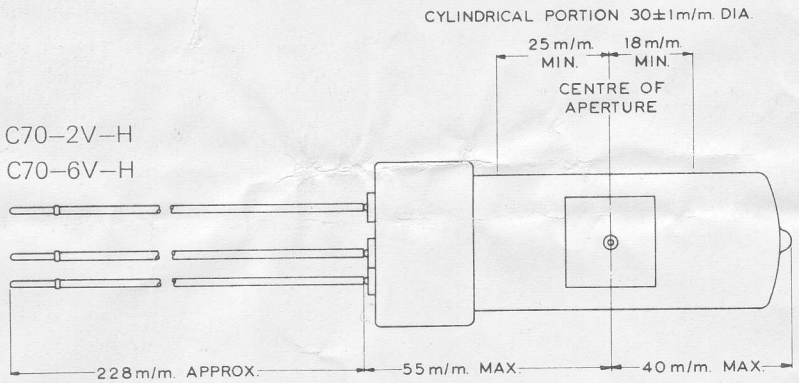
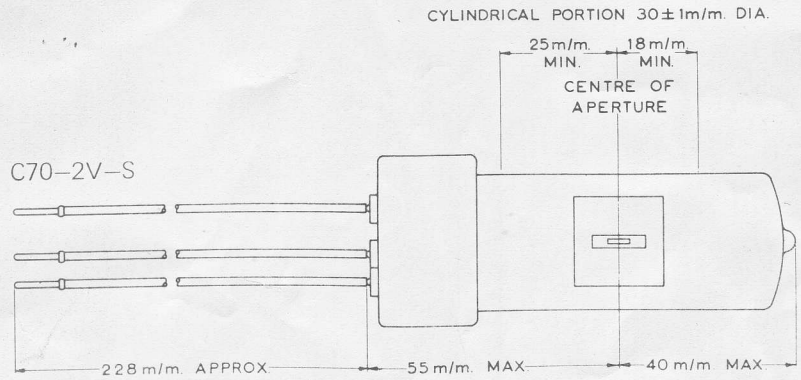
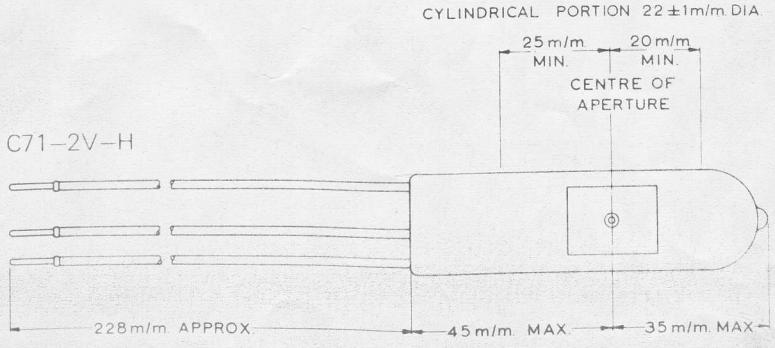
Deuterium Lamps
Ultra-Violet Light Sources for Spectrophotometers

Cathodeon Ultra Violet light sources are gas discharge tubes filled with Deuterium and provide a continuous U.V. spectrum from 185–370nm wavelength. The electrode structure of the discharge tube confines the light source to a small area and the light output to a narrow cone, making focussing or collimating the light into an optical system simple and efficient. Lamps are available with either circular or elongated slot sources. The lamps have heated thermionic cathodes which require to be operated for approximately 1 minute before striking the gas discharge. The filament voltage should be disconnected once the discharge has been established.







CATHODEON DEUTERIUM LAMPS FOR VARIOUS TYPES OF U.V. INSTRUMENTS.

