

# Induction lamps

# MASTER QL



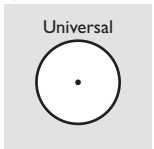
QL 165 W



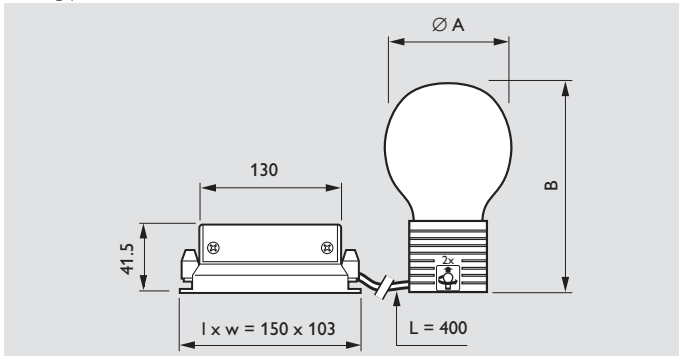
QL 55 W



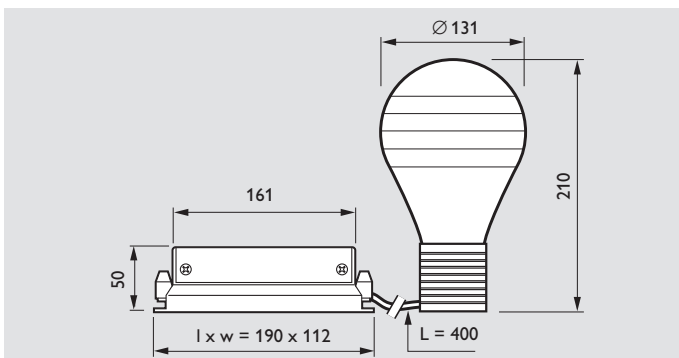
QL 85 W



Burning position



Type	A	B
QL 55W	85	140.5
QL 85W	111	180.5



QL 165 W

Dimensions in mm

### Definition

Compact, lightweight, high-frequency QL system for fluorescent induction lamps.

### Description

- Ultra-long life up to 15 years based on 4000 burning hours / year
- Low energy consumption
- Constant light, independent of mains voltage fluctuations
- Automatic stop circuit is activated within 5 seconds in case of lamp failure (safety stop)
- Flicker-free start, ideal for areas with high switching frequency

### Applications

Typical areas of application include:

- Indoor general lighting
- Suitable for use with infrared remote control systems
- Outdoor lighting
- Special areas like tunnels, signs, cleanrooms, obstruction, and explosion-proof applications

### Philips quality

This implies optimum quality regarding:

- Ultra-long life. As manufacturer of QL lamps and HF generator, Philips ensures that, from the earliest development stage, optimum lamp/ HF generator performance is maintained.
- International standards. Philips QL systems comply with all relevant international rules and regulations.

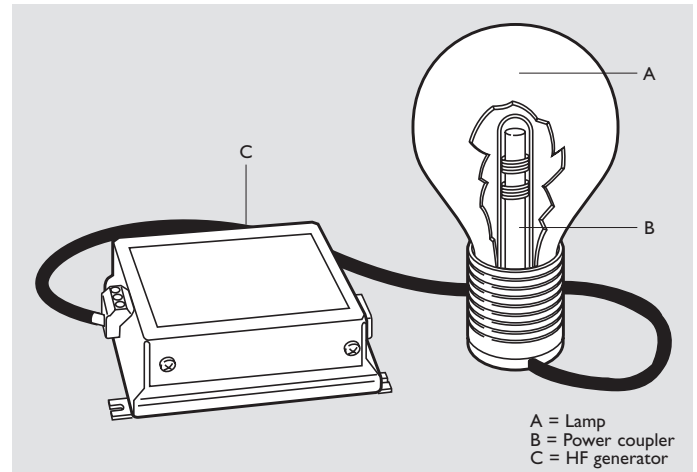
### Compliances and approvals

- RFI < 30 MHz EN 55015
- RFI > 30 MHz EN 55022
- Harmonics EN 61000-3-2
- Immunity EN 61547
- Safety EN 60928
- Performance EN 60929
- Vibration & bump tests IEC 68-2-6-Fc IEC 68-2-29-Eb

