030- 38502

Light Sources, Inc.
37 Robinson Boulevard, Orange, CT 06477
FAX (203) 795-LAMP PHONE (203) 799-7877

October 14, 2011

US Nuclear Regulatory Commission
Att: Bruce Carrico
Washington DC 20555-001

Mail control No. 575400
Subject: Light Sources Inc., Additional information concerning application for new exempt distribution license

Dear Mr. Carrico:

In reference to your letter dated September 13, 2011, Light Sources Inc. wishes to provide additional information, and to continue the process of obtaining the exempt distribution license:

First, thank you for confirming that customers who receive these Krypton 85 [Kr-85] lamps from Light Sources Inc. will be able to dispose of them without regard to their radioactive content, and they will not be required to return the lamps to Light Sources Inc.

Item 1 + 2

Light Sources Inc. wishes to be licensed to distribute Kr-85 lamps to additional customers beyond the two companies listed in our original application. Some of these other customers may not have NRC licenses; some licenses may not cover all of the models that Light Sources Inc. will be able to distribute. Therefore Light Sources Inc. does wish to have an NRC license to distribute these products. Light Sources Inc. does not know at this time if two of its future customers will elect to maintain their own exempt distribution licenses.

At this time, only lamps from Radium Lampenwek will be distributed. Were Light Sources Inc. to wish to distribute lamps from other manufacturers, we would first obtain NRC authorization.

Item 3

A lamp consists of a quartz glass envelop with electrodes and bases for electric contact. When grouped by design, there are six design types of Kr-85 lamps, based on lamp wattage. These are 250, 400, 500, 600, 800, and 1000 watt lamps. [The 2000 watt lamps that we will be importing from Radium Lampenwek do not contain Kr-85]. Size, volume

576297

and maximum Kr-85 activity are provided in the table below. [Note gas volume is corrected for the diameter and length of the glass, wattage of the lamps, etc.]

Lamp Type	Diameter (outer)	Arc Length	Total Volume(mm^2)	Volume in mL	Volume X 50uCi/litre	Max fill (mbar)	Maximum Activity
250W	14mm	15mm	2307.9	1.6	0.115395	130	0.015001
400W	14mm	33mm	5077.4	4	0.253869	130	0.033003
500W	16mm	32mm	6430.7	5	0.321536	100	0.032154
600W	16mm	45mm	9043.2	8	0.452160	110	0.049738
800W	25mm	29mm	14228.1	9	0.711406	160	0.113825
1000W	28mm	48mm	29541.1	27	1.477056	80	0.118164
2000W	28mm	103mm	63390.3		No Kr-85 in 2000W		

Attached are diagrams of the seven lamp types, as well as photos of the different end caps or bases that may be placed on the lamps. It is these cap ends or bases that make the lamps different models within a type.

Item 4 + 5 + 6

The Kr-85 gas containment is via sealing in the quartz glass lamp. The gas is inserted into the lamps with a pressure that will range from 80 to 160 mbars, with a variation of no more than 10 mbars. During production intervals, geometry of the pinched envelops - and thus the volume - is controlled on a regular basis. The filling pressure is checked using arc tube dummies equipped with a pressure gauge. The machines for the low and for the high wattage lamps are on a regular maintenance schedule with testing, including filling pressure control, performed each week.

At Radium Lampenwek, the Kr-85 + Argon gas is obtained by a vendor and supplied to Radium Lampenwek. The gas contains 50 uCi per liter Kr-85 at normal pressure. Each tank of the gas mixture received from the supplier comes with a certification as to the Kr-85 concentration.

The lamps are constructed of strong quartz glass. The quartz glass has unusual strength. It can be heated to 1500 degrees C without melting. Once heated that hot, it can be plunged into an ice bath and not crack. Further, the wall thickness is approximately three times that of the typical fluorescent bulb. This also adds to the strength of the lamps. A lamp can be dropped and not normally break. They are regularly packaged, stacked and shipped to the US from Germany in large quantities with little history of breakage. It is known that the quartz glass does not normally break while in normal use. That is, when a lamp fails it is not that the lamp quartz glass breaks, but rather the internal electrode fails and the intact lamp has reached the end of its useful life.

The lamps are subject to quality control regarding their construction, including wall diameter, length, roundness, inner and outer diameters. Diameter and wall thickness are tested for Radium Lampenwek by the quartz glass supplier. Length and gas filling pressures are quality control tested by Radium Lampenwek. Tolerances are low, as demonstrated by the less than 3% acceptable variation on outer diameter as shown on the included material specification sheets.

Further, each lamp manufactured by Radium Lampenwek is visually inspected, and also operated and aged twice prior to release for sale. These tests are after production and prior to individual packaging. The lamp is burned for 10-20 minutes as part of the testing. Any lamp that fails to light does not pass QC. Only lamps that are completely sealed are able to light. Therefore it is known that the packaged lamps have no Kr-85 leaks. After filling, the lamp voltages of all lamps are monitored. All lamps not within specified parameters are destroyed.

Throughout production, reliability tests are performed on a regular basis, with multiple bulbs being tested for electrical and output parameters each working day.

To test the most severe normal handling conditions, Light Sources Inc. arranged for "drop testing". It is felt that in normal use it would be possible for a customer to drop an unpackaged lamp that he/she were holding, or for an unpackaged lamp on a countertop to be knocked onto a floor. Several lamps of each type, a total of 18 lamps, were subject to "drop testing". From a height of one meter, each lamp was dropped onto a concrete floor which had a linoleum covering. After the drop test, each lamp was visually inspected for damage. No visual evidence of damage was identified for any of the lamps after a single drop from one meter. That is, there was a 0% breakage rate during what we consider the most severe normal handling conditions, i.e. dropped while unpackaged.

Item 7

Enclosed is a copy of the Light Sources Inc. proposed package insert. A copy will be placed inside the package next to each individual lamp. Light Source Inc. is identified as the initial distributor on the package insert, and "Kr85" is also written on the package insert. The outside of the individual lamp package will also state "Kr 85".

As described in our letter dated August 30, 2011 and acknowledged in the NRC letter dated Sept. 13, 2011, it is not feasible to label the lamps themselves, but the individual lamp insert in the package with each lamp will contain the information required by 10 CFR 32.14(b)(6)

Item 8

Radium Lampenwek personnel have reported to us that they have taken measurements of the radiation dose rates and these measurements have demonstrated no radiation dose rate above background outside the Kr-85 lamps. This is due to the very small amount of Kr-85 per lamp, and the attenuation of the Kr-85 beta by the thick FDA quartz glass body material. The amount of Kr-85 ranges from 0.015001 uCi for 250 watt lamps to 0.118164 uCi for 1000 watt lamps.

