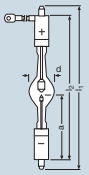
XBO® lamps for digital cinema projection HSLA



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Product reference	Product number	W	V	A	A	lm	t [h]		
XBO 3000W/HSLA OFR [1]	4008321**330079**	3000	29	110	60...120	130000 [5]	1500	Yes	Forced
XBO 4500W/HSLA OFR [1]	4008321**372710**	4500	30	145	80...150	190000 [5]	1000	Yes	Forced
XBO 6000W/HSLA OFR	4008321**549716**	6000	35	170	140...175	280000 [5]	600	Yes	Forced
XBO 6500W/HSLA OFR	4008321**549730**	6500	38	170	140...175	300000 [5]	500	Yes	Forced
XBO 8000W/HSLA OFR	4008321**549747**	8000	43	185	150...190	360000	400	Yes	Forced

Product reference		d [mm]	l1 max. [mm]	l2 max. [mm]	LCL a [mm]				
XBO 3000W/HSLA OFR [1]	s30/p30 [3]	54	342	302	145 [4]	SFaX27-9.5	SFa27-7.9	1	1
XBO 4500W/HSLA OFR [1]	p15/s15 [3]	60	410	370	171 [4]	SFaX30-9.5	SFa30-7.9	1	1
XBO 6000W/HSLA OFR	s15/p15 [3]	70	393	433	170.5 [4]	SFaX30-9.5	SFa30-7.9	1	1
XBO 6500W/HSLA OFR	s15/p15 [3]	70	393	433	170.5 [4]	SFaX30-9.5	SFa30-7.9	1	1
XBO 8000W/HSLA OFR	p15/s15	78	393	433	170.5	SFaX30-9.5	SFa30-7.9	1	1

1) H = Suitable for horizontal burning position | S = Short | LA = Lumen Advanced (High Efficiency lamp)
2) OFR = Ozone-free version | H = Suitable for horizontal burning position | S = Short | LA = Lumen Advanced (High Efficiency lamp)
3) For vertical burning position: anode (+) on top
4) Distance from end of base to tip of electrode (cold)
5) Measured in the vertical burning position
6) fan

Safety

Because of their high luminance, UV radiation and internal pressure in both the hot and cold state, XBO® lamps may only be operated in enclosed lamp casings specially constructed for the purpose. Always use the protective jackets supplied when handling these lamps. When packing the lamps and when installing or removing the lamps without their protective jackets, always wear protective clothing (face mask with neck protector and leather gloves with wrist protectors). For more information see the relevant in-pack leaflets and operating instructions.

Their main characteristics and advantages are as follows

XBO® lamps are double-ended short-arc discharge lamps in which the discharge arc burns between the two electrodes in an atmosphere of pure xenon gas.

- Very high luminance (point light source)
- Daylight color temperature of approx. 6,000 K
- High color rendering index (R_a > 96)
- Continual color quality, irrespective of lamp type and lamp wattage
- Hot restart
- DC operation
- Dimmable
- Long life

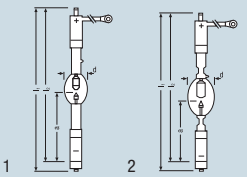
Applications

- Classic 35 mm film projection
- Digital film and video projection
- Architectural and effect light (“Light Finger”)
- Sunlight simulation

Literature

For more information on XBO® lamps and their operation please refer to the following OSRAM brochures:
- Guideline for control gear and igniters: XBO® Xenon short arc lamps
- Technology and application XBO® cinema lamps

XSTAGE® xenon short arc lamps for entertainment



Product reference	Product number	W	V	A	A	lm	t [h]	cd/cm²	
Xstage 2000W OFR	4008321**288820**	2000	23	90	70...100	80000	1000	170000	Forced
Xstage 3000W OFR	4008321**288837**	3000	30	100	70...110	140000	1000	200000	Forced
Xstage 4000W OFR	4008321**288844**	4000	30	130	80...135	150000	1000	120000	Forced
Xstage 7000W OFR	4008321**288851**	7000	40	160	110...165	330000	1000	120000	Forced