- Quality standards: ISO 9001
- Environmental standard ISO 14001
- Approval marks:



- CE marking



### Note:

The QL lamp system is constructed to give designers maximum freedom for positioning the different system components. This limits the use of the system to luminaires which have provisions for additional cooling and which comply with the international Electro Magnetic Compatibility (EMC) standards. Disregarding this regulation can lead to damage of the QL lamp system, and unwanted interference with the environment.

Indicated test house approvals are valid for entire system. These approvals simplify the procedure of obtaining approvals for the total QL luminaire system.

A booklet, "Philips QL Lamp Systems - Information for Original Equipment Manufacturers", gives detailed guidance for developing appropriate luminaire designs.



QL system	System Power	Lamp Efficacy	Lumen*	Colour rendering index	Average luminance	Lumen maintenance 60.000hrs
	W	lm/W	lm		cd/cm <sup>2</sup>	%
QL 55W 230V or 120V	55	65	3500	80	6.5	75
QL 85W 230V or 120V	85	70	6000	80	6.5	75
QL 165W 200V /230V /277V	165	70	12000	80	22	70

Note: \*Typical values for 1827, 1830 and 1840

### Technical data for installation

#### Mains operation 230 V

Rated mains voltage	220 – 240 V
With tolerances for safety	180 – 264 V
Tolerances for performance	184 – 255 V
Mains frequency	50 / 60 Hz
Operating frequency	2.65 MHz
Power factor	> 0.96

#### DC voltage operation

Required battery voltage for guaranteed ignition 190 – 264 V<sub>DC</sub>  
Nominal light output is obtained at DC voltage of 220 – 240 V<sub>DC</sub>

Overvoltage protection	48 hrs at 320 V <sub>AC</sub>
	2 hrs at 350 V <sub>AC</sub>

Constant light operation	in case of mains voltage fluctuations within
	184 – 255 V, the luminous flux changes by a maximum of ± 2 %

#### Mains operation 120 V

Rated mains voltage	120 V
With tolerances for safety	100 – 140 V
Tolerances for performance	108 – 132 V
Mains frequency	50 / 60 Hz
Operation frequency	2.65 MHz
Power factor	> 0.96

#### DC voltage operation

Required battery voltage for guaranteed ignition 108 – 132 V<sub>DC</sub>  
Nominal light output is obtained at DC voltage of 120 V<sub>DC</sub>

Overvoltage protection	2 hrs at 200 V <sub>AC</sub>
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Constant light operation	in case of mains voltage fluctuations within 108 – 132 V,
	the luminous flux change by a maximum of ± 2 %

QL 165 W system also applicable on 200, 230 and 277 V

### General

Earth leakage current	< 0.5 mA per QL system
Ignition time	< 0.5 s
Insulation resistance test	500 V DC from Line/Neutral to earth (not between Line and Neutral).
	Note: Ensure that the Neutral is reconnected again after the above test is carried out and before the installation is put into operation.

### Technical data for design and mounting QL system in fixtures

#### Temperatures

Min. ambient ignition temperature of lamp -20 °C  
T<sub>case</sub> +65 °C 60.000 Hrs (failure rate 10 %)  
Max. T<sub>case</sub> +75 °C

Hum and noise level inaudible

Permitted humidity is tested according to IEC 928 par.12.

Note that no moisture or condensation may enter the ballast.