Light Sources Inc. also arranged for radiation dose rate measurements on Kr-85 lamps. Several of each type lamp, a total of 18 Kr-85 lamps, were evaluated. Using a calibrated Ludlum Model 3 GM survey meter with a 44-9 pancake probe, measurements at contact and at one centimeter were made of the lamps. No radiation dose rate distinguishable from background was identified [i.e. < 0.1 mR/hr with the lamp as removed from its packaging.] In addition, a calibrated 451B [RYR] Fluke Biomedical ion chamber with the beta cover open was also used to take measurements of the lamps. Again, no dose rate above background could be identified. That is, the radiation dose rate was found to be less than or equal to 0.02 mR/hr at contact and at one centimeter. The measurements with the ion chamber were also repeated at a distance of two inches, again no radiation dose above background was identified. GM and ion chamber measurements were also taken on an open box holding the 18 lamps in their individual packaging. Again, no radiation dose rates above background were identified. Therefore, the lamps pass the NRC requirement for no radiation dose rate over 1 mR/hr at one centimeter.

Please let us know if you require any additional information.

Sincerely,

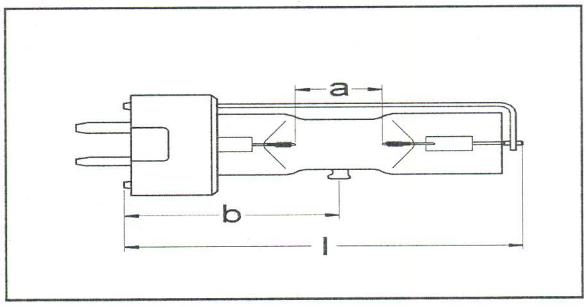
Janos Kovacs
Vice President – Administration
and Manufacturing Operations
Light Sources Inc.

Radium

250W

SupraSol UV-Hochdruckstrahler
SupraSol UV-High pressure lamps

HSC 250-241 GY9,5



Elektrische Größe / *electrical data*

Leistungsaufnahme *lamp power*	(W)	250
Netzspannung *supply voltage*	(V)	230
Brennspannung *lamp voltage*	(V)	130
Strahlerstrom *lamp current*	(A)	2,2

Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	[illegible]
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	5
Strahlungsrückgang nach 500h auf *change in radiation flux after 500h to*	(%)	75
Ozonbildung *production of ozone*		nein *no*

ENTWURF

Betriebsbedingungen / *operating conditions*

Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		NaH-KVG 250W *HPS CCG 250W*
Zündgerät *ignitor*	(kV)	4 - 5

Bemerkung / *notice*

Die technischen Daten sind Nennwerte. Einzelexemplare können Abweichungen von bis zu 10% aufweisen.
The technical data given are nominal values. Variations up to 10% with single lamps are possible.

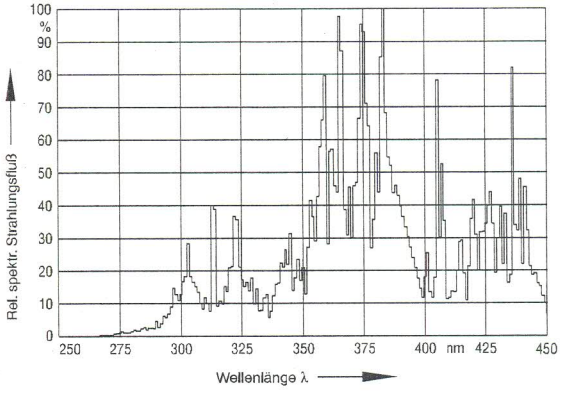
Abmessungen / *geometric data*

Gesamtlänge *overall length*	(mm)	l	80
Elektrodenabstand *electrode distance*	(mm)	a	15
[illegible]hwerpunkt *[illegible]enter length*	(mm)	b	37
[illegible]ngsrohrdurchmesser *tube diameter*	(mm)		14
Sockel *base*			GY9,5

Anwendung / *applications*

Bräunung
Tanning

Spektrale Strahlungsverteilung / *spectral radiation distribution*



Bemerkung / *notice*

Durchschlagsspannung im Sockel > 5kV (minimaler Kontaktabstand im Sockel > 4 mm)
Breakdown voltage inside the base > 5kV (minimum distance between electrical contacts > 4mm)

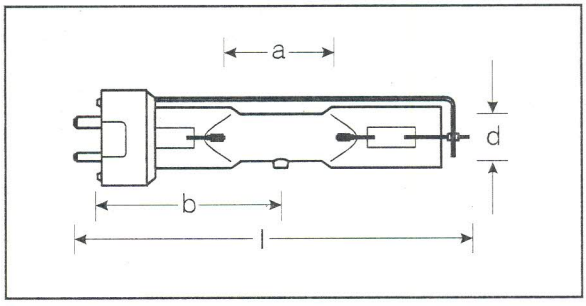
Radium Lampenwerk · Sales UV/IR · Postfach 1440 · 51678 Wipperfürth · Deutschland
Tel. +49 (0) 2267/81-287 · Fax +49 (0) 2267/81-485

Radium

400W

SupraSol UV-Hochdruckstrahler
SupraSol UV-High pressure lamps

HSC 400-241 GY9,5
Art.-Nr. 323 11144



Elektrische Größe / *electrical data*

Leistungsaufnahme *lamp power*	(W)	460
Netzspannung *supply voltage*	(V)	230
Brennspannung *lamp voltage*	(V)	135
Strahlerstrom *lamp current*	(A)	4

Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	80
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	12
Strahlungsrückgang nach 500 h auf *change in radiation flux after 500 h to*	(%)	85
Ozonbildung *production of ozone*		nein *no*

Betriebsbedingungen / *operating conditions*

Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		NaH-KVG 400W *HPS CCG 400W*
Zündgerät *ignitor*	(kV)	4 - 5
Kompensationskondensator *p.f. correction capacitor*	(µF)	50

Bemerkung / *notice*
Die technischen Daten sind Nennwerte. Einzelexemplare können Abweichungen von bis zu 10% aufweisen.
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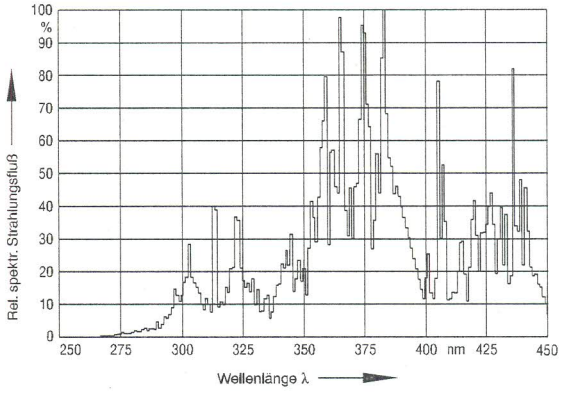
Abmessungen / *geometric data*

Gesamtlänge *overall length*	(mm)	l max.	114
Elektrodenabstand *electrode distance*	(mm)	a	33
Lichtschwerpunkt *light center length*	(mm)	b	53
Entladungsrohrdurchmesser *tube diameter*	(mm)	d	14
Sockel *base*			GY9,5

Anwendung / *applications*
Bräunung
Tanning

Spektrale Strahlungsverteilung / *spectral radiation distribution*



Bemerkung / *notice*
Durchschlagsspannung im Sockel > 5kV (minimaler Kontaktabstand im Sockel > 4 mm)
Breakdown voltage inside the base > 5kV (minimum distance between electrical contacts > 4mm)

Radium Lampenwerk · Sales UV/IR · Postfach 1440 · 51678 Wipperfürth · Deutschland
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SD-Nr. HSC 400-241GY9,5-C
11.05

Radium

500W

SupraSol UV-Hochdruckstrahler
SupraSol UV-High pressure lamps

HSC 500-241 GY9,5
Art.-Nr.

