

BIRNS TUBELIGHT Detailed Materials Construction

Introduction

This document presents the masses, determined by weight, of the materials in the BIRNS TUBELIGHT Model 5710; the data is expressed in the SI unit of grams (g).

Table "A" below tabulates the combined masses of all items (not the individual mass of each item) made of the same material. Table "B" tabulates the masses of optional items. The total mass of the standard BIRNS TUBELIGHT Model 5710 is 416.0 g.

Table "A" Itemized Materials Mass, BIRNS TUBELIGHT Model 5710		
Material	Included Part Numbers	Total Mass
Stainless Steel 304	1. 28E-002 Base	241.4 g
	2. 56A-035 Retaining Ring	
Borosilicate glass	1. 35B-002 Lens (Dome)	67.0 g
Lexan polycarbonate	1. 62A-015 Protector Assembly	45.7 g
Stainless Steel 18-8	2. 26A-004 Spring	4.0 g
	3. 23D-019 Washer	
	4. 23B-017 Screw	
Brass 360, gold plated per MIL-G-45204 with 50 microns of Nickel and 50 microns of Gold	1. 15B-043 #14 Pin	11.0 g
	2. 15B-042 #10 Pin	
	3. 15B-038 Pin, JB Socket	
	4. 26L-001 Bushing, Outer	
	5. 33C-003 Bushing, Lamp Socket	
Glass-reinforced epoxy	1. 52G-012, GRE	31.0 g
Viton O-ring	1. 59A-007 O-ring, Viton	0.6 g
Buna O-ring	1. 59A-002 O-ring, Buna	0.5 g
Silicone	1. 59B-008 Lens Gasket	1.4 g
Quartz Assembly, Lamp	1. 32B-005 Lamp	13.4 g
Solder (Sn: 60%, Pb: 40%)	Used (and buried) within BEM3P-S4	0.3 g

Material	Included Part Numbers	Total Mass
Stainless Steel 304	1. 54A-032 Reflector	234.4 g
Stainless Steel 18-8	1. 44F-002 Suspension Assembly	20.6 g

Lamp Discussion

Note: BIRNS does not manufacture the commercially-available lamp used in the BIRNS TUBELIGHT. Full disclosure by BIRNS is difficult, because the lamp manufacturers typically consider lamp materials information as proprietary data,. We have extrapolated certain data, but the data on the lamp presented herein should be treated as provisional estimates.

The lamp has a total mass of approximately 13.4 g, of which approximately 84% is the base. The lamp wall is probably made of fused silica or high-silica.

The lamp's outer electrical contacts (the threaded outer portion of the base, and the end contact) are probably made of nickel-plated brass; these are separated by ceramic and secured to the fused silica lamp wall by heat-tolerant basing cement.

The lamp is single ended, type 'T', with a mini-can base. It has an outer diameter of approximately 10 mm, and the filament cavity portion has a total mass of approximately 2.2 grams. The filament is made of 218 tungsten wire, with approximately 100 parts per million of potassium doping. This is surrounded by a proprietary halogen gas mix (Hydrogen Bromide might be the primary constituent) of approximately 4 cc. The filament is attached to the electrodes by means of a thin molybdenum foil, and the filament supports may also be made of molybdenum.