### Approvals

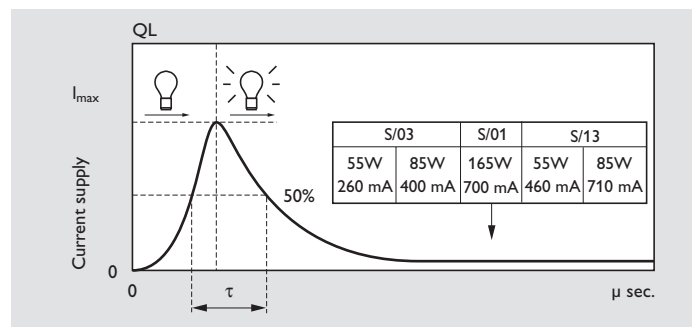
#### QL system

QL 55W S/03	KEMA KEUR	SP	RU	EMV
QL 85W S/03				
QL 55W S/13				
QL 85W S/13				
QL 165W S/01	KEMA KEUR			EMV

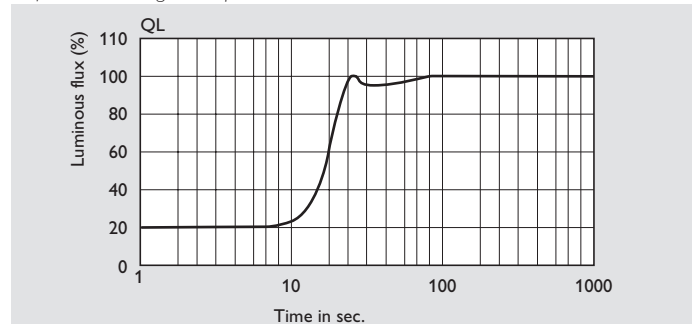
### Typical voltage and current values for QL system

Inrush current 1/2 value time at typical mains impedance

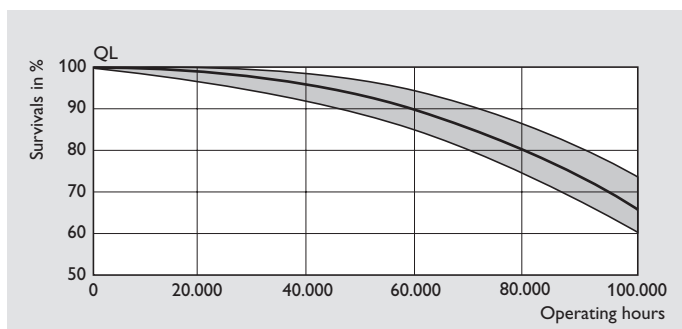
	V <sub>nom</sub>	I <sub>max</sub> / τ
QL 55W S/03	230V	45A / 350μs
QL 85W S/03	230V	45A / 350μs
QL 165W S/01	230V	45A / 500μs
QL 55W S/13	120V	25A / 550μs
QL 85W S/13	120V	25A / 550μs