Elektrische Größe / *electrical data*

Leistungsaufnahme *lamp power*	(W)	570
Netzspannung *supply voltage*	(V)	230
Brennspannung *lamp voltage*	(V)	115
Strahlerstrom *lamp current*	(A)	5

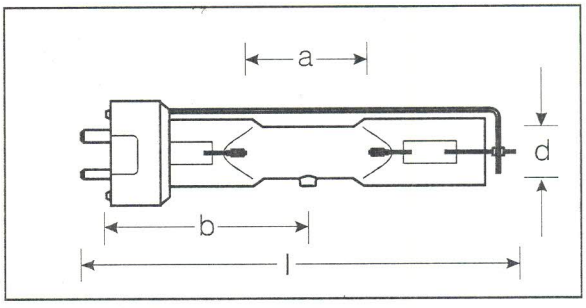
Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	110
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	20
Nutzlebensdauer [1] *useful life [1]*	(h)	1000
Ozonbildung *production of ozone*		nein *no*

Betriebsbedingungen / *operating conditions*

Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		NaH-KVG 600W *HPS CCG 600W*
Zündgerät *ignitor*	(kV)	4 - 5
Kompensationskondensator *p.f. correction capacitor*	(µF)	65

[1] abhängig von den Betriebsbedingungen (Belastung, Kühlung, Schaltrhythmus)
[1] *depends on operation conditions (load, cooling, switching rhythm)*

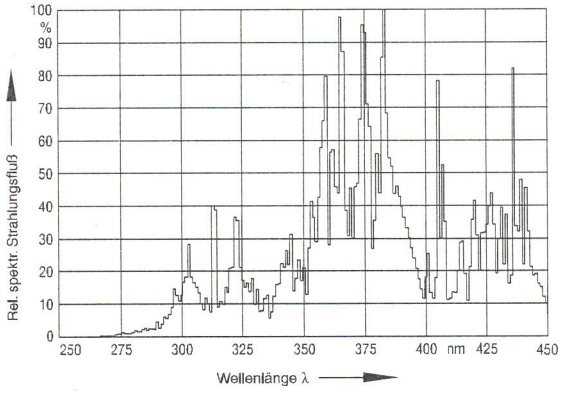


Abmessungen / *geometric data*

Gesamtlänge *overall length*	(mm)	l max.	116
Elektrodenabstand *electrode distance*	(mm)	a	32
Lichtschwerpunkt *light center length*	(mm)	b	53
Entladungsrohrdurchmesser *tube diameter*	(mm)	d	16
Sockel *base*			GY9,5

Anwendung / *applications*
Bräunung
Tanning

Spektrale Strahlungsverteilung / *spectral radiation distribution*



Bemerkung / *notice*
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The technical data given are nominal values. Variations up to 10% with single lamps are possible.

Hinweise / advices
Durchschlagsspannung im Sockel > 5kV (minimaler Kontaktabstand im Sockel > 4 mm)
Breakdown voltage inside the base > 5kV (minimum distance between electrical contacts > 4mm)

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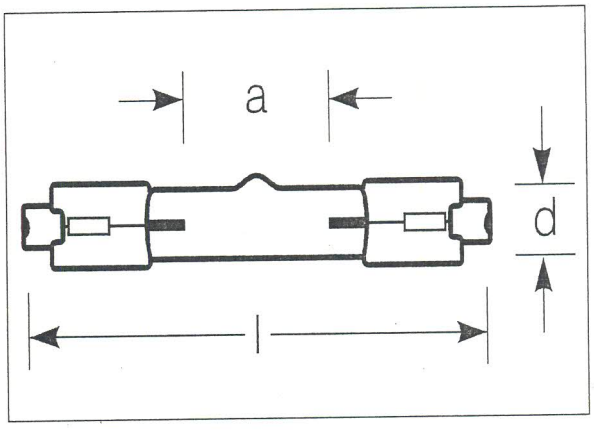
SD-Nr. HSC 500-241 GY9,5-C
11.06

Radium

600W

UV-Hochdruckstrahler
UV-High Pressure Lamp

HTC 600-241 R7s



Elektrische Größen / *electrical data*		
Leistungsaufnahme *lamp power*	(W)	580
Brennspannung *lamp voltage*	(V)	140
Strahlerstrom *lamp current*	(A)	4,5

Strahlungsphysikalische Größen / *spectral data*		
UVA-Strahlungsfluß *UVA-radiation flux*	(W)	110
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	20
Strahlungsrückgang nach 500h auf *radiation flux after 500h*	(%)	>80
FDA-Zulassung möglich *FDA admission possible*		ja *yes*

Betriebsbedingungen / *operating conditions*		
Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		NaH-KVG 600W *HPS CCG 600W*
Zündgerät *ignitor*	(kV)	4 - 5
Kompensationskondensator *p.f. correction capacitor*	(mF)	65

Bemerkung / *notice*
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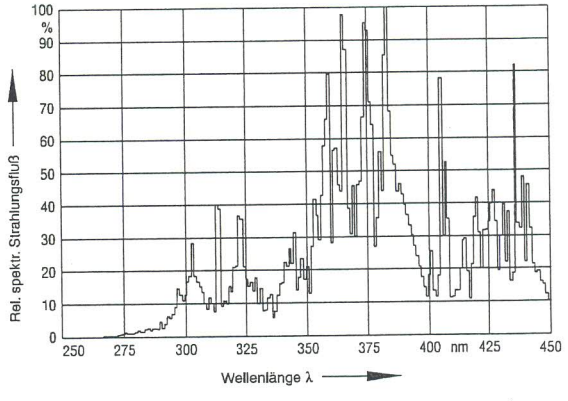
Abmessungen / *geometric data*		
Gesamtlänge *total length*	l (mm)	118
Elektrodenabstand *electrode distance*	a (mm)	45
Entladungsrohrdurchmesser *tube diameter*	d (mm)	16
Sockel *base*		R7s

Anwendungen / *applications*
Medizin, Bräunung,
Medicine, Tanning,

Spektrale Strahlungsverteilung / *spectral radiation distribution*



Hinweise / *advices*
Sockelvarianten auf Anfrage.
Different bases are available on demand.