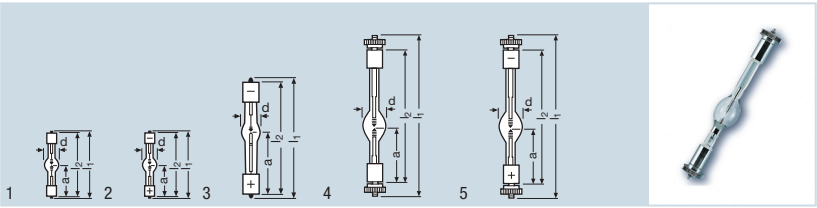
Product reference		d [mm]	l1 max. [mm]	l2 max. [mm]	LCL a [mm]	+	−		No.
Xstage 2000W OFR	s90	47	305	262	120	SFaX27-9.5	SFc28-27	1	1
Xstage 3000W OFR	s90	55	305	262	120	SFaX27-9.5	SFc28-27	1	1
Xstage 4000W OFR	s90	60	320	277	120	SFaX27-9.5	SFc28-27	1	1
Xstage 7000W OFR	s90	70	405	362	162.5	SFaX27-9.5	SFc28-27	1	2

Safety

Because of their high luminance, UV radiation and high internal pressure in both the hot and cold state, XSTAGE® lamps may only be operated in enclosed lamp casings specially constructed for the purpose. Always use the protective jackets supplied when handling these lamps. They may only be used as open lamps if appropriate safety measures are taken. For more information see the relevant in-pack leaflets and operating instructions.

- Xenon short-arc lamps for event and architecture lighting
- Higher luminance thanks to the shorter arc
- Robust base for better stability
- Optimized compact design
- Splashproof outdoor packaging
- Daylight temperature 6,000 K
- Hot restart
- Dimmable

HBO® mercury short-arc lamps without reflector 50-200W



Product reference	Product number	AC/DC	W	V	A	lm	t [h]	cd/cm²	cd
HBO 50W/AC L2	4050300**507118**	AC	50	34...39 [4]	1.3...1.5 [4]	2000 [6]	100	30000 [6]	230 [6]
HBO 50W/AC L1	4050300**507132**	AC	50	39...45 [4]	1.1...1.3 [4]	2000 [6]	100	30000 [6]	230 [6]
HBO 50W/3	4050300**506692**	DC	50	20...26 [4]	1.9...2.5 [4]	1300 [6]	200	90000 [6]	150 [6]
HBO 100W/2	4050300**507095**	DC	100	18...23 [4]	4.3...5.6 [4]	2200 [6]	200	170000 [6]	260 [6]
HBO 103W/2	4050300**382128**	DC	100	20...25 [4]	4...5 [4]	3000 [6]	300	170000 [6]	300 [6]
HBO 200W/4	4050300**506715**	AC	200	54...67 [4]	3...3.7 [4]	9500 [6]	200	33000 [6]	950 [6]
HBO 202W/4	4050300**507156**	AC	200	54...67 [4]	3...3.7 [4]	9500 [7]	200	33000 [7]	950 [7]
HBO 200W/2 L2	4050300**508283**	AC/DC	200	47...57 [4]	3.5...4.3 [4]	10000 [6]	200 | 400 [8]	40000 [6]	1000 [6]
HBO 200W/2 L1	4050300**508153**	AC/DC	200	57...66 [4]	3...3.5 [4]	10000 [6]	200 | 400 [8]	40000 [6]	1000 [6]
HBO 200W/DC	4050300**506791**	DC	200	46...66 [4]	3...4.3 [4]	10000 [6]	1000	40000 [6]	1100 [6]
HBO 200W/DC TM	4008321**137623**	DC	200	46...66 [4]	3...4.3 [4]	10000 [6]	1000	40000 [6]	1100 [6]

Product reference		d [mm]	l1 max. [mm]	l2 max. [mm]	LCL a [mm]	+	−		No.
HBO 50W/AC L2	s45 [1]	10	53	47	22 [5]	SFa6-2	SFa6-2	10	1
HBO 50W/AC L1	s45 [1]	10	53	47	22 [5]	SFa6-2	SFa6-2	10	1
HBO 50W/3	s45 [2]	9	53	47	22 [5]	SFa8-2	SFa6-2	10	2
HBO 100W/2	s90 [2]	10	90	82	43 [5]	SFa9-2	SFa7.5-2	10	3
HBO 103W/2	s90 [2]	10	90	82	43 [5]	SFa9-2	SFa7.5-2	10	3
HBO 200W/4	s20 [3]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	4
HBO 202W/4	s15 [3]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	4
HBO 200W/2 L2	s90 [2]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	5
HBO 200W/2 L1	s90 [2]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	5
HBO 200W/DC	s90 [2]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	5
HBO 200W/DC TM	s90 [2]	17	128	102	40 [5]	SFc10-4	SFc10-4	10	5