Instrument make and type.		Cathodeon lamp.
Britain.		
Cecil Instruments.		C71-2V-H
Joyce Loebl.	Chromoscan	C70-3V-H
Pye Unicam	SP.500, SP.600	C70-2V-H
	SP.700, SP.800, SP.1700, SP.1800, SP.8000.	C70-2V-S
	SP.3000	C70-6V-H
Rank Hilger & Watts - Uvichem		C72-3V-H
France.		
Leres.	Spila	C70-6V-HB
Roussel-Jouan.	Senior, MF.200	C70-3V-H
	Spectral Jouau	C70-6V-HB
Sieve	Elugraphe	C72-3V-H
Italy.		
Ciampolini		C70-3V-H
Optica	CF4	C70-3V-H
	115	C70-6V-HB
Saitron Monospec B.		C70-3V-H
Japan.		
Hitachi.	101, 102, 111, 181.	C70-12V-HB
Schimadzu.	SV-50A, IV-50A, QV-50A, MPS-50L, D40. 700.200	C70-6V-HB C70-3V-H
U.S.A.		
Aminco.	DW2	C70-3V-H (S)
Bausch and Lomb.	Spectronic 200/700	C70-3V-H
Beckman	DU, DB, DK.	C70-3V-H
	Acta Series, 24, 25.	C70-12V-HB
Buchler		C70-3V-H
Coleman-PE.	Autoset 30.	C70-3V-H (S)
	55, 46.	C70-12V-HB
G.C.A./McPherson.		C70-3V-H (S)
Gilford.	240, 2400, 200, 2000.	C70-3V-H
Heath Corp.	701, 707, Special Multi-	C70-3V-H (S)
Hitachi-PE.	139UV, 124, EP5-3T	C70-12V-HB.
Turner.	330, 430.	C70-3V-H

Cathodeon lamp type designation followed by (S) refers to the possibility that the customer may require a spectrosil (suprasil) window version.

GRW/DP

CATHODEON LIMITED.

U.K. DEUTERIUM LAMPS PRICE LIST
FROM 1st AUGUST 1974.

LAMP TYPE		PRICE
C70-2V-H	Vitreosil	£30.50
	Spectrosil	£35.50
C70-2V-S	Vitreosil	£30.50
	Spectrosil	£35.50
C70-6V-H	Vitreosil	£37.00
	Spectrosil	£42.00
C71-2V-H	Vitreosil	£28.50
	Spectrosil	£33.50
C70-3V-H	Vitreosil	£30.50
	Spectrosil	£35.50
C70-12V-H	Vitreosil	£30.50
	Spectrosil	£35.50
C70-6V-HB	Vitreosil	£30.50
	Spectrosil	£35.50
C72-3V-H	Spectrosil	£28.50

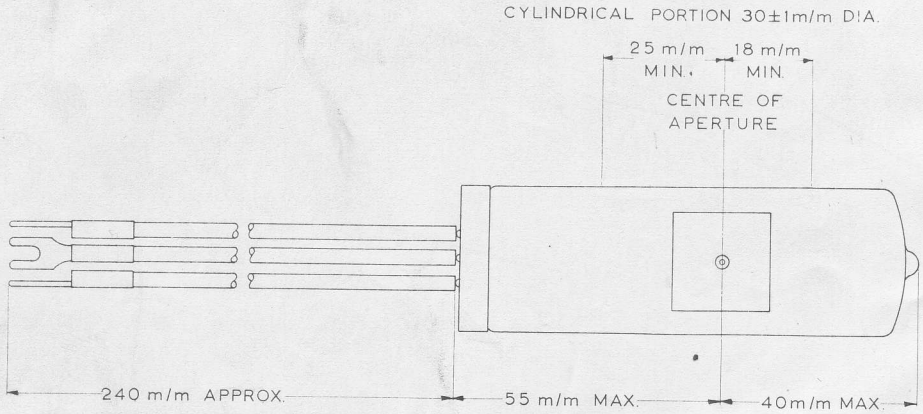
GRW/DP
19.6.74.

CATHODEON

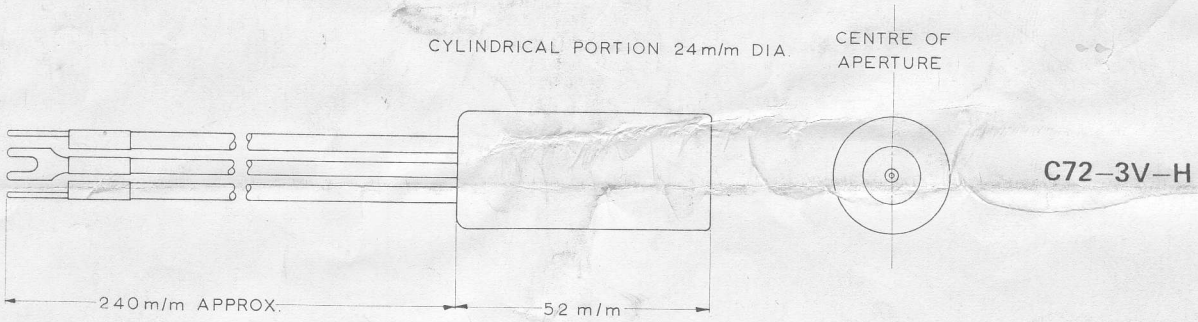
New additions to the range of Cathodeon

Deuterium Lamps

Ultra-Violet Light Sources for Spectrophotometers



C 70–3V–H



C72–3V–H

Connections – black leads – filament. red lead – anode All terminating with 3mm spades