Radium Lampenwerk · Sales UV/IR · Postfach 1440 · 51678 Wipperfürth · Deutschland
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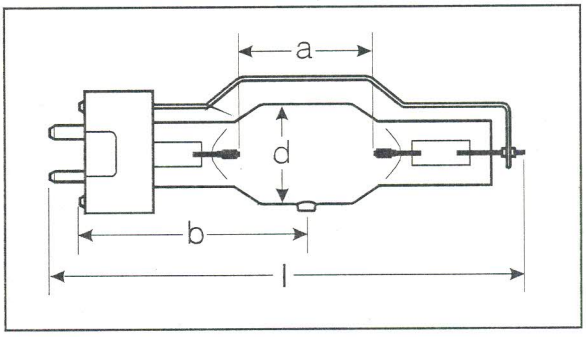
Radium

800W

SupraSol UV-Hochdruckstrahler
SupraSol UV-High pressure lamps

HSC 800-241 GY9,5
Art.-Nr.



Elektrische Größe / *electrical data*

Leistungsaufnahme *lamp power*	(W)	800
Netzspannung *supply voltage*	(V)	230
Brennspannung *lamp voltage*	(V)	125
Strahlerstrom *lamp current*	(A)	7

Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	160
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	22
Strahlungsrückgang nach 500 h auf *change in radiation flux after 500 h to*	(%)	>80
FDA-Zulassung möglich *FDA admission possible*		ja *yes*

Betriebsbedingungen / *operating conditions*

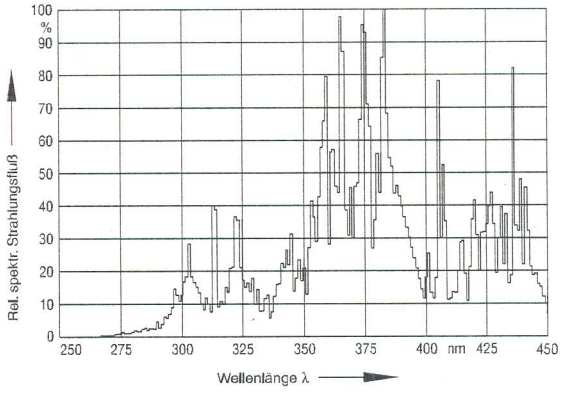
Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*	parallel 2 x NaH-KVG 400W *parallel 2 x HPS CCG 400W*	
Zündgerät *ignitor*	(kV)	4 - 5

Abmessungen / *geometric data*

Gesamtlänge *overall length*	(mm)	l max.	115
Elektrodenabstand *electrode distance*	(mm)	a	29
Lichtschwerpunkt *light center length*	(mm)	b	55,5
Entladungsrohrdurchmesser *tube diameter*	(mm)	d	25
Sockel *base*			GY9,5

Anwendung / *applications*
Bräunung
Tanning

Spektrale Strahlungsverteilung / *spectral radiation distribution*



Bemerkung / *notice*
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Hinweise / *advices*
Durchschlagsspannung im Sockel > 5kV (minimaler Kontaktabstand im Sockel > 4 mm)
Breakdown voltage inside the base > 5kV (minimum distance between electrical contacts > 4mm)

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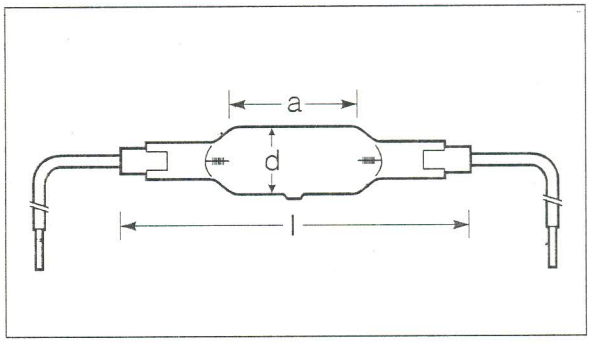
SD-Nr.HSC 800-241 GY9,5-C
11.05

Radium

1000 W

SupraSol UV-Hochdruckstrahler
SupraSol UV-High Pressure Lamp

HTC 1000-241 KY10s
Art.-Nr. 323 10983



Elektrische Größen / *electrical data*

Leistungsaufnahme *lamp power*	(W)	1000
Brennspannung *lamp voltage*	(V)	130
Strahlerstrom *lamp current*	(A)	9

Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	240
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	40
Strahlungsrückgang nach 500h auf *radiation flux after 500h*	(%)	85
FDA-Zulassung möglich *FDA admission possible*		ja *yes*

Betriebsbedingungen / *operating conditions*

Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		NaH-KVG 1000W *HPS-CCG 1000W*
Zündgerät *ignitor*	(kV)	4 - 5
Kompensationskondensator *p.f. correction capacitor*	(µF)	85

Bemerkung / *notice*
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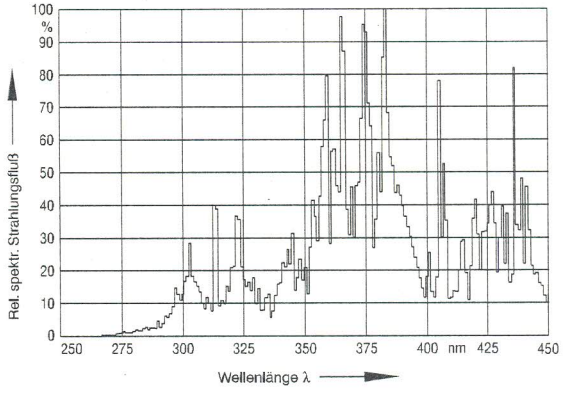
Abmessungen / *geometric data*

Gesamtlänge *overall length*	l (mm)	140
Elektrodenabstand *electrode distance*	a (mm)	48
Entladungsrohrdurchmesser *tube diameter*	d (mm)	28
Sockel *base*		KY10s
Kabellänge *cable length*	(mm)	360

Anwendungen / *applications*
Medizin, Bräunung,
Medicine, Tanning,

Spektrale Strahlungsverteilung / *spectral radiation distribution*



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Different bases are available on demand.

Radium Lampenwerk · Sales UV/IR · Postfach 1440 · 51678 Wipperfürth · Deutschland
Tel. +49 (0) 22 67 / 81-287 · Fax +49 (0) 22 67 / 81-485

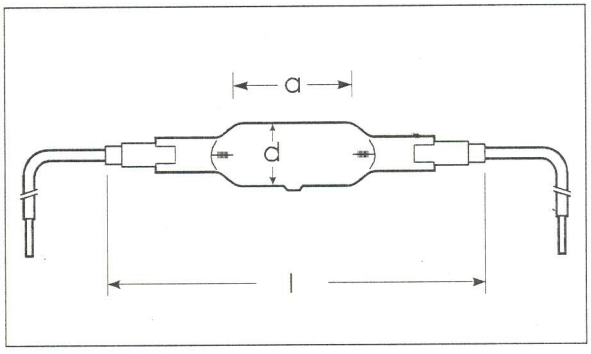
SD-Nr. HTC 1000-241 KY10s-C
05.06

Radium

2000 W
NO KR-85

SupraSol UV-Hochdruckstrahler
SupraSol UV-High Pressure Lamp

HTC 2000W-349 K10s
Art.-Nr. 323 14195



Elektrische Größen / *electrical data*

Leistungsaufnahme *lamp power*	(W)	2000
Brennspannung *lamp voltage*	(V)	250
Strahlerstrom *lamp current*	(A)	9