1) Observe "UP" marking
2) Anode underneath
3) Reference base pointing downwards (shorter shaft)
4) Initial electrical values
5) Distance from end of base to tip of electrode (cold)
6) Typical initial photometric value
7) Typical initial photometric value; compared to HBO 200W/4, with increased output of wavelength range below 450nm for UV-curing
8) Reduced lifespan in AC operation

HBO® lamps (up to and including 200 W) are short arc lamps in which the discharge arc burns in an atmosphere of mercury vapor and inert gas at high pressure. A cold lamp however is not at overpressure.

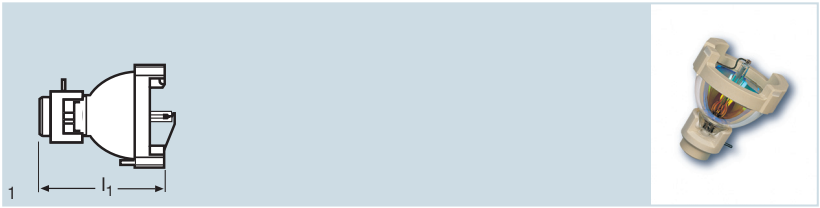
The most important properties and benefits
- High radiance
- Multi-line spectrum
- High radiant power in the UV and the visible range

Applications
- Fluorescence microscopy
- UV curing
- A variety of light guide applications

Safety
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.

Literature
Further technical information on HBO® lamps and information for manufacturers of operating equipment can be requested directly from OSRAM.

HBO® mercury short-arc lamps with reflector 100W



Product reference	Product number	AC/DC	W	V	A	UVA/W	t [h]
HBO R 103W/45	4050300**405957**	DC	100	20...25 [1]	4...5 [1]	3.8/5.0 W [2]	300

Product reference		d [mm]	l_1 max. [mm]	a				No.
HBO R 103W/45	p20	64	77	45.0	Pin	Pin	2	1

1) Initial electrical values
2) aperture 3 mm/5 mm (round); 315…400 nm

HBO® lamps (up to and including 200 W) are short arc lamps in which the discharge arc burns in an atmosphere of mercury vapor and inert gas at high pressure. A cold lamp however is not at overpressure.

The most important properties and benefits

- High radiance
- Multi-line spectrum
- High radiant power in the UV and the visible range

Applications

- Fluorescence microscopy
- UV curing
- A variety of light guide applications

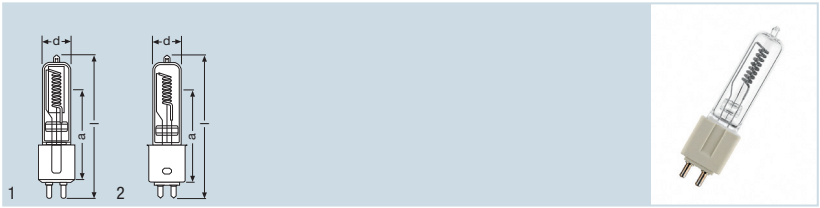
Safety

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.

Literature

Further technical information on HBO® lamps and information for manufacturers of operating equipment can be requested directly from OSRAM.

Special lamps for IR applications



Product reference	Product number	ANSI	W	V		lm
54555	4008321**216304**		1000	120	G9.5 [1]	27500
64743 HT	4050300**506531**	FEL	1000	120	G9.5 [2]	27500

Product reference	t [h]		d [mm]	LCL a [mm]	l [mm]		No.
54555	300	any	20	79.4	101	12	1
64743 HT	300	any	20	60.3	105	12	2

1) Ceramic base
2) Aluminium base

These short-wave halogen Infrared lamp (IR-A) have been developed specifically for fast heating processes such as RTP (Rapid Thermal Process) and CVD (Chemical Vapor Deposit) in the semiconductor industry. These lamps have a maximum radiation at a wavelength of about 1,100 nm. The electrical energy is converted into radiated heat with a high level of efficiency. Other important benefits in heating processes with these lamps include the very fast reaction time and good controllability between 0 and 100 %. They consist of a tungsten filament and a quartz bulb. By using quartz that is highly transparent for infrared radiation the thermal output is emitted in the short-wave infrared range with minimal losses. The filling contains halogen additives in order to avoid blackening of the lamps and to ensure very high stability throughout the lifetime.

