. Before operation, the gauge or pump should be outgassed by uniform baking at a temperature between 400°C and 450°C.
2. The performance of this gauge may be influenced by the presence of ionising radiations.
3. The circuit resistance between the collector and other electrodes should be high.

Code: M152/2E

CONTINUED

M152/2E Outline



BASING

1 GRID
2 FILAMENT A
3 FILAMENT A
4 GRID
5 FILAMENT B
6 FILAMENT B
7 NO CONNECTION
CENTRE COLLECTOR

DIM.	INCHES	MILLIMETRES
A	9.9/16 MAX.	242,9 MAX.
B	·670 ± ·040	17,00 ± 1,00
C	7/16 MIN.	11,1 MIN.
D	1.1/2 ± 1/16	38,1 ± 1,6
E	·376 MIN. ·500 MAX.	9·55 MIN. 12,70 MAX.
F	2·000 ± ·080	50,80 ± 2,00
G	6.3/8 ± 1/8	161,9 ± 3,2
H	1.1/2 APPROX.	38,1 APPROX.
J	7/16 MAX.	11,1 MAX.
K	·048 ± ·002	1,22 ± 0,05
L	1·000 NOM.	25,40 NOM.
M	·052 MIN. ·060 MAX.	1,32 MIN. 1,52 MAX.
N	1/8 MAX.	3,2 MAX.
P	5/8 MAX.	15,9 MAX.

BASIC DIMS. ARE INCHES
± DENOTES: LENGTH OF BOSS

SPECIAL VALVES

Ionisation Gauge

Code: M153/2E

This gauge is of the Bayard and Alpert type with a sensitivity of approximately 10μA collector/1mA grid current/micron mercury pressure of air.

MECHANICAL DATA

Dimensions, Basing } As shown in outline drawing

Mounting position Any in which the plane of the filament is vertical

ENVELOPE

KODIAL glass

TUBULATION

KOVAR

CATHODE

Tungsten filaments (two, only one used at a time)

Filament voltage*	2 to 10	V
Filament current, nominal at 6V	4·5	A
nominal at 8V	5·5	A

*The filament voltage must be set precisely for each mode of operation and finely controlled since the required grid current in each case is obtained at a particular filament voltage: this is achieved by suitable control circuits.

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STC

Code: M153/2E

CONTINUED

LIMIT RATINGS

	Outgassing	As gauge	
Filament voltage, max.	10	7	V
Collector voltage	−200 to +750	−200 to 0	V
Grid voltage, max.	+750	+750	V
Grid current, max.	200	0·1*	mA
Grid dissipation, max.	80	—	W
Cathode current, max.	200	0·1*	mA
Glass temperature, max.	450	—	°C
Gas pressure†	1	—	μ

*Without appreciable pump action.

†Maximum value before application of filament voltage.

TYPICAL OPERATING CONDITIONS

Filament voltage	Adjust to give P_g = 65W	Adjust to give I_g = 10μA	V
Filament current (approx.)	8	4·5	A
Collector voltage	+500‡	−100	V
Collector current	—‡	Read	
Grid voltage	+500	+150	V
Grid current	100‡	0·01	mA
Grid dissipation	65	—	W

‡Grid and collector strapped.

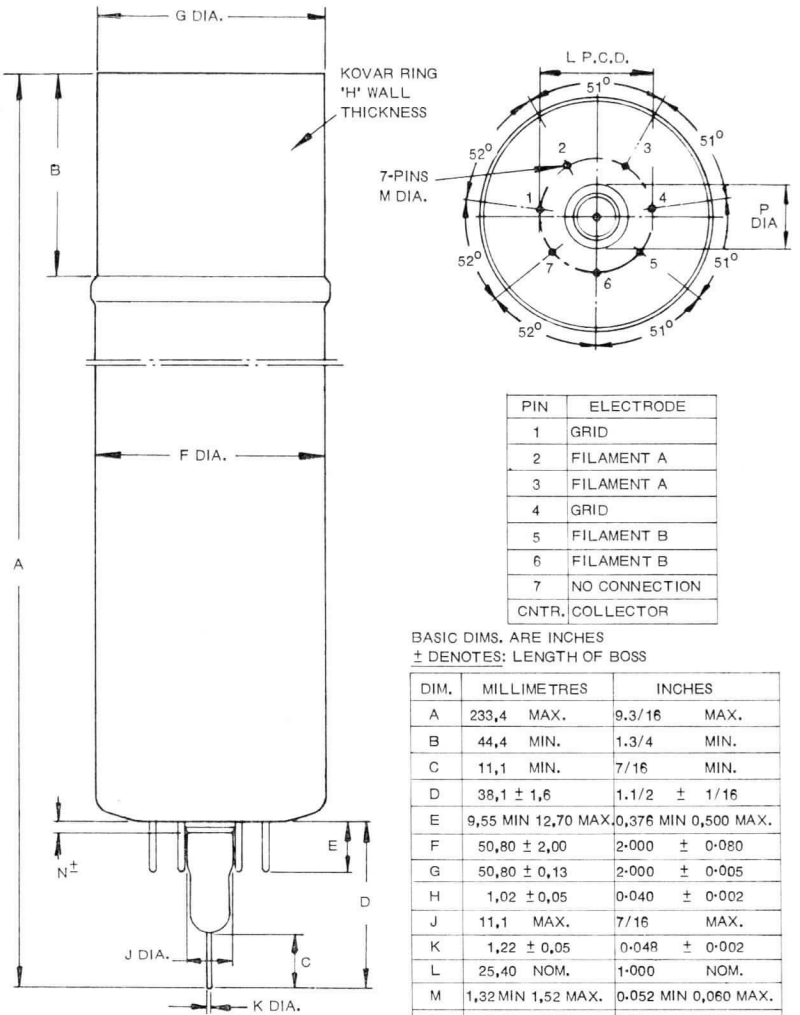
OPERATING NOTES

1. Before operation, the gauge or pump should be outgassed by uniform baking at a temperature between 400°C and 450°C.
2. The performance of this gauge may be influenced by the presence of ionising radiations.
3. The circuit resistance between the collector and other electrodes should be high.

Code: M153/2E

CONTINUED

M153/2E Outline



PIN	ELECTRODE
1	GRID
2	FILAMENT A
3	FILAMENT A
4	GRID
5	FILAMENT B
6	FILAMENT B
7	NO CONNECTION
CNTR.	COLLECTOR

BASIC DIMS. ARE INCHES
± DENOTES: LENGTH OF BOSS

DIM.	MILLIMETRES	INCHES
A	233,4 MAX.	9.3/16 MAX.
B	44,4 MIN.	1.3/4 MIN.
C	11,1 MIN.	7/16 MIN.
D	38,1 ± 1,6	1.1/2 ± 1/16
E	9,55 MIN 12,70 MAX.	0,376 MIN 0,500 MAX.
F	50,80 ± 2,00	2·000 ± 0·080
G	50,80 ± 0,13	2·000 ± 0·005
H	1,02 ± 0,05	0·040 ± 0·002
J	11,1 MAX.	7/16 MAX.
K	1,22 ± 0,05	0·048 ± 0·002
L	25,40 NOM.	1·000 NOM.
M	1,32 MIN 1,52 MAX.	0·052 MIN 0,060 MAX.
N	3,2 MAX.	1/8 MAX.
P	15,9 MAX.	5/8 MAX.

THERMAL DELAY
SWITCHES

SPECIAL VALVES

Thermal Delay Switch

Code: S30/2K

The S30/2K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

The switch is directly equivalent to U.S.A. type 6N030T.

HEATER

Voltage	6·3 (±10%)	V
Nominal current	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h 6·3V	V_h 6 to 6·6V	
Minimum delay	23	20	s
Maximum delay	37	40	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2, 3 and 4.

MAXIMUM RATINGS

Maximum open circuit voltage between contacts r.m.s. or d.c.	250	V
Maximum contact current, r.m.s. or d.c.	1	A
Maximum breaking current, a.c.	1	A
d.c.	0·5	A
Maximum peak surge current	5	A
Maximum peak heater-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

The S30/2K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

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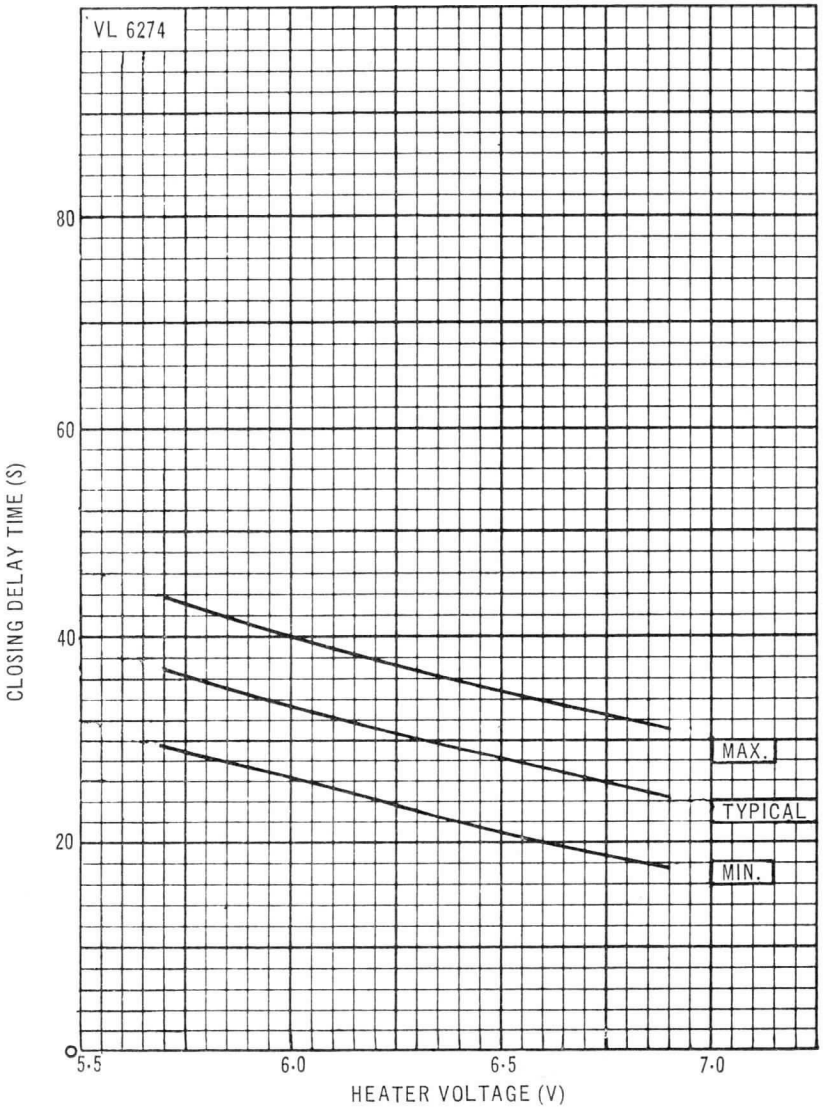
Code: S30/2K

CONTINUED

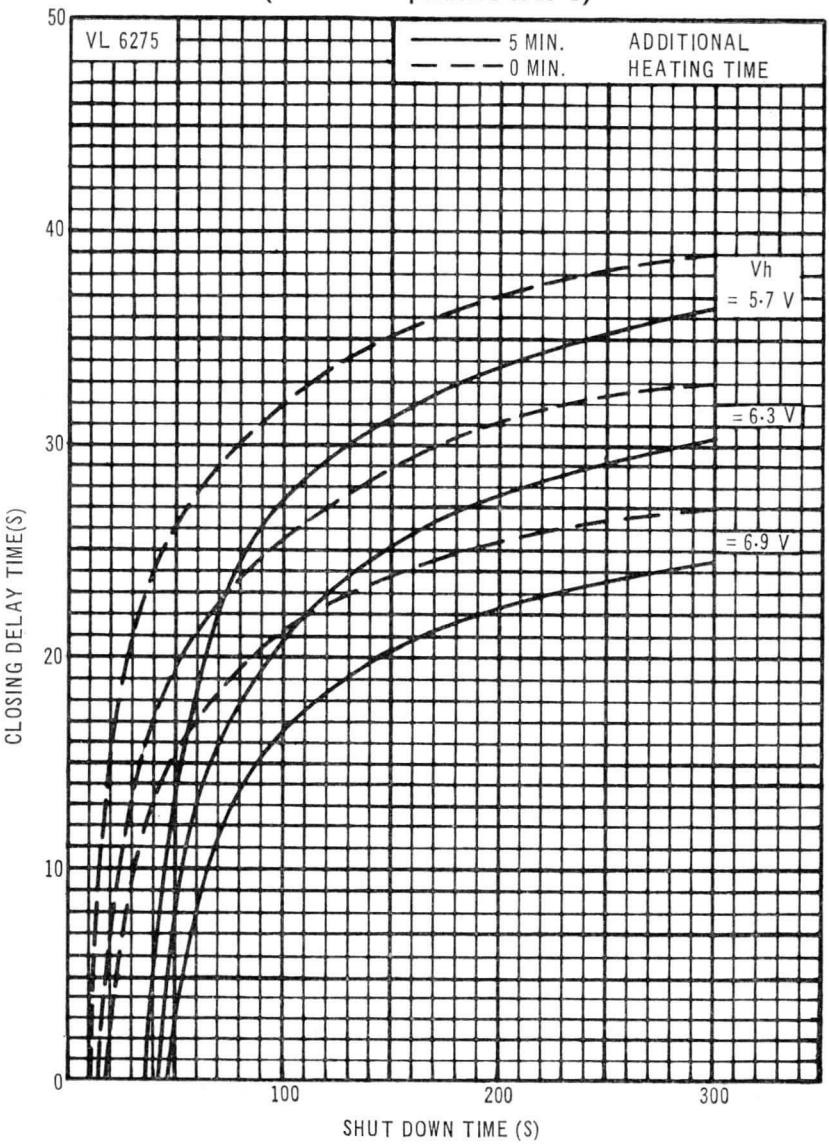
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S30/2K

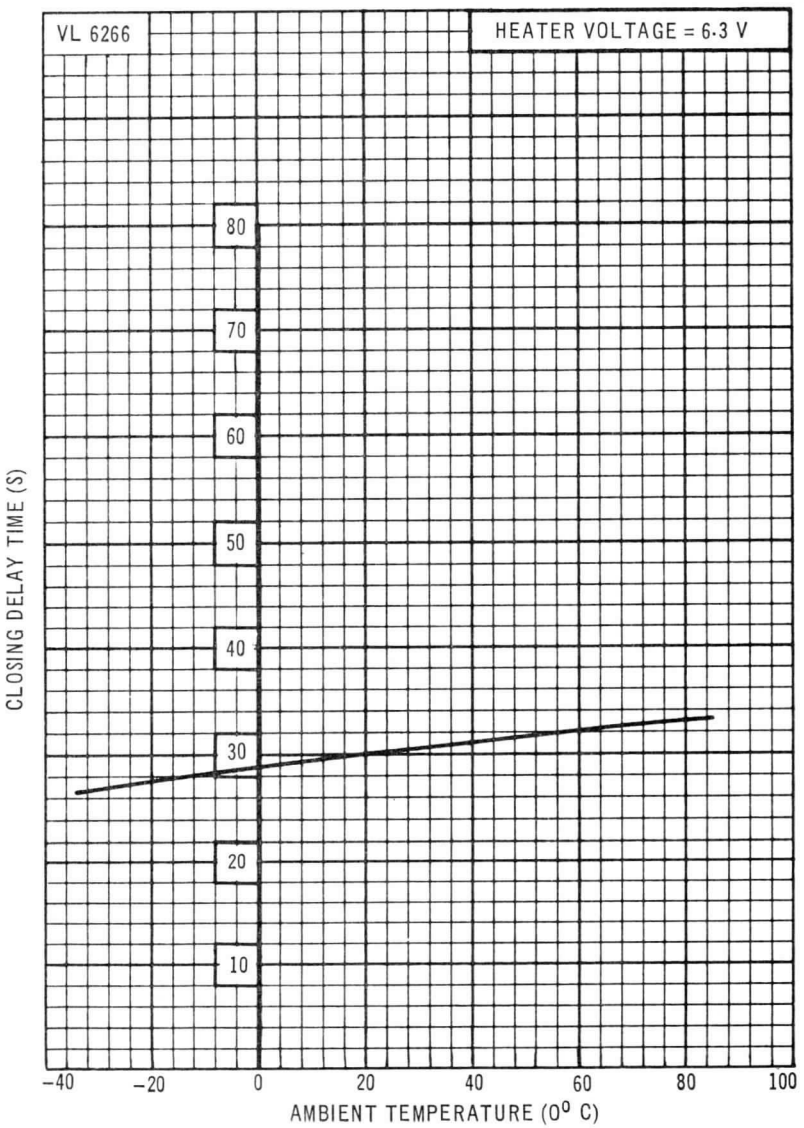
CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time* (at room temperature of 20°C)



*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

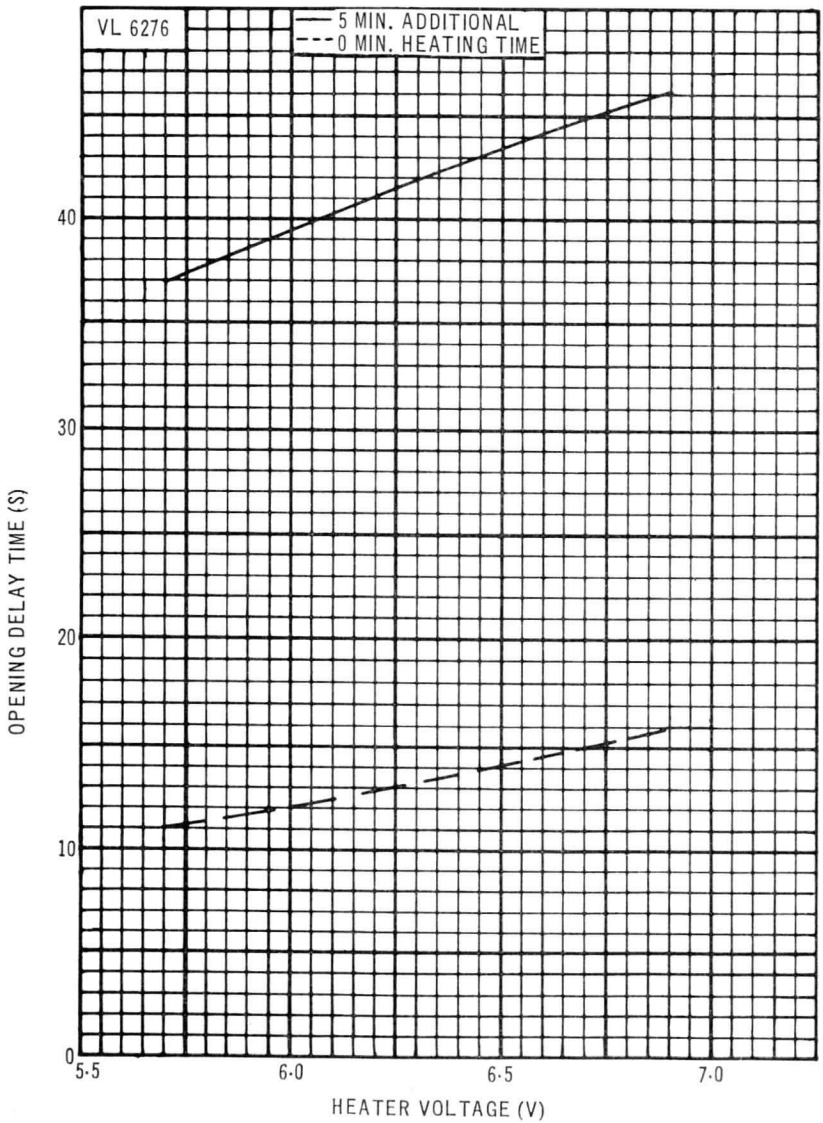
Fig. 3.—Closing Delay Time versus Ambient Temperature



Code: S30/2K

CONTINUED

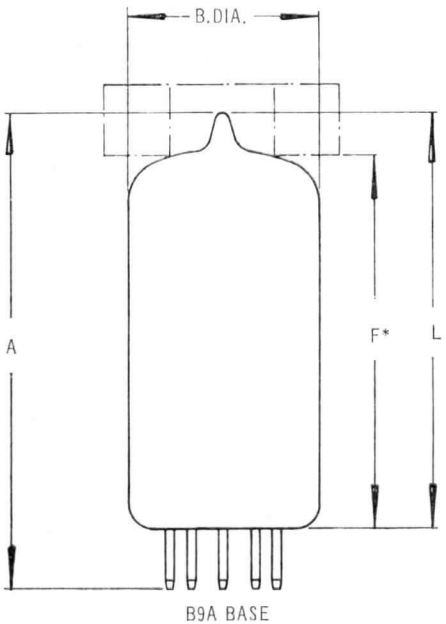
Fig. 4.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S30/2K

CONTINUED

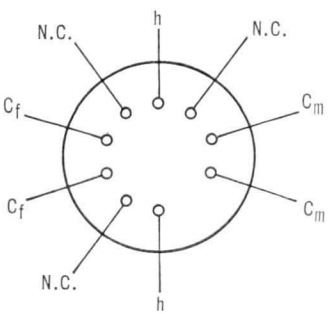
Fig. 5.—Outline and Basing Detail



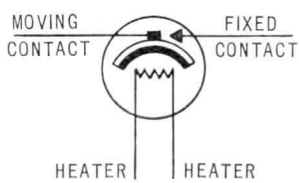
DIM.	INCHES	MILLIMETRES
A	2.1/8 MAX.	54,0 MAX.
B	7/8 MAX.	22,2 MAX.
F	1.9/16 ± 1/16	39,7 ± 1,6
L	1.7/8 MAX.	47,6 MAX.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.

*DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE AS DETERMINED BY A RING GAUGE OF 0·438 ± 0·001 DIA.



GRAPHICAL SYMBOL



SPECIAL VALVES

Snap Action
Thermal Delay Switch
Code: S45C/1D

This is a single-pole change-over snap action switch which gives a high contact pressure and rapid make and break action. It is designed for switching comparatively high powers (up to 250V at 5A a.c.).

HEATER

Voltage	6·3 (±7%)	V
Nominal current	1	A

DELAY TIME AT 20°C AND 6·3V

Minimum delay	35	s
Maximum delay	50	s

MECHANICAL DATA

Dimensions and basing.	As shown in outline drawing
Mounting position.	Vertical, base down

MAXIMUM RATINGS

Maximum open circuit voltage between contacts, r.m.s. or d.c.	250	V
Maximum contact current on make or break, a.c.	5	A
d.c.	3	A
Maximum peak heater-contact voltage	750	V

NOTE

For currents near the maximum rating it is recommended that the pairs of connections to each contact be wired together on the valve holder.

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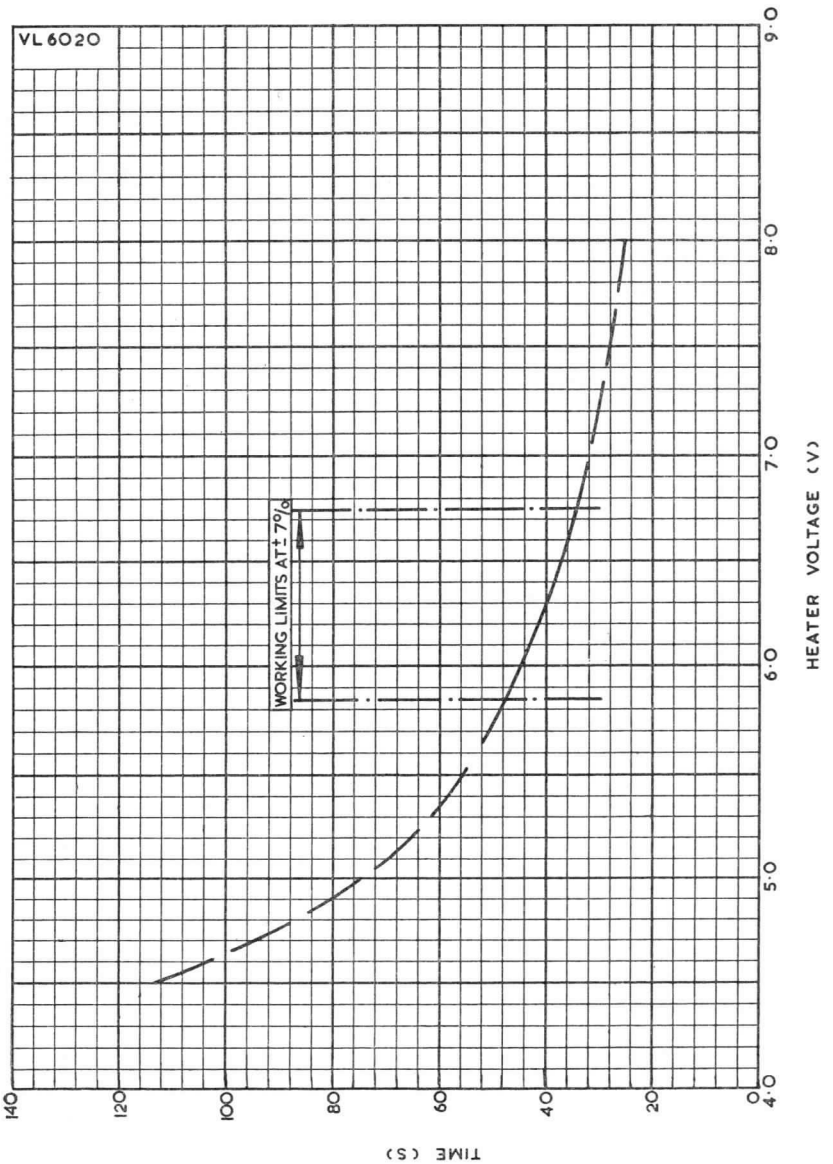
STC

Code: S45C/1D

CONTINUED

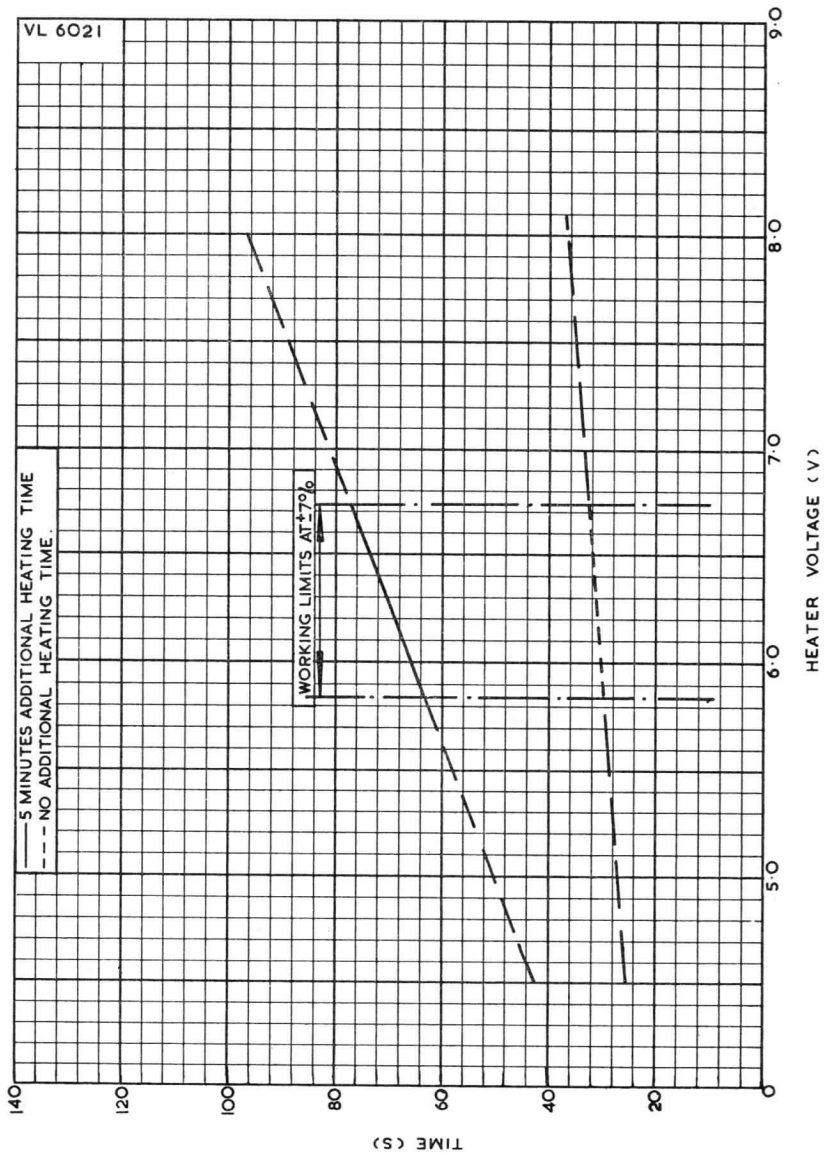
Closing Delay Time—Typical Characteristic



Code : S45C/1D

CONTINUED

Opening Delay Time—Typical Characteristic

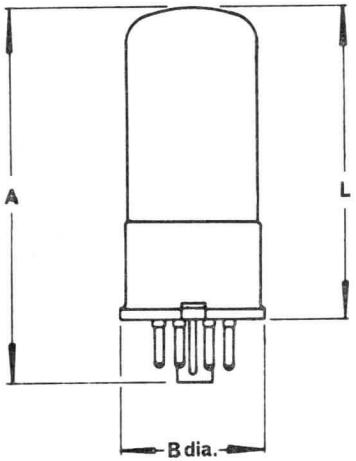


STC

Code: S45C/1D

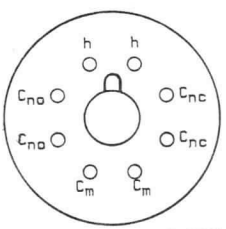
CONTINUED

S45C/1D Outline

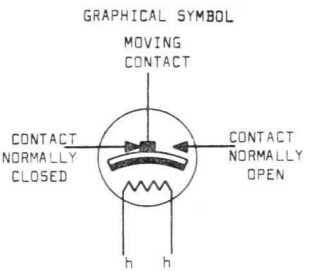


DIM.	INCHES	MILLIMETRES
A	$3\frac{5}{8}$ MAX.	92,1 MAX.
B	$1\frac{5}{16}$ MAX. DIA.	33,3 MAX. DIA.
L	$3\frac{1}{16}$ MAX.	77,8 MAX.

