

## HBO-IC Microlithography lamps for Nikon i-line systems

Microlithography lamps for Nikon i-line systems



## Product family datasheet

### Technical data

Product description	Electrical data					Dimensions & weight	
	Nominal voltage	Nominal current	Type of current	Rated wattage	Nominal wattage	Diameter	Length
HBO 1000 W/NEL <sup>1)</sup>	47.0 V	16 A	DC	750.00 W	750.00 ... 1000.00 W	28.0 mm	187.0 mm
HBO 1002 W/NEL <sup>1)</sup>	47.0 V	16 A	DC	750.00 W	750.00 ... 1000.00 W	28.0 mm	187.0 mm
HBO 1002 W/NIL <sup>2)</sup>	27.1 V	25.8 A	DC	750.00 W	750.00 ... 1000.00 W	29.0 mm	190.0 mm
HBO 2000 W/NIL	26.0 V	67 A	DC	1750.00 W	2000.00 W	55.0 mm	219.0 mm
HBO 2001 W/NIL <sup>3)</sup>	26.0 V	67 A	DC	1750.00 W	2000.00 W	52.0 mm	251.0 mm
HBO 2001 W/NIEL	24.0 V	72.90 A	DC	2500.00 W	2000.00 W	55.0 mm	357.0 mm
HBO 2002 W/NIL	26.0 V	67 A	DC	1750.00 W	2000.00 W	999.0 mm	232.0 mm
HBO 2011 W/NIL	25 V	80 A	DC	2000.00 W	2000.00 W	55.0 mm	256.0 mm
HBO 2011 W/NILH <sup>4)</sup>	24.0 V	83 A	DC	2000.00 W	2000.00 W	55.0 mm	234.0 mm
HBO 2501 W/NIL	23.0 V	109 A	DC	2500.00 W	2500.00 W	70.0 mm	357.0 mm
HBO 2510 W/NIL	23.0 V	109 A	DC	2500.00 W	2500.00 W	70.0 mm	357.0 mm
HBO 3500 W/NIL <sup>4)</sup>	27.0 V	130.00 A	DC	3500.00 W	3500.00 W	82.0 mm	382.0 mm

Product description	Mounting length	Light center length (LCL)	Electrode gap cold	Length with base excl. base pins/connection	Capabilities
					Burning position
HBO 1000 W/NEL <sup>1)</sup>	190.0 mm	84.5 mm <sup>5)</sup>	3.0 mm		Other <sup>6)</sup>
HBO 1002 W/NEL <sup>1)</sup>	190.0 mm	78.5 mm <sup>5)</sup>	3.0 mm		Other <sup>6)</sup>
HBO 1002 W/NIL <sup>2)</sup>	168.0 mm		3.0 mm		Other <sup>6)</sup>
HBO 2000 W/NIL	219.0 mm		4.5 mm		Other <sup>7)</sup>
HBO 2001 W/NIL <sup>3)</sup>	251.0 mm	122.25 mm <sup>5)</sup>	4.5 mm	219.00 mm	Other <sup>6)</sup>
HBO 2001 W/NIEL	251.0 mm	112.0 mm <sup>5)</sup>	4.5 mm	229.00 mm	Other <sup>6)</sup>
HBO 2002 W/NIL	254.0 mm	107.75 mm <sup>5)</sup>	4.5 mm	232.00 mm	Other <sup>7)</sup>

## Product family datasheet

Product description	Mounting length	Light center length (LCL)	Electrode gap cold	Length with base excl. base pins/connection	Capabilities
					Burning position
HBO 2011 W/NIL	256.0 mm	107.75 mm <sup>5)</sup>	4.5 mm	234.00 mm	Other <sup>7)</sup>
HBO 2011 W/NILH <sup>4)</sup>	256.0 mm	107.75 mm <sup>5)</sup>	4.5 mm	234.00 mm	Other <sup>7)</sup>
HBO 2501 W/NIL	367.0 mm		4.5 mm	325.00 mm	Other <sup>6)</sup>
HBO 2510 W/NIL		157.75 mm <sup>5)</sup>	4.5 mm	325.00 mm	Other <sup>7)</sup>
HBO 3500 W/NIL <sup>4)</sup>		180.0 mm <sup>5)</sup>	5.5 mm	335.00 mm	Other <sup>7)</sup>

		Environmental information Information according Art. 33 of EU Regulation (EC) 1907/2006 (REACH)		
Product description	Cooling	Date of Declaration	Primary Article Identifier	Candidate List Substance 1
HBO 1000 W/NEL <sup>1)</sup>		01-04-2022	4050300412603	Lead
HBO 1002 W/NEL <sup>1)</sup>		01-04-2022	4050300412610	Lead
HBO 1002 W/NIL <sup>2)</sup>		24-06-2022	4050300461427   4050300461403   4008321474032	Lead
HBO 2000 W/NIL		18-02-2022	4050300490212   4050300812007	Lead
HBO 2001 W/NIL <sup>3)</sup>		01-01-2022	4050300461489	Lead
HBO 2001 W/NIEL	Forced <sup>9)</sup>	19-03-2022	4008321533548   4008321806031   4052899260009   4008321630940	Lead
HBO 2002 W/NIL		01-04-2022	4050300772714   4050300772721	Lead
HBO 2011 W/NIL	Forced <sup>9)</sup>	24-06-2022	4050300652641   4050300947556	Lead
HBO 2011 W/NILH <sup>4)</sup>		01-01-2022	4050300991665   4050300991658	Lead
HBO 2501 W/NIL		04-03-2022	4050300947297   4050300628288	Lead
HBO 2510 W/NIL	Forced <sup>9)</sup>	04-03-2022	4050300947433   4050300628400	Lead
HBO 3500 W/NIL <sup>4)</sup>	Forced <sup>9)</sup>	01-04-2022	4050300660769   4008321786852	Lead