Strahlungsphysikalische Größen / *spectral data*

UVA-Strahlungsfluß *UVA-radiation flux*	(W)	490
UVB-Strahlungsfluß *UVB-radiation flux*	(W)	60
Strahlungsrückgang nach 500h auf *radiation flux after 500h*	(%)	85
FDA-Zulassung möglich *FDA admission possible*		ja *yes*

Betriebsbedingungen / *operating conditions*

Brennlage *burning position*		beliebig *any*
Min. Kolbentemperatur *min. bulb temperature*	(°C)	650
Max. Kolbentemperatur *max. bulb temperature*	(°C)	950
Max. Quetschungstemperatur *max. pinch temperature*	(°C)	350
Vorschaltgerät *ballast*		HIT-KVG 2000W *HID-CCG 2000W*
Zündgerät *ignitor*	(kV)	4,0 - 5,0
Kompensationskondensator *p.f. correction capacitor*	(µF)	37

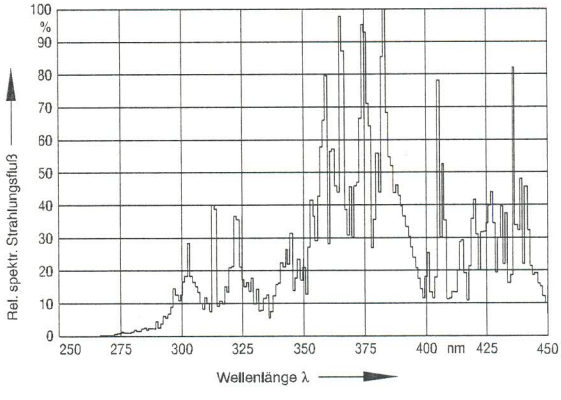
Bemerkung / *notice*
Die technischen Daten sind Nennwerte. Einzelexemplare können Abweichungen von bis zu 10% aufweisen.
The technical data given are nominal values. Variations up to 10% with single lamps are possible.

Abmessungen / *geometric data*

Gesamtlänge overall length	l_1 (mm)	231
Elektrodenabstand *electrode distance*	a (mm)	103,5
Entladungsrohrdurchmesser *tube diameter*	d (mm)	28
Sockel *base*		K10s
Kabellänge *cable length*	(mm)	400

Anwendungen / *applications*
Medizin, Bräunung,
Medicine, Tanning,

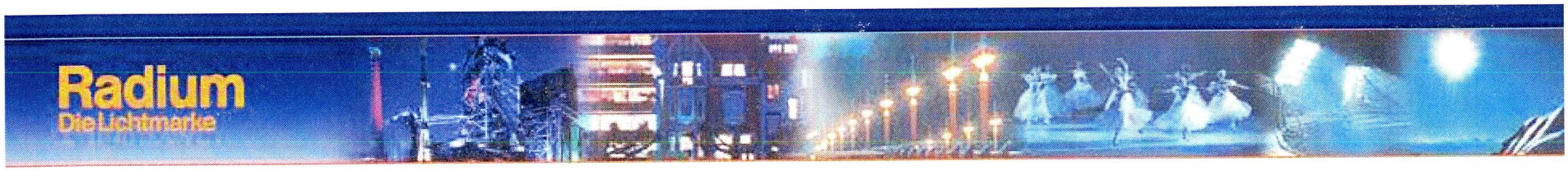
Spektrale Strahlungsverteilung / *spectral radiation distribution*



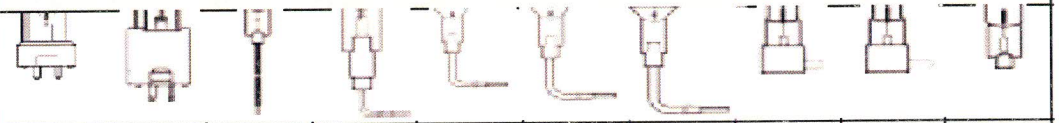
Hinweise / *advices*
Sockelvarianten auf Anfrage.
Different bases are available on demand.

Radium Lampenwerk · Sales UV/IR · Postfach 1440 · 51678 Wipperfürth · Deutschland
Tel. +49 (0) 22 67 / 81-287 · Fax +49 (0) 22 67 / 81-485

SD-Nr. 2000W-349 K10s-C
11.04



Product variety

Type / Wattage	Mains voltage	Quartz glass		Variations of standard bases									
													
	V	ozone-free	FDA	GY9,5	GYX9,5	K7s	K10s	KY10s	KX10s	KU10s	MeSo	MeSt	R7s
HTC 150 W	230												
HSC 250 W	230												
HTC 400 W	230												
HSC 400 W	230												
HSC 500 W	230												
HTC 600 W	230												
HTC 800 W	230												
HSC 800 W	230												
HSC 800 W/L	230												
HSC 900 W	230												
HTC 1000 W	230												
HTC 1000 W	400												
HSC 1000 W	230												
HSC 1000 W/L	230												
HTC 2000 W	400												
HTC 2000 W/L	400												

LightTech
Radium
Die Lichtmarke

Product variety – double ended lamps

Sockelhülse R7s/5
WNR 183 3207 R

Sockelhülse R7s/7
WNR 183 1006 R

Sockelhülse KY10s/18
WNR 473 3001 R

Sockelhülse KX10s/23
WNR 473 3005 R

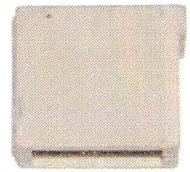
Sockelhülse KU10s
WNR 183 1008 R

Sockelhülse K10s/35,4
WNR 473 3002 R

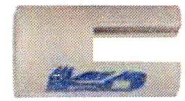
Sockelhülse K10sf
(Goldlight)
WNR 101 25965

Sockelhülse K12s/36
WNR 101 30470

Sockelhülse K10sf-35,0 weiß
WNR 473 3020 R

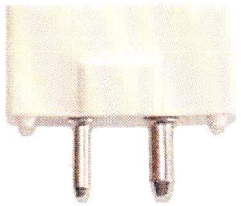


Messersockel
WNR 682 4300 R

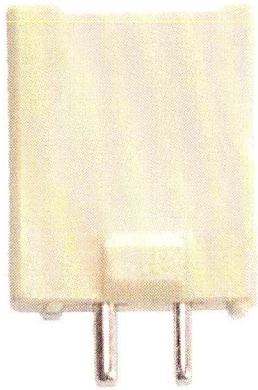


Sockelhülse K14s
WNR 101 11941

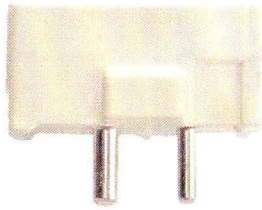
Product variety – single ended lamps



Sockel GY 9,5
WNR 686 1395



Sockel GYX 9,5
WNR 686 1423 R



Sockel GYH 9,5
WNR 686 1441 R

LightTech
Radium
Die Lichtmarke

Material Specification

OSRAM

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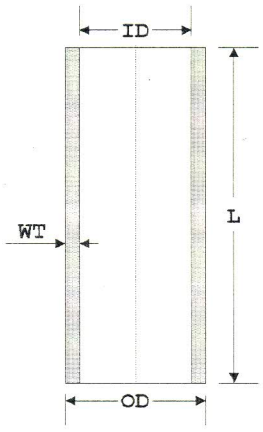
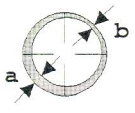
Title	Tube quartz glass OVISIL ®	Page	2/2
Material	**B3428216**		
EDOS No.	ZLM 1810381[000][01]	Status	released
l.Change	status changed to valid	valid from	12/13/2006