NOTE: BASIC DIMENSIONS ARE INCHES



SMALL WAFER OCTAL WITH METAL SHELL



STC

SPECIAL VALVES

Thermal Delay Switch

Code: DLS24

The DLS24 is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally closed.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A
Heater resistance, cold	1·3	Ω

OPENING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6·3V$	
Minimum delay	30	s
Maximum delay	90	s

Note 1.—Opening and closing delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. or a.c. voltage between contacts	500	V
Maximum contact current on make at 240V d.c. or a.c.	1	A
Maximum contact current on make at 500V a.c.	0·2	A
Maximum peak heater-to-contact voltage	200	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The heater supply of the switch should be removed when the contacts have opened to obtain the full delay time in the event of a shut-down and to ensure optimum switch life.

The DLS24 is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

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Valve Division, Brixham Road, Paignton, Devon
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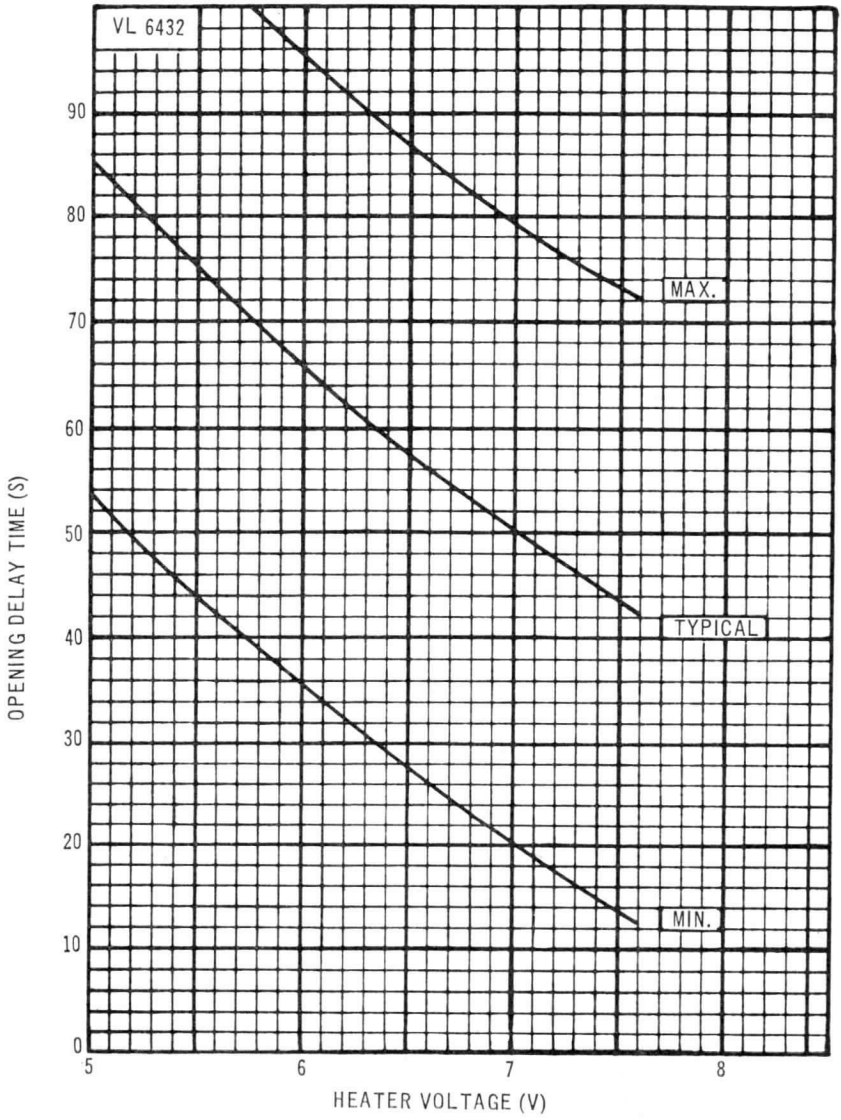
Code: DLS24

CONTINUED

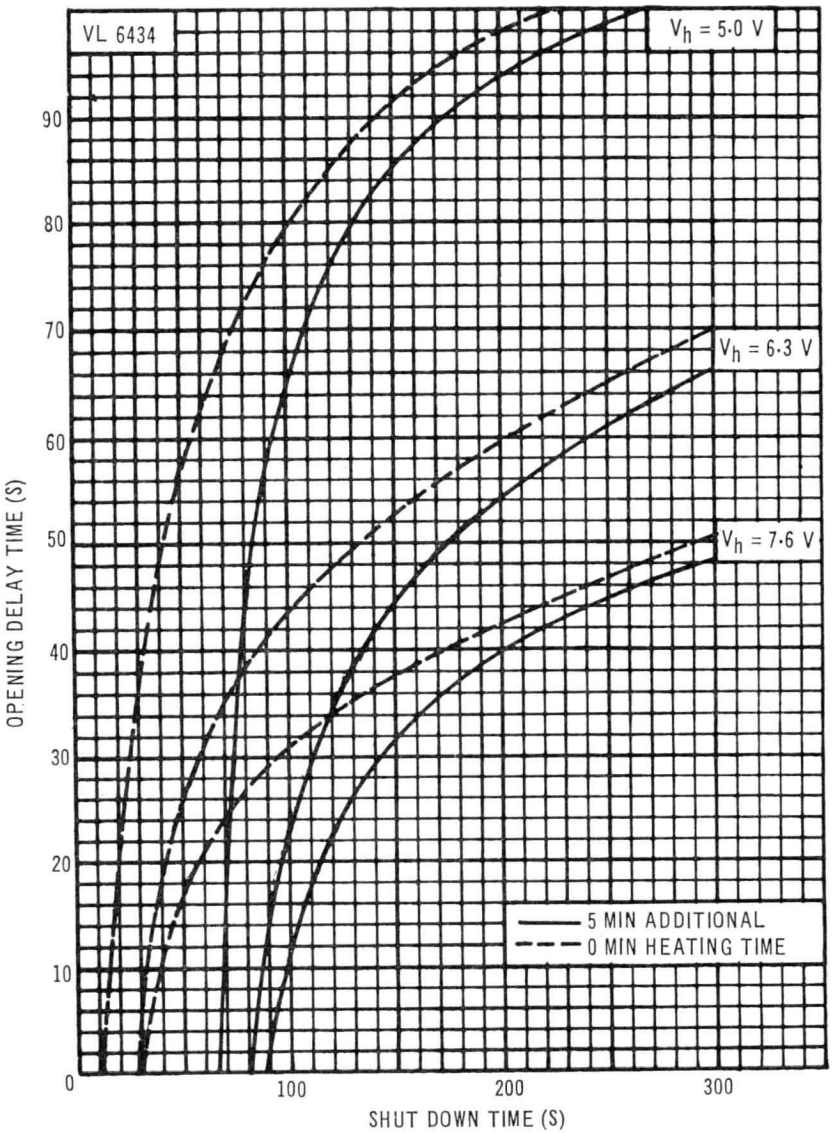
Fig. 1.—Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: DLS24

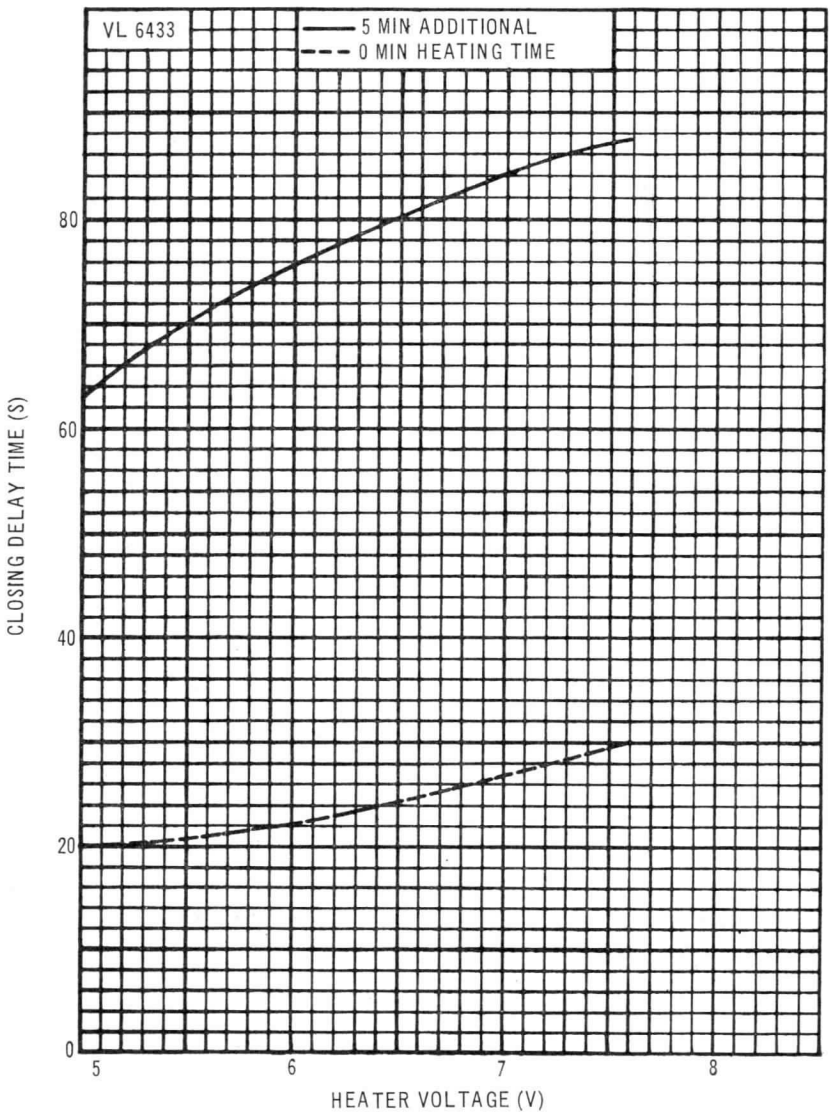
CONTINUED

Fig. 2.—Typical Opening Delay Time versus Shut-down Time*



*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

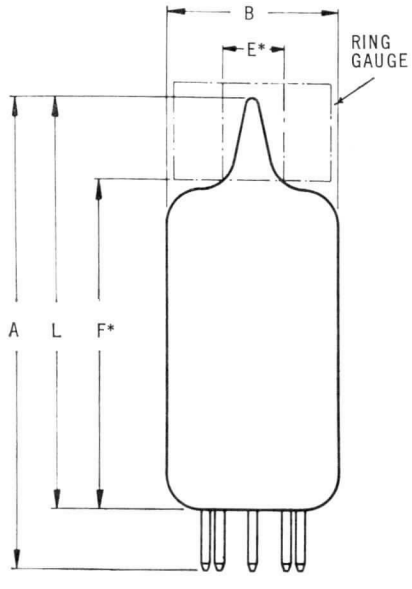
Fig. 3.—Typical Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: DLS24

CONTINUED

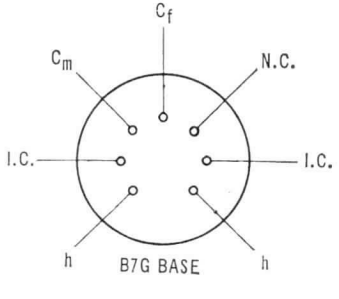
Fig. 4—Outline and Basing Detail

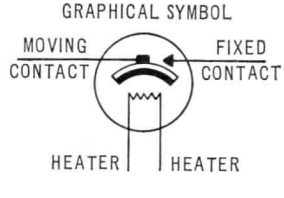


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: DLS16

The DLS16 is a single-pole thermal delay switch. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·48	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	30	s
Maximum delay	90	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit d.c. or a.c. voltage between contacts	1 000	V
Maximum contact current on make at 250V d.c. or a.c.	5	A
Maximum contact current on make at 1 000V a.c.	0·1	A

MECHANICAL DATA

Base IO–8

Dimensions, Basing detail } As shown in Figure 4

Mounting position Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

The DLS16 is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
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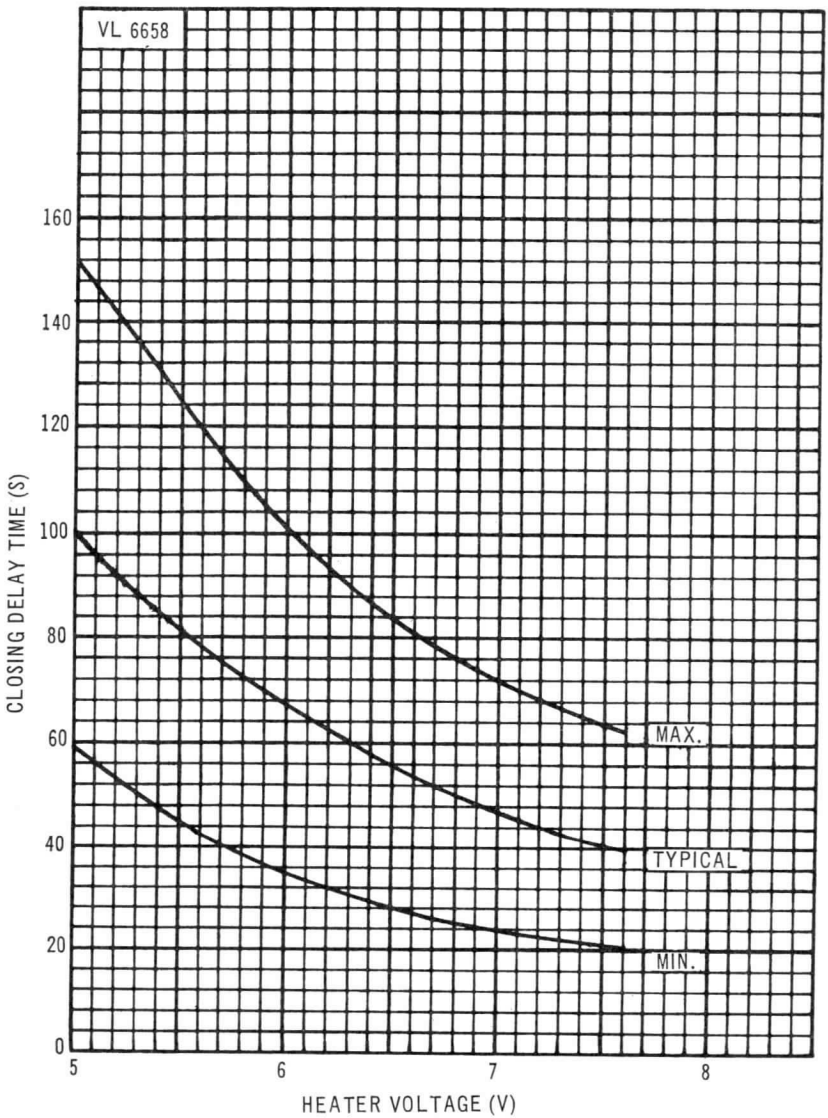
Code: DLS16

CONTINUED

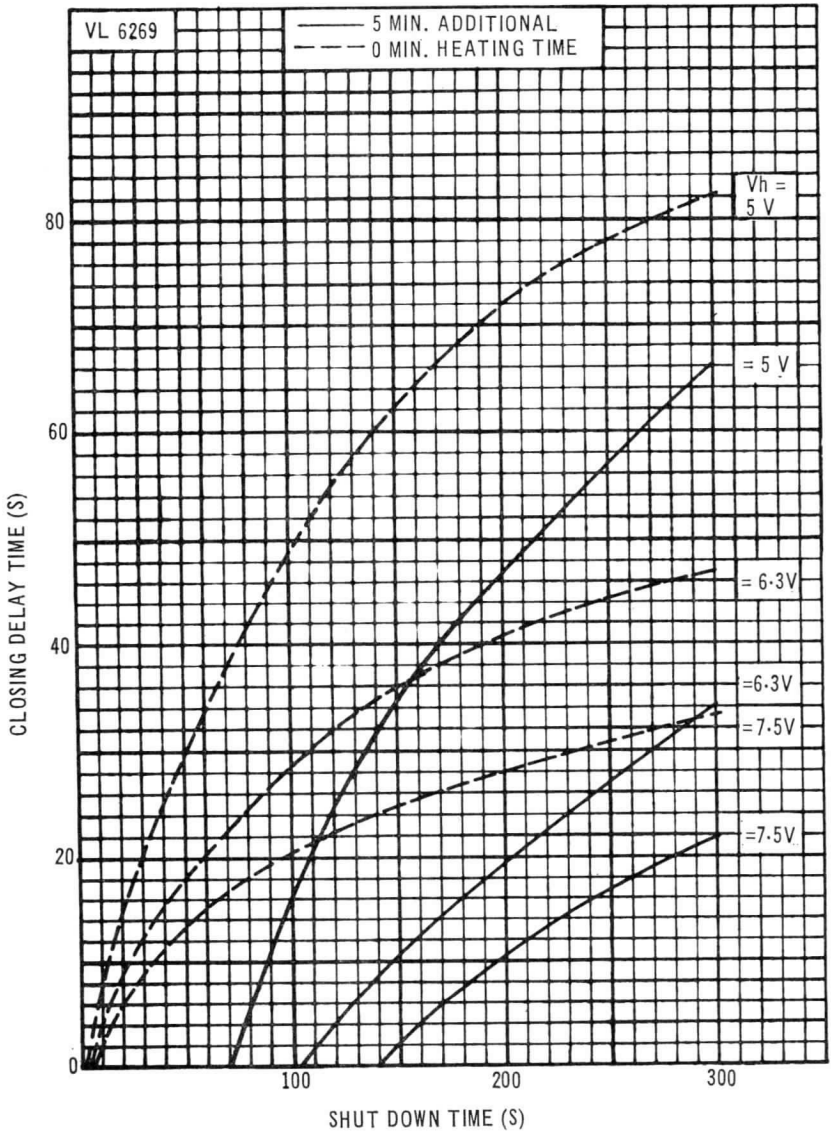
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: DLS16

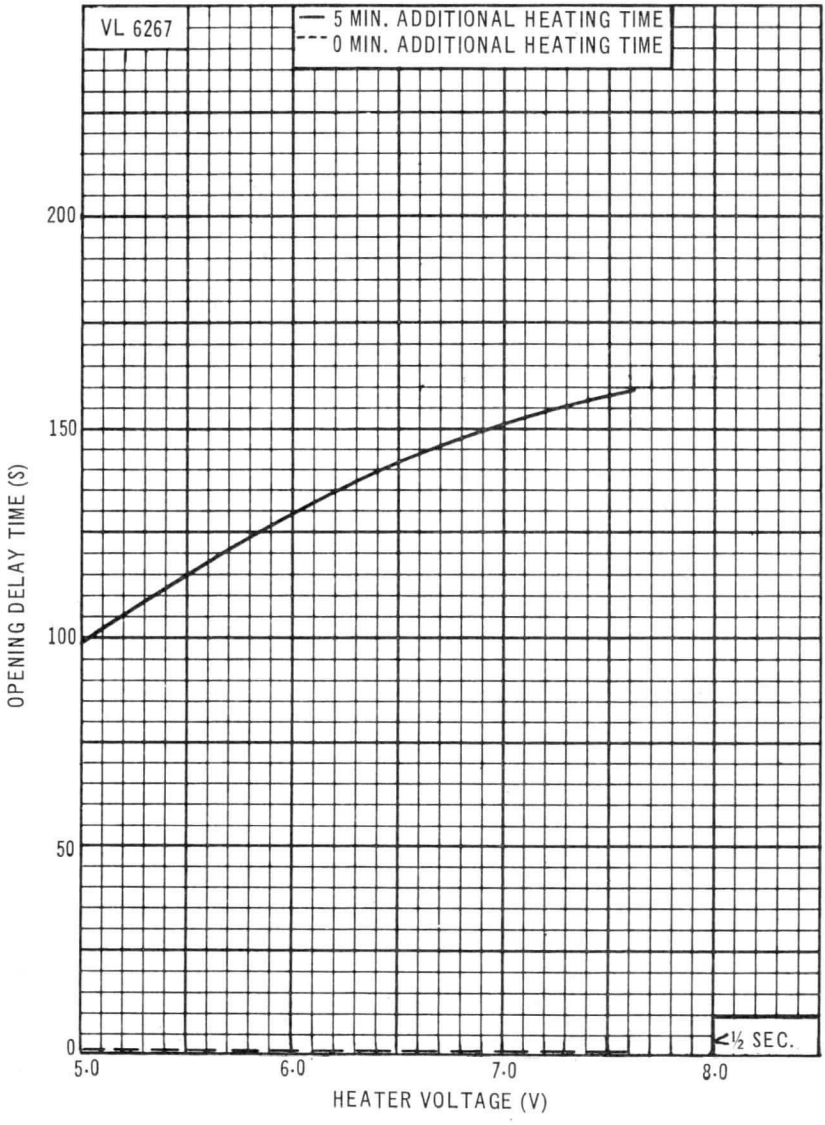
CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*



*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

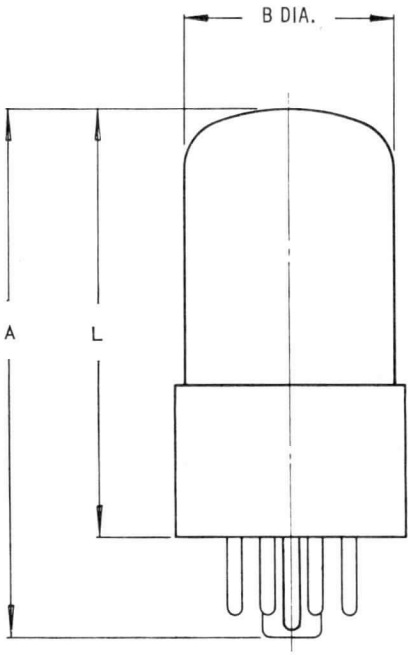
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: DLS16

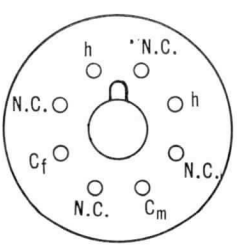
CONTINUED

Fig. 4.—Outline and Basing Detail



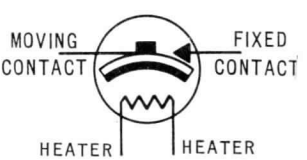
DIM.	MILLIMETRES	INCHES
A	80 MAX.	3·149 MAX.
B	32 MAX.	1·260 MAX.
L	60 MAX.	2·362 MAX.

NOTE:- BASIC DIMENSIONS ARE IN MILLIMETRES



MEDIUM SHELL OCTAL BASE

GRAPHICAL SYMBOL



STC

SPECIAL VALVES

Thermal Delay Switch

Code: DLS21

The DLS21 is a single-pole thermal delay switch. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·48	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6·3V$	
Minimum delay	30	s
Maximum delay	90	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. or a.c. voltage between contacts	1 000	V
Maximum contact current on make at 250V, d.c. or a.c.	5	A
Maximum contact current on make at 1 000V a.c.	0·1	A

MECHANICAL DATA

Base I0–8

Dimensions, Basing detail } As shown in Figure 4.

Mounting position Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

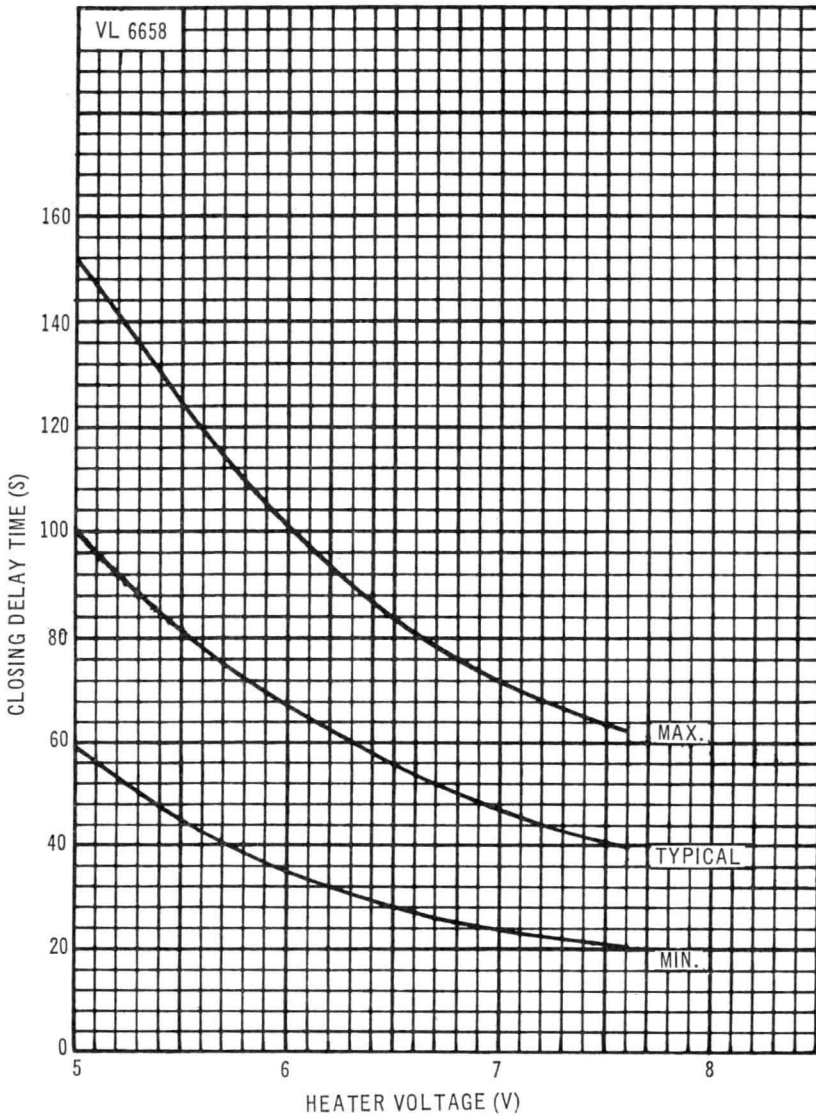
The DLS21 is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: DLS21

CONTINUED

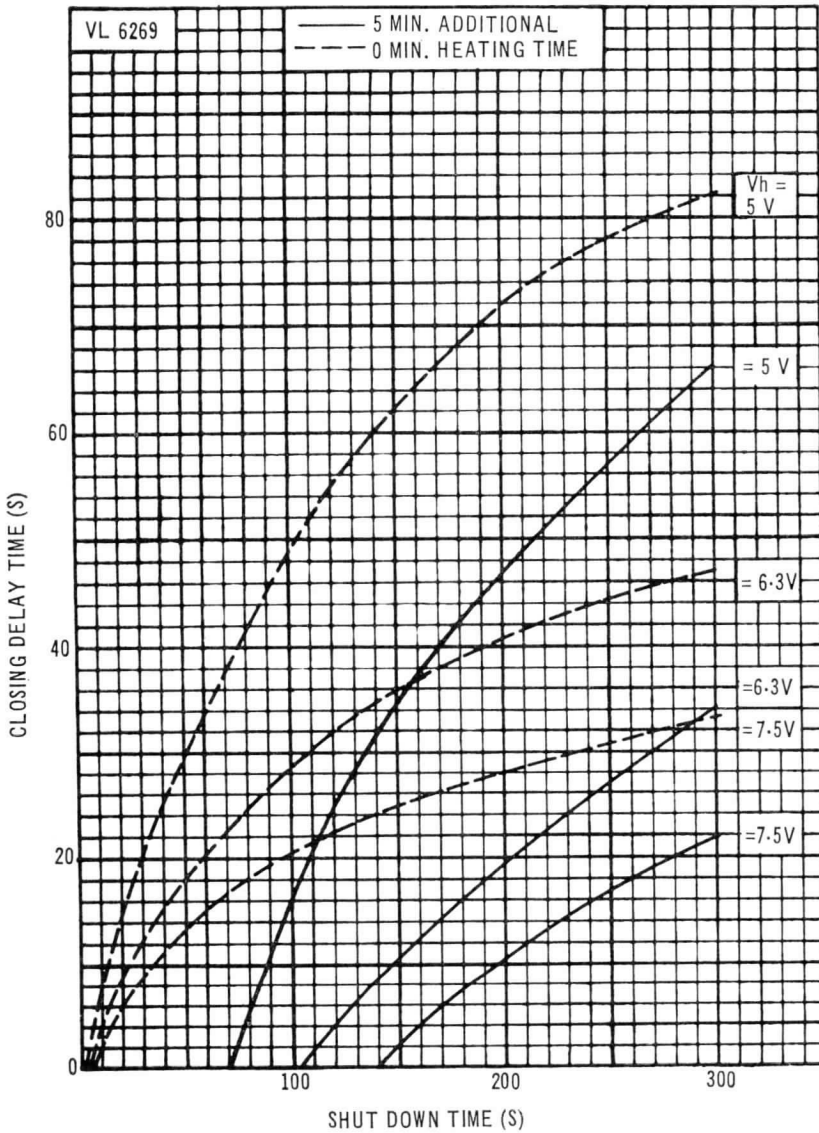
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: DLS21

