
Tubular fluorescent lamps for general lighting service

Part 2. Specification for lamps used in the United Kingdom not included in Part 1

Lampes tubulaires à fluorescence pour l'éclairage générale
Partie 2. Spécification des lampes utilisées au Royaume-Uni
mais non comprises dans la Partie 1

Röhrförmige Leuchtstofflampen für allgemeine Beleuchtung
Teil 2. Spezifikation für im Vereinigten Königreich verwendete aber nicht
im Teil 1 aufgeführte Lampen

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Foreword

This British Standard, which has been prepared under the direction of the Electrical Illumination Standards Committee, is in two Parts and revises BS 1853 : 1974.

Part 1, which is identical with IEC Publication 81: third edition 1974, plus Amendment No. 1, specifies tubular fluorescent lamps for international use. Part 2 specifies those tubular fluorescent lamps which are used in the United Kingdom and which are not specified in Part 1 of the standard. Part 2 is based on data provided by the Engineering Equipment Users' Association and the Lighting Industry Federation Limited.

British Standard

Tubular fluorescent lamps for general lighting service

Part 2. Specification for lamps used in the United Kingdom not included in Part 1

SECTION ONE. GENERAL

1. Scope

Part 2 of this British Standard is applicable to those tubular fluorescent lamps which are used in the United Kingdom and which are not included in Part 1. It specifies the characteristics of tubular fluorescent lamps with pre-heated cathodes for general lighting service, operating from 50 Hz a.c. mains with or without the aid of a starter and in association with ballasts complying with the requirements of BS 2818.

Part 2 also specifies four rated colours with corresponding colour rated temperatures.

NOTE. The titles of the standards publications referred to in this standard are listed on the inside back cover.

2. Definitions

The definitions set out in clause 2 of Part 1 of this British Standard shall apply to Part 2, except that the rated colour definition in 2.5 shall be amended as follows.

2.5 rated colour. The colour corresponding to the colour designation marked on the lamp. For the purposes of this Part of BS 1853, four rated colours are specified.

- Daylight: Corresponding to a correlated colour temperature of approximately 6400 K.
(Equivalent to BS 1853 : Part 1 [IEC 81] standard colour 1)
- Cool White: Corresponding to a correlated colour temperature of approximately 4200 K.
(Equivalent to BS 1853 : Part 1 [IEC 81] standard colour 2)
- White: Corresponding to a correlated colour temperature of approximately 3450 K.
- Warm White: Corresponding to a correlated temperature of approximately 2950 K.
(Equivalent to BS 1853 : Part 1 [IEC 81] standard colour 3)

Other colours such as those declared by the manufacturer are called special colours.

SECTION TWO. LAMP DATA SHEETS

3. General

Each lamp shall comply with the requirements specified in the appropriate lamp data sheet. The lamp dimensions to be controlled are illustrated for linear and circular lamps on sheets 81-IEC-0001-1 and 81-IEC-0002-1 in Part 1 of this standard, and for U-shaped lamps in figure 1 of this Part.

4. Principles of layout of data sheets

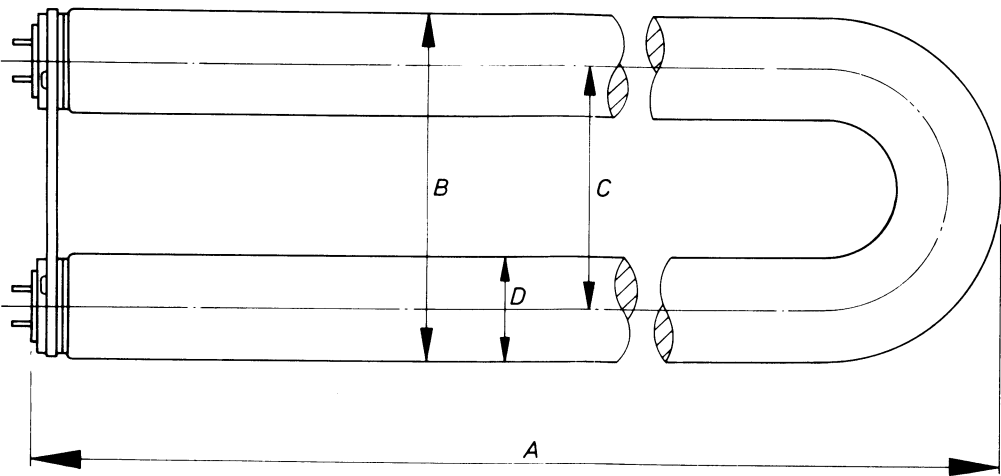
Number of each sheet: 1853 – 00 – X, where X is the edition number.

4.1 Grouping of sheets

Sheet numbers	Method of starting	Cathode type
1853 – 01 to 19	Starter	Pre-heated
1853 – 20 to 39	Starter	Pre-heated
1853 – 40 to 59	Starterless	Pre-heated high resistance

4.2 List of specific lamp types included in this standard

Sheet number	Lamp rating	Cap	Method of starting	Cathode type	
1853 – 01	15 W (T8)	G13	Starter	Pre-heated	
1853 – 02	40 W	G13	Starter	Pre-heated	
1853 – 03	75 W	G13	Starter	Pre-heated	
1853 – 04	100 W	G13	Starter	Pre-heated	
1853 – 20	60 W	G10q	Starter	Pre-heated	
1853 – 40	50 W	G13	Starterless	Pre-heated	High-cathode resistance
1853 – 41	65 W	G13	Starterless	Pre-heated	High-cathode resistance
1853 – 42	75 W	G13	Starterless	Pre-heated	High-cathode resistance



This drawing is intended only to indicate dimensions to be controlled and is to be used in conjunction with the relevant lamp standard sheets.