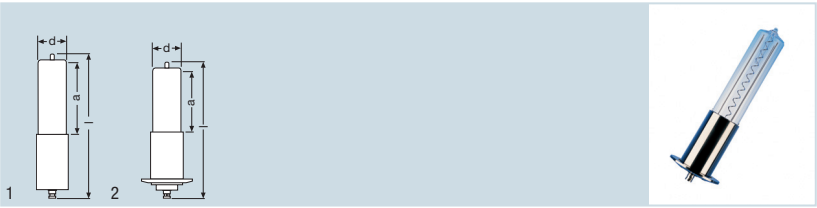
Product benefits

- Rapid and precise temperature control
- Rapid reaction time for controlling the temperature
- Small space requirements
- High efficiency, more than 90 % of the electrical power is converted into heat
- Robust design
- Can be supplied in clean-room packaging
- Metallic and ceramic bases

Safety precautions

These lamps emit UV radiation and reach a high internal pressure during operation. These lamps may only be operated in enclosed casings specially designed for the purpose. If used incorrectly, UV radiation may lead to sunburn and conjunctivitis. Read the enclosed safety instructions before use.

XERADEX® lamps, single ended



Product reference	Product number	W	E [mW/cm²]	t [h]
XERADEX L40/120/SB-S46/85	4008321**190994**	20	45 1)	2500
XERADEX L40/120/SB-SX48/KF50	4008321**191014**	20	45 1)	2500
XERADEX L40/120/SB-SX48/KF50HV	4008321**211255**	20	45 1)	2500
XERADEX L40/175/SB-S45/95	4008321**191052**	20	40 2)	2500
XERADEX L40/175/SB-S46/85	4008321**191038**	20	40 2)	2500
XERADEX L40/175/SB-SX48/KF50HV	4008321**243713**	20	40 2)	2500

Product reference	d [mm]	l [mm]	a [mm]		No.
XERADEX L40/120/SB-S46/85	40	247	120	1	1
XERADEX L40/120/SB-SX48/KF50	40	251.5	120	1	2
XERADEX L40/120/SB-SX48/KF50HV	40	251.5	120	1	2
XERADEX L40/175/SB-S45/95	40	312	175	1	1
XERADEX L40/175/SB-S46/85	40	302	175	1	1
XERADEX L40/175/SB-SX48/KF50HV	40	306.5	175	1	2

1) With active cooling: 80 mW/cm², reduced lamp lifetime
2) With active cooling: 75 mW/cm², reduced lamp lifetime

XERADEX® lamps are Xenon excimer lamps. The lamps are operated in patented pulse mode. They therefore achieve around 4 times the VUV radiated output compared with conventional lamps. Almost 40 % of the electrical energy consumed is emitted as useful 172 nm vacuum ultraviolet (VUV) radiation. XERADEX® lamps are among the most efficient lamps on the market.
VUV radiation is capable of breaking up a series of molecular compounds and therefore makes XERADEX® lamps an eco-friendly and often cost-effective alternative to chemical processes, for example in semiconductor and OLED production or in cleaning glass substrates in the manufacture of LCDs. The high efficiency of XERADEX® lamps is the basis for another product feature. Irradiation systems can generally be operated without the need for additional cooling. This enables extremely compact designs to be produced and facilitates integration in existing installations. Different lengths and base versions are offered as standard.