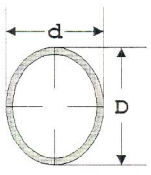
Basic dimensions



Siding = |a-b|



Out of round = |D-d|



Parameter specification	dim	Value	LTL	UTL
Outer diameter (OD)	mm	14	13.6	14.4
Out of round	mm			0.29
Inner diameter (ID)	mm	10.7	10	11.4
Inner diameter at glazed end	mm		n.a.	
Wall thickness (WT)	mm	1.65	1.5	1.8
Siding	mm			0,14
Length (L)	mm	90.5	90	91
Bow	mm			n.a.
Airline width	mm			0.2
Allowed airlines/cross-section	pce			2
Weight per piece	g	12.8		
Weight per meter	g	141.41		
OH-content	ppm			1
Quality regulation	ZQR 1845560 (QV 23-046-3-041)			
Glass	OVISIL® 474 / ZLM 1865656 (WN 398 1474)			
Edge quality	ends not glazed			
Treatment	acid washed, vacuum baked			
Cutting method	Fine-cut, wet			
Parameter measured	Outer diameter, Wall thickness			
Additional quality specifications				
Limit samples				

* different to quality regulation n.a.: not availible

Additional information

Airlines with <=0.1mm width are no defect

substitute for issue from:	signed wo, WG/VT-B	signed Mü, WG/VT-B	signed St, WG/QA-B

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#PLP(V) #L.WODKOWSKI #151 #500000211449 #Rohrabschnitt aus OVISIL #0EC #for internal use #2006-12-13 #RL-Released ZLM 1810381-000-01

Material Specification

OSRAM

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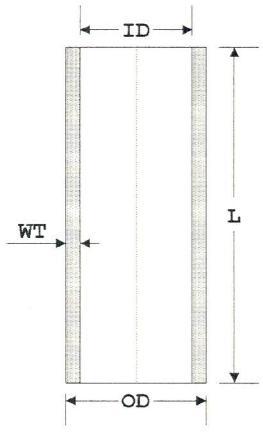
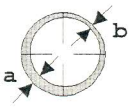
Title	Tube quartz glass OVISIL ®	Page	2/2
Material	**10233062**		
EDOS No.	ZLM 2425003[000][00]	Status	released
I.Change	new proposal according to VETEA 56133	valid from	04/15/2008

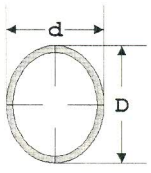
Basic dimensions



Siding = |a-b|



Out of round = |D-d|



Parameter specification	dim	Value	LTL	UTL
Outer diameter (OD)	mm	16.3	15.9	16.7
Out of round	mm			0.34
Inner diameter (ID)	mm	13.5	12.9	14.1
Inner diameter at glazed end	mm		n.a.	
Wall thickness (WT)	mm	1.4	1.3	1.5
Siding	mm			0,11
Length (L)	mm	86	85.5	86.5
Bow	mm			n.a.
Airline width	mm			0.2
Allowed airlines/cross-section	pce			4
Weight per piece	g	12.45		
Weight per meter	g	144.76		
OH-content	ppm			1
Quality regulation	ZQR 1845560 (QV 23-046-3-041)			
Glass	OVISIL® 474 / ZLM 1865656 (WN 398 1474)			
Edge quality	ends not glazed			
Treatment	acid washed, vacuum baked			
Cutting method	Fine-cut, wet			
Parameter measured	Outer diameter, Wall thickness			
Additional quality specifications				
Limit samples				

* different to quality regulation n.a.: not availible

Additional information

Airlines with <=0.1mm width are no defect

substitute for issue from:	signed wo, W/TOV-B	signed Mü, W/TOV-B	signed St, W/QW Glas-B

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#PLP(V) #L.WODKOWSKI #151 #500000240625 #OVISIL aus #Rohr #OEC #for internal use #2008-04-15 #RL-Released ZLM 2425003-000-00

Werknorm

OSRAM

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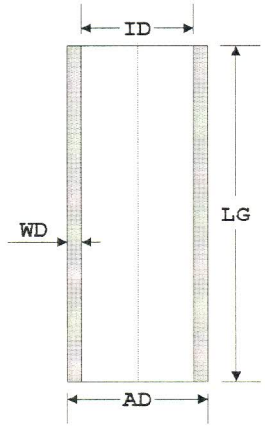
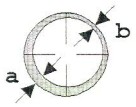
Titel	Rohr aus Quarzglas OVISIL ®	Seite	1/2
Material	**10168498**		
EDOS Nr	ZLM 2271419[000][00]	Status	freigegeben
I.Änderung	Neubeantragung lt. VETEA 55826	gültig ab	02.06.2006

Grundlegende Abmessungen



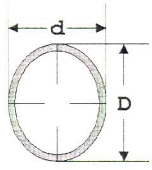
Merkmalsbezeichnung	Dim	Wert	UTG	OTG
Außendurchmesser (AD)	mm	18,5	18	19
Ovalität	mm			0,38
Innendurchmesser (ID)	mm	15,4	14,6	16,2
Verschmelzrandinnendurchmesser	mm		n.v.	
Wanddicke (WD)	mm	1,55	1,4	1,7
Wanddickendifferenz	mm			0,12
Länge (LG)	mm	41	40,5	41,5
Krümmung	mm			n.v.
Blasenbreite	mm			0,2
Zul. Blasenanzahl/Rohrquerschnitt	St			4
Gewicht pro Stück	g	7,47		
Gewicht pro Meter	g	182,32		
OH-Anteil	ppm			1

Wanddickendifferenz = |a-b|



Qualitätsvorschrift	ZQR 1845560 (QV 23-046-3-041) Abschnitte OVISIL® für Radium
Glas	OVISIL® 474 / ZLM 1865656 (WN 398 1474)
Randbeschaffenheit	unverschmolzen
Behandlung	säuregew., vakuumgeglüht

Ovalität = |D-d|



Schneidmethode	Feinschnitt, nass
Parameter gemessen	Außendurchmesser, Wanddicke
Weitere Qualitätsmerkmale	Ausgangsmaterial in HF gewaschen
Grenzmuster	

