

SON High Pressure Sodium Lamps 70W, 150W, 250W, 400W, 1000W

Identification

Applications

Street lighting, floodlighting, industrial and commercial lighting.

Description

SON lamps consist of high pressure sodium discharge operating in a sintered aluminium oxide arc tube mounted in an elliptical glass bulb which is coated on the inside with a white diffusing powder (except in the case of 70W where the bulb is internally frosted).

Dimensions

	70W	150W	250W	400W	1000W
Bulb diameter (max.) mm	71	91	91	122	167
Overall length (max.) mm	154	227	227	286	410
Cap	E27/27	E40/45	E40/45	E40/45	E40/45
Operating Position	Universal	Universal	Universal	Universal	Universal

Advantages

The efficacy of SON lamps is approximately twice that of similar mercury lamps giving considerable power savings for the same light output. They also emit a pleasant golden-white light with adequate colour rendering for colour discrimination purposes.

A further advantage of these lamps is their exceptionally good lumen maintenance and long life.

Performance

Electrical Characteristics

	70W	150W	250W	400W	1000W
Lamp Volts	90±15	90±15	90±15	105±15	110±15
Lamp Current (amps)	0.98±0.1	1.8±0.2	3.0±0.4	4.4±0.55	10.3±0.7

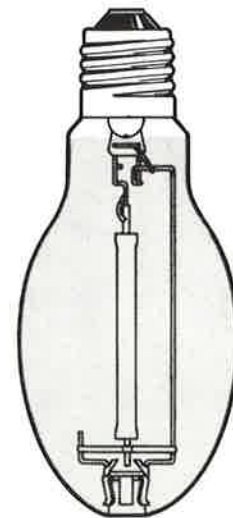
Luminous Characteristics

	70W	150W	250W	400W	1000W
Lumens 100 hrs	5800	15500	26500	46000	120000
Lumens 2000 hrs	5300	15000	25500	45000	110000
Average Luminance cd/cm ²	7	5	5	5	6
Chromaticity Co-ordinates					
X	0.542	0.530	0.530	0.530	0.530
Y	0.415	0.415	0.415	0.415	0.415
General Colour Rendering Index Ra	25	25	25	25	25
Correlated Colour Temperature	2000K	2100K	2100K	2100K	2100K

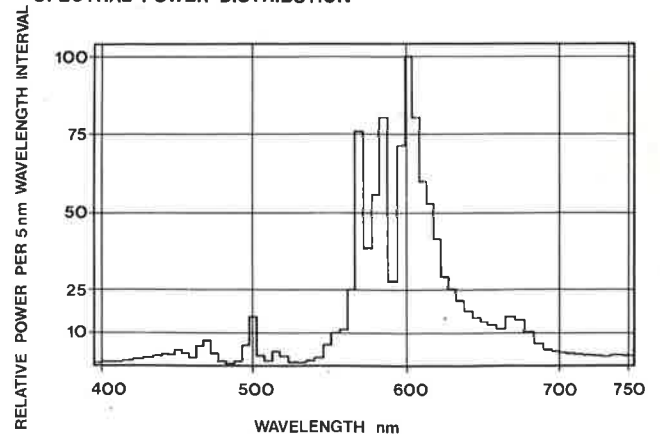
Control Gear

	70W	70W	150W	250W	400W	1000W
220V		240V	220/240V	220/240V	220/240V	240V
50Hz		50Hz	50Hz	50Hz	50Hz	50Hz
Ballast	G53320.T	G53320.T	G53335.T	G53321.T	G53357.T	G53323.4x3
Ignitor	G53353.2	G53353.4	G53282/A	G53282/A	G53282/A	G53316
Capacitor	GC2383	GC2383	GC2385	GC2386	GC2331x2	GC2346x2 + GC2382