## Product family datasheet

Product description	CAS No. of substance 1	Safe Use Instruction	Declaration No. in SCIP database	Additional product data
				Base anode (standard designation)
HBO 1000 W/NEL <sup>1)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	B7AAD6B7-239D-4797-A805-AE6751A3F976	
HBO 1002 W/NEL <sup>1)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	1F2E946D-9C55-4867-9F0D-F02313A6C9B4	
HBO 1002 W/NIL <sup>2)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	a26110e2-bfaa-414e-a23a-66ef049262ec   6B6A843C-4C31-4245-A669-C55C9F941FC5	
HBO 2000 W/NIL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	872BEA5E-E36D-4D20-8070-C712FA71AC1A   52221302-1626-4f9b-9c7d-2853312df798	
HBO 2001 W/NIL <sup>3)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	51d17212-f48f-4e56-91b0-487db4ddc57b	
HBO 2001 W/NIEL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	DB627DC8-A5FE-4D15-9B8A-493C195A8339   d6de528a-2e23-4e10-8990-7757e3521ff6	SFc27-10/35
HBO 2002 W/NIL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	D33A557F-F498-403D-81A3-7361AB714E29   dafe614e-50f7-4bbb-a24f-2dddcc546c20	
HBO 2011 W/NIL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	5efb91be-af08-429e-aaec-b47e173fcb09   157b0c08-4c81-445d-8e68-87463e9cc30e	SFc27-7/35 <sup>10)</sup>

## Product family datasheet

Product description	CAS No. of substance 1	Safe Use Instruction	Declaration No. in SCIP database	Additional product data
				Base anode (standard designation)
HBO 2011 W/NILH <sup>4)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	61f82125-dd19-4a18-bcd9-b6d55245163a   a1a066c2-cfdc-4227-8c5c-832a0146d005	
HBO 2501 W/NIL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	faa2dfd8-6274-4952-b7d7-bd1fda2095b5   acad9a73-72da-4647-89c2-6332ec6c3c88	
HBO 2510 W/NIL	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	df583275-90c5-465a-a872-03833323bf4a   ff6ff5ad-e173-4d6b-9e5c-d3c870774670	SFc33.5-12/50 <sup>10)</sup>
HBO 3500 W/NIL <sup>4)</sup>	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.	5df92030-3a5e-4864-84bf-e882635c629e   9A5773FE-12CE-4705-8EC8-420BE627D42F	SFc33.5-16/50 <sup>11)</sup>

Product description	Base cathode (standard designation)
HBO 1000 W/NEL <sup>1)</sup>	
HBO 1002 W/NEL <sup>1)</sup>	
HBO 1002 W/NIL <sup>2)</sup>	
HBO 2000 W/NIL	
HBO 2001 W/NIL <sup>3)</sup>	
HBO 2001 W/NIEL	SFc27-7/35 <sup>8)</sup>
HBO 2002 W/NIL	
HBO 2011 W/NIL	SFc27-12x1.5/35
HBO 2011 W/NILH <sup>4)</sup>	
HBO 2501 W/NIL	
HBO 2510 W/NIL	SFc33.5-14/50
HBO 3500 W/NIL <sup>4)</sup>	SFa33.5-12/50 <sup>8)</sup>

<sup>1)</sup> Lamp suitable for pulsed operation between 700...1000 W/Maximum permissible power 750 W for constant power operation

<sup>2)</sup> Lamp suitable for pulsed operation between 700...1000 W

<sup>3)</sup> Also available as Super Longlife version with 2,250 h lifespan: HBO 2001 W/NIEL (4050300538211)

<sup>4)</sup> Lamp contains overpressure even in cold status - additional safety regulations, supplied with the lamps, have to be fulfilled. Please read Technical bulletin DO-SEM TB 004 carefully

<sup>5)</sup> Distance from end of base to tip of anode or cathode (cold)

<sup>6)</sup> Anode underneath

<sup>7)</sup> Anode on top

## Product family datasheet

8) With cable connection (M8)

9) Maximum permissible base temperature: 200 °C

10) With cable connection (M 8)

11) With thread (M 16)

## Product family datasheet

---

### Safety advice

Because of their high luminance, UV radiation and high internal pressure (when hot) HBO lamps may only be operated in enclosed lamp casings specially constructed for the purpose. Mercury is released if the lamp breaks. Special safety precautions must be taken. More information is available on request or can be found in the leaflet included with the lamp or in the operating instructions.

---

### Application advice

For more detailed application information and graphics please see product datasheet.

---

### References / Links

For further information on HBO lamps and notes for manufacturers of control gear, please refer to the following publications, available on request from OSRAM:

“Specifications for power supply units for dc operated HBO mercury short-arc lamps”

“Specifications for power supply units for ac operated HBO mercury short-arc lamps”

“Specifications for igniters for HBO mercury short-arc lamps”

“Availability of power supplies and igniters”

“Mercury short arc lamps HBO for microlithography, Technology and Application”

---

### Disclaimer

— Subject to change without notice. Errors and omission excepted. Always make sure to use the most recent release.