* abweichend von der QV n.v.: nicht verfügbar

Zusatzinformationen

Ersatz für Ausgabe vom:	gez. wo, WG/VT-B	gez. Km, WG/VT-B	gez. St, WG/QA-B

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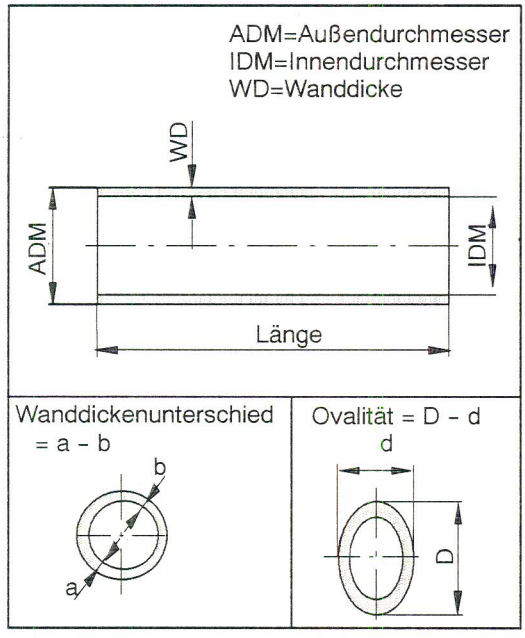
#PLP(V) #L.WODKOWSKI #5000000198060 #151 #0EC #Rohrabschnitt aus OVISIL #2006-06-02 #for internal use #RL-Released ZLM 2271419-000-00

OSRAM Werknorm	Rohrabschnitte aus Quarzglas OVISIL(R) 474 S	WN 342 8240 Mat.-Kl.: 2331-00 de osr Seite: 1 (1)

Ausgabe: 06.10.04 Status: gültig

Änderung: Korrektur OH-Anteil Maße in mm



Material-Nummer	B3428240
Material-Bezeichnung	OVISIL 474 S AD 26,6-27,6 WD 1,3-1,7 L 61,0+/-0,5

Merk.	Merkmal-Bezeichnung	Dim	Wert	UTG	OTG
	Aussendurchmesser	mm	27,10	26,6	27,6
	Ovalität	mm			0,55
	Innendurchmesser	mm	24,10	23,2	25,0
	Wanddicke	mm	1,50	1,3	1,7
	Wanddickendifferenz	mm			0,14
	Länge	mm	61,0	60,5	61,5 *
	Blasenbreite	mm			0,2 *
	Gewicht pro Stück	g	16,25		
	Gewicht pro Meter	g	266,46		
	OH-Anteil	ppm			1

Qualität nach QV 07 25 049 * abweichend von der QV

Quarzglas 474S nach WN 398 1474, dotiert,
vakuumgeglüht, in HF gewaschen

zul. Blasenanzahl/Rohrquerschnitt > 0,1 - 0,2 mm Blasenbreite = 5
zul. Blasenanzahl/Rohrquerschnitt <= 0,1 mm Blasenbreite = unberücksichtigt

Ausführung : Feinschnitt (nass)
Außendurchmesser und Wanddicke gemessen.

0515-GM-021 schwarze Streifen (A,B)

0520

Ersatz für Ausgabe vom 16.12.99	WG/QA-B gez. St	WG/VT-B gez. Km	WG/QA-B gez. wo	Normung und Techn. Vorschriften

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#PLP(V) #L.WODKOWSKI #151 #500000125310 #1EC #Rohrabschnitte aus Quarzglas #2004-10-06 #For internal use #RL-Released ZLM 1810376-000-01

Material Specification

Only for restricted use in EU
USA CAN

Radium

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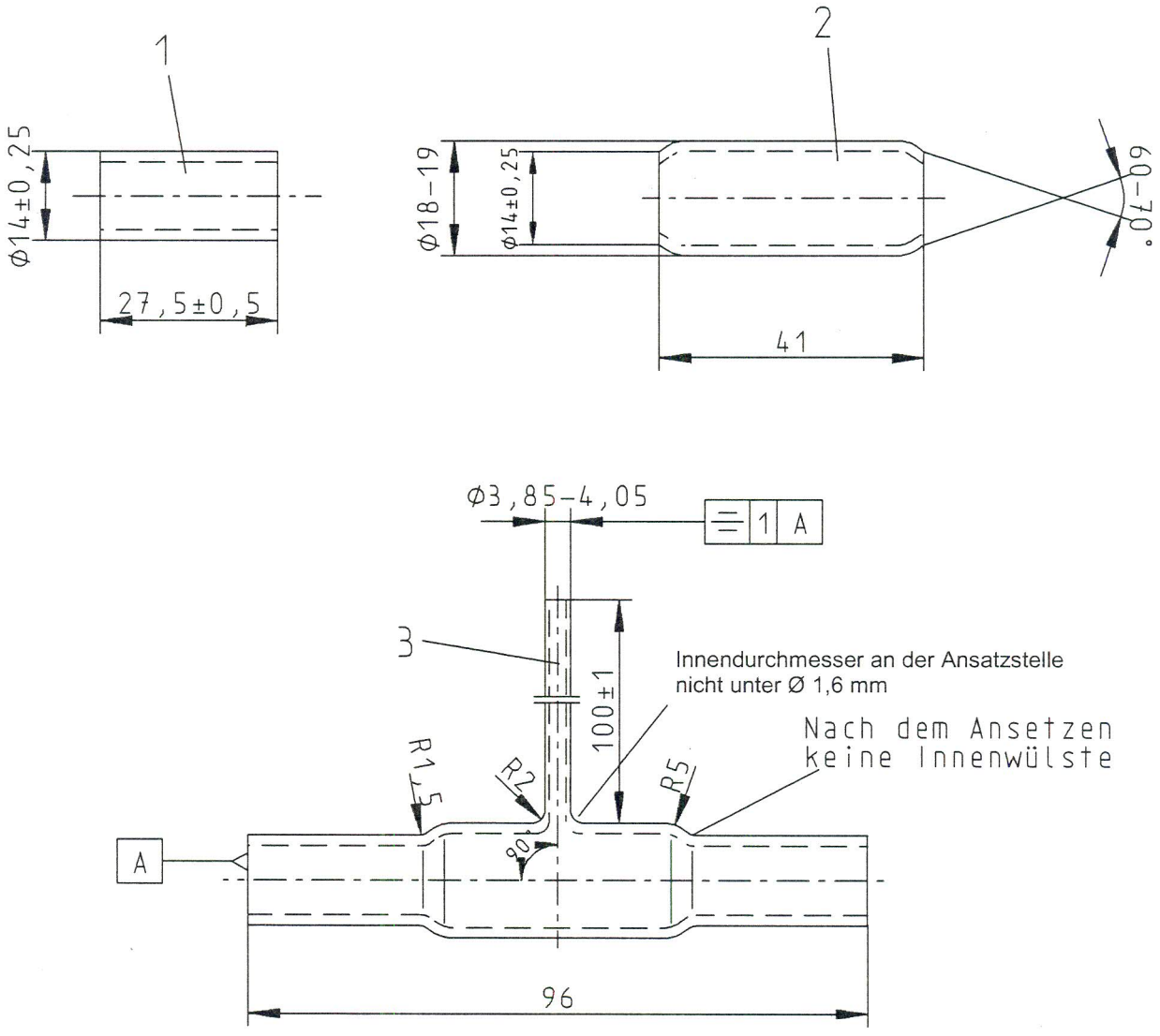
Title English	arc tube with exhaust tube 800W 241	Status & Code	RL: Released
Add. classification	10170687	EDOS No. [Vers][Part]	ZLM 2280488[00][000]
Last change	500000199650 Dokument anlegen	Valid from:	03 July 2006
Titel Deutsch:	Brennerkörper mit Pumprohr 800W 241		