Product benefits

- Incoherent VUV radiation at 172 nm
- Operates with pulse-type dc current
- High efficiency, approx. 40 %
- No cooling required in normal operation
- Compact design
- Instant operation; no startup time
- Unlimited switching cycles
- Instant restart with no effect on lifespan
- Recommended service life of 2,500 h
- Mercury-free, low energy consumption

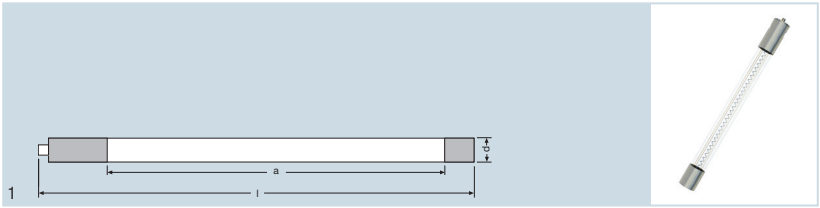
Applications

- Removing organic residue
- Etching plastic surfaces
- Activating wafer surfaces
- Setting the wetting angle
- Removing photo resist
- Producing ozone
- Creating a matt surface on paint
- Photocatalytic cleaning of wafers
- Cleaning photo masks
- Radiation-induced CVD at low temperature
- Radiation-induced metallization of surfaces of any type at room temperature

Safety

XERADEX® lamps produce extremely intensive UV radiation that is heavily absorbed by oxygen.
Ozone is produced as a result. Adequate ventilation must be provided during their operation. The lamps should be operated only in air-tight housings.
XERADEX® lamps are operated at high voltage and may only be connected to original DBD control gear designed for this purpose. The use of other control gears will damage the lamp and/or control gear.

XERADEX® lamps, double ended



Product reference	Product number	W	E [mW/cm²]	t [h]
XERADEX L40/375/DB-AZ48/90	4008321**939289**	60	45 1)	2500
XERADEX L40/620/DB-AZ48/90	4008321**939296**	100	45 1)	2500
XERADEX L40/910/DB-AZ48/90	4008321**939302**		45 1)	2500

Product reference	d [mm]	l [mm]	a [mm]		No.
XERADEX L40/375/DB-AZ48/90	40	537	375	1	1
XERADEX L40/620/DB-AZ48/90	40	782	620	1	1
XERADEX L40/910/DB-AZ48/90	40	1072	910	1	1

1) With active cooling: 80 mW/cm², reduced lamp lifetime

XERADEX® lamps are Xenon excimer lamps. The lamps are operated in patented pulse mode. They therefore achieve around 4 times the VUV radiation output compared with conventional lamps. About 40 percent of the coupled electrical power is emitted as usable vacuum ultraviolet (VUV) radiation with a wavelength of 172nm. XERADEX® lamps are among the most efficient lamps on the market.
VUV radiation is capable of breaking up a series of molecular compounds and therefore makes XERADEX® lamps an eco-friendly and often cost-effective alternative to chemical processes, for example in semiconductor and OLED production or in cleaning glass substrates in the manufacture of LCDs. The high efficiency of XERADEX® lamps is the basis for another product feature. Irradiation systems can generally be operated without the need for additional cooling. This enables extremely compact designs to be produced and facilitates integration in existing installations. Different lengths and base versions are offered as standard.

Product benefits

- Incoherent VUV radiation at 172 nm
- Operates with pulse-type dc current
- High efficiency, approx. 40 %
- No cooling required in normal operation
- Compact design
- Instant operation; no startup time
- Unlimited switching cycles
- Instant restart with no effect on lifespan
- Recommended service life of 2,500 h
- Mercury-free, low energy consumption

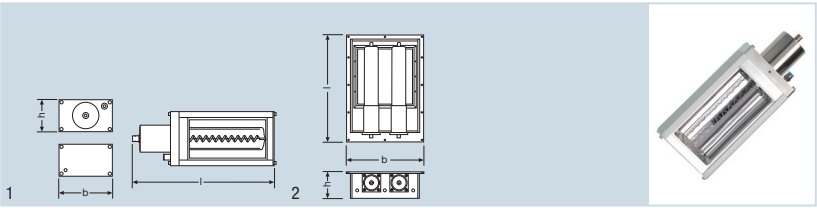
Applications

- Removing organic residue
- Etching plastic surfaces
- Activating wafer surfaces
- Setting of wetting angle
- Removing photo resist
- Producing ozone
- Creating a matt surface on lacquer
- Photocatalytic cleaning of wafers
- Cleaning of photo masks
- Radiation-induced CVD at low temperature
- Radiation-induced metallization of surfaces of any type at room temperature

Safety

XERADEX® lamps produce extremely intensive UV radiation that is heavily absorbed by oxygen.
Ozone is produced as a result. Adequate ventilation must be provided during their operation. The lamps should be operated only in air-tight housings.
XERADEX® lamps are operated at high voltage and may only be connected to original DBD control gear designed for this purpose. The use of other control gears will damage the lamp and/or control gear.