Lamp Type	Heater Voltage DC or AC	Heater Current DC or AC	Striking Voltage DC	Running Voltage DC	Running Current DC	Source Shape and Size
C70–3V–H	2.5V Nom	6 Amp max	350V min	55–85V	300mA–500mA max	Circular 1mm dia
C72–3V–H	3.0V Nom	6 Amp max	300V min	55–85V	200mA–300mA max	Circular 1mm dia

Filament currents should be switched off or reduced to a lower value after the arc has struck

A 2V 10A filament version of the type C72–3V–H is available

C70–3V–H lamps can be supplied with Spectrosil windows.

C70–3V–H For use in
Beckman – DB, DU, DK series
U.V. Spectrophotometers
Gilford – all models
Equivalent to Quarzlampen type D102

C72–3V–H Equivalent to Quarzlampen type D15

Cathodeon Limited Nuffield Road Cambridge CB4 1TF Telephone Cambridge (0223) 56481

Power Supply Requirements

For optimum stability the power supply should stabilize the running current, and must provide a minimum of 250V to strike the arc.

Connections

Black leads	—	heaters
Red lead	—	anode

Note: One side of the heater must be connected to the negative H.T. supply

Characteristics

Lamp Type	Heater Voltage DC or AC	Heater Current DC or AC	Striking Voltage (D.C.)	Running Voltage (D.C.)	Running Current (D.C.)	Source Shape and Size
C70–2V–H	2V ± 10%	10 Amp max.	250V	50–80V	300mA	Circular 1mm dia
C70–2V–S	2V ± 10%	10 Amp max.	250V	50–80V	300mA	Slot 5mm x 1mm
C70–6V–H	6V ± 10%	4 Amp max.	250V	50–80V	500mA	Circular 1.2mm dia.
C71–2V–H	2V ± 10%	10 Amp max.	250V	50–80V	300mA	Circular 1mm dia.

Guarantee

Defective Cathodeon Deuterium Lamps will be replaced at a charge proportionate to the usage of the original lamp providing that Cathodeon or its duly appointed Distributor is satisfied that it has failed within:

a) Three months from the date of despatch from the Company or

b) Five hundred hours use whichever is the earlier and provided also that:

c) The lamp is returned carriage paid

d) Cathodeon is satisfied that the lamp has been operated only within the recommended operating parameters

e) Cathodeon is satisfied that the lamp has not failed due to accidental damage or misuse by the operator.

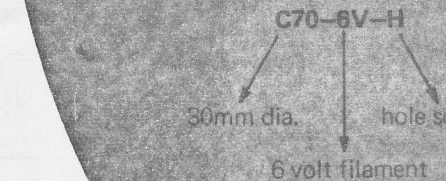
Replacement Lamps

Cathodeon Deuterium lamps may be used as direct replacements in most U.K. made spectrophotometers and in a number of other manufacturers instruments. Further information on other types of lamps may be obtained from the Company.

Type Number Code

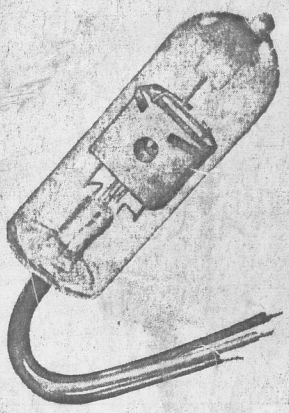
Parameter	Symbol	
Envelope diam.	70	– 30 mm
	71	– 22 mm
Filament voltage	2V	– 2 volt
	6V	– 6 volt
Source Shape	H	– round hole
	S	– slot

Example

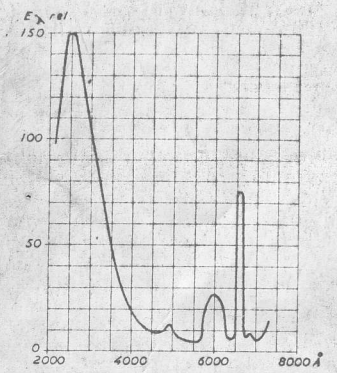


DEUTERIUM SPECTRAL LAMP

The deuterium spectral lamp does not belong to the range of spectral lamps described on the preceding pages.
This lamp produces a continuous spectrum from about 2000 Å up to the infra-red. Above 4000 Å the spectrum contains moreover the Balmer-lines and the strongest lines of the multiline-spectrum of deuterium. The filament current must be kept constant in order to obtain a constant intensity.
The deuterium spectral lamp is to be used on DC according to the circuit diagram given below. The filament supply transformer does not form part of our delivery.
Electrically and geometrically the deuterium lamp is identical to the hydrogen lamp, while the absolute output is about 40% higher.