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

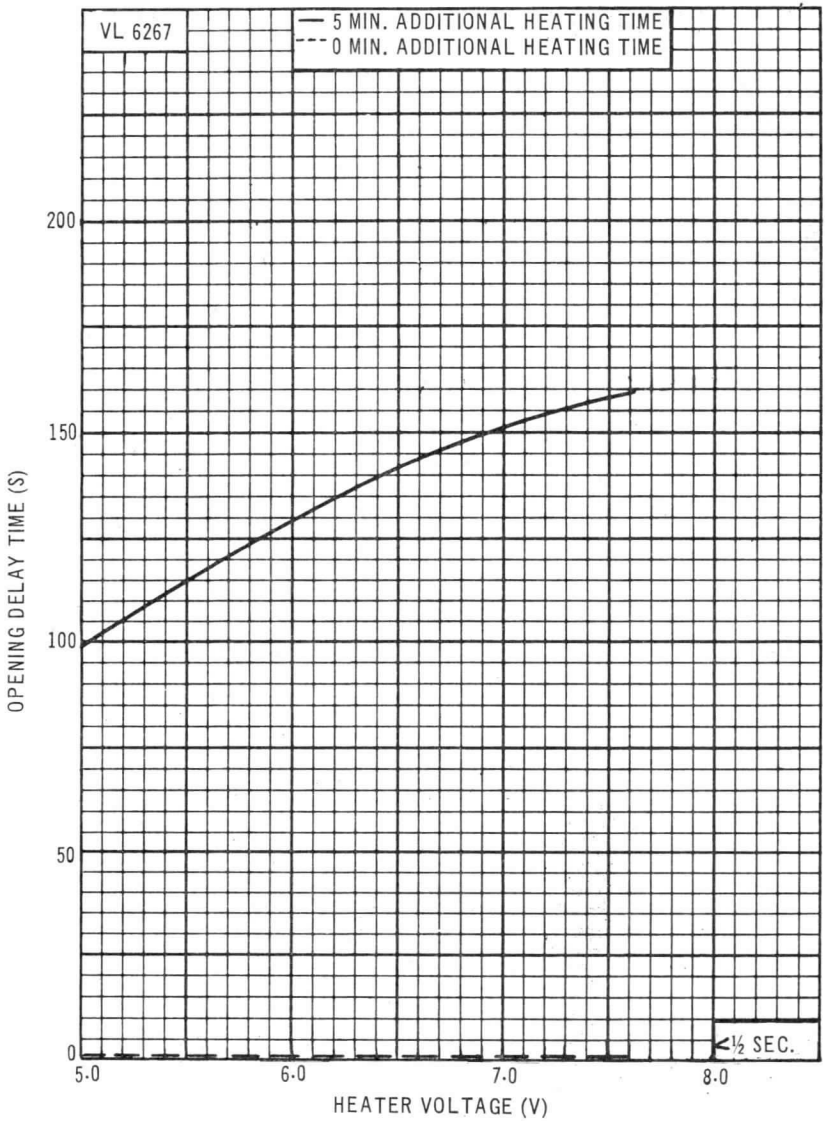


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: DLS21

CONTINUED

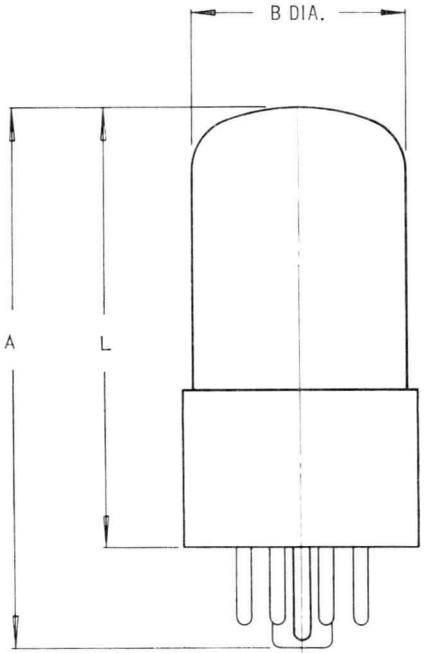
Fig. 3.—Typical Opening Delay Time versus Heater Voltage



Code: DLS21

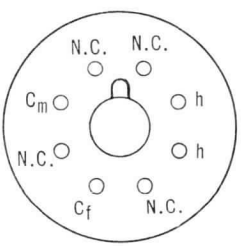
CONTINUED

Fig. 4.—Outline and Basing Detail



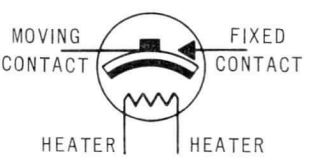
DIM.	MILLIMETRES	INCHES
A	80 MAX.	3·149 MAX.
B	32 MAX.	1·260 MAX.
L	60 MAX.	2·362 MAX.

NOTE:- BASIC DIMENSIONS ARE IN MILLIMETRES



MEDIUM SHELL OCTAL BASE

GRAPHICAL SYMBOL



STC

SPECIAL VALVES

Thermal Delay Switch

Code: S75/1K

The S75/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	30 ± 10%	V
Heater current, nominal	0·1	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h = 30V	V_h = 28·5 to 31·5V	
Minimum delay	65	58	s
Maximum delay	85	92	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

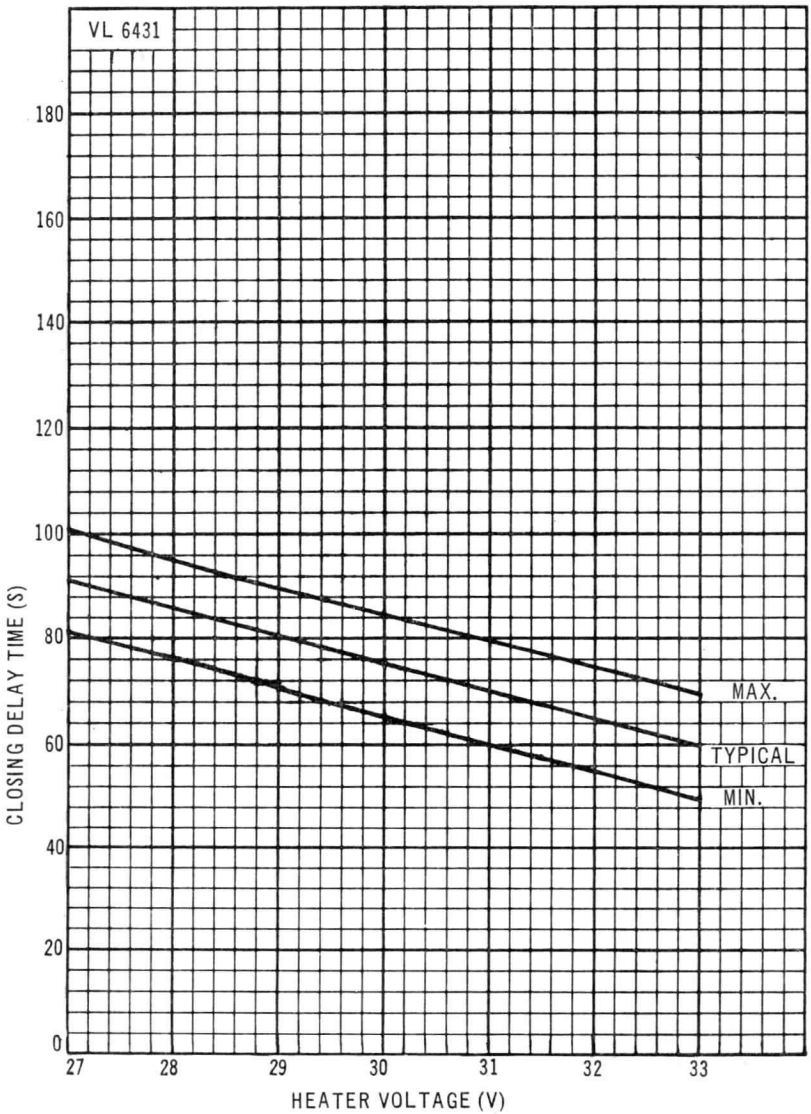
The S75/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S75/1K

CONTINUED

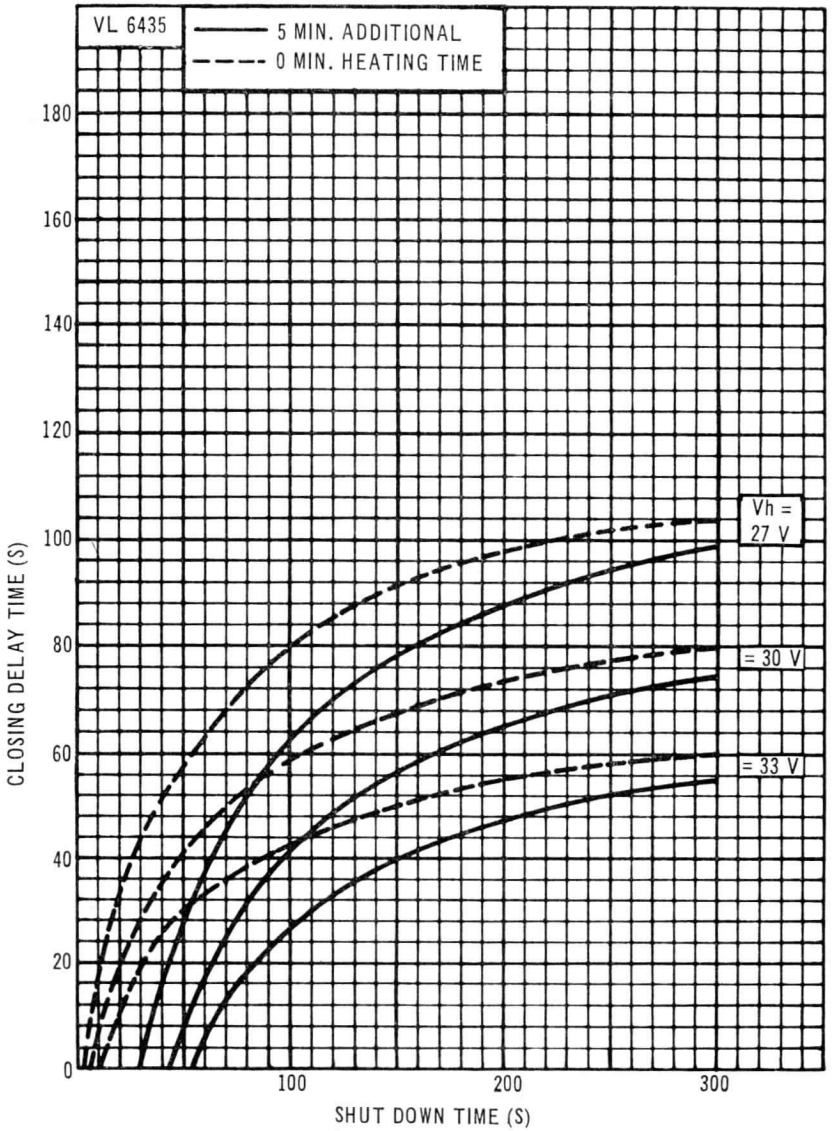
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S75/1K

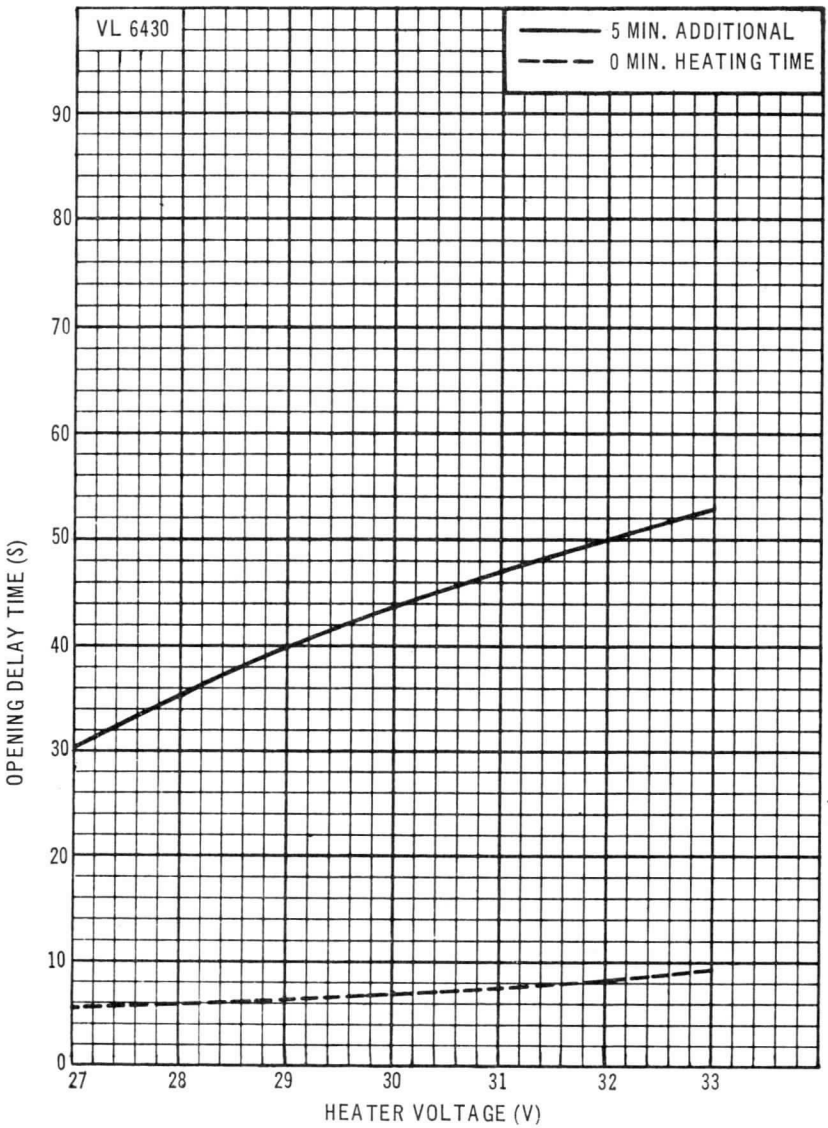
CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*



*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

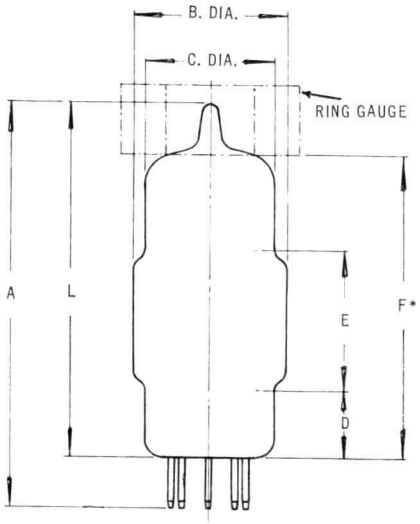
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S75/1K

CONTINUED

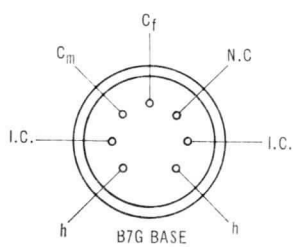
Fig. 4.—Outline and Basing Detail

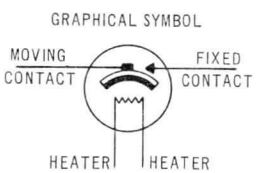


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	22,2 MAX.	7/8 MAX.
C	19,1 MAX.	3/4 MAX.
D	7,9 MIN.11,1 MAX.	5/16 MIN.7/16 MAX.
E	14,2 MIN.20,6 MAX.	9/16 MIN.13/16 MAX.
F	38,1 ± 2,4	1½ ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE AS DETERMINED BY A RING GAUGE OF 7/16 INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES





SPECIAL VALVES

Thermal Delay Switch

Code: S102/1K (VLS631)

This is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	44	s
Maximum delay	66	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit d.c. voltage between contacts	220	V
Maximum open circuit a.c. voltage between contacts	100	V
Maximum contact current on make, a.c.	1	A
d.c.	1	A
Maximum peak surge current on make	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCHES

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

Switches may be connected in series to obtain multiples of the quoted delay time.

The S102/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited

Valve Division, Brixham Road, Paignton, Devon

Telephone: Paignton 50762 Telex: 4230

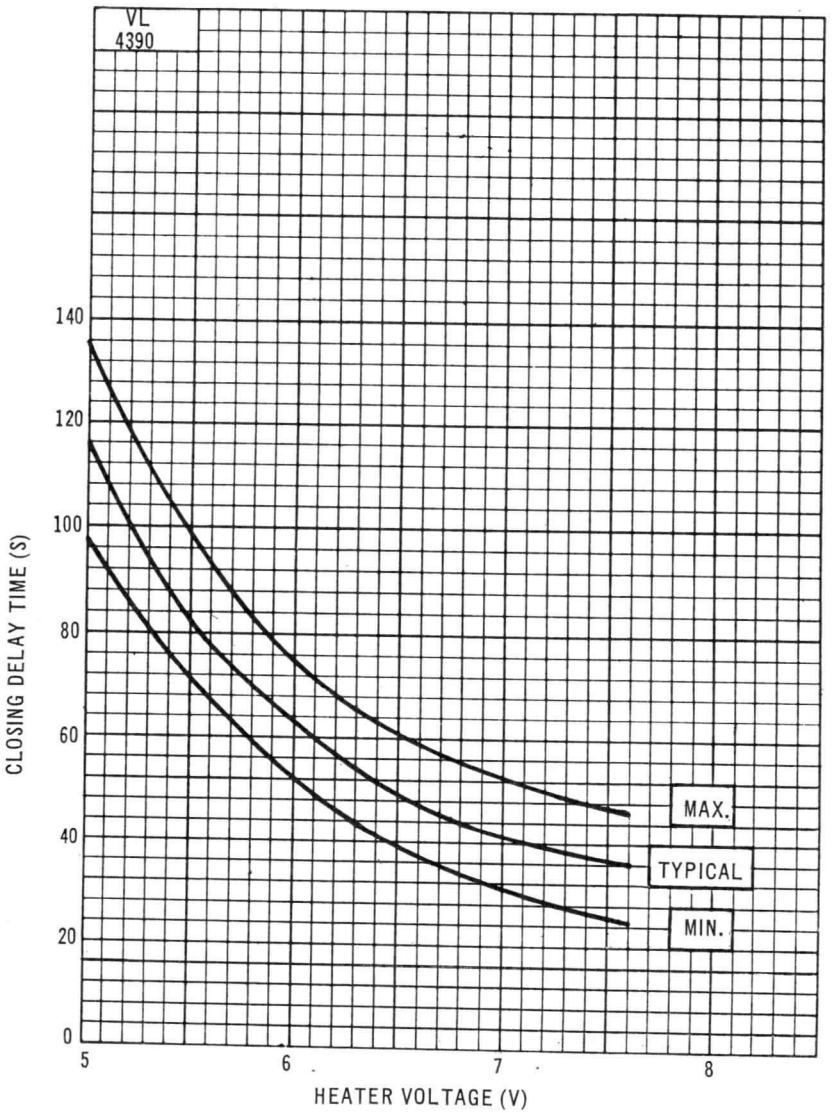
London Sales Office, Telephone: Footscray 3333 Telex: 21836

C O M P O N E N T S G R O U P

Code: S102/1K (VLS631)

CONTINUED

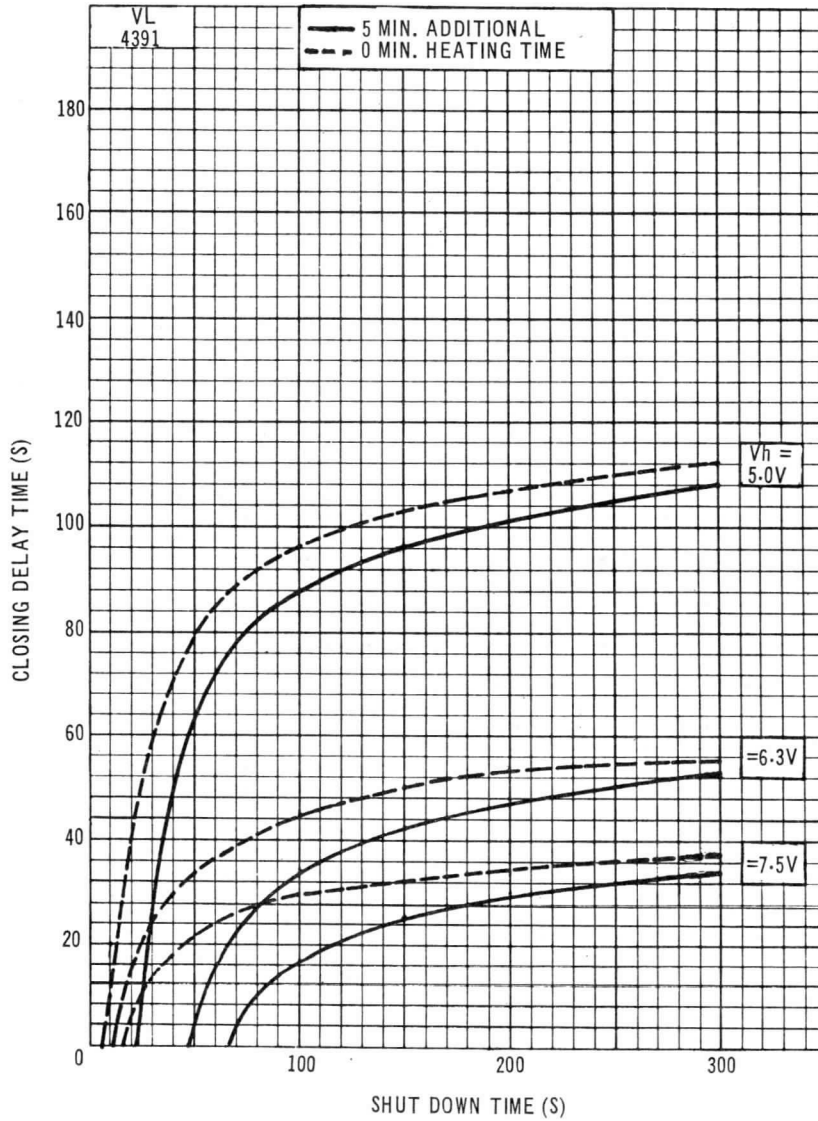
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S102/1K (VLS631)

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

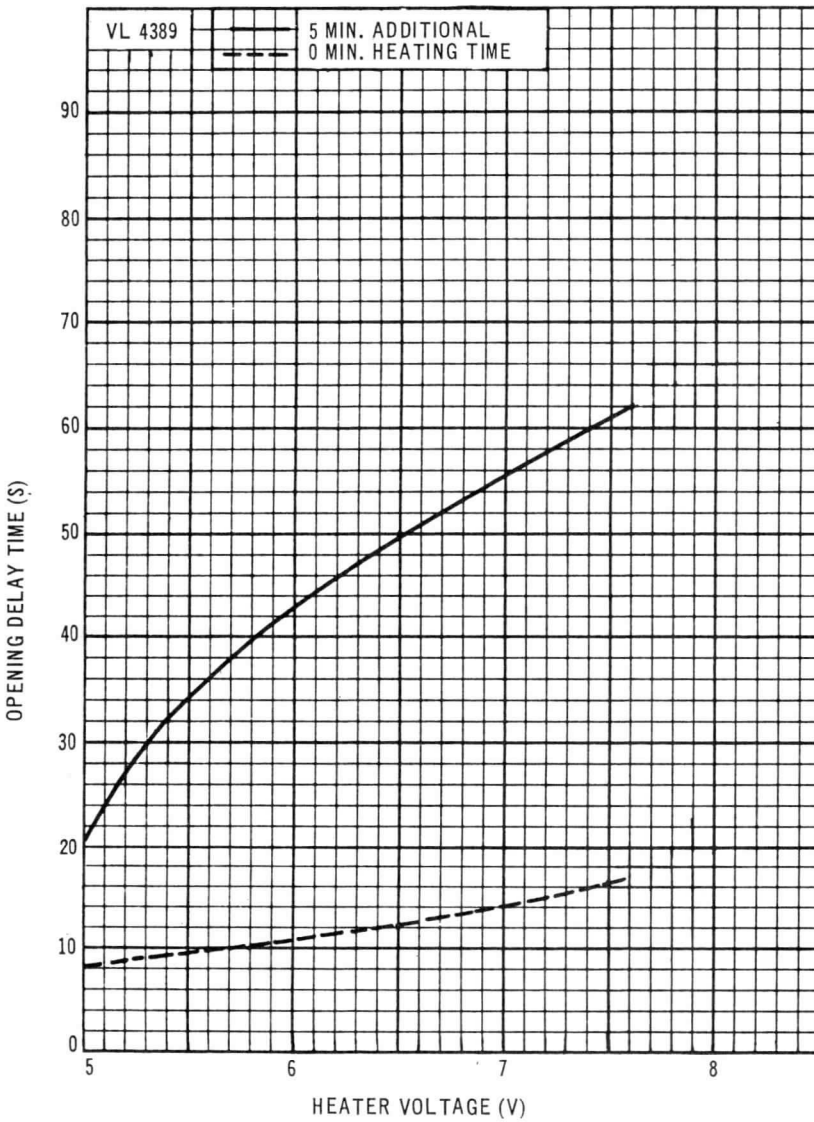


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S102/1K (VLS631)

CONTINUED

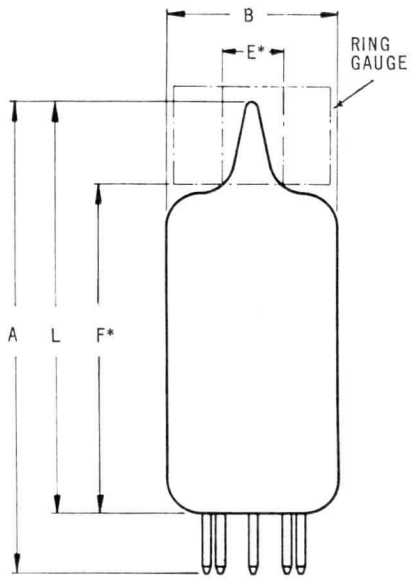
Fig. 3.—Typical Opening Delay Time versus Heater Voltage



Code: S102/1K (VLS631)

CONTINUED

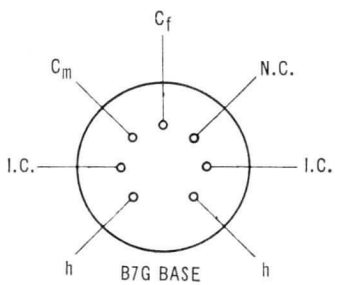
Fig. 5.—Outline and Basing Detail—S102/1K

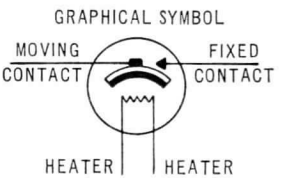


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S102/2K

The S102/2K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 10%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	44	s
Maximum delay	66	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. or a.c. voltage between contacts	250	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum contact current on break, d.c.	0·5	A
Maximum contact current on break, a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