XIS XERADEX® Irradiation Systems



Product reference	Product number	l [mm]	b [mm]
XTU 70 30W 110-240V	4008321**216328**	180	94
XIS 170 60W 110-240V	4008321**158253**	320	230

Product reference	h [mm]	g		No.
XTU 70 30W 110-240V	56	1595	1	1
XIS 170 60W 110-240V	75	9200	1	2

XERADEX® XTU and XIS irradiation systems are complete systems that can be used as stand-alone units or integrated as part of an installation. The systems comprise XERADEX® 20W lamps, DBD 20 electronic control gear, special VUV-compatible reflectors and a quartz front panel of high transmittance. The housings are equipped with an in- and outlet for nitrogen purging necessary during operation. Systems in other sizes are available on request.

Product description XTU 70

- Excimer lamp XERADEX® L40/120/SB-SX46/85
- Electronic control gear DBD 20
- Aluminum casing with reflector
- Front panel
- Window opening 70x120 mm

Product description XIS 170

- 2x Excimer lamp XERADEX® L40/175/SB-S45/95
- 2x Electronic control gear DBD 20
- Stainless steel housings with reflectors
- Front panel
- Window opening 170 x 170 mm

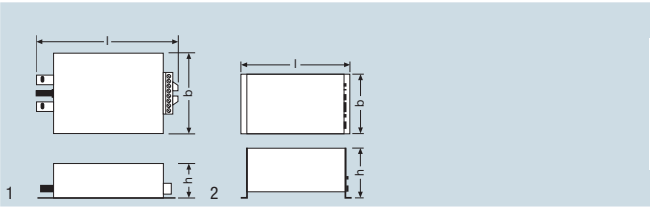
Applications

- Removing organic residue
- Etching plastic surfaces
- Activating wafer surfaces
- Setting of wetting angle
- Removing photo resist
- Creating a matt surface on lacquer
- Photocatalytic cleaning of wafers
- Cleaning of photo masks
- Radiation-induced CVD at low temperature
- Radiation-induced metallization of surfaces of any type at room temperature

Safety

XERADEX® lamps produce extremely intensive UV radiation that is heavily absorbed by oxygen.
Ozone is produced as a result. Adequate ventilation must be provided during their operation. The lamps should be operated only in air-tight housings.
XERADEX® lamps are operated at high voltage and may only be connected to original DBD control gear designed for this purpose. The use of other control gears will damage the lamp and/or control gear.

DBD electronic control gears for XERADEX® lamps



Product reference	Product number	V	l [mm]	b [mm]
DBD 20/110-240	4050300**939469**	110-240	240	17
DBD 300/100-240 DIM	4008321**939357**	110-240	250	166

Product reference	h [mm]	g		No.
DBD 20/110-240	95	200	1	1
DBD 300/100-240 DIM	125	3250	1	2

DBD electronic control gear is designed exclusively for operating XERADEX® lamps.

Product features of DBD 20/110-240

- ECG for all XERADEX® 20 W lamps
- Display: PLC control
- Input values AC: 110 to 240 V
- Output value: high voltage
- Line frequency: 50/60 Hz
- System wattage: 30 W
- Ambient temperature: 0 to 40 °C
- Length of connecting cable: 500 mm

Product features of DBD 300/110-240 DIM

- ECG for all XERADEX® lamps with a radiant length of 375 to 910 mm
- Display: LED, PLC
- Input values AC: 110 to 240 V
- Output value: high voltage
- Line frequency: 50/60 Hz
- System wattage: max. 300 W
- Ambient temperature: 0 to 40 °C
- Length of connecting cable: 600 mm

DBD 300 connections

- Code connector (lamp-specific)
- Remote control
- AC power

Additional functions of DBD 300

- Output can be controlled from 10 to 100 %, internally or externally via 1 to 10 V control voltage
- Control and switching of the output can be remote controlled

Safety precautions

This electronic control gear may only be used to operate XERADEX® lamps. Only the appropriate approved ECG may be connected to the relevant lamp. For detailed information see the operating instructions for the various products.