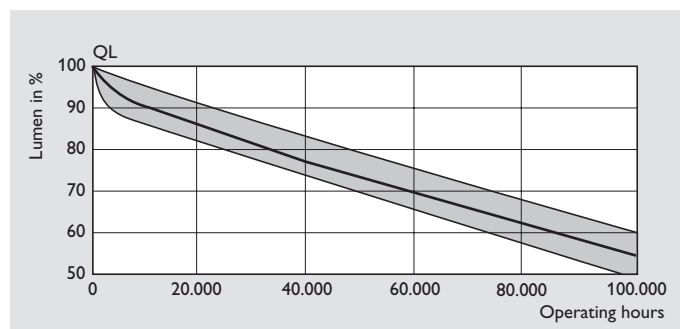
Performance during start up



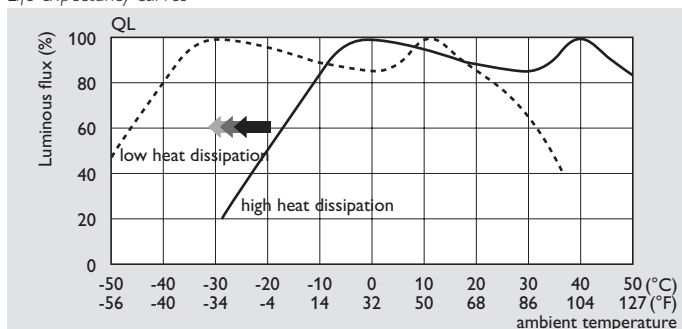
Typical luminous flux



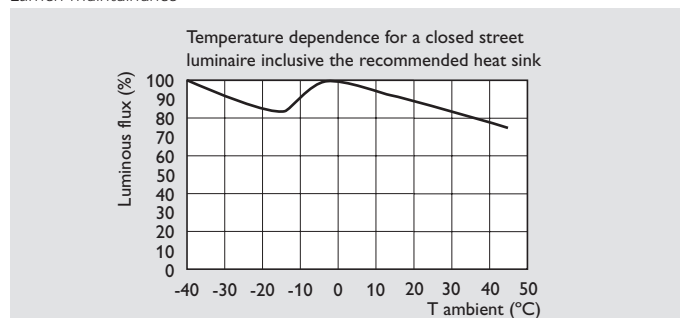
Life expectancy curves



Lumen maintenance



Effects of ambient temperature on luminous flux (QL 55 and QL 85 W), for different luminaire types and heat dissipation