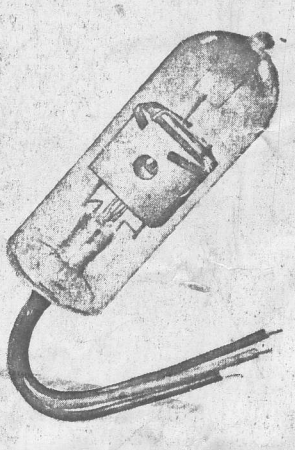


RELATIVE SPECTRAL ENERGY DISTRIBUTION

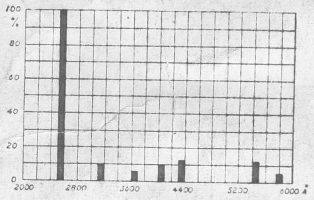


MERCURY SPECTRAL LAMP

This mercury spectral lamp does not belong to the standard spectral lamps.
The very low working pressure of this lamp results in an absence of continuous radiation. Thus the energy is dissipated in the well-known mercury lines only. This makes this lamp very useful for calibration purposes of i.a. spectroscopic and spectrophotometric equipment.
The outer bulb is made of quartz so that also the lines in the short-wave UV part of the spectrum are transmitted.
The mercury lamp is to be used on DC according to the circuit diagram given below. From this can be seen that the same circuitry can be used as for the deuterium spectral lamp without any further adjustment.



RELATIVE SPECTRAL ENERGY DISTRIBUTION

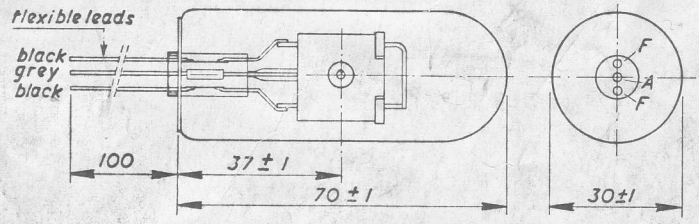


LAMP DATA

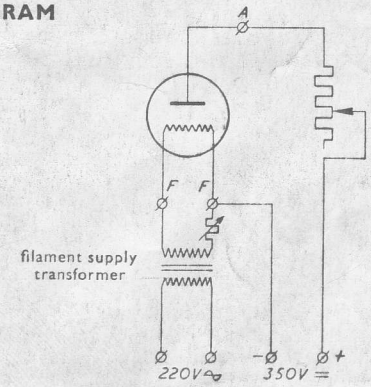
	Deuterium spectral lamp	Mercury spectral lamp
Min. starting voltage required[1]	350 V =	200 V =
Lamp voltage	60—90 V =	15—20 V =
Lamp current	0.3 A =	0.3 A =
Filament voltage (starting)	2.6—2.8 V ~	2.6—2.8 V ~
Filament voltage (running)	1.6 V max.	1.1—1.6 V
Filament current (starting)	5—6 A ~	2—3 A ~
Filament current (running)	4 A max.	2 A max.
Life[2]	200 hrs	200 hrs
Burning position	any	any
Weight	50 g	50 g
Bulb	Quartz	Quartz
Catalogue number	126138	103687

[1]) After pre-heating filament for 60—90 sec.
[2]) Life after which energy output is 65% of 0 hour value.

DIMENSIONS

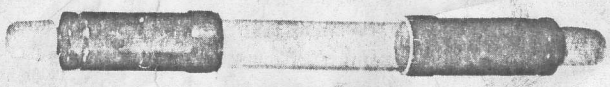


DIAGRAM



STANDARD ULTRA-VIOLET LAMP 250 W

The standard UV lamp 250 W is the so-called high-pressure mercury vapour discharge lamp according to Krefft, Rössler and Rüttenauer, who designed this lamp in order to avail of a standard source for measurements in the ultra-violet region of the spectrum. For this purpose one needs a lamp radiating a calibrated spectrum, which remains constant for a considerable time. The standard UV lamp has a constant output for at least 200 hours. Full data on request.



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