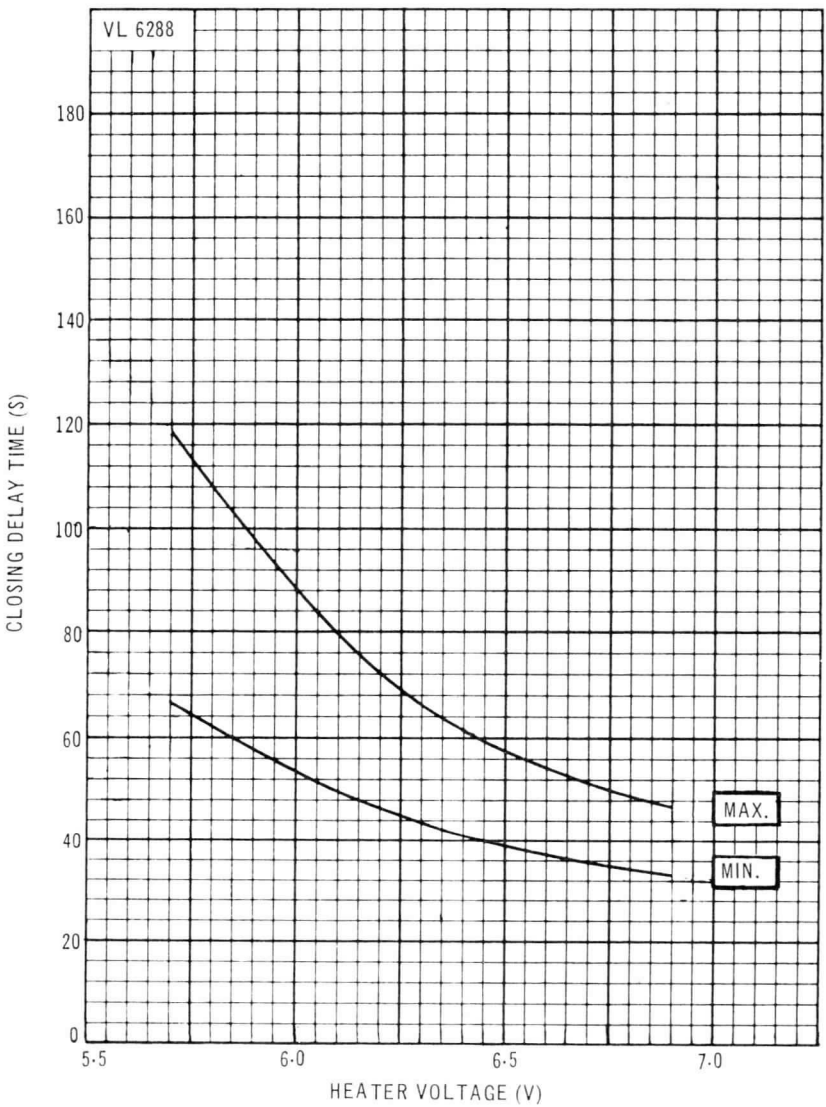
The S102/2K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S102/2K

CONTINUED

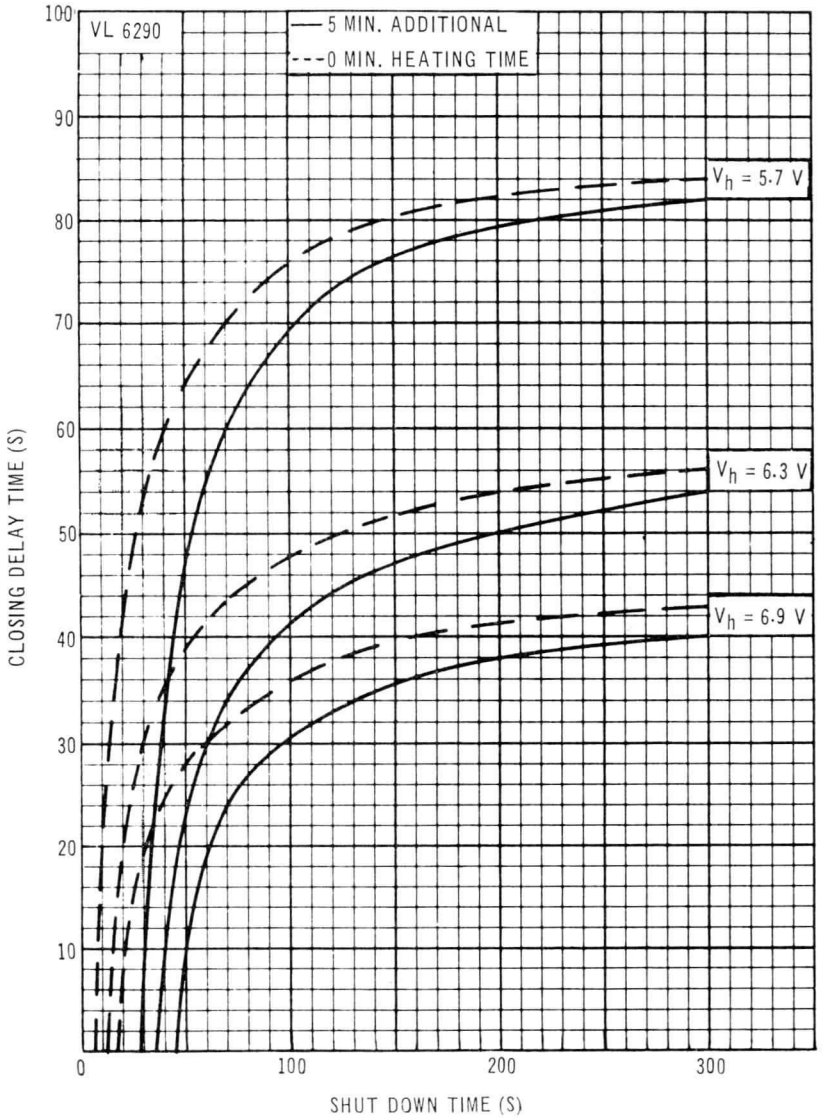
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S102/2K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

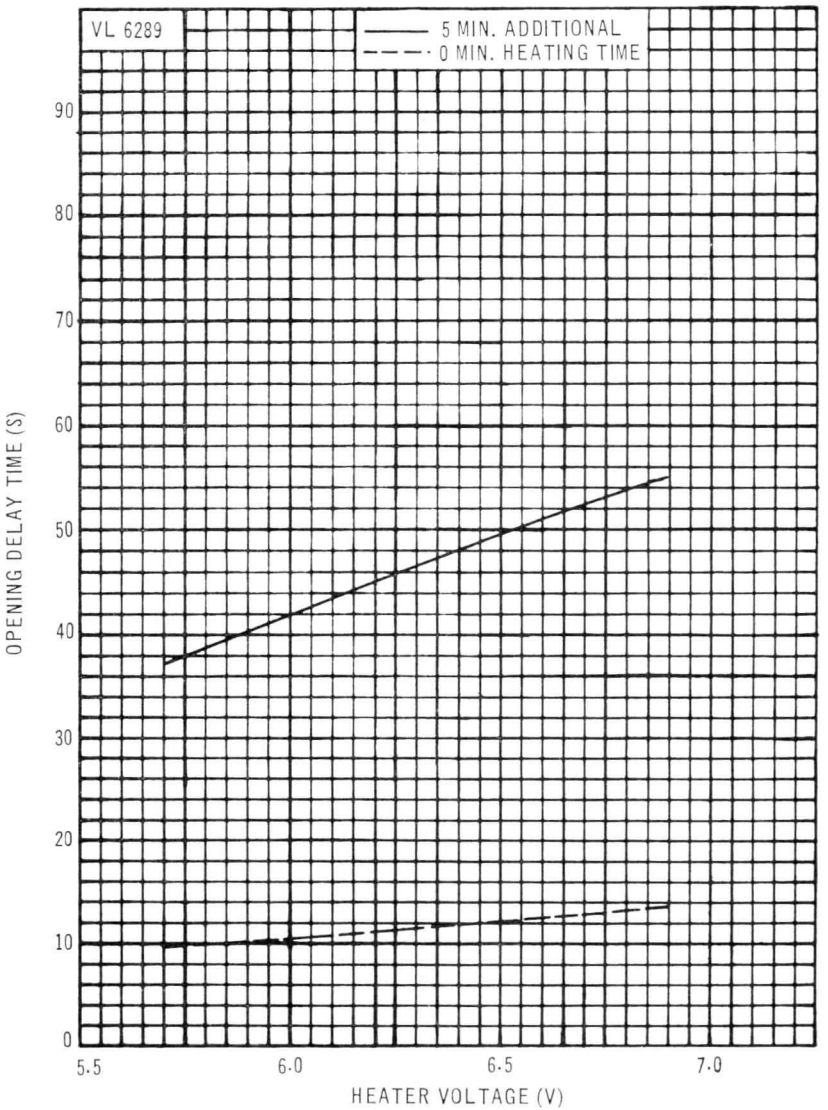


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S102/2K

CONTINUED

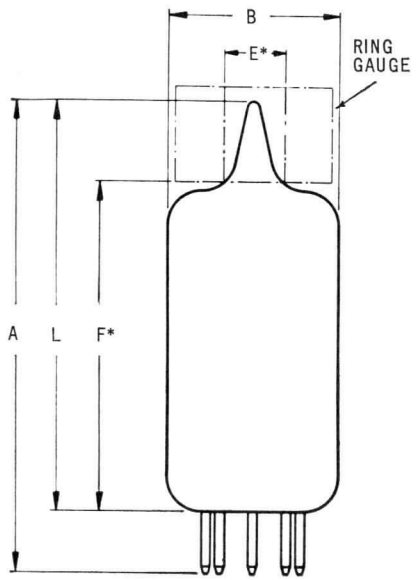
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S102/2K

CONTINUED

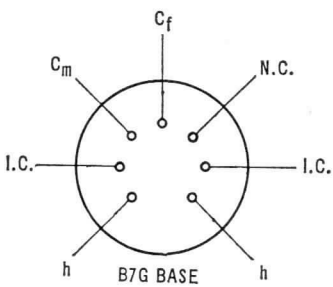
Fig. 4.—Outline and Basing Detail

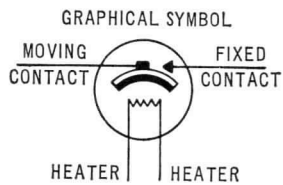


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S103/1K

The S103/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	27 ± 20%	V
Heater current, nominal	0·115	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 27V$	
Minimum delay	36	s
Maximum delay	54	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit d.c. voltage between contacts	220	V
Maximum open circuit a.c. voltage between contacts	100	V
Maximum contact current on make, a.c. or d.c.	1	A
Maximum peak surge current on make	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

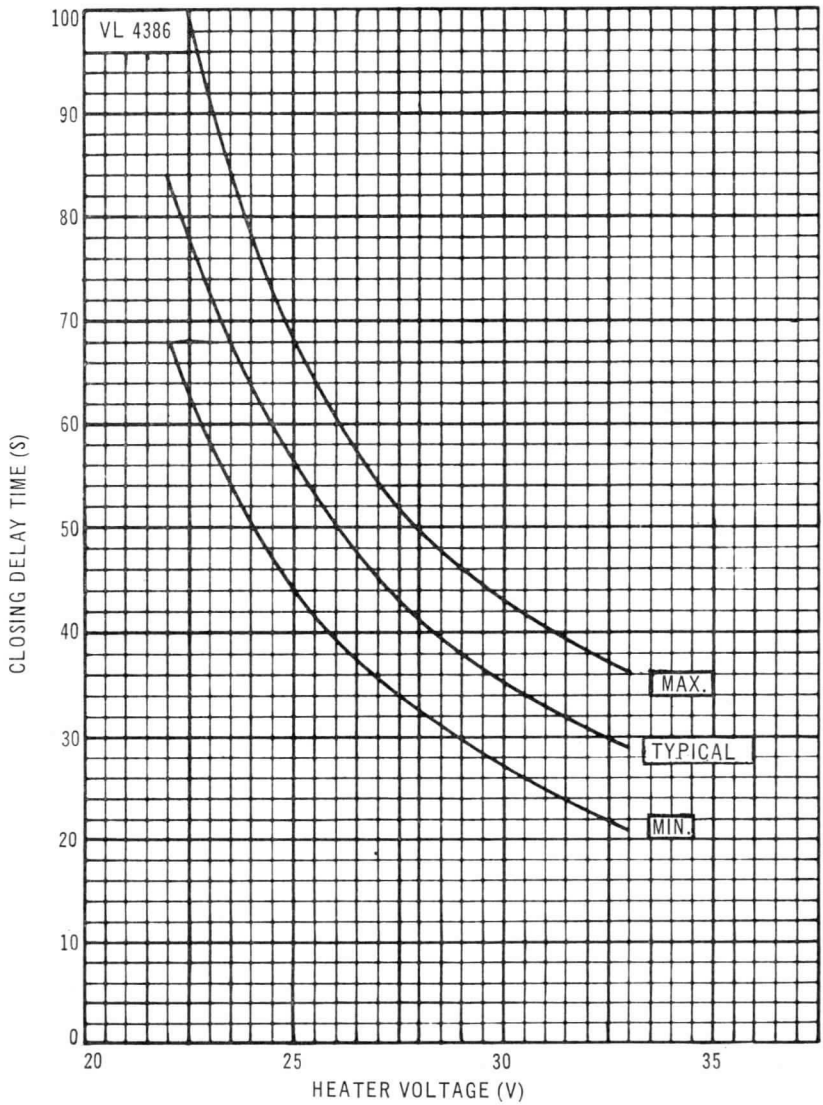
The S103/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S103/1K

CONTINUED

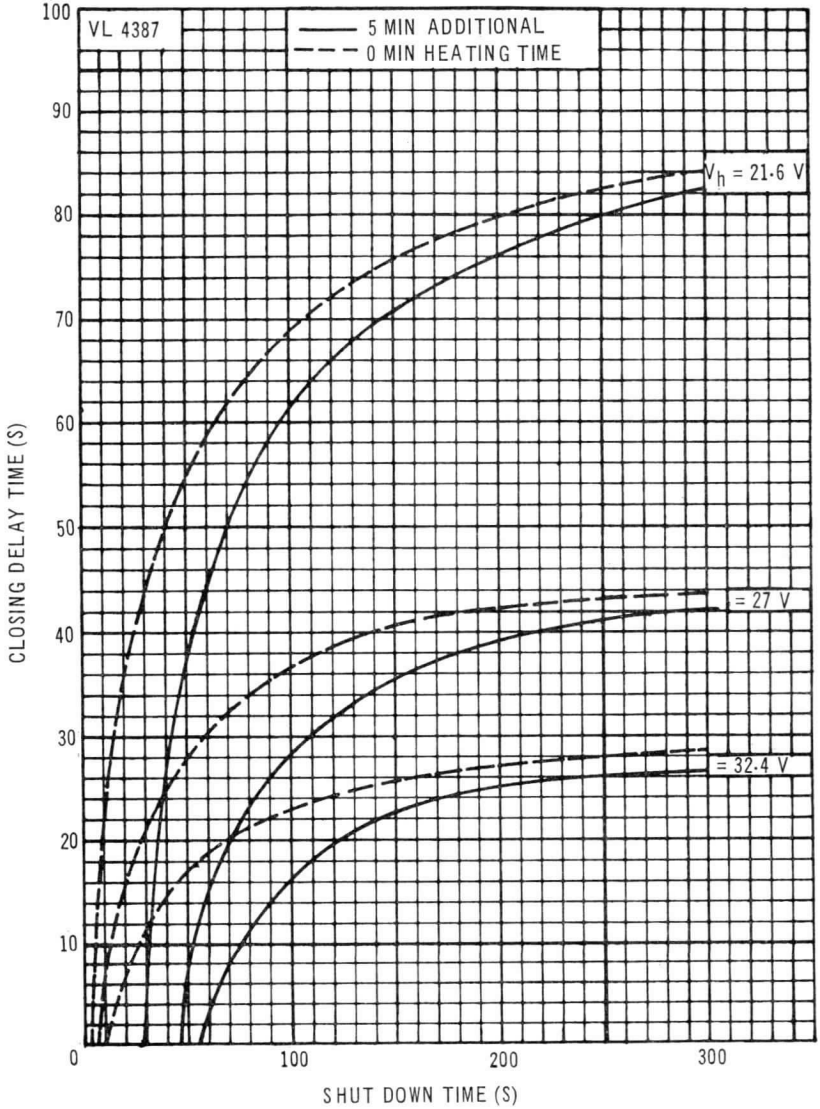
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S103/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

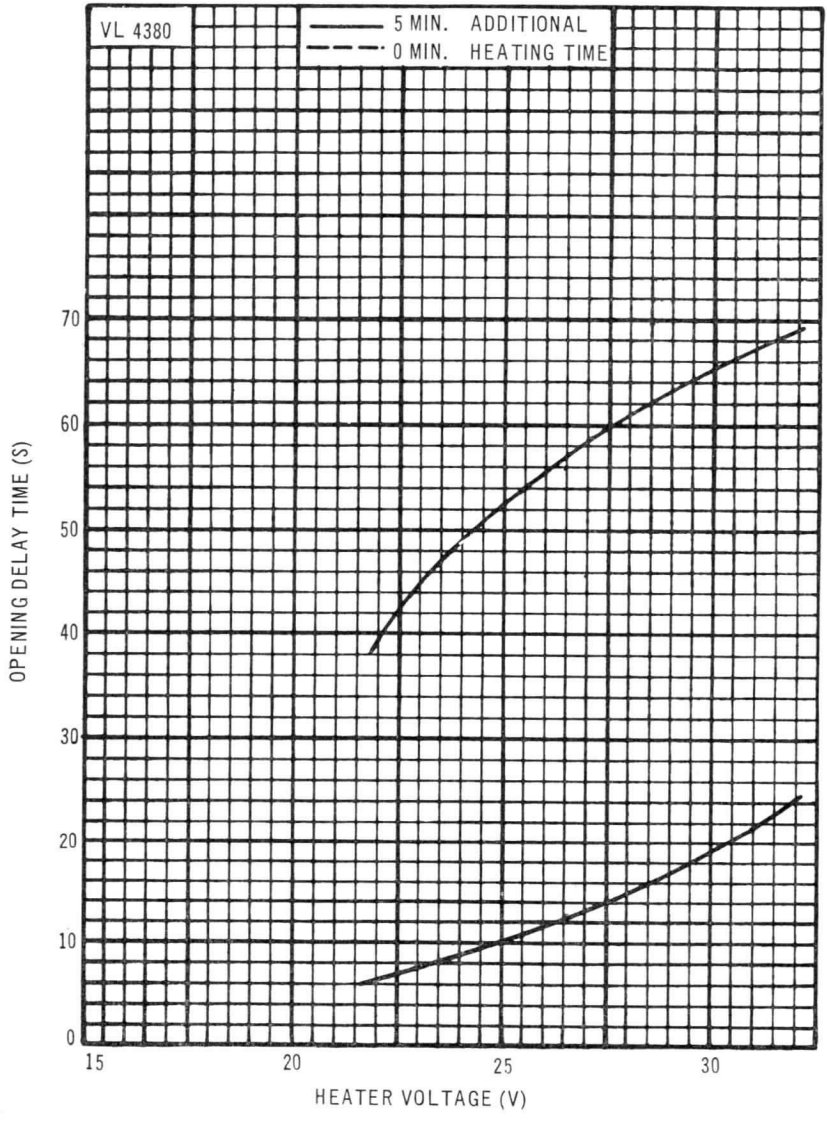


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S103/1K

CONTINUED

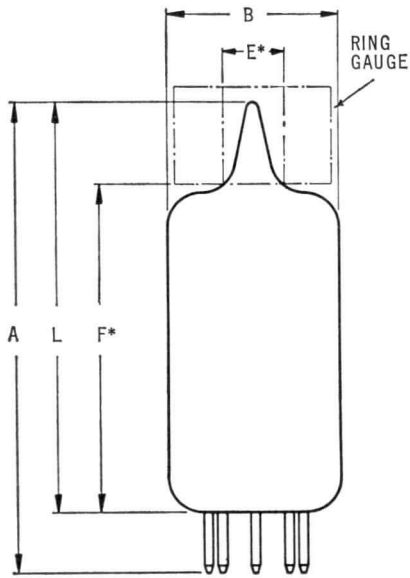
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S103/1K

CONTINUED

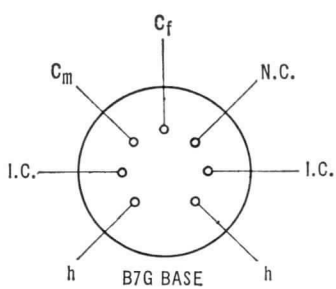
Fig. 4.—Outline and Basing Detail

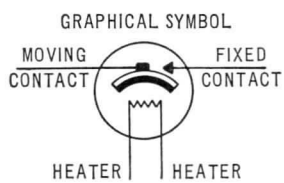


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S104/1K

The S104/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h = 6·3V	
Minimum delay	23	s
Maximum delay	37	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit d.c. voltage between contacts	220	V
Maximum open circuit a.c. voltage between contacts	100	V
Maximum contact current on make, a.c. or d.c.	1	A
Maximum peak surge current on make	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base B7G

Dimensions, Basing detail } As shown in Figure 4

Mounting position Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

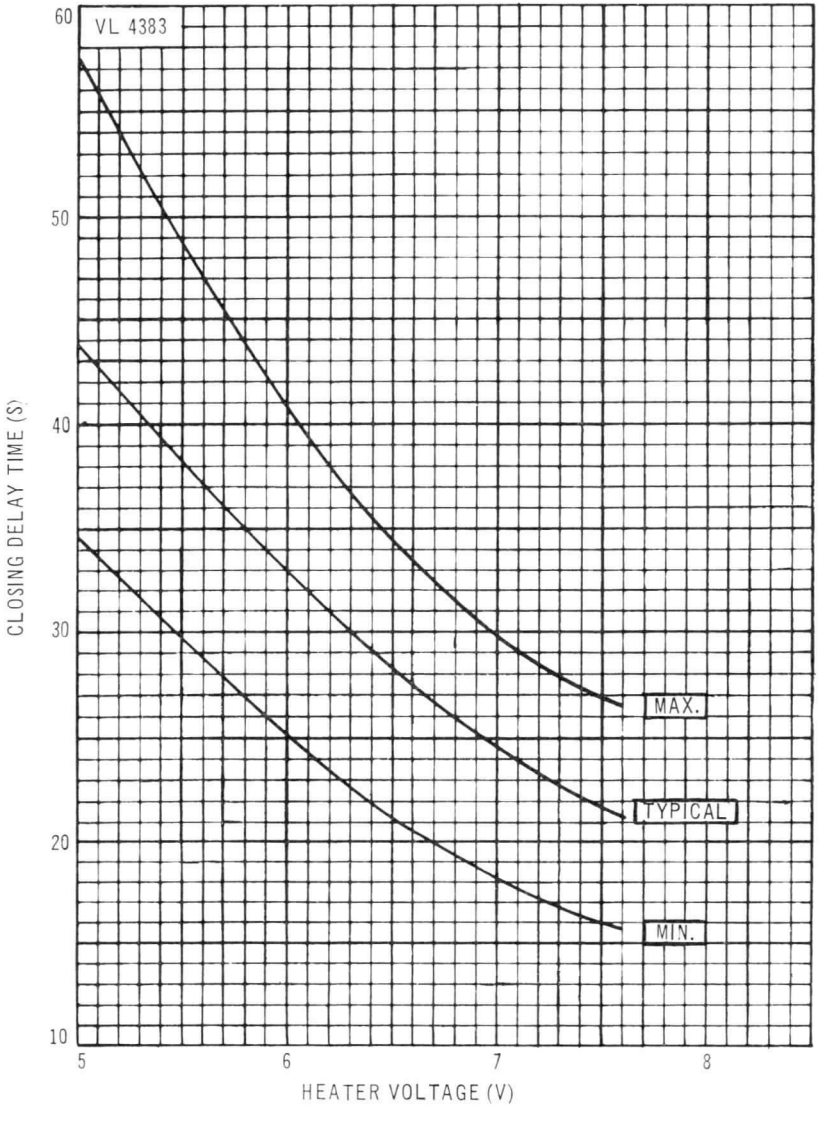
The S104/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S104/1K

CONTINUED

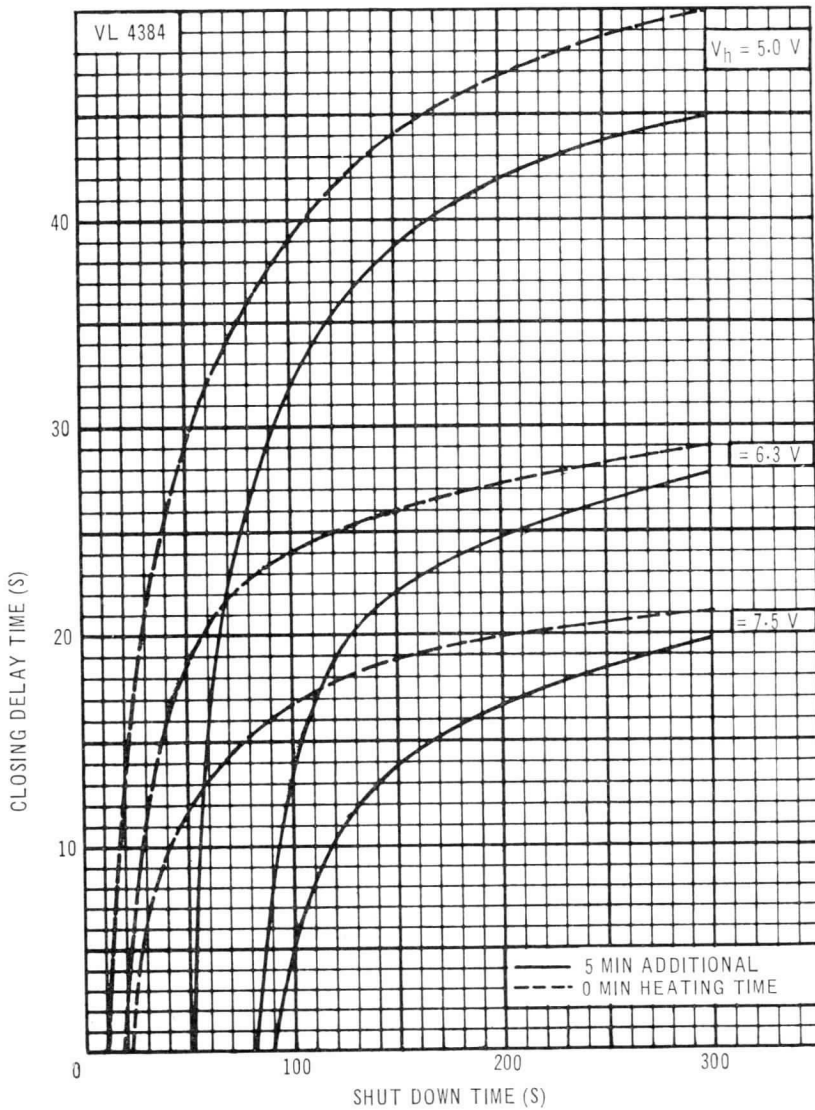
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S104/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

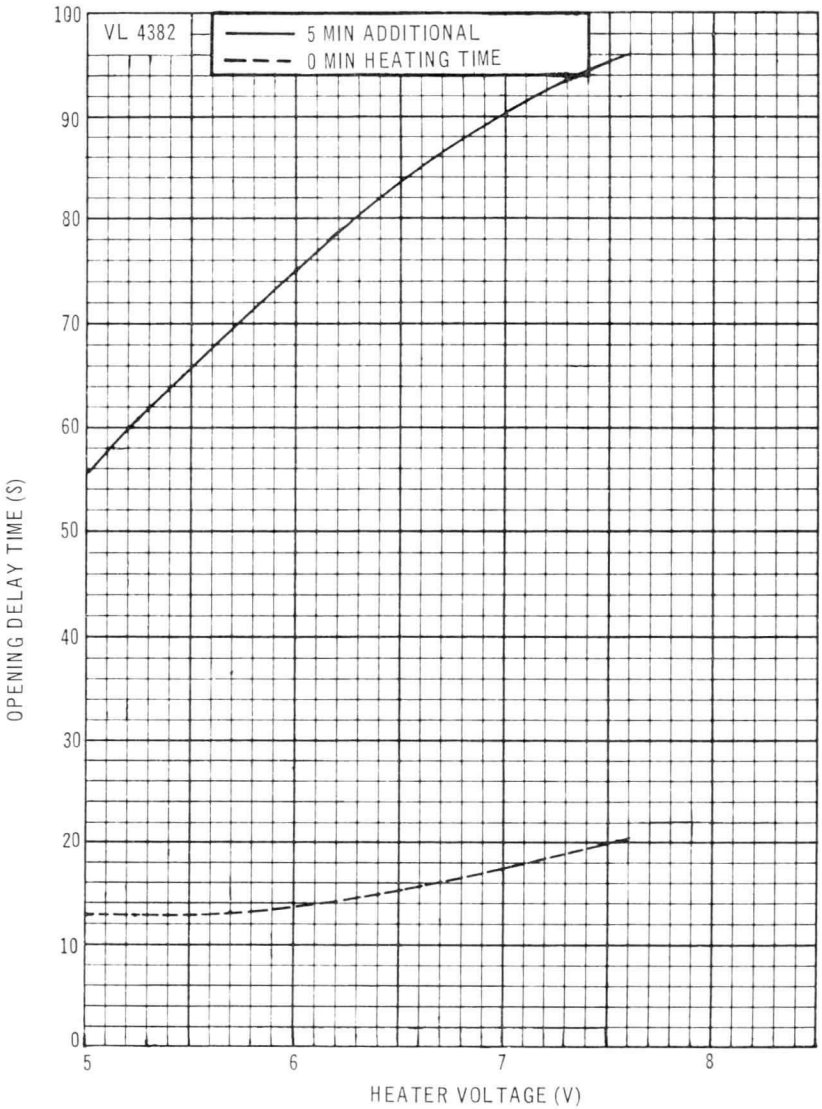


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S104/1K

CONTINUED

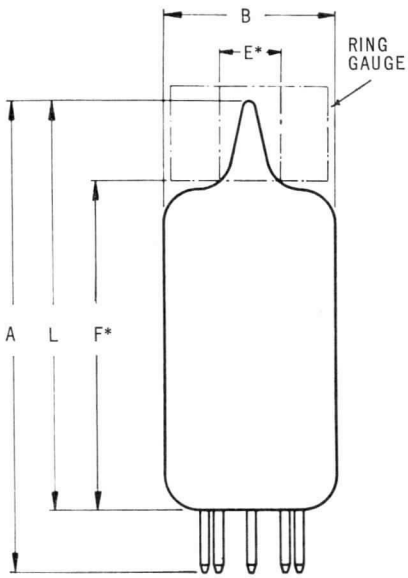
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S104/1K