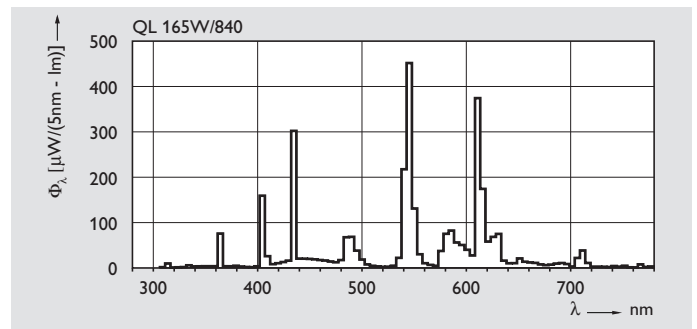
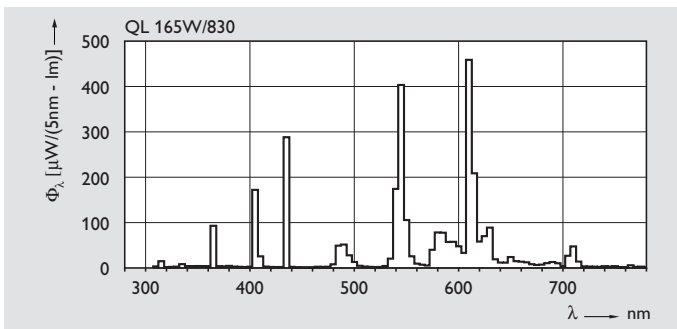
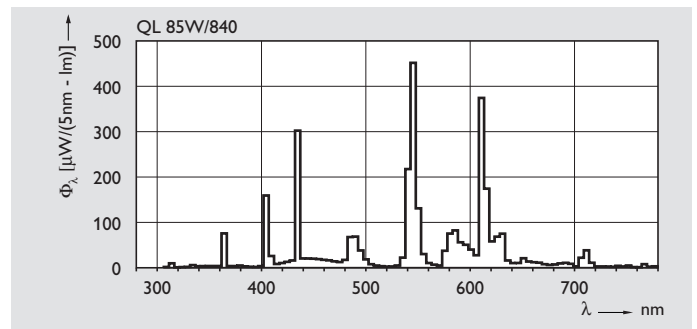
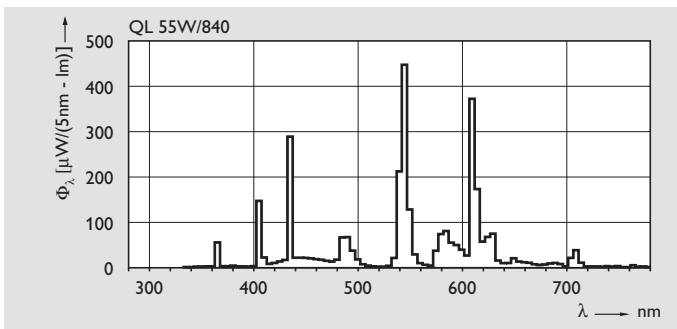
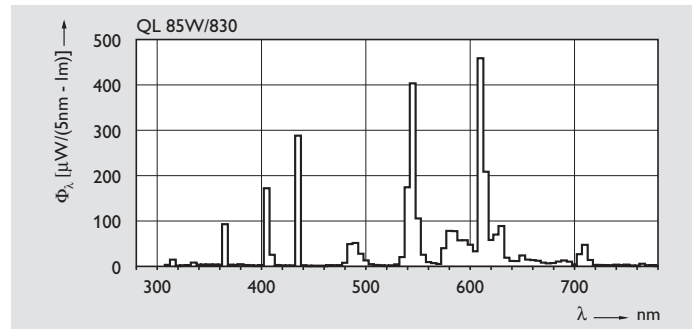
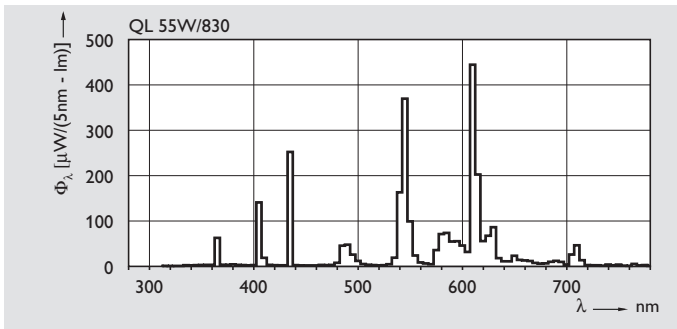
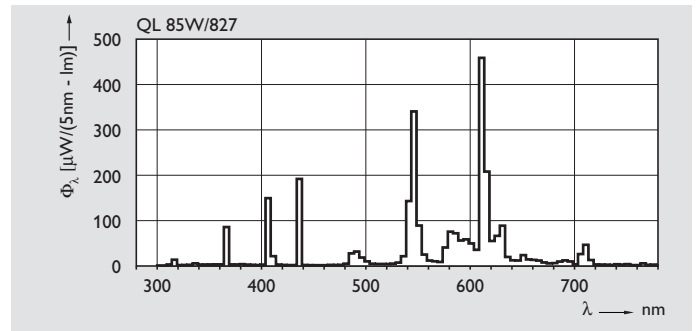
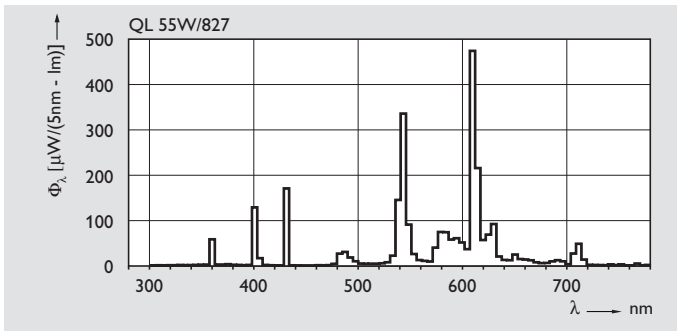
The above QL 165 W curve has been measured using a heat sink with surface area of 400 cm<sup>2</sup>. Use of smaller heat sink will result in the curve shifting to the left whereas the use of larger heat sinks will result in the curve shifting to the right.