Signed:		
11 Juli 2006	EL/DOK, gez. Köser	EL, gez. Kalmbach

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#PLP(V) #500000199650 #131 #S.KOESER #1ER #arc tube with exhaust tube 800W 241 #2006-07-03 #for internal use #RL-Released ZLM 2280488-000-00

Material Specification

Only for restricted use in EU
USA CAN

Radium

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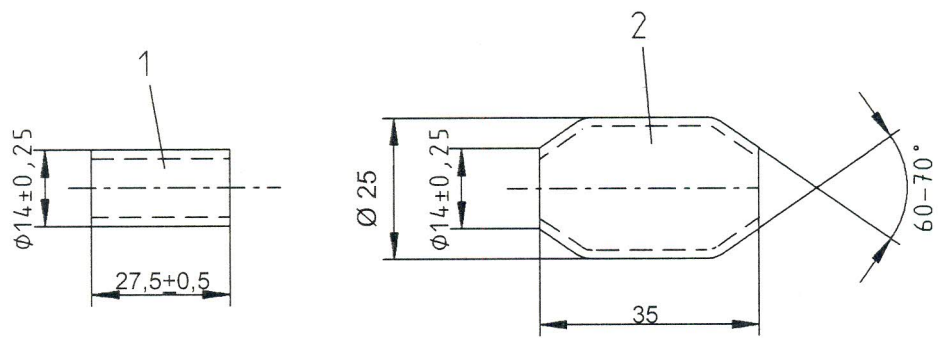
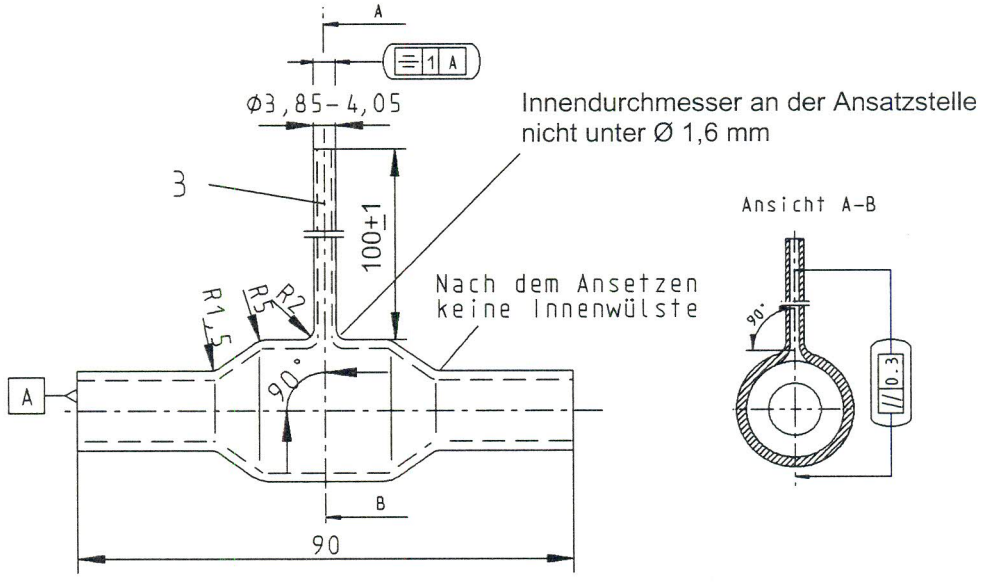
Title English	Brennerkörper mit Pumprohr	Status & Code	RL: Released
Add. classification	WNR825 8708	EDOS No. [Vers][Part]	ZLM 1952052[01][000]
Last change	500000132148 Text ergänzt	Valid from:	01 December 2004
Titel Deutsch:	Brennerkörper mit Pumprohr		





Signed:			
01 Dezember 2004	EL/DOK, gez. Köser	EL, gez. Kalmbach	<Countersigner 2>

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#PLP(V) #500000132148 #131 #S.KOESER #1ER #Brennerkörper mit Pumprohr #2004-12-01 #for internal use #RL-Released ZLM 1952052-000-01

HP Tanning Lamps

IMPORTED BY AND MANUFACTURED FOR

Light Sources, Inc.

37 Robinson Boulevard, Orange, CT 06477
Phone: 203-799-7877 Fax: 203-795-LAMP

User Instructions

THE FOLLOWING INSTRUCTIONS ARE IN COMPLIANCE WITH 'POLICY ON LAMP COMPATIBILITY' , 21 CFR 1040.20(e)(2)(iii)

DANGER - Ultraviolet radiation. Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES. Medications or cosmetics may increase your sensitivity to the ultraviolet radiation Consult physician before using sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from use of this product.

Sunlamp - DANGER - Ultraviolet radiation. Follow instructions.
Use ONLY in fixture equipped with a timer.

Use ONLY in fixture equipped with the appropriate protective filter

ALWAYS FOLLOW INSTRUCTIONS ACCOMPANYING THE SUNLAMP PRODUCT TO AVOID AND MINIMIZE POTENTIAL INJURY! ALWAYS WEAR PROTECTIVE EYEWEAR!

USE THIS PRODUCT ONLY WHERE THE LAMP IS SPECIFIED AS A REPLACEMENT OR AS THE ORIGINAL EQUIPMENT PRODUCT BY THE MANUFACTURER!

Disconnect the fixture before removing and installing the lamp.
Follow the instructions for lamp installation provided in the equipment manual.
Do not touch the lamp with bare hands. Remove any spots or fingerprints with a clean soft cloth and alcohol.

This product is in conformity with the performance standards for Sunlamp products under 21 CFR 1040.20

Hg - THIS LAMP CONTAINS MERCURY. MANAGE IN ACCORDANCE WITH LOCAL DISPOSAL LAWS. SEE WWW.LAMP RECYCLE.ORG OR CALL 1-800-245-4458 FOR LOCAL RECYCLING INFORMATION

THIS PRODUCT CONTAINS Kr-85. THE PURCHASER IS EXEMPT FROM ANY REGULATORY REQUIREMENTS

PURCHASER SHOULD RETAIN THIS FORM FOR FUTURE REFERENCE