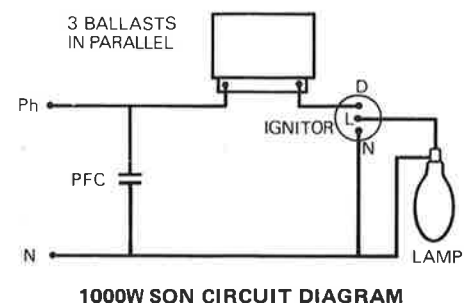
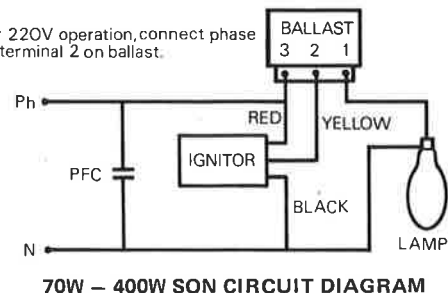
Mineral insulated cable should not be used between lamp and ignitor.



SPECTRAL POWER DISTRIBUTION



Note: For 220V operation, connect phase to terminal 2 on ballast.



Starting and Operating

The lamp is started by a high voltage pulse applied by an ignitor which ceases to function once the lamp has started. External starting simplifies lamp construction and is very reliable. The lamps take approximately 5 to 6 minutes (depending on lamp rating), to run up to full brightness. SON lamps will normally restrike within one minute of extinction and rapidly regain full light output. This is a most important feature and a considerable improvement on the restrike time of mercury lamps. Lamp starting is not affected by ambient temperatures down to -40°C .

Fuse Ratings

Recommended fuse ratings (amps)

	70W	150W	250W	400W	1000W
Miniature circuit breaker, HRC fuse rating	4	4	10	15	20
Rewireable fuse rating	5	5	5	10	15

Guidance for Luminaire Manufacturers

It is a characteristic of high pressure sodium lamps that there is a rise in arc voltage when run in an enclosure over that obtained when running in free air. It is important that for maximum life performance the luminaire is so designed that this arc voltage rise is limited to the value shown in the table below. It is the change in voltage that is important, not the absolute magnitude, as with all lamps there is an allowable manufacturing tolerance in their electrical characteristics. A true RMS reading instrument should be used to measure this voltage.

Rating	Permissible Voltage Rise
70W	5 Volts
150W	5 Volts
250W	10 Volts
400W	7 Volts
1000W	10 Volts

Temperature Limits	70W	150 – 1000W
Maximum bulb temperature	375°C	450°C
Maximum Cap temperature	210°C	250°C

British and International Standards

Lamps conform to the following standards where applicable

IEC 662	High pressure sodium lamps
BS5101	Part 1 lamp Caps
IEC 61-1	Lamp Caps

Packing

	70W	150W + 250W	400W	1000W
Individual Carton Dimensions mm	70x70x165	113x113x267	128x128x330	215x215x455
Individual Weight kg	0.08	0.26	0.365	0.855
Bulk Pack Dimensions mm	445x445x185	580x240x280	665x275x340	Supplied in single packs only
No. in outer Pack	36	10	10	—
Weight kg	3.13	3.10	4.335	—

Operation and Maintenance

Guide for the safe installation, operation and disposal of high pressure sodium lamps (SON).

Before Use

Always isolate the equipment from the electricity supply before inserting or replacing a lamp.

Check that the replacement lamp is the correct type for the application. This includes checking that the lamps voltage (if applicable), wattage and cap are suitable for use in the circuit and with the control gear.

Ensure that the lamp is correctly located in the lampholder and the glass bulb is not scratched during insertion.

During Use

For all lamps (unless indicated to the contrary by the manufacturer) prevent rain, snow, condensation droplets or water, splashing on the lamp as these may cause the bulb to shatter.

If the outer bulb is broken the lamp must not be operated.

Disposal

These lamps should be broken in a container. Precautions must be taken against flying glass or other fragments. The operation should be carried out outdoors (or in a well-ventilated area). With high pressure sodium lamps it is not necessary to break up the inner arc tube. The debris of large quantities of lamps must be disposed of in accordance with the rules of the Local Authority.