## Ordering and packing data

Commercial name	Type		Bulk packing			EAN code	EOC
			Qty.	Dimensions l x w x h cm	Volume m <sup>3</sup>		
<b>Lamp</b>							
MASTER QL	QL55W/827	2700K	6	41 x 29.5 x 23	0.0278	8711 500 198648	198631
MASTER QL	QL55W/830	3000K	6	41 x 29.5 x 23	0.0278	8711 500 198686	198679
MASTER QL	QL55W/840	4000K	6	41 x 29.5 x 23	0.0278	8711 500 198723	198716
MASTER QL	QL85W/827	2700K	6	41 x 29.5 x 23	0.0278	8711 500 198761	198754
MASTER QL	QL85W/830	3000K	6	41 x 29.5 x 23	0.0278	8711 500 198808	198792
MASTER QL	QL85W/840	4000K	6	41 x 29.5 x 23	0.0278	8711 500 198846	198839
MASTER QL	QL165W/830	3000K	6	47.5 x 34 x 23.5	0.0378	8711 500 201034	201027
MASTER QL	QL165W/840	4000K	6	47.5 x 34 x 23.5	0.0378	8711 500 201058	201041
<b>Power coupler</b>							
MASTER QL	QL55W/PC		6	29.5 x 25 x 23	0.017	8711 500 198884	198877
MASTER QL	QL85W/PC		6	29.5 x 25 x 23	0.017	8711 500 198921	198914
MASTER QL	QL165W/PC		6	29.5 x 25 x 23	0.017	8711 500 200921	200914
<b>HF generator</b>							
MASTER QL	QL55W S/03	184-255V <sub>ac</sub>	6	35 x 17 x 22.5	0.0134	8711 500 740021	740014
MASTER QL	QL85W S/03	184-255V <sub>ac</sub>	6	35 x 17 x 22.5	0.0134	8711 500 739667	739650
MASTER QL	QL165W S/01	184-294V <sub>ac</sub>	6	35.5 x 25 x 13	0.0115	8711 500 536709	742933
MASTER QL	QL55W S/13	108-132V <sub>ac</sub>	6	35 x 17 x 22.5	0.0134	8711 500 741868	741851
MASTER QL	QL85W S/13	108-132V <sub>ac</sub>	6	35 x 17 x 22.5	0.0134	8711 500 741899	741882

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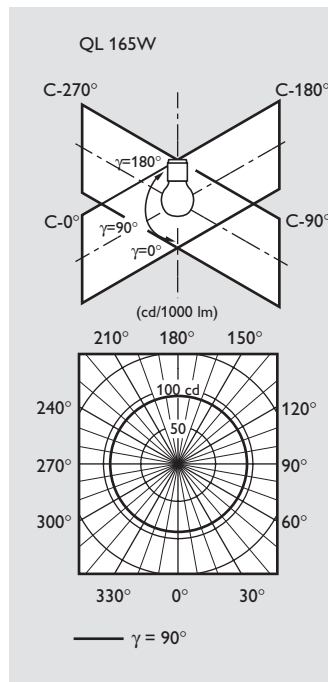
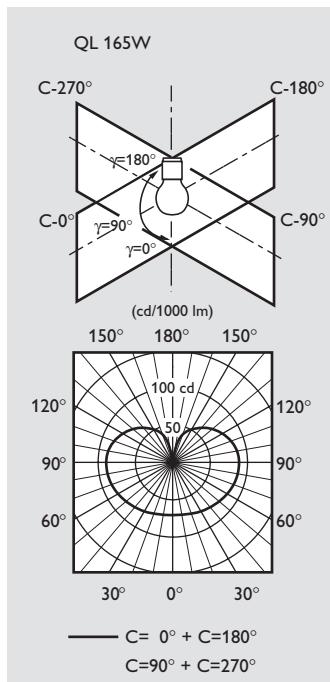