Figure 1. Diagrammatic drawing for location of lamp dimensions for U-shaped lamps with G13 caps*

*BS 5101 : Part 1 : data sheet 7004-51-3

TUBULAR FLUORESCENT LAMP DATA SHEET

Page 1

Nominal dimensions	Cap	Rating	Starting
450 mm × 25 mm	G13	15 W (T8)	With starter

Mechanical, physical and starting requirements

For lamp marking, tubes, dimensions, caps and starting requirements, clauses 8 to 12 of Part 1 of this standard apply. For conditions of compliance, clause 22 of Part 1 applies.

Lamp dimensions (mm) (see sheet 81-IEC-0001-1 in Part 1)				
<i>A</i>	<i>B</i>		<i>C</i>	<i>D</i>
Max.	Max.	Min.	Max.	Max.
437.4	444.5	442.0	451.6	28.0

Lamp starting test	
Test voltage (V)	Ballast voltage rating (V)
103.5	115

Initial readings and colour

For lamp voltage, wattage and luminous characteristics, clauses 15 and 16 of Part 1 of this standard apply. For conditions of compliance, clause 23 of Part 1 applies.

Lamp electrical characteristics							
Frequency (Hz)	Rated wattage (W)	Objective wattage (W)	Voltage (r.m.s.) at lamp terminals (V)			Nominal current (A)	
			Objective	Max.	Min.	Running	Pre-heat
50	15	15	56	65	47	0.31	0.45
60	—	—	—	—	—	—	—

Luminous and colour characteristics								
Minimum rated luminous flux, in lumens			Chromaticity co-ordinates					
Colour			1		2		3	
1	2	3	<i>x</i>	<i>y</i>	<i>x</i>	<i>y</i>	<i>x</i>	<i>y</i>
500	675	725	0.309	0.327	0.365	0.373	0.432	0.403

TUBULAR FLUORESCENT LAMP DATA SHEET

Page 2

Life test

For life test, clause 18 of Part 1 of this standard applies. For conditions of compliance, clause 24 of Part 1 applies.

Minimum lumen maintenance	
2 000 h	70% life
80%	70%

Ballast

The requirements of BS 2818 apply.

Reference ballast characteristics					
Frequency (Hz)	Rated wattage (W)	Rated voltage (V)	Calibration current (A)	Voltage/ current ratio (Ω)	Power factor
50	15	127	0.315	325	0.12
60	—	—	—	—	—

Information for ballast design			
Open circuit voltage (V)		Pre-heating current (A)	
Min. (r.m.s.) at starter	Max. (peak) at lamp	Min.	Max.
103.5	400	0.28	0.65
Max. (r.m.s.) voltage across starter terminals with lamp operating		Equivalent resistance of both cathodes in series	
68		50 Ω	

U-SHAPED FLUORESCENT LAMP DATA SHEET

Page 1

Nominal dimensions	Cap	Rating	Starting
525 mm × 120 mm	G13	40 W	With starter

Mechanical, physical and starting requirements

For lamp marking, tubes, dimensions, caps and starting requirements, clauses 8 to 12 of Part 1 of this standard apply. For conditions of compliance, clause 22 of Part 1 applies.

Lamp dimensions (mm) (see figure 1)					
<i>A</i>		<i>B</i>	<i>C</i>		<i>D</i>
Max.	Min.	Max.	Max.	Min.	Max.
524.0	516.0	120.66	94.0	90.0	26.66

Lamp starting test	
Test voltage (V)	Ballast voltage rating (V)
180	220

Initial readings and colour

For lamp voltage, wattage and luminous characteristics, clauses 15 and 16 of Part 1 of this standard apply. For conditions of compliance, clause 23 of Part 1 applies.

Lamp electrical characteristics							
Frequency (Hz)	Rated wattage (W)	Objective wattage (W)	Voltage (r.m.s.) at lamp terminals (V)			Nominal current (A)	
			Objective	Max.	Min.	Running	Pre-heat
50	40	39	112	122	102	0.42	0.55
60	—	—	—	—	—	—	—

Luminous and colour characteristics								
Minimum rated luminous flux, in lumens			Chromaticity co-ordinates					
Colour			1		2		3	
1	2	3	<i>x</i>	<i>y</i>	<i>x</i>	<i>y</i>	<i>x</i>	<i>y</i>
—	—	2 600	—	—	—	—	0.432	0.403

U-SHAPED FLUORESCENT LAMP DATA SHEET

Page 2

Life test

For life test, clause 18 of Part 1 of this standard applies. For conditions of compliance, clause 24 of Part 1 applies.

Minimum lumen maintenance	
2 000 h	70% life
80 %	70 %

Ballast

The requirements of BS 2818 apply.

Reference ballast characteristics					
Frequency (Hz)	Rated wattage (W)	Rated voltage (V)	Calibration current (A)	Voltage/ current ratio (Ω)	Power factor
50	40	220	0.43	390	0.10
60	—	—	—	—	—

Information for ballast design			
Open circuit voltage (V)		Pre-heating current (A)	
Min. (r.m.s.) at starter	Max. (peak) at lamp	Min.	Max.
180	400	0.387	0.904
Max. (r.m.s.) voltage across starter terminals with lamp operating		Equivalent resistance of both cathodes in series	
134		20 Ω	