CONTINUED

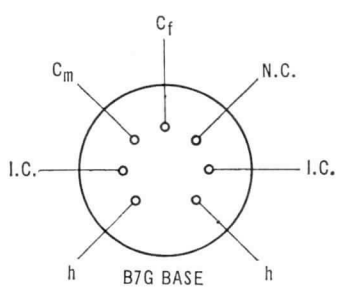
Fig. 4.—Outline and Basing Detail

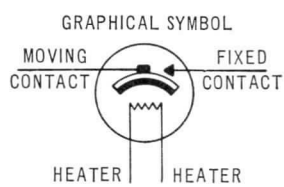


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





STC

SPECIAL VALVES

Thermal Delay Switch

Code: S104/2K

The S104/2K is a miniature thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 10%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	23	s
Maximum delay	37	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit voltage between contacts, r.m.s. or d.c.	250	V
Maximum contact current, r.m.s. or d.c.	1	A
Maximum breaking current, a.c.	1	A
d.c.	0·5	A
Maximum peak surge current	5	A
Maximum peak heater-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

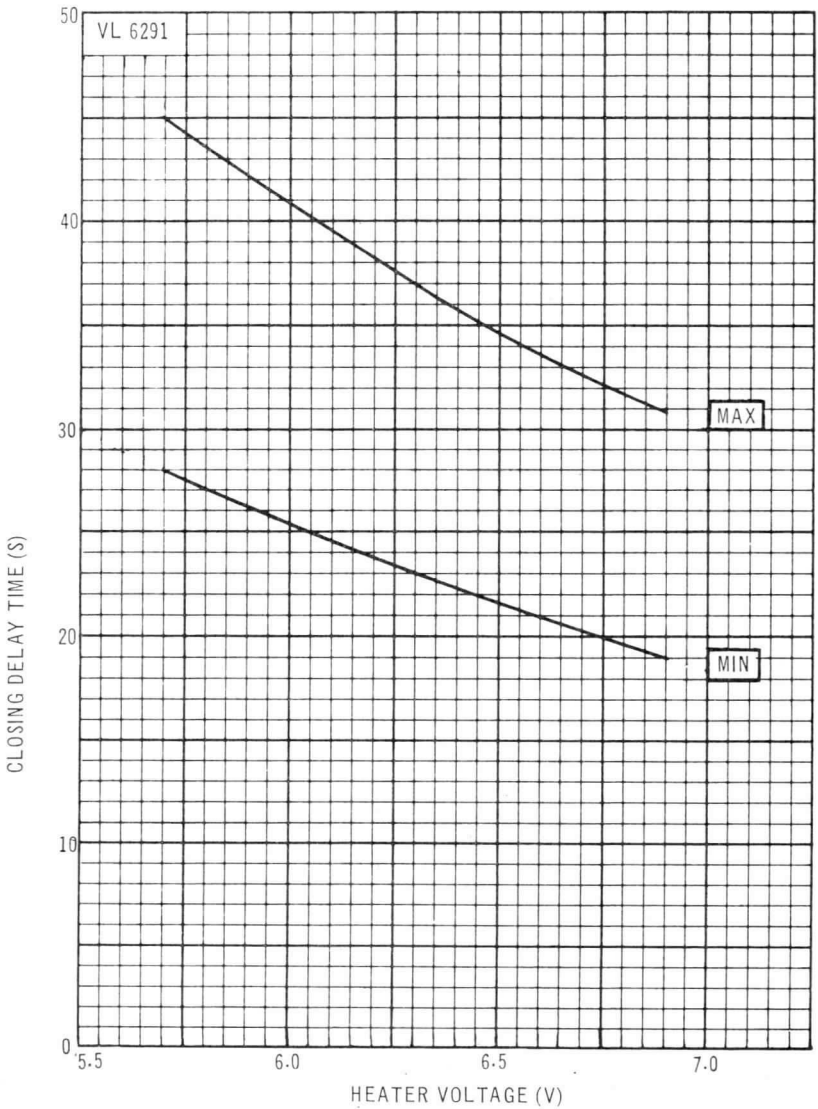
The S104/2K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S104/2K

CONTINUED

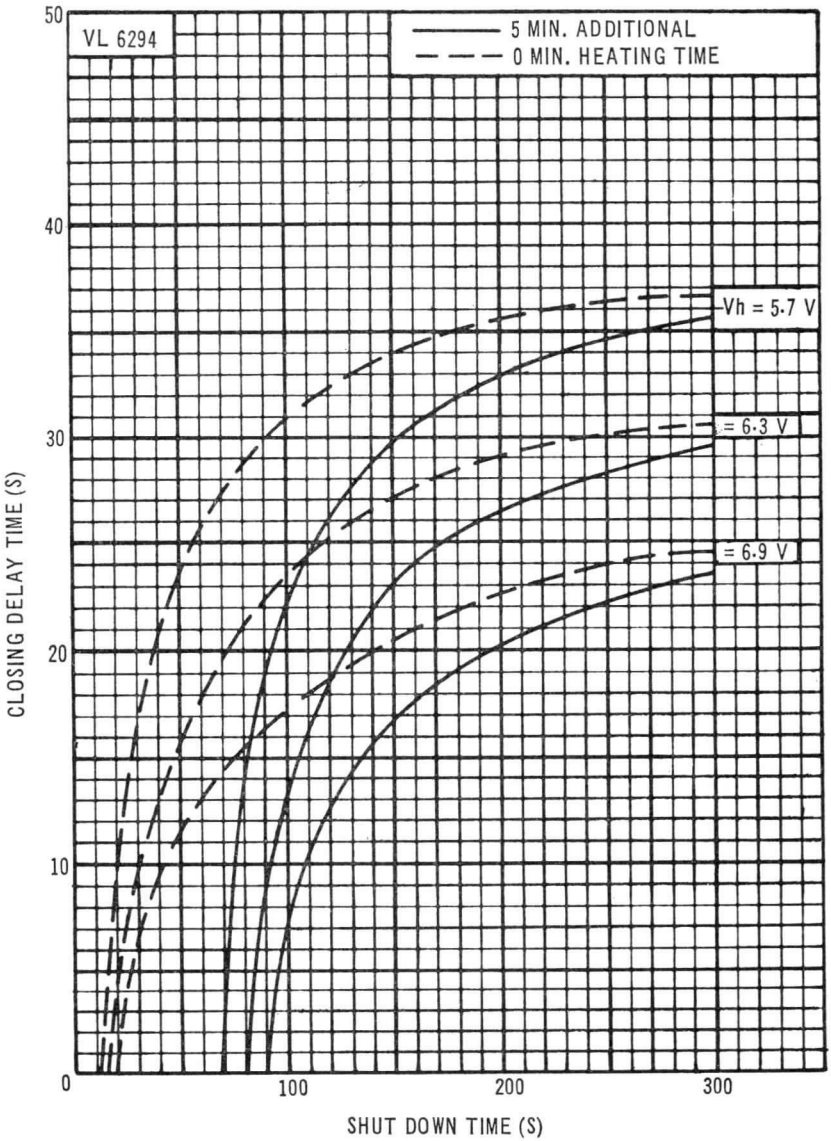
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S104/2K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

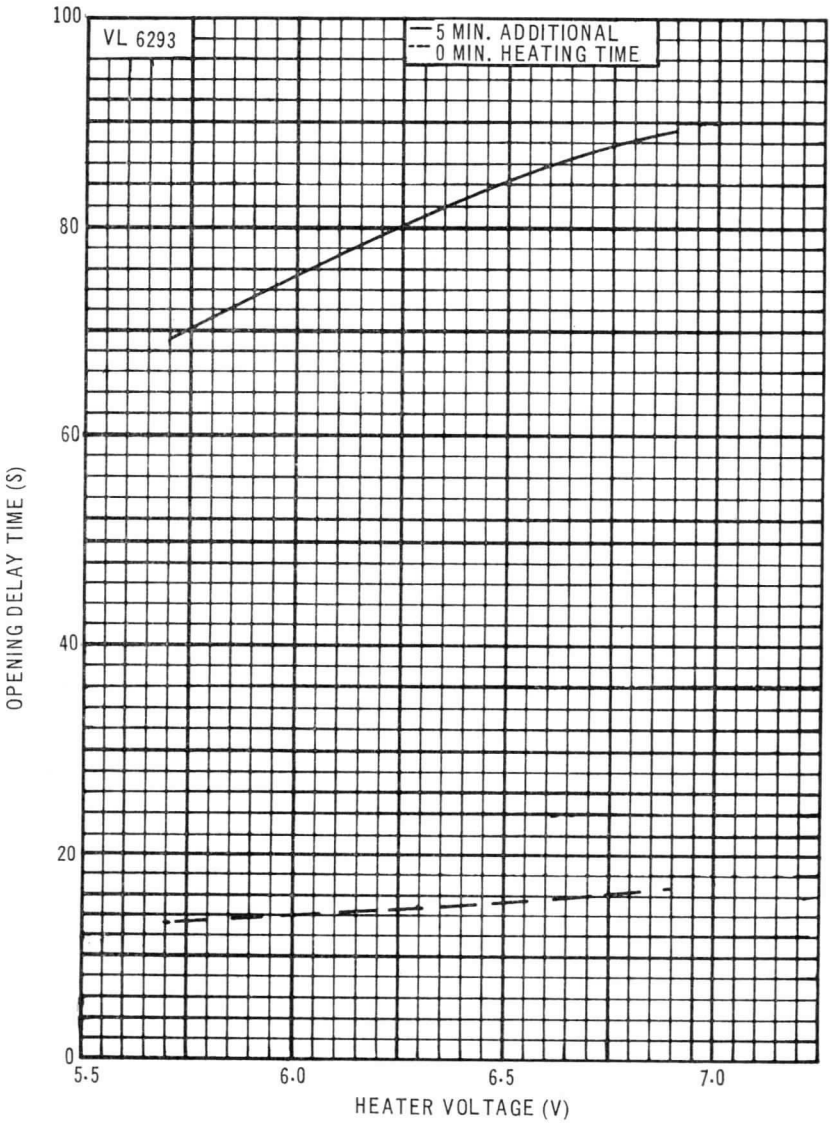


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S104/2K

CONTINUED

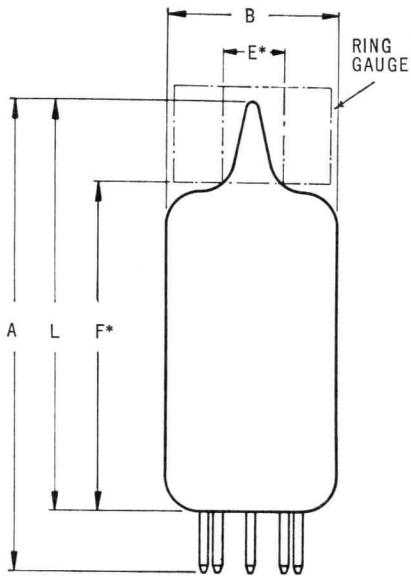
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S104/2K

CONTINUED

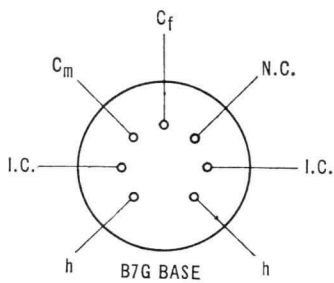
Fig. 4.—Outline and Basing Detail

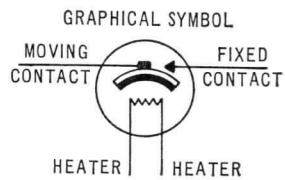


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: 24T12

The 24T12 is a minature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volt mains supply.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	15	s
Maximum delay	45	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit a.c. or d.c. voltage between contacts	500	V
Maximum contact current on make at 500V a.c. or d.c.	0·2	A
Maximum contact current on make at 240V a.c. or d.c.	1	A

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

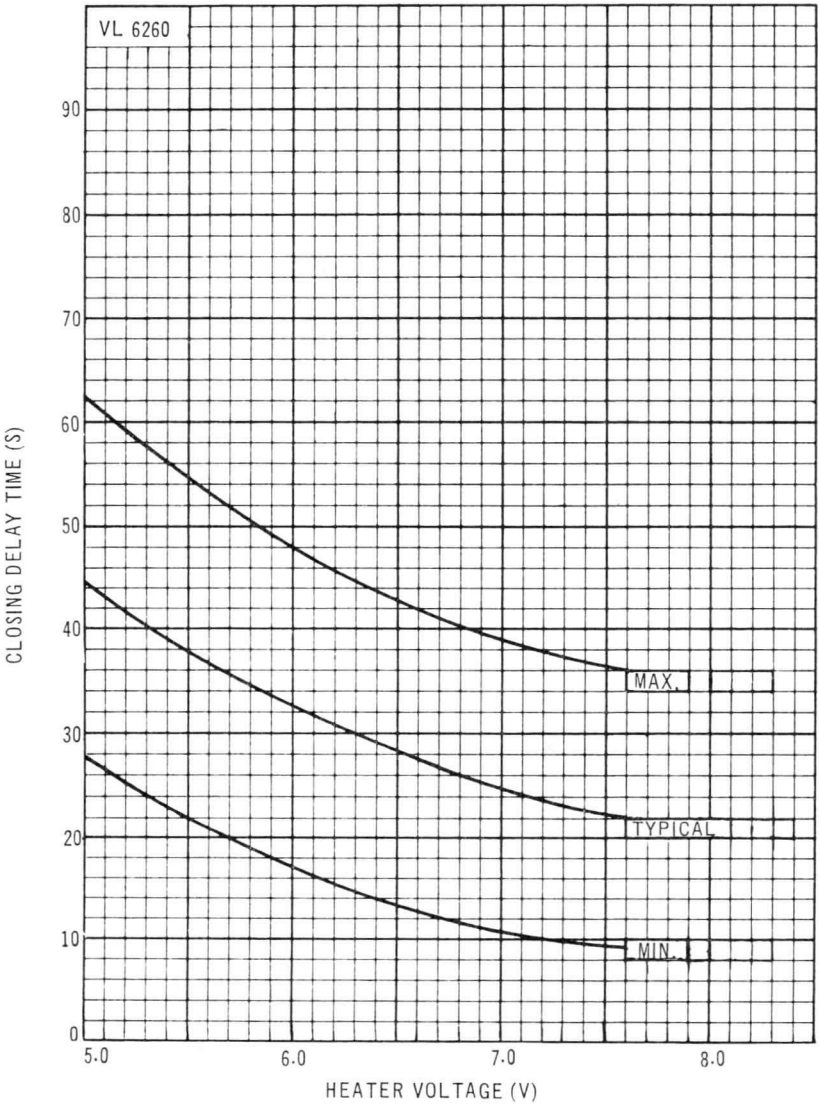
The 24T12 is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: 24T12

CONTINUED

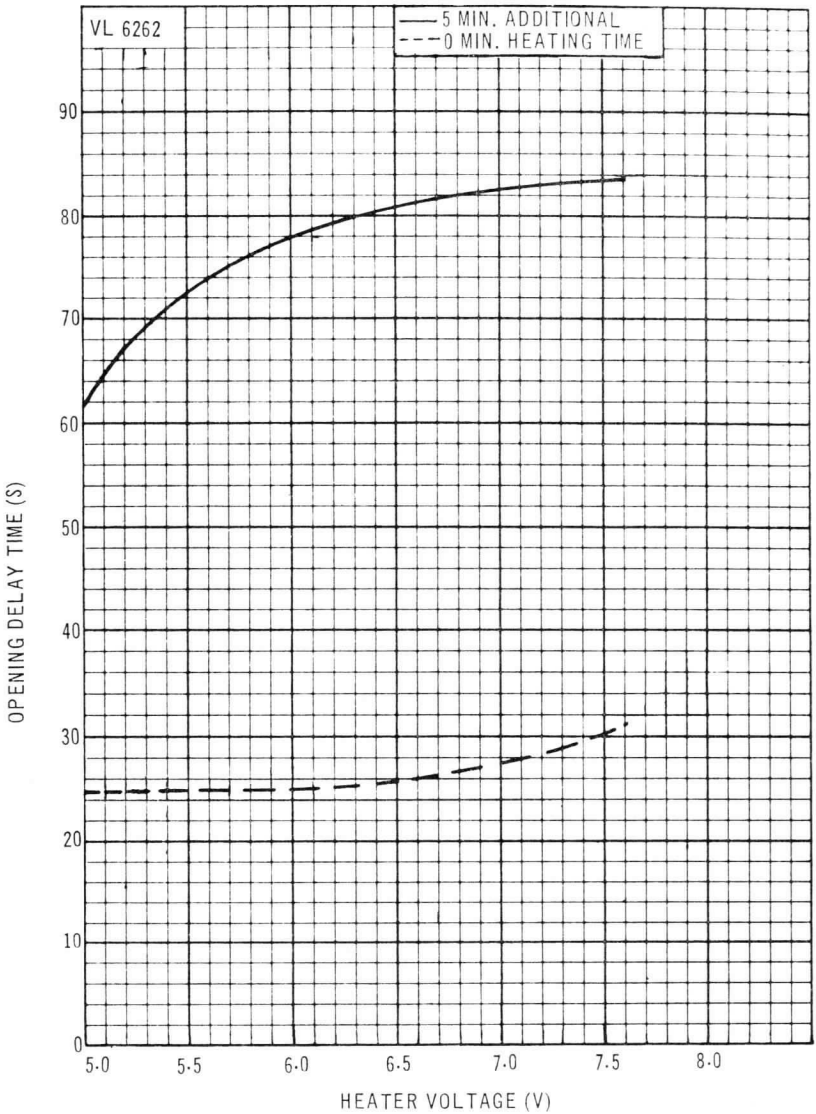
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: 24T12

CONTINUED

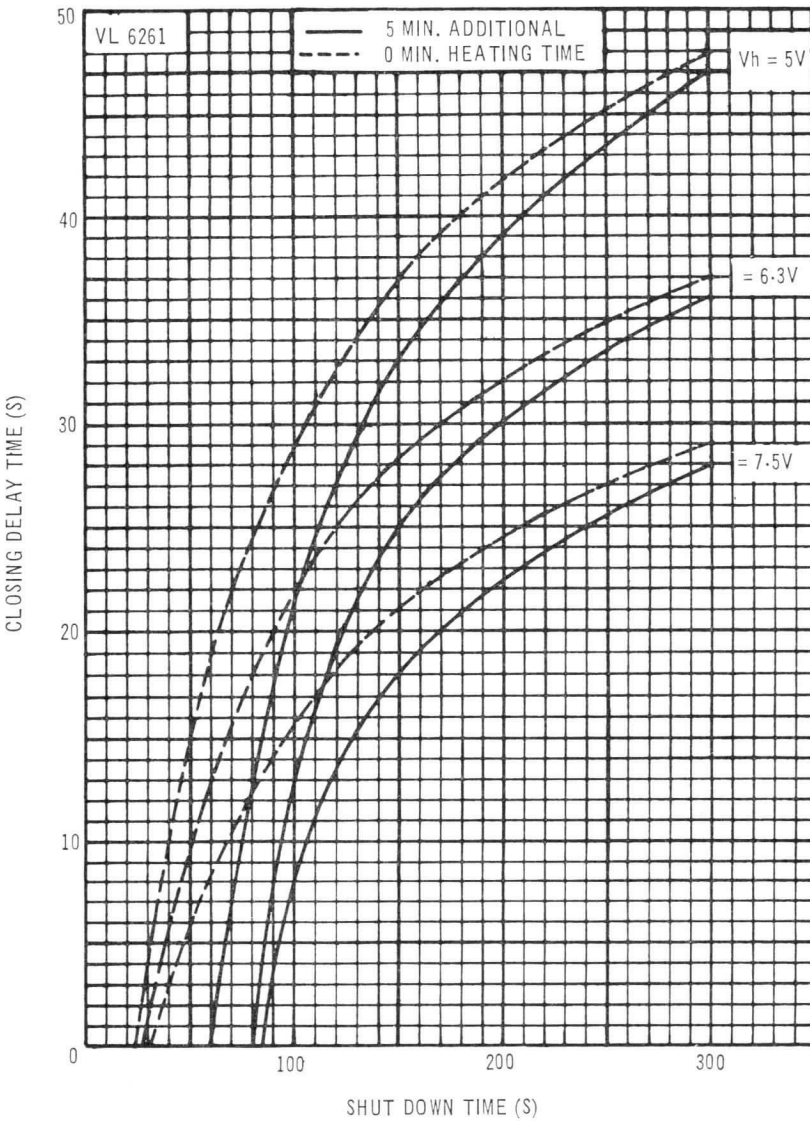
Fig. 2.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: 24T12

CONTINUED

Fig. 3.—Typical Closing Delay Time versus Shut-down Time*

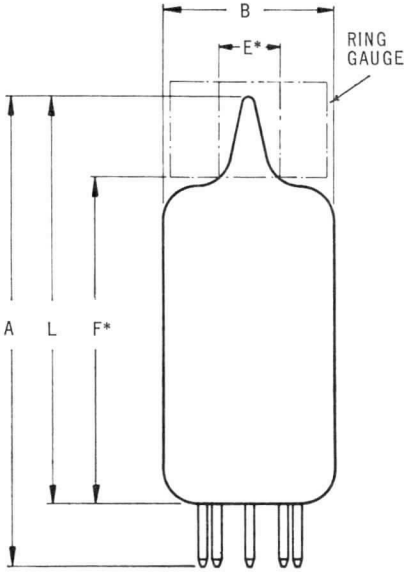


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: 24T12

CONTINUED

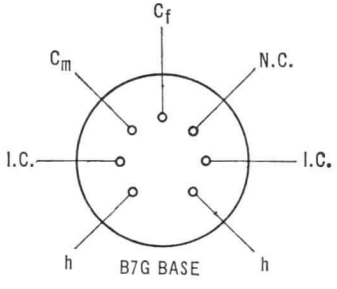
Fig. 4.—Outline and Basing Detail

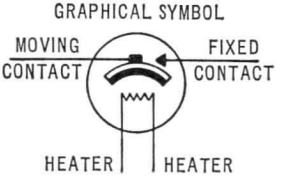


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S105/1K

The S105/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	27 ± 20%	V
Heater current, nominal	0·115	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h = 27V	
Minimum delay	20	s
Maximum delay	30	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

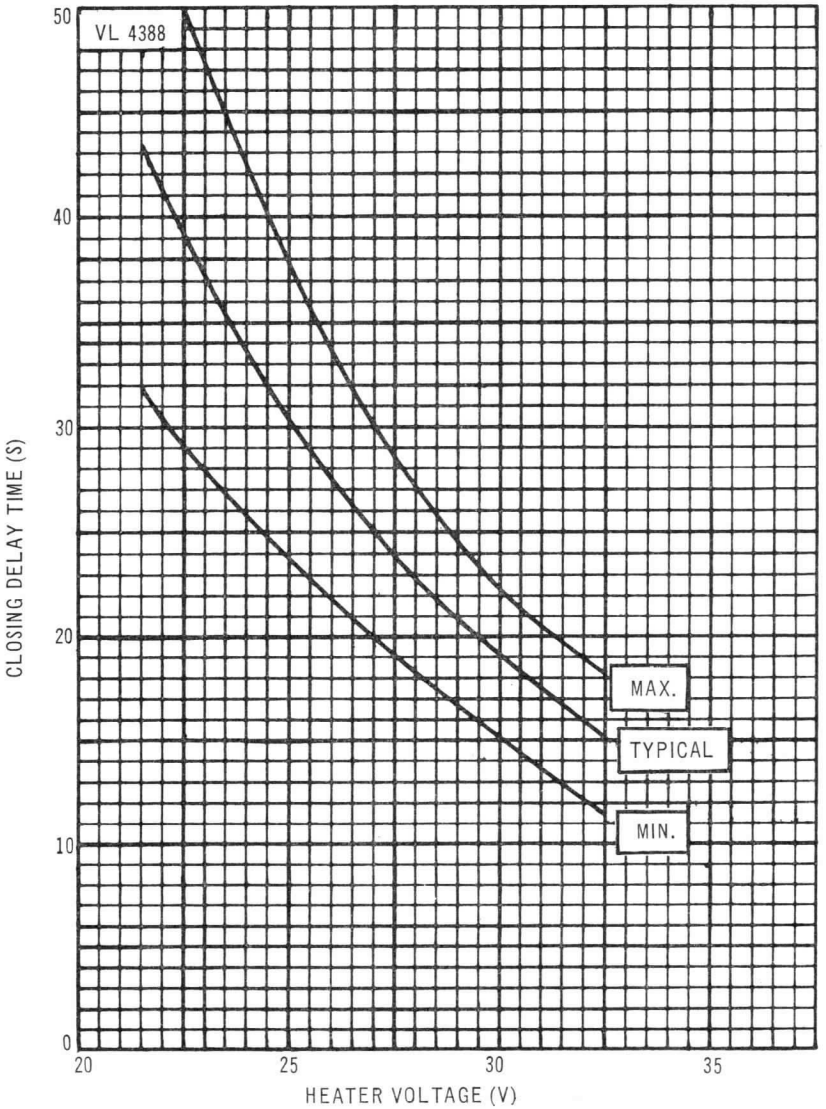
The S105/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S105/1K

CONTINUED

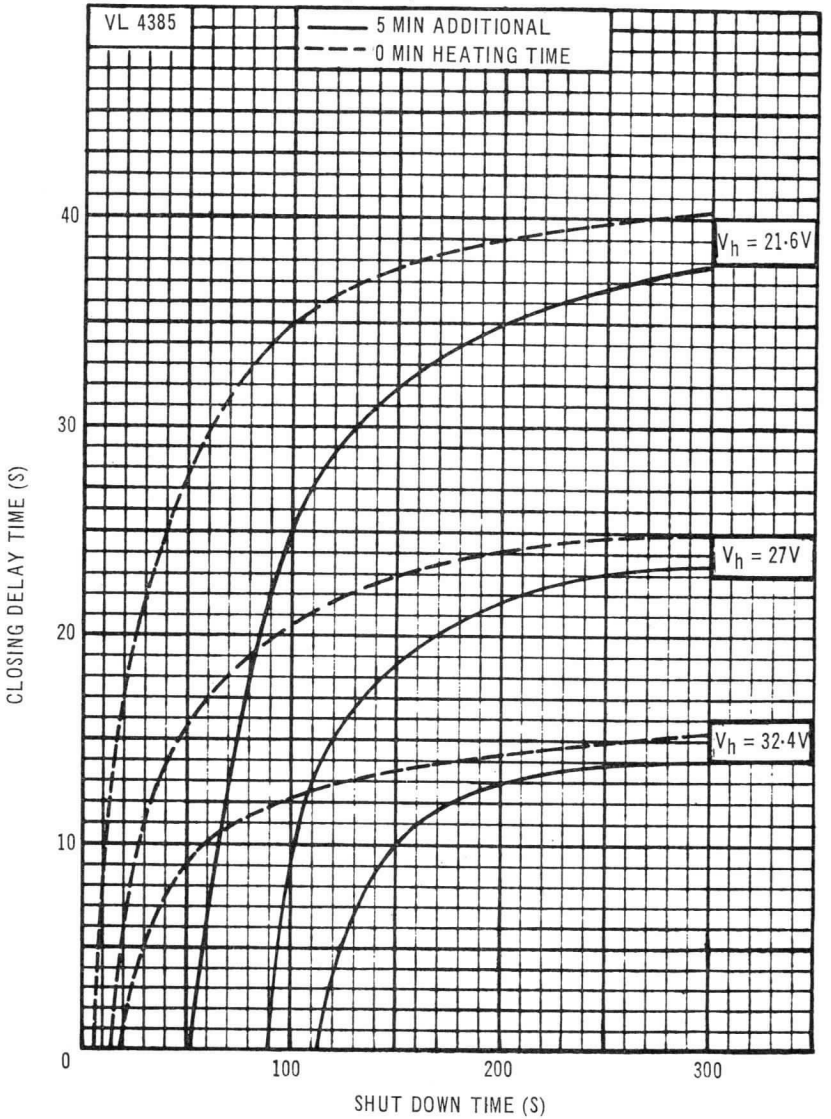
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S105/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

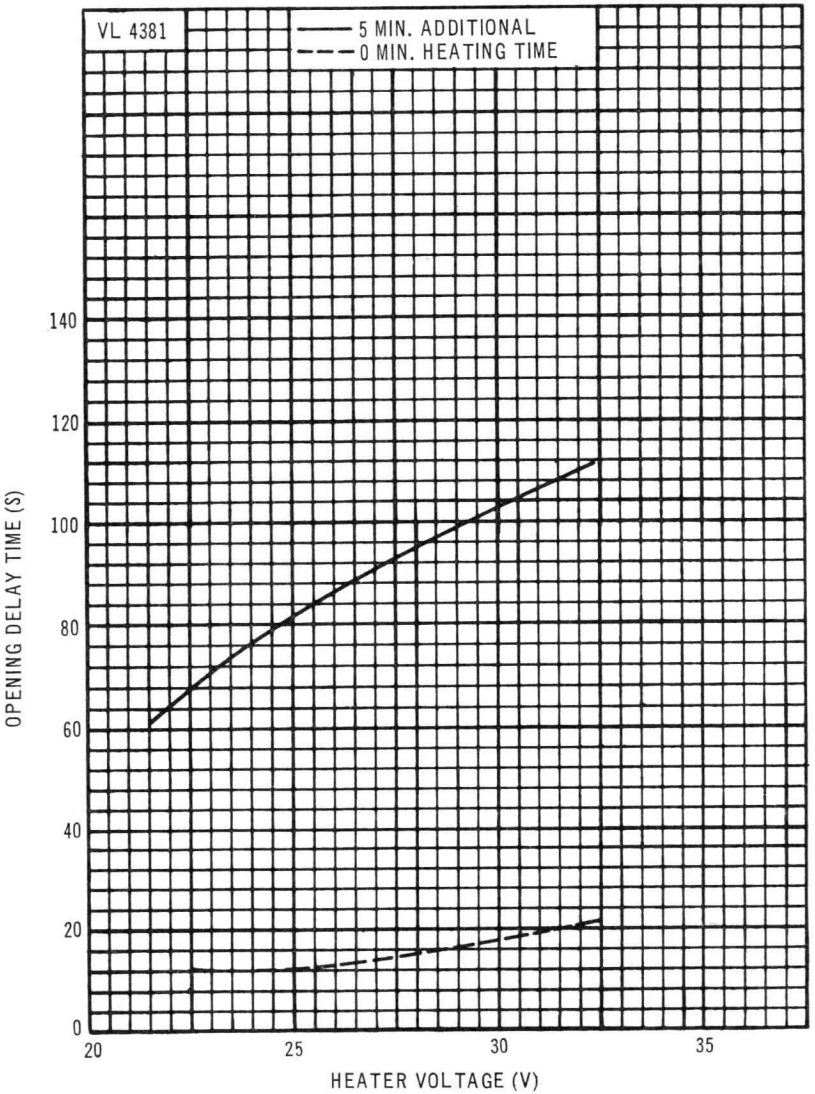


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S105/1K

CONTINUED

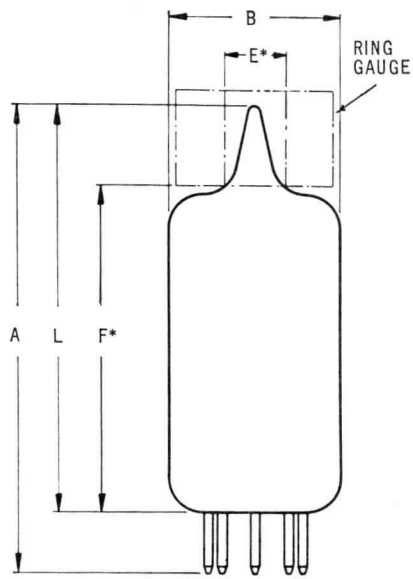
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S105/1K

CONTINUED

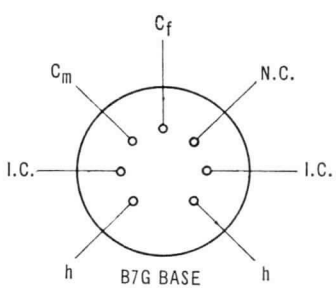
Fig. 4.—Outline and Basing Detail

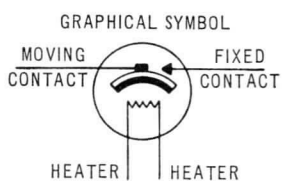


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S106/1G

The S106/1G is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

This switch is a flying lead version of the S106/1K type.

