

# POWERBALL® HCI®-TM

Technical Information

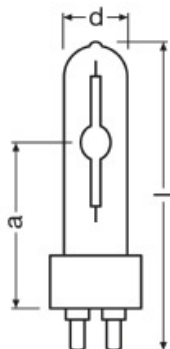


POWERBALL® HCI®-TM

## General product description

- Metal halide lamps with ceramic burner
- POWERBALL<sup>1</sup> technology
- Tubular & clear outer bulb
- G22 base with nickel-plated brass for corrosion resistance
- LCL of 90 mm – same as HQI-TM 600W & 1000W
- Compact dimensions for small fixtures
- Precise positioning & uniform distribution of light allow optimal beam control
- UV-filter technology
- For luminaires with protective shield, only

## Basic technical description



Product reference	Nominal lamp wattage	Cap	Correlated colour temp.	Comp.C ap. @50hz Cos φ ≈0.9[μF]	Light colour code	Length max. (l)	Dia-meter (d)	Weight per piece	Light centre length (a)	Typical lamp voltage <sup>2</sup>	Typical lamp current <sup>1</sup>
	[W]		[K]			[mm]	[mm]	[g]	[mm]	[V]	[A]
HCI-TM 250W/930 WDL MD PB	250	G22	3040	32	930	175	43	120	90	96	3.1
HCI-TM 250W/942 NDL MD PB	250	G22	4120	32	942	175	43	120	90	97	3.0
HCI-TM 400W/930 WDL PB	400	G22	3050	45	930	175	51	140	90	105	4.5
HCI-TM 400W/942 NDL PB	400	G22	4200	45	942	175	51	140	90	107	4.5

<sup>1</sup> Round ceramic burner for optimized efficacy

<sup>2</sup> Refers to operation with a reference conventional ballast (IEC 60923).

## Performance specification<sup>3</sup>

Product reference	Rated lamp wattage [W]	Rated system wattage <sup>4</sup> [W]	Luminous flux [lm]	Luminous efficacy [lm/W]	Colour rendering index Ra	Colour rendering level	Average life (B50) [h]
HCI-TM 250W/930 WDL MD PB	245	270	26,600	109	92	1A	20,000
HCI-TM 250W/942 NDL MD PB	252	270	25,300	100	96	1A	20,000
HCI-TM 400W/930 WDL PB	396		43,000	109	92	1A	16,000
HCI-TM 400W/942 NDL PB	410		43,000	105	96	1A	16,000

Product reference	Lamp lumen maintenance factor (LLMF) vs. operation hours						
	2,000 h	4,000 h	6,000 h	8,000 h	12,000h	16,000h	20,000 h
HCI-TM 250W/930 WDL MD PB	85%	82%	78%	75%	70%	63%	61%
HCI-TM 250W/942 NDL MD PB	81%	77%	74%	72%	69%	67%	63%
HCI-TM 400W/930 WDL PB	80%	74%	71%	69%	66%	63%	
HCI-TM 400W/942 NDL PB	81%	76%	74%	72%	69%	67%	

Product reference	Lamp survival factor <sup>5</sup> (LSF) vs. operation hours						
	2,000 h	4,000 h	6,000 h	8,000 h	12,000h	16,000h	20,000 h
HCI-TM 250W/930 WDL MD PB	99%	98%	95%	91%	80%	66%	50%
HCI-TM 250W/942 NDL MD PB	99%	98%	95%	91%	80%	66%	50%
HCI-TM 400W/930 WDL PB	99%	99%	99%	96%	80%	50%	
HCI-TM 400W/942 NDL PB	99%	99%	99%	96%	80%	50%	

## Operation conditions

Product reference	Burning position	Max. permitted outer bulb temperature [°C]	Max. permitted pinch Temperature [°C]	Ignition voltage min. / max. [kV]	Required control gear <sup>6</sup>	Suitable OSRAM electronic control gear	Dimming
HCI-TM 250W/930 WDL MD	any	580	280	4 <sup>7</sup> / 5 <sup>8</sup>	ECG, CCG	PTo	with PTo <sup>9</sup>
HCI-TM 250W/942 NDL MD	any	580	280	4 / 5	ECG, CCG	PTo	with PTo
HCI-TM 400W/930 WDL PB	any	650	350	4 / 5	ECG, CCG		
HCI-TM 400W/942 NDL PB	any	650	350	4 / 5	ECG, CCG		

<sup>3</sup> The specified values refer to operation with conventional control gear at 50Hz and rated wattage. They refer to horizontal burning position, in line with IEC 61167. Other burning positions may result in differing values.