HEATER

Heater voltage	19 ± 20%	V
Heater current, nominal	0·165	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 19V$	
Minimum delay	40	s
Maximum delay	66	s

NOTE 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7F
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

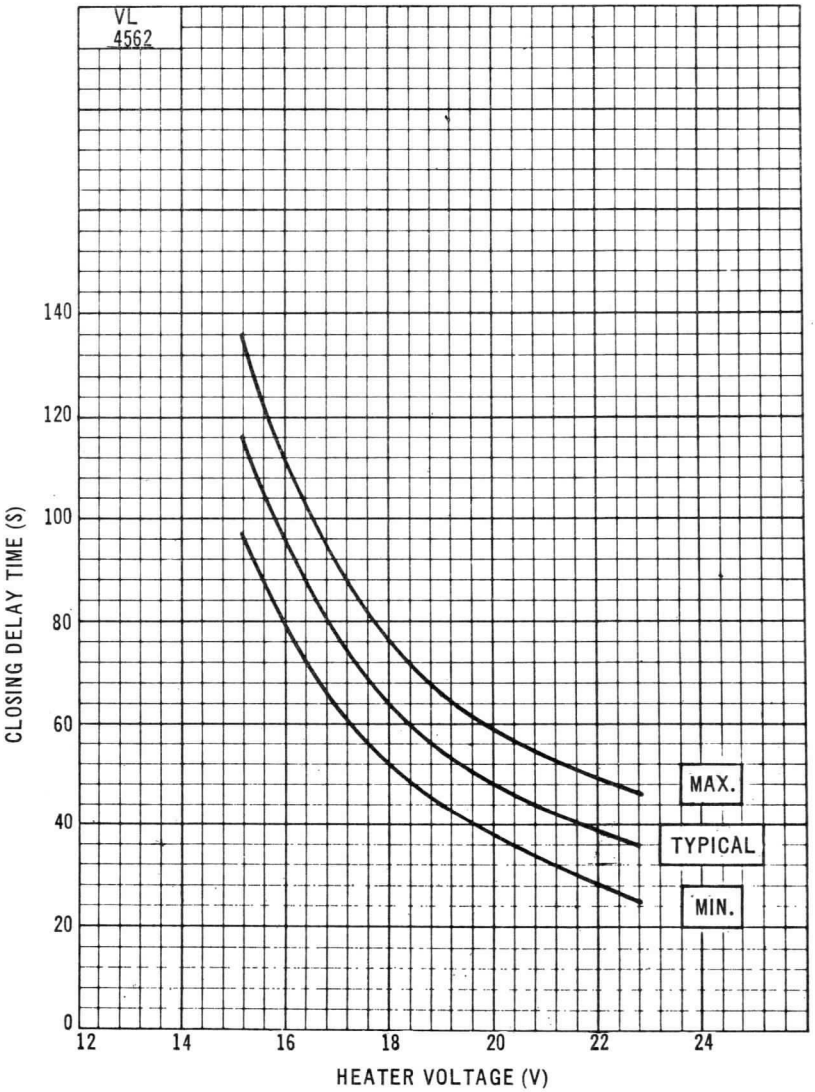
The S106/1G is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S106/1G

CONTINUED

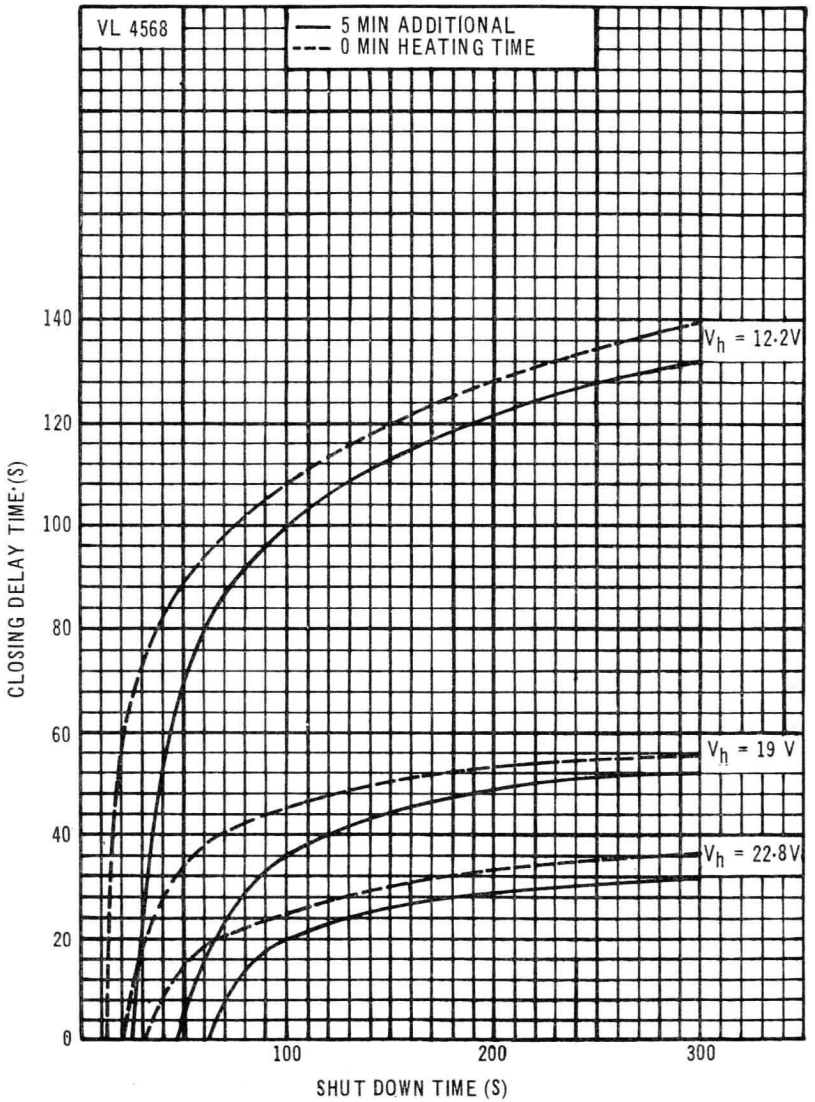
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S106/1G

CONTINUED

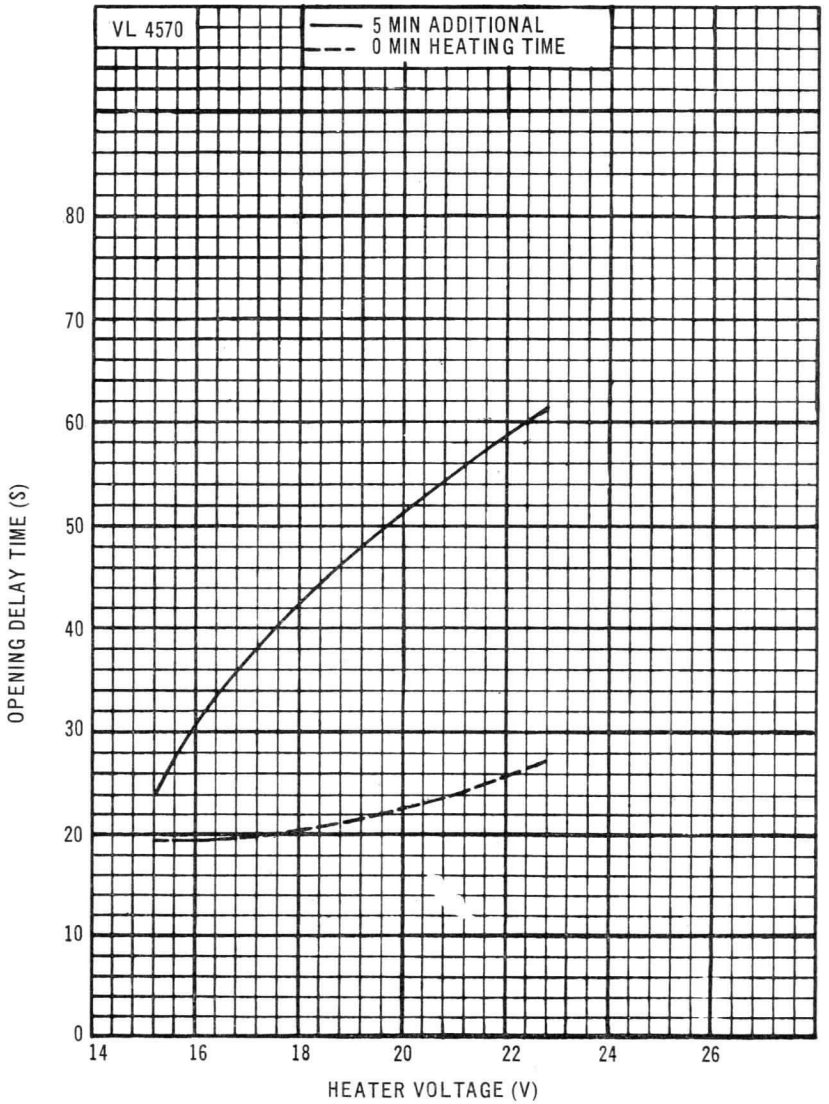
Fig. 2.—Typical Closing Delay Time versus Shut-down Time



Code: S106/1G

CONTINUED

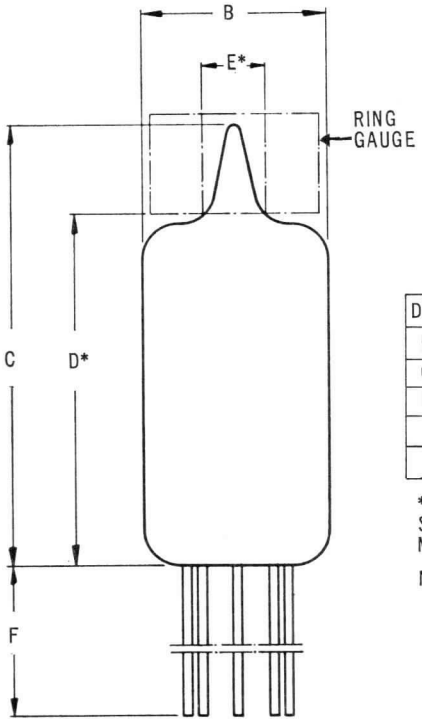
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S106/1G

CONTINUED

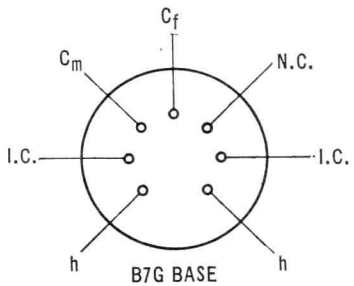
Fig. 4.—Outline and Basing Detail

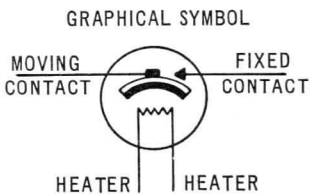


DIM.	MILLIMETRES	INCHES
B	19,1 MAX.	3/4 MAX.
C	47,6 MAX.	1.7/8 MAX.
D	38,1 ± 2,4	1.1/2 ± 3/32
E	11,1	7/16
F	38,0 MIN.	1.1/2 MIN.

* DENOTES MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES





STC

SPECIAL VALVES

Thermal Delay Switch

Code: S106/1K

The S106/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	19 ± 20%	V
Heater current, nominal	0·165	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h = 19V	
Minimum delay	40	s
Maximum delay	66	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

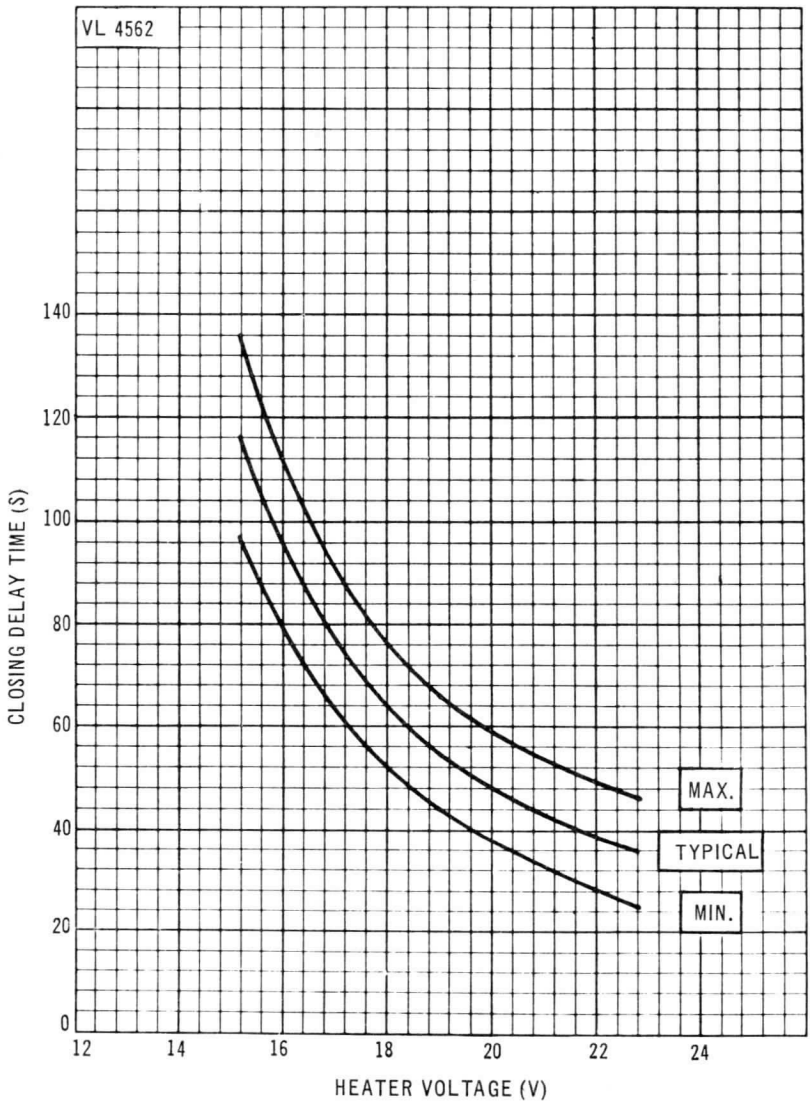
The S106/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S106/1K

CONTINUED

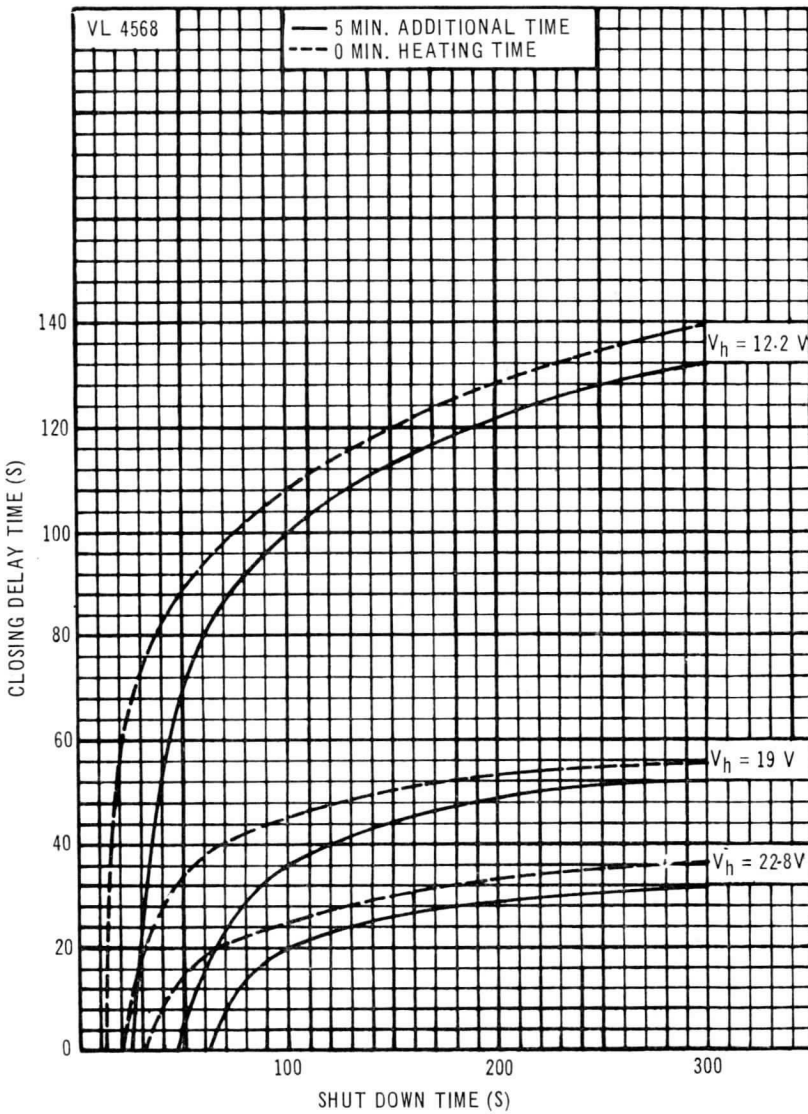
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S106/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

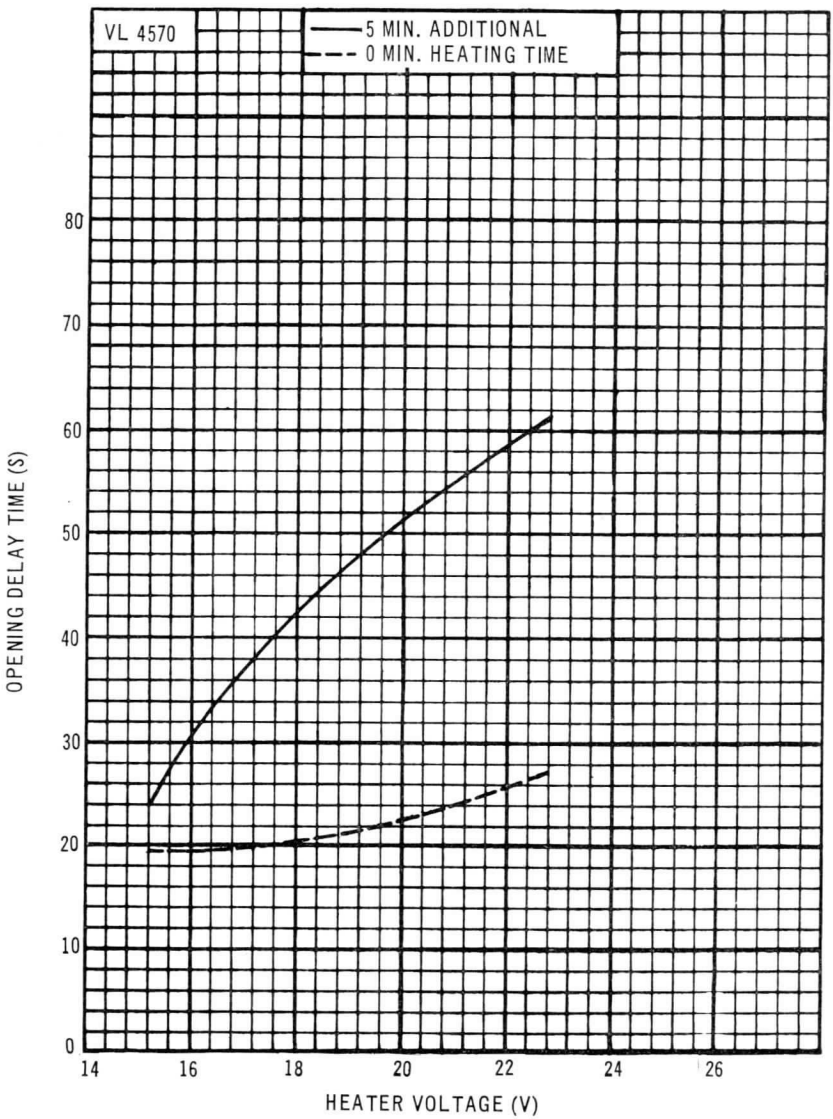


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S106/1K

CONTINUED

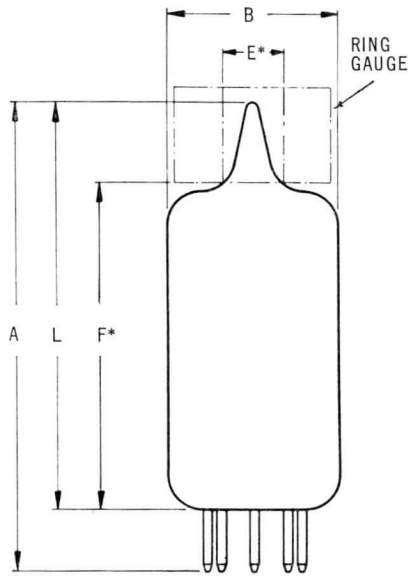
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S106/1K

CONTINUED

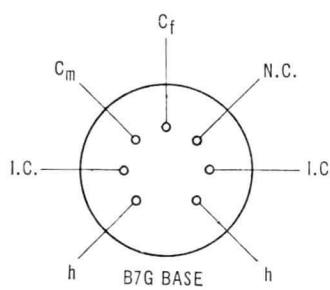
Fig. 4.—Outline and Basing Detail

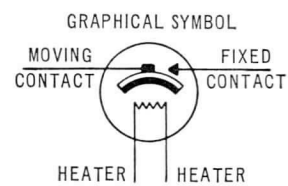


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S107/1K

The S107/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes in ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	V_h = 6·3V	
Minimum delay	8	s
Maximum delay	15	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

To ensure consistency of selected delay times, it is recommended that additional switch heating time be limited to one minute per operation.

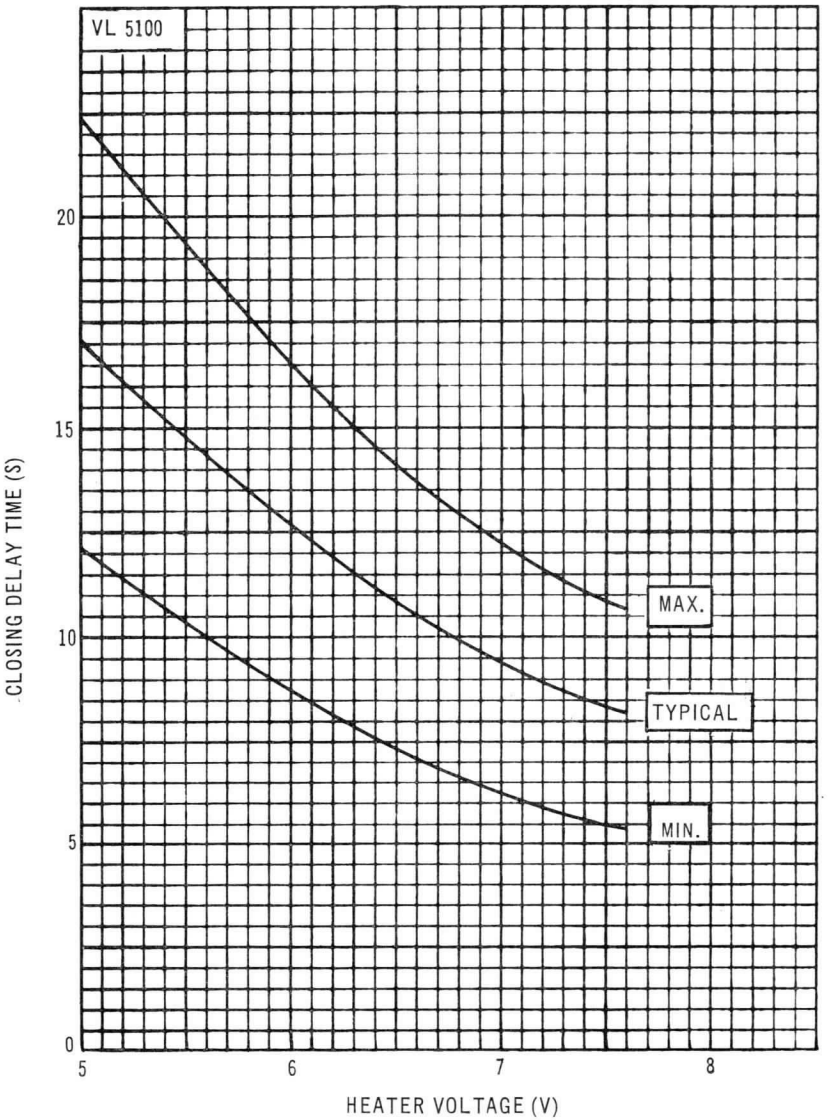
The S107/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S107/1K

CONTINUED

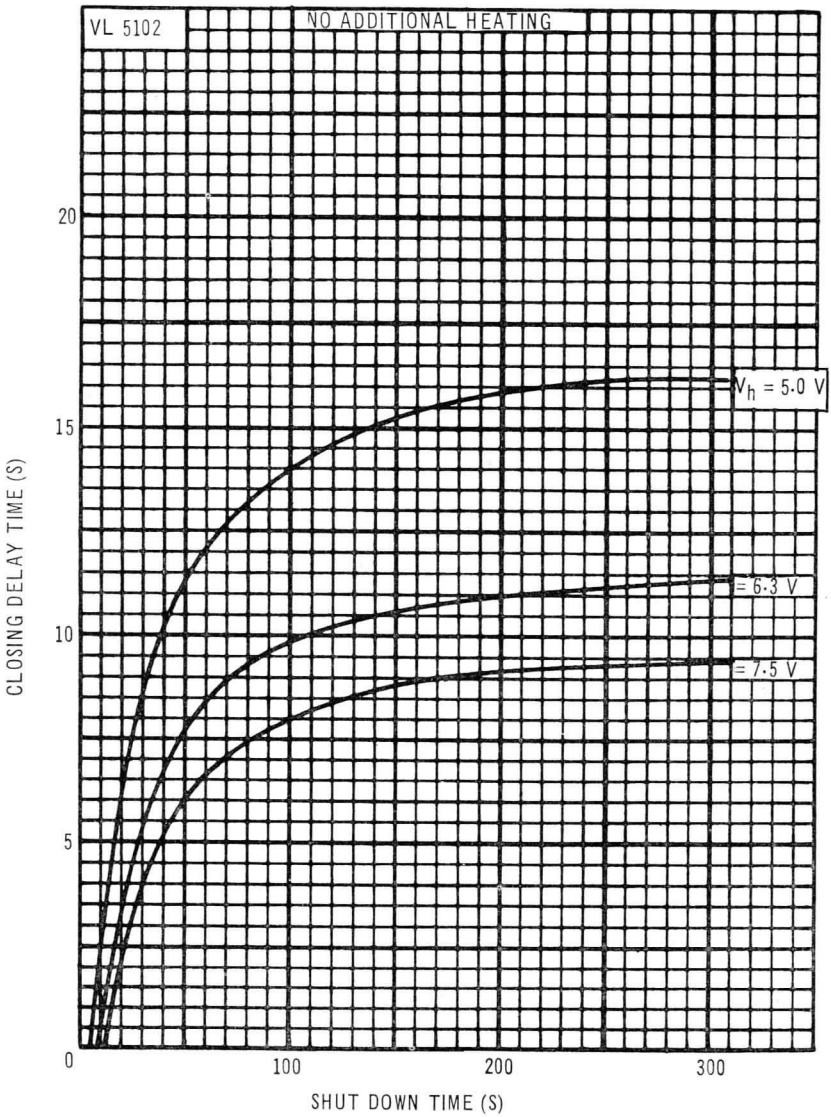
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S107/1K

CONTINUED

**Fig. 2.—Typical Closing Delay Time versus Shut-down Time*
(at room temperature of 20°C)**

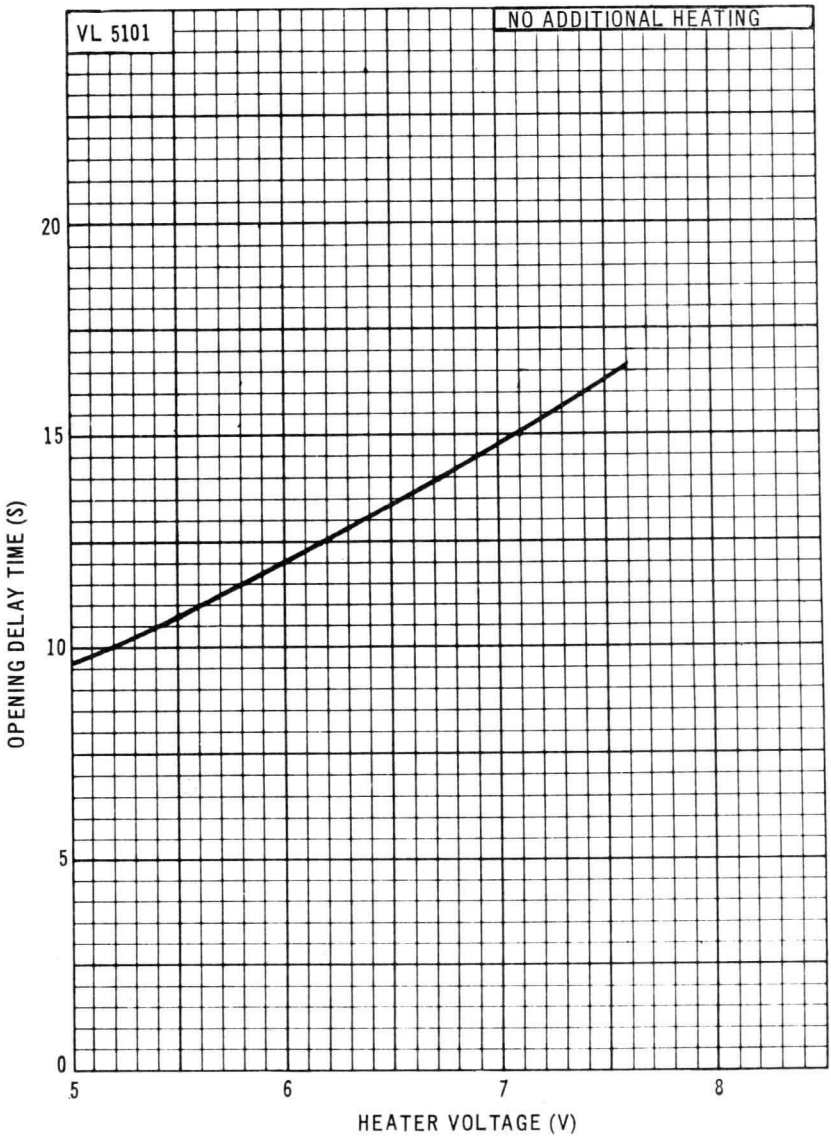


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S107/1K

CONTINUED

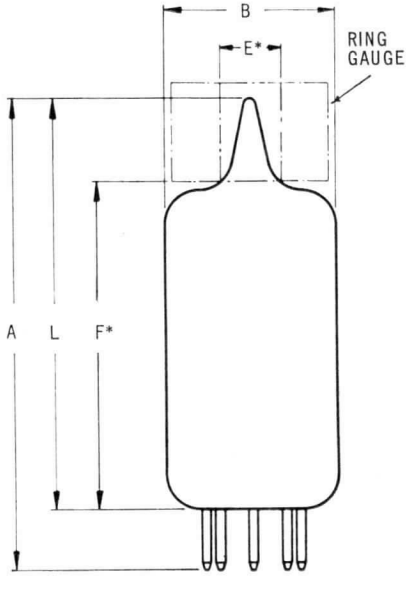
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S107/1K

CONTINUED

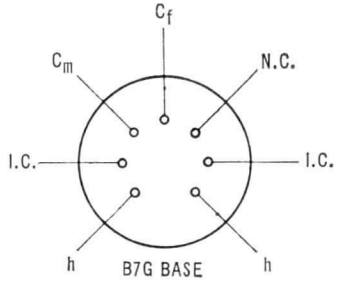
Fig. 4.—Outline and Basing Detail

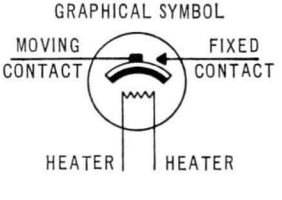


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S108/1K

The S108/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	24 ± 10%	V
Heater current, nominal	0·13	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 24V$	
Minimum delay	36	s
Maximum delay	46	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

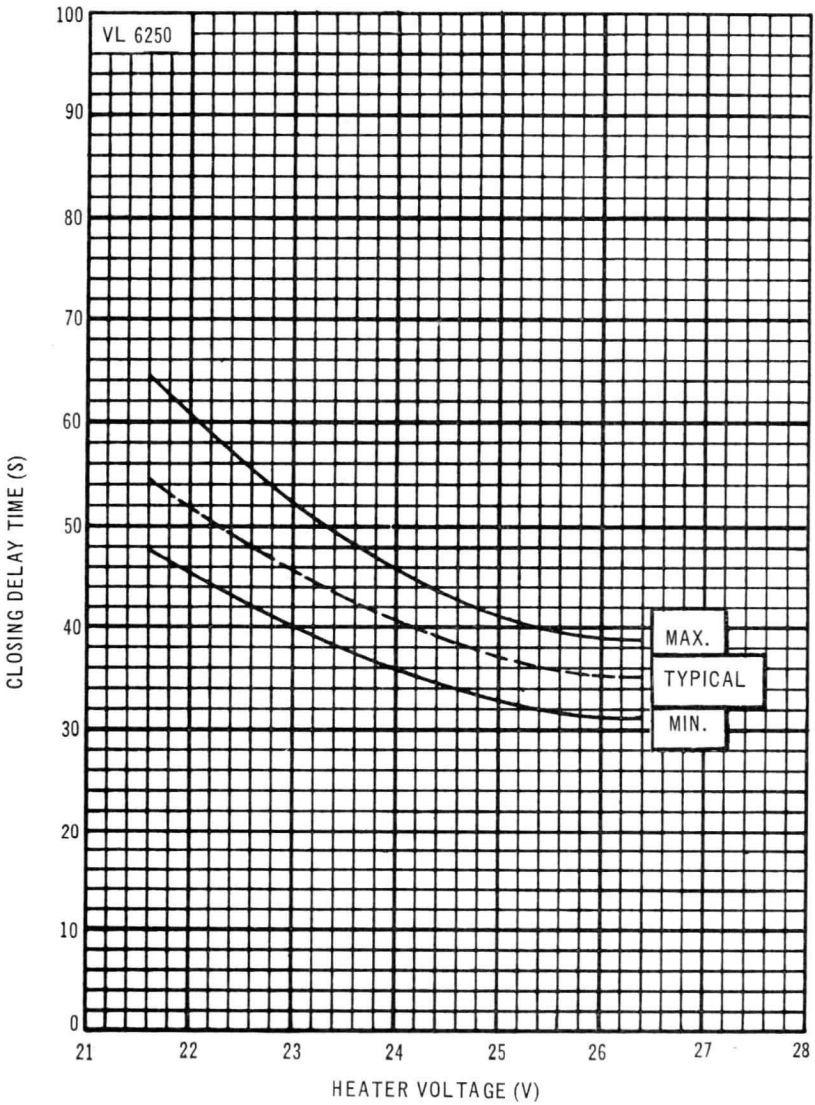
The S108/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S108/1K

CONTINUED

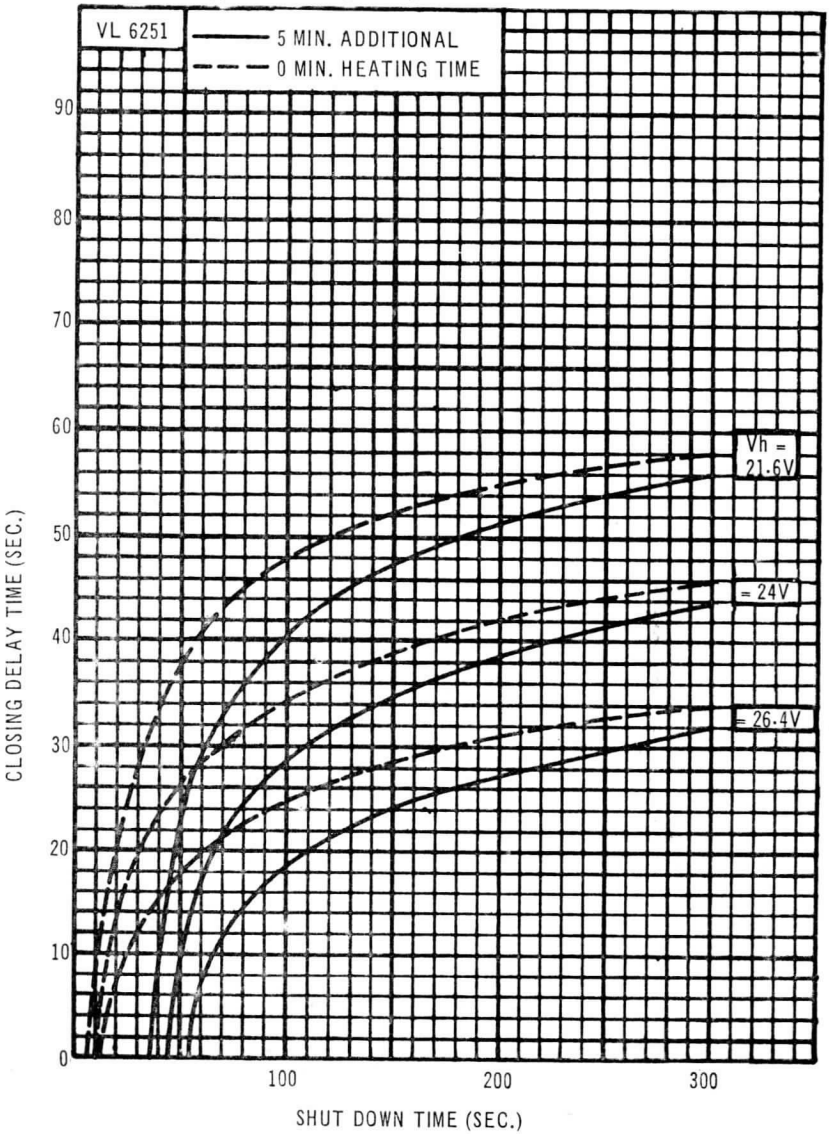
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S108/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

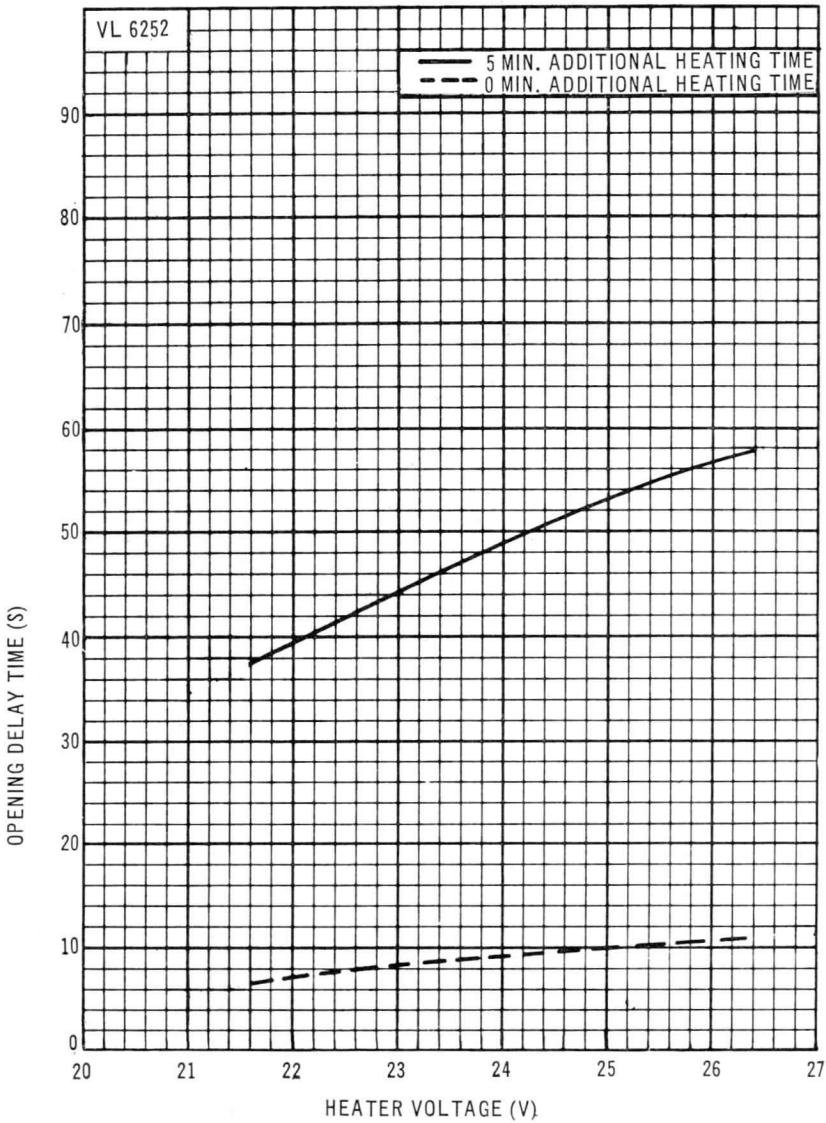


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S108/1K

CONTINUED

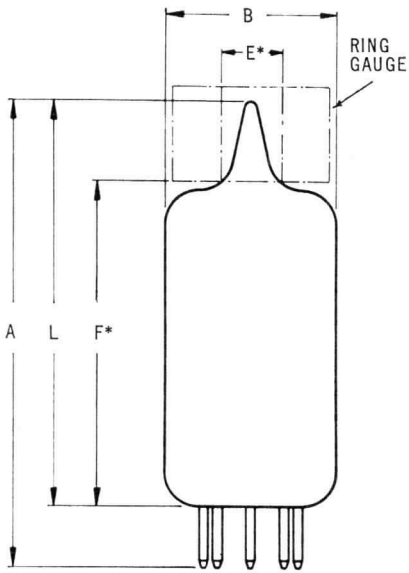
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S108/1K

CONTINUED

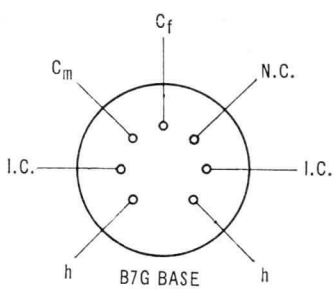
Fig. 4.—Outline and Basing Detail

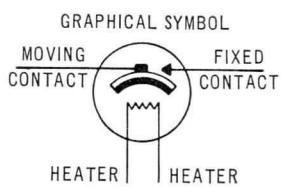


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.





SPECIAL VALVES

Thermal Delay Switch

Code: S109/1K

The S109/1K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts are normally open.

HEATER

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

	$V_h = 6{\cdot}3V$	
Minimum delay	72	s
Maximum delay	98	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit d.c. voltage between contacts	220	V
Maximum open circuit a.c. voltage between contacts	100	V
Maximum contact current on make, a.c. or d.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

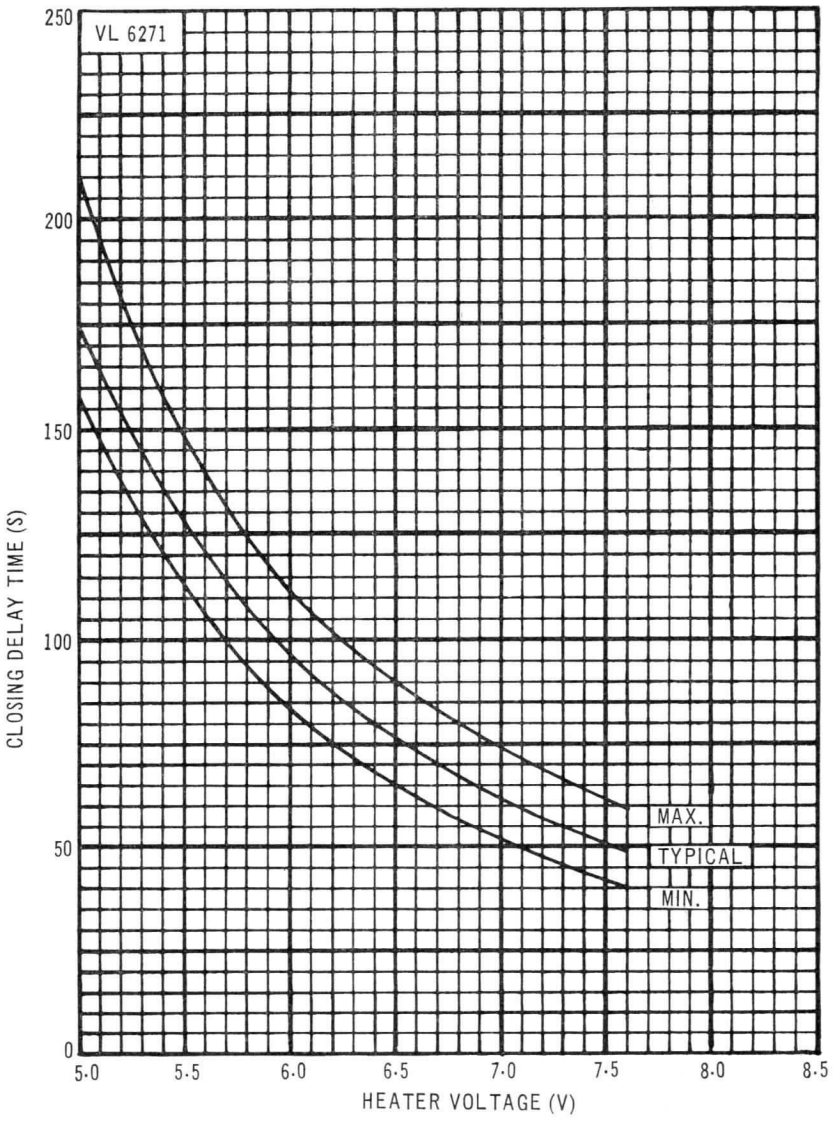
The S109/1K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S109/1K

CONTINUED

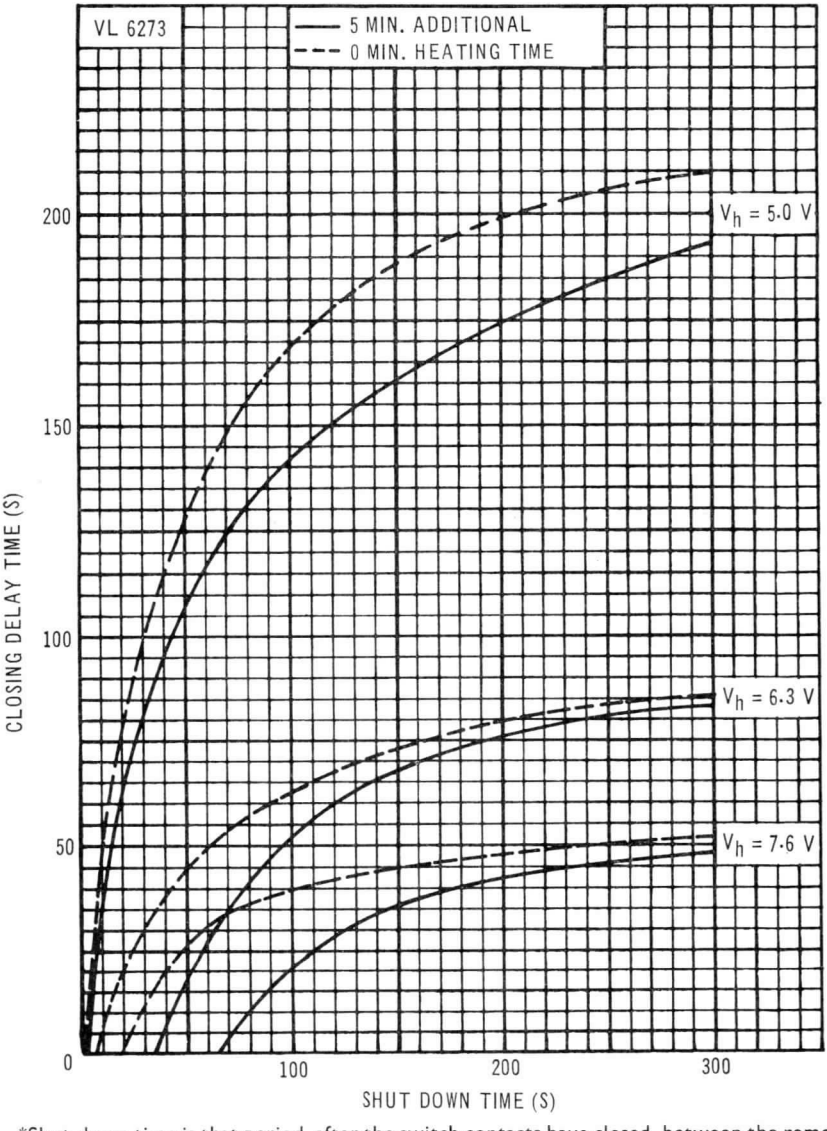
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S109/1K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

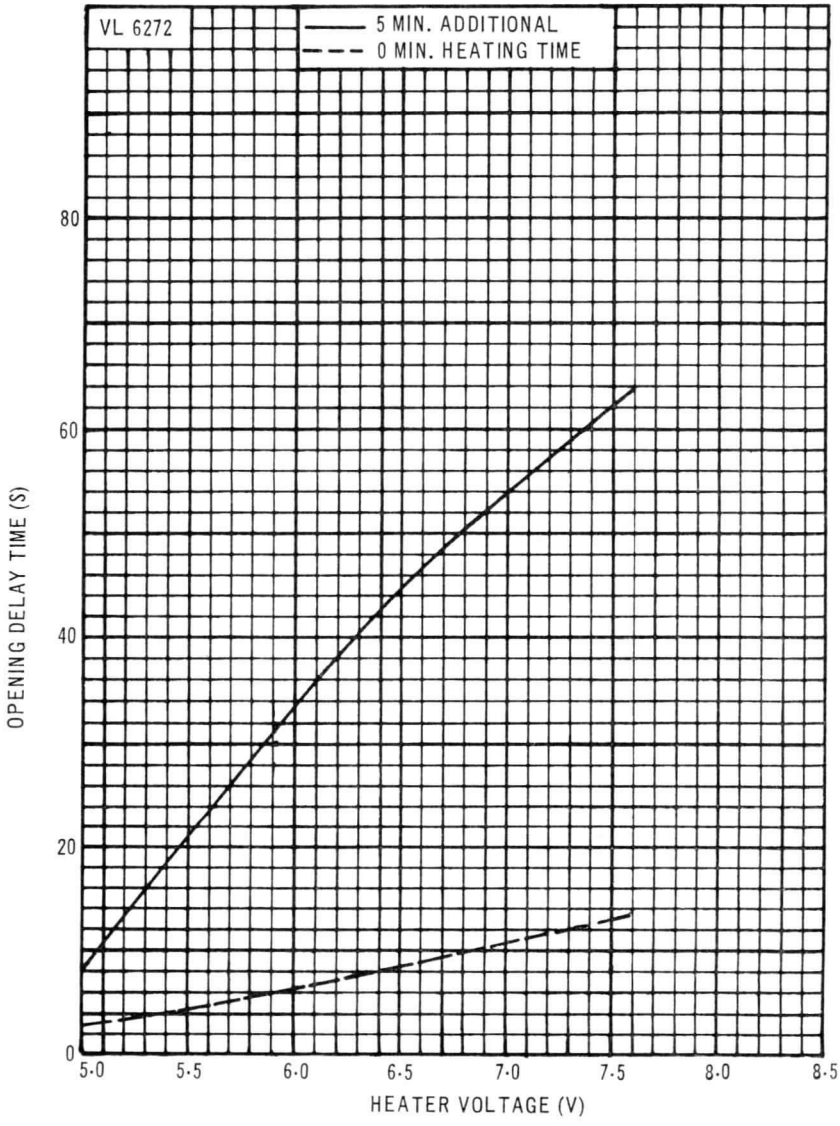


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S109/1K

CONTINUED

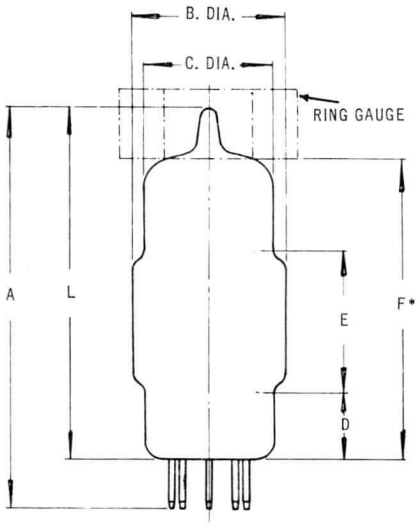
Fig. 3.—Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S109/1K

CONTINUED

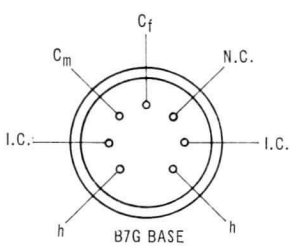
Fig. 4.—Outline and Basing Detail

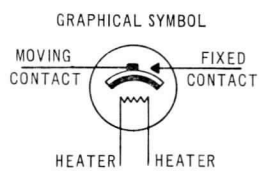


DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	22,2 MAX.	7/8 MAX.
C	19,1 MAX.	3/4 MAX.
D	7,9 MIN.11,1 MAX.	5/16 MIN.7/16 MAX.
E	14,2 MIN.20,6 MAX.	9/16 MIN.13/16 MAX.
F	38,1 ± 2,4	1½ ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE AS DETERMINED BY A RING GAUGE OF 7/16 INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES





SPECIAL VALVES

Thermal Delay Switch

Code: S204/2K

The S204/2K is a miniature thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 10%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT (Note 1)

Minimum delay	27	s
Maximum delay	37	s

Note 1.—Closing and opening delay time characteristic curves are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS

Maximum open circuit voltage between contacts, r.m.s. or d.c.	250	V
Maximum contact current, r.m.s. or d.c.	1	A
Maximum breaking current, a.c.	1	A
d.c.	0·5	A
Maximum peak surge current	5	A
Maximum peak heater-contact voltage	750	V

MECHANICAL DATA

Base	B7G
Dimensions, Basing detail	As shown in Figure 4
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

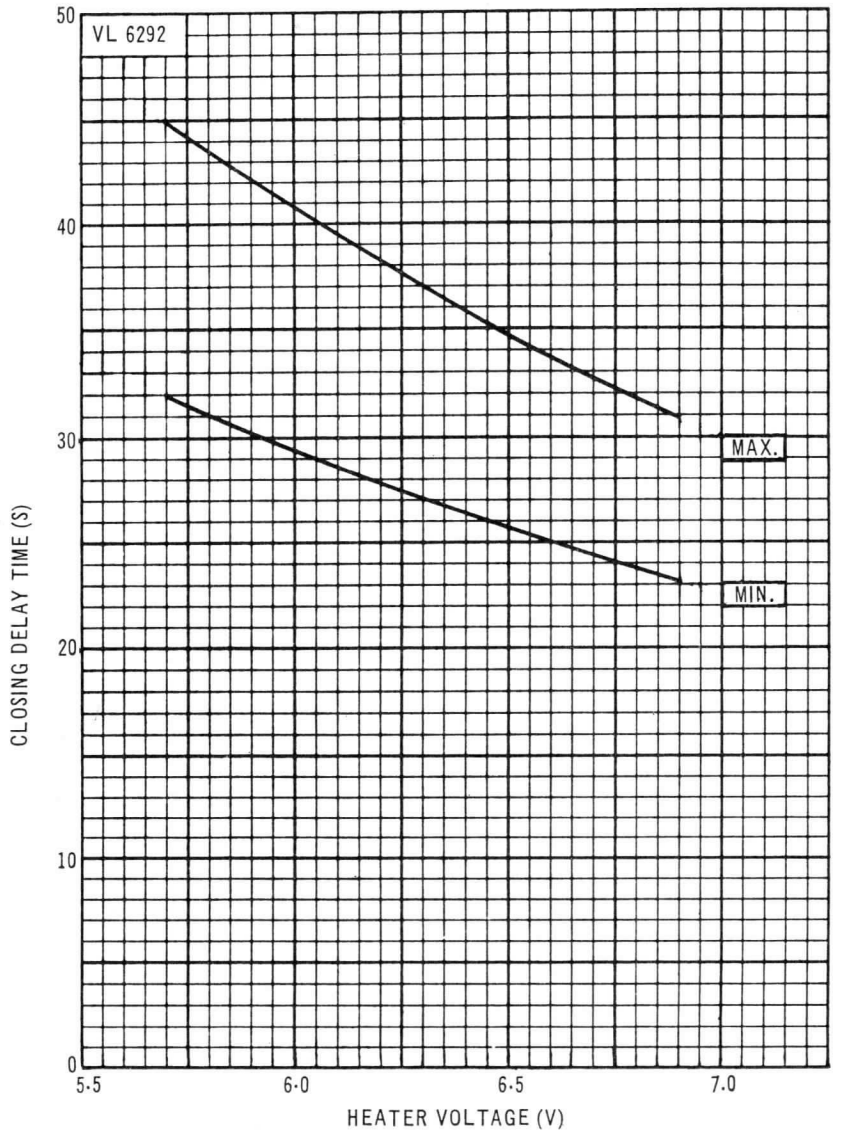
The S204/2K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: S204/2K

CONTINUED

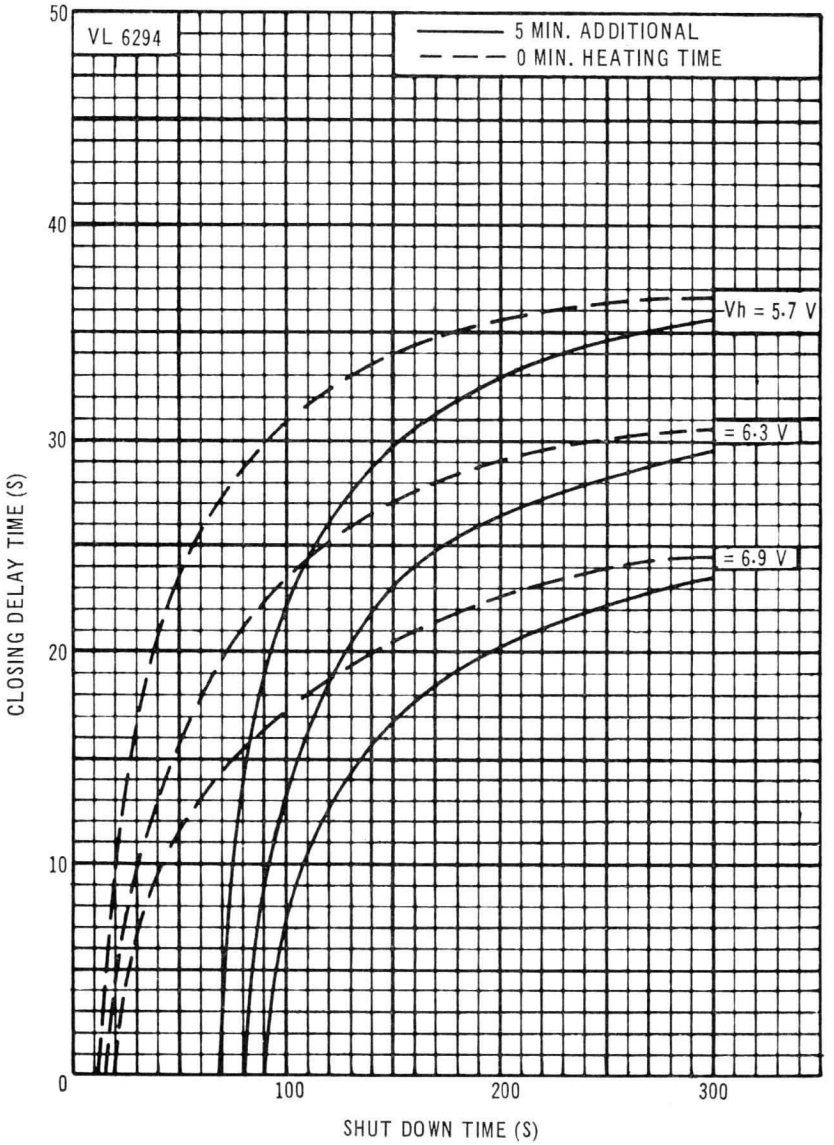
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S204/2K

CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*

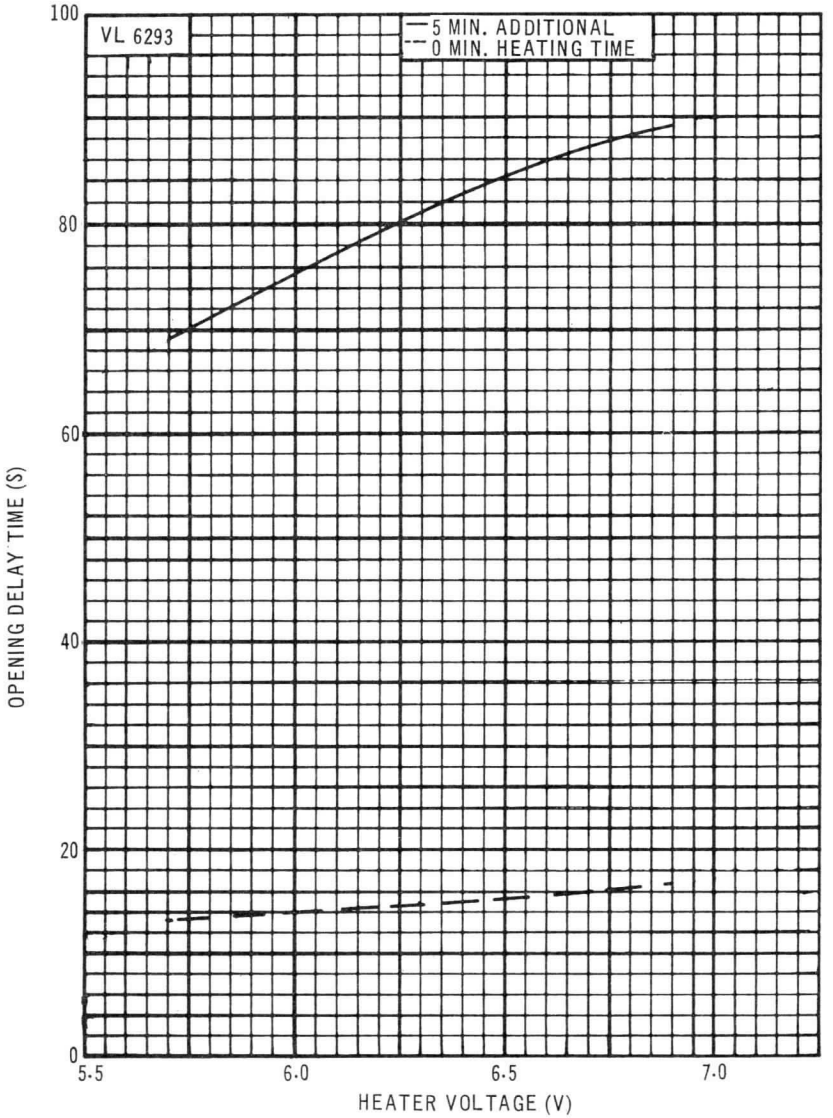


*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

Code: S204/2K

CONTINUED

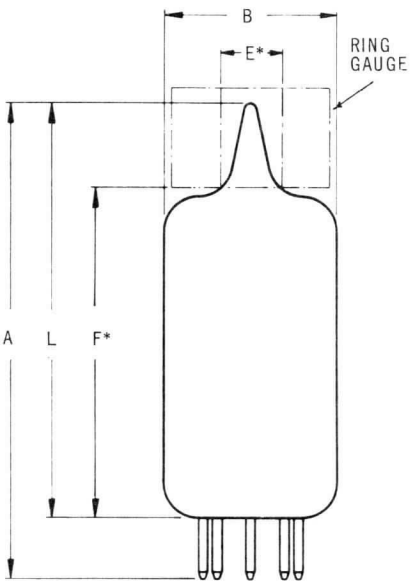
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: S204/2K

CONTINUED

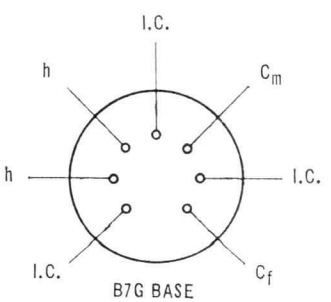
Fig. 4—Outline and Basing Detail



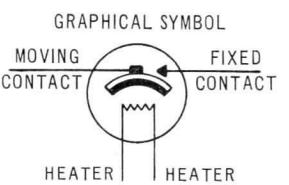
DIM.	MILLIMETRES	INCHES
A	54 MAX.	2.1/8 MAX.
B	19,1 MAX.	3/4 MAX.
E	11,1	7/16
F	38,1 ± 2,4	1.1/2 ± 3/32
L	47,6 MAX.	1.7/8 MAX.

* DENOTES:- MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'E' INT. DIA.

NOTE:- BASIC DIMENSIONS ARE IN INCHES.



B7G BASE



STC VALVES

PROVISIONAL DATA

Thermal Delay Switch

Code: S207/3K

The S207/3K is a miniature single-pole thermal delay switch which incorporates a device to compensate for changes of ambient temperature. Its contacts, which are normally open, are designed for operation from full 240 volts mains supply.

HEATER

Heater voltage	6·3 ± 10%	V
Heater current, nominal	0·5	A

CLOSING DELAY TIME AT 20°C AMBIENT

	$V_h = 6{\cdot}3V$	
Minimum delay	11	s
Maximum delay	24	s

MAXIMUM RATINGS

Maximum open-circuit d.c. or a.c. voltage between contacts	500	V
Maximum contact current on make at 240V d.c. or a.c.	1	A
Maximum contact current on make at 500V a.c.	0·2	A
Maximum peak heater-to-contact voltage	500	V

MECHANICAL DATA

Base	B7G
Dimensions, Base connections	As shown in outline drawing
Mounting position	Vertical, base downwards

OPERATION OF SWITCH

The intended method of operation is to arrange for the delay switch to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switch should be removed when the contacts have closed to obtain full delay time in the event of a shut down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

The S207/3K is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

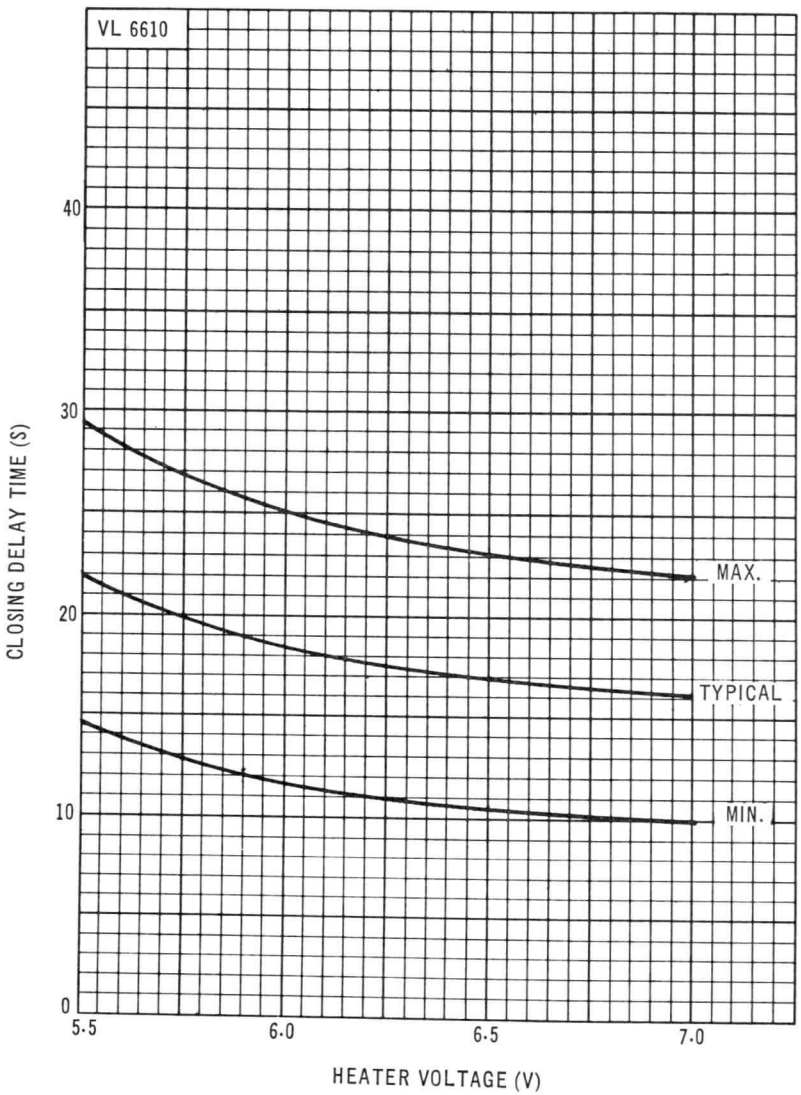
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: 01-300 3333 Telex: 21836
COMPONENTS GROUP

STC

Code: S207/3K

CONTINUED

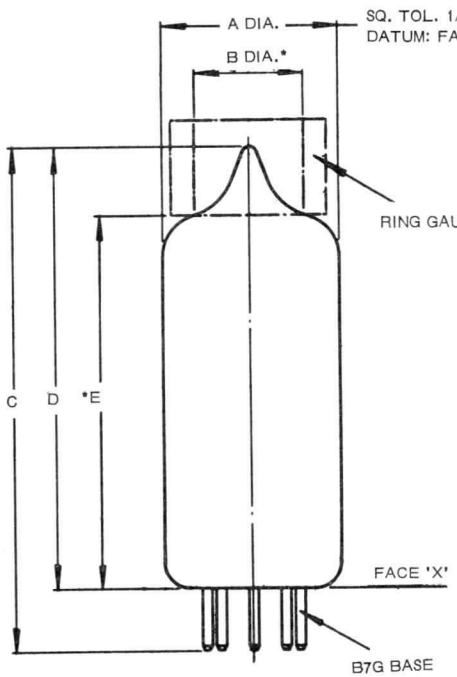
Closing Delay Time versus Heater Voltage



Code: S207/3K

CONTINUED

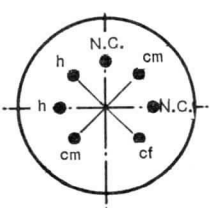
S207/3K Outline

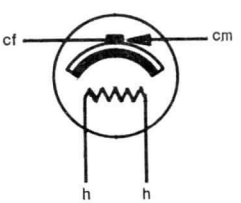


DIM.	INCHES	MILLIMETRES
A	3/4 MAX.	19,1 MAX.
B	·438 ± ·001	11,13 ± ·03
C	2.1/8 MAX.	54,0 MAX.
D	1.7/8 MAX.	47,6 MAX.
E	1.1/2 ± 3/32	38,1 ± 2,4

BASIC DIMENSIONS ARE INCHES

* DENOTES: MEASURED FROM BASE SEAT TO BULB TOP LINE, AS DETERMINED BY RING GAUGE OF 'B' INT. DIA. TOLERANCES TO BS308 (1964)





SPECIAL VALVES

Double Thermal Delay Switch

Code: SS110/1D

The SS110/1D consists of two mechanically and electrically separate single-pole thermal delay switches, mounted in a common envelope. Each switch section, the contacts of which are normally open, incorporates a device to compensate for changes of ambient temperature.

HEATER (Note 1)

Heater voltage	6·3 ± 20%	V
Heater current, nominal	0·5	A

Note 1.—Data refers to one switch section.

CLOSING DELAY TIME AT 20°C AMBIENT (Notes 1 and 2)

	V_h = 6·3V	
Minimum delay	90	s
Maximum delay	110	s

Note 2.—Closing and opening delay time characteristic curves for one switch section are shown in Figures 1, 2 and 3.

MAXIMUM RATINGS (Note 1)

Maximum open-circuit d.c. voltage between contacts	220	V
Maximum open-circuit a.c. voltage between contacts	100	V
Maximum contact current on make, d.c. or a.c.	1	A
Maximum peak surge current	5	A
Maximum peak heater-to-contact voltage	750	V

MECHANICAL DATA

Base	I0–8
Dimensions, Base connections	As shown in Figure 4

OPERATION OF SWITCH

The two switch sections may be used independently or in conjunction.

The intended method of operation is to arrange for each switch section to operate an electromagnetic relay fitted with a "hold-on" contact. By this means large powers can be handled.

The heater supply of the switches should be removed when the contacts have closed to obtain full delay time in the event of a shut-down and to ensure optimum switch life.

These delay switches may be connected in series to obtain multiples of the quoted delay time.

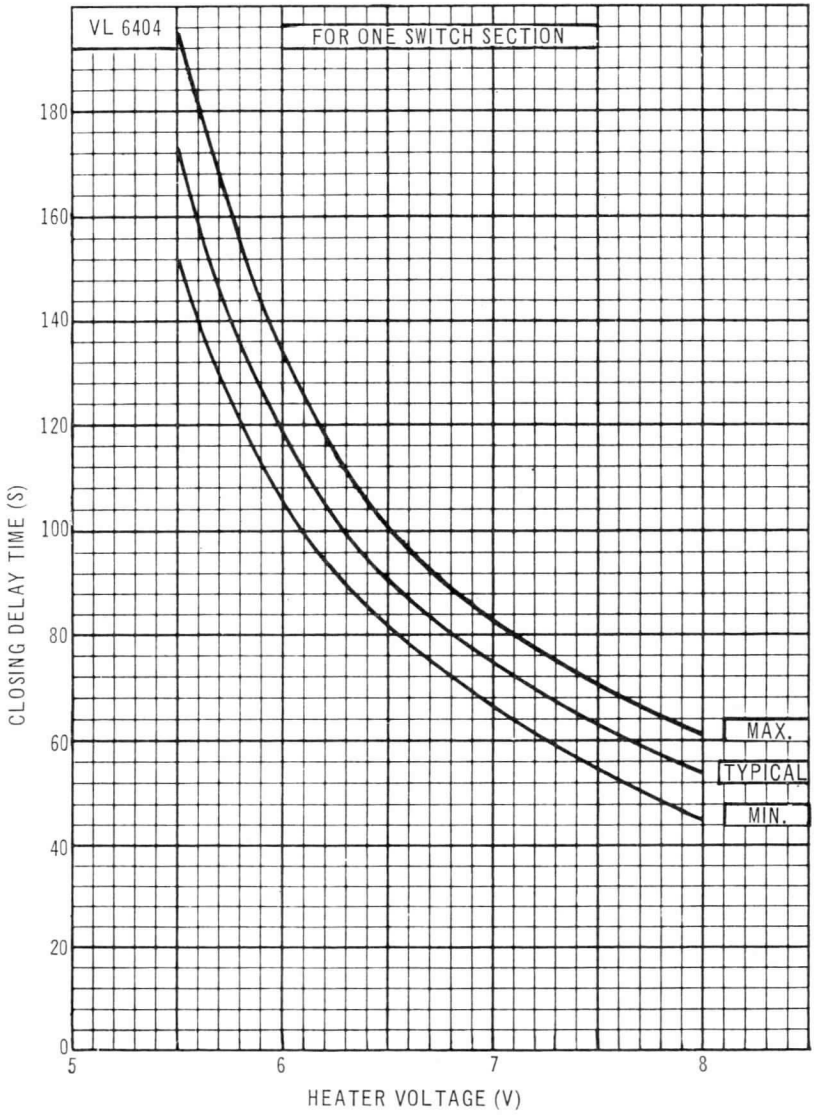
The SS110/1D is one of a comprehensive range of thermal delay switches. A description of the types available and full application data are contained in Booklet MS/117, obtainable on request to the address given below.

Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 Telex: 4230
London Sales Office, Telephone: Footscray 3333 Telex: 21836
C O M P O N E N T S G R O U P

Code: SS110/1D

CONTINUED

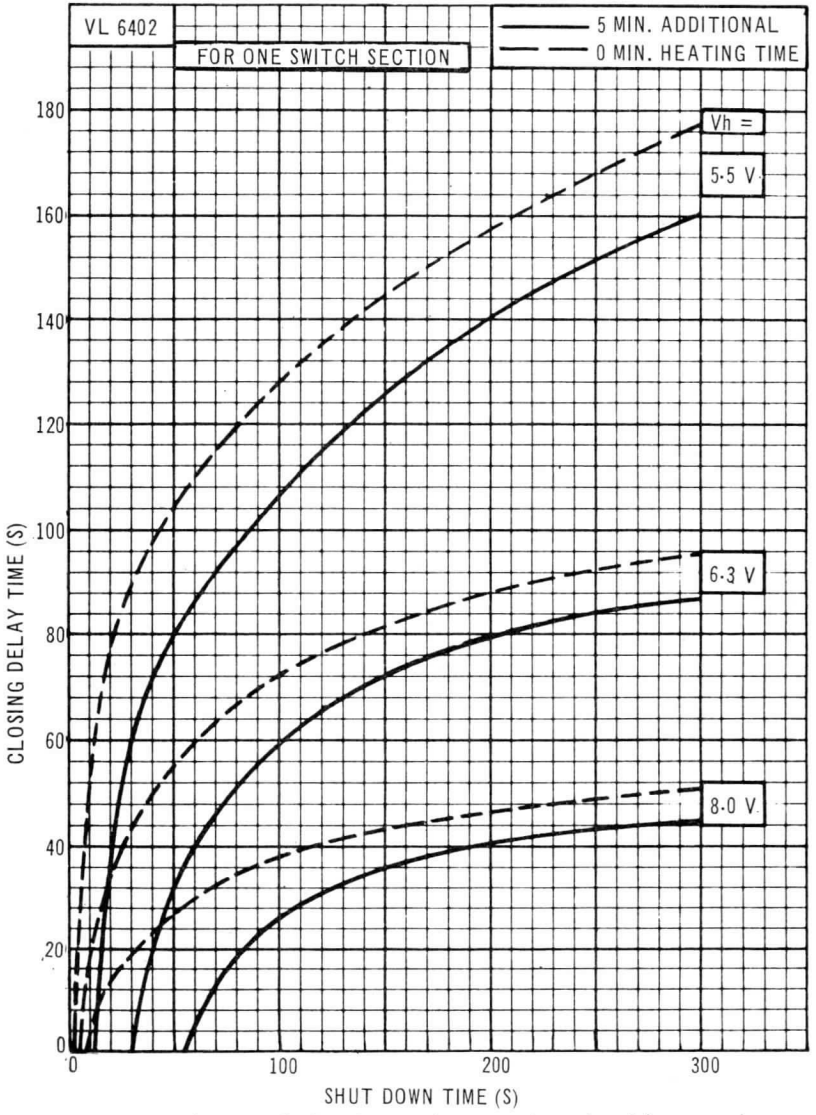
Fig. 1.—Closing Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: SS110/1D

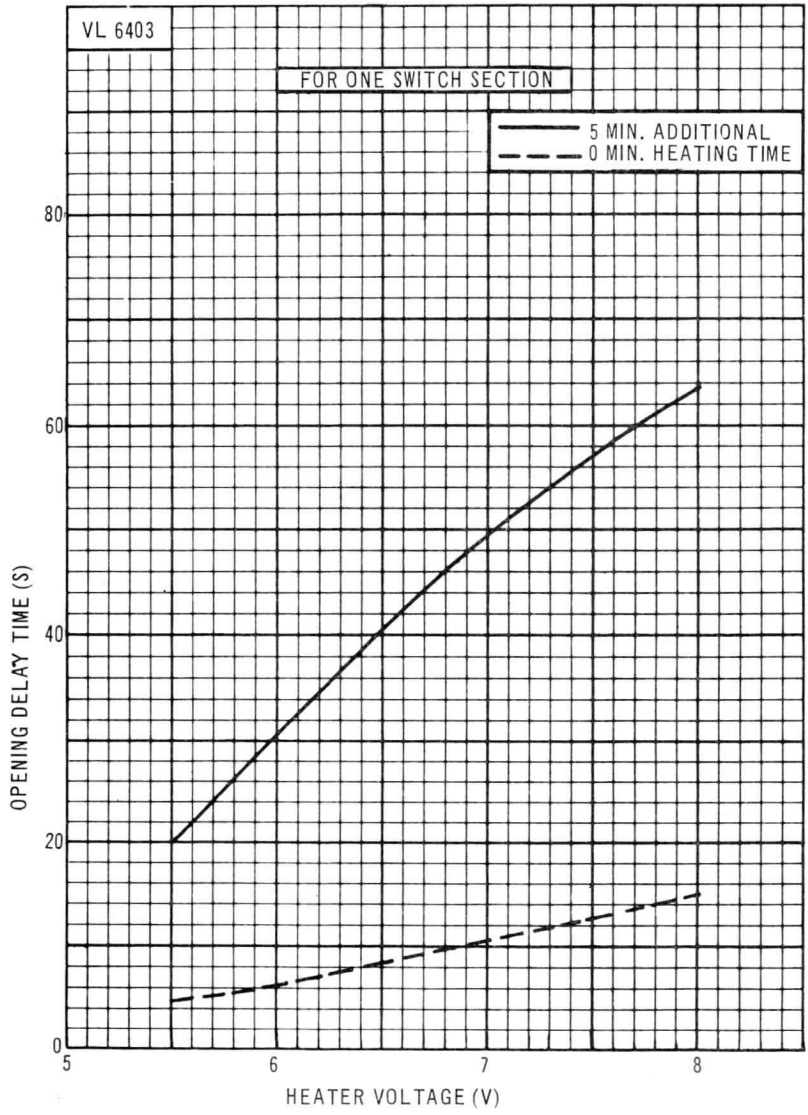
CONTINUED

Fig. 2.—Typical Closing Delay Time versus Shut-down Time*



*Shut-down time is that period, after the switch contacts have closed, between the removal of heater voltage and its re-application.

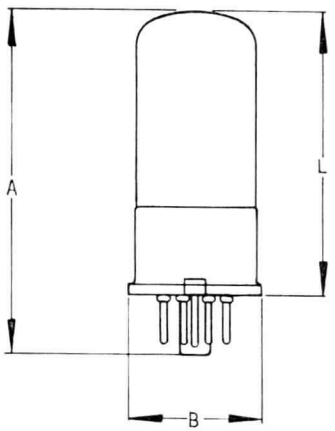
Fig. 3.—Typical Opening Delay Time versus Heater Voltage (at room temperature of 20°C)



Code: SS110/1D

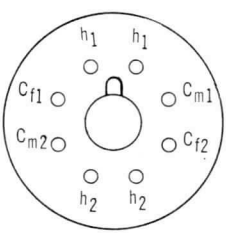
CONTINUED

Fig. 4.—Outline and Basing Detail



DIM.	MILLIMETRES	INCHES
A	81,0 MAX.	3.3/16 MAX.
B	33,3 MAX.	1.5/16 MAX.
L	66,7 MAX.	2.5/8 MAX.

NOTE:- BASIC FIGURES ARE INCHES.



SMALL WAFER OCTAL WITH METAL SHELL

GRAPHICAL SYMBOL