<sup>4</sup> With OSRAM POWERTRONIC PTi, PT-FIT or PTo

<sup>5</sup> Indicates the percentage of operational lamps after a given period of operation time.

<sup>6</sup> ECG stands for low frequency square wave electronic ballast. See the respective lamp data sheet in IEC 61167 and Annexes G and H, therein.

CCG stands for electromagnetic ballast (see IEC 61347).

<sup>7</sup> For superimposed ignition with square wave electronic ballast 3.0 kV are sufficient.

<sup>8</sup> This limit is for safety reasons.

<sup>9</sup> Depending on the dimming level both correlated colour temperature and colour rendering index Ra may substantially change. Average life may not increase.

Edition 01.2013. Subject to change without notice. Errors and omissions excepted. Make sure to use the most recent edition.

## Safety, materials and environment

Product description	Typical specific effective radiant UV power [mW/1000 lm]	Typical mercury content [mg]
HCI-TM 250W/930 WDL MD PB	<2	19.1
HCI-TM 250W/942 NDL MD PB	<2	21.6
HCI-TM 400W/930 WDL PB	<2	31.8
HCI-TM 400W/942 NDL PB	<2	45.1

- Compliant with safety specifications according to EN 62035
- Compliant with RoHS.
- Only for luminaires with protective shield according to IEC 60598-1
- For operation with an electromagnetic ballast<sup>10</sup> a protection against rectifying effect at end-of-life required
- Staring to operating light source to be avoided because of high brightness

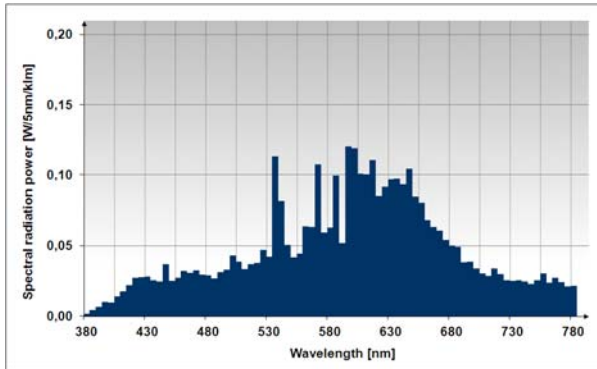
## Logistics data

Product description	ILCOS	EAN 10	EAN 40	Standard pack quantity
HCI-TM 250W/930 WDL MD PB	MT/UB-250/30/1B-H-G22-34/175	4008321524591	4008321524607	10
HCI-TM 250W/942 NDL MD PB	MT/UB-250/30/1B-H-G22-34/175	4008321524638	4008321524645	10
HCI-TM 400W/930 WDL PB	MT/UB-250/30/1B-H-G22-34/175	4008321524614	4008321524621	10
HCI-TM 400W/942 NDL PB	MT/UB-250/30/1B-H-G22-34/175	4008321524577	4008321524584	10

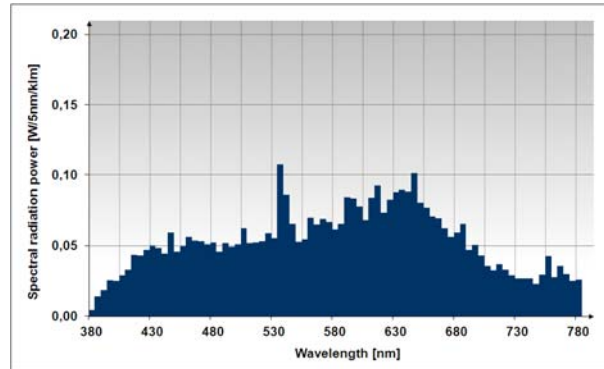
<sup>10</sup> See IEC 61347.

## Typical spectral power distribution

Light colour code	Fig. no.
930	1
942	2



Color 1



Color 2

## References

Reference	
Brochure "Metal halide lamps. Instructions for the use and application"	<a href="http://www.osram.com">www.osram.com</a>
Brochure "High Intensity Discharge lamps. Technical information on reducing the wattage"	<a href="http://www.osram.com">www.osram.com</a>
Ray data (e.g. ASAP, SPEOS, LightTools)	available on request
3D data (e.g. Parasolid, STEP)	available on request
System <sup>+</sup> guarantee	level 3C, see <a href="http://www.osram.com">www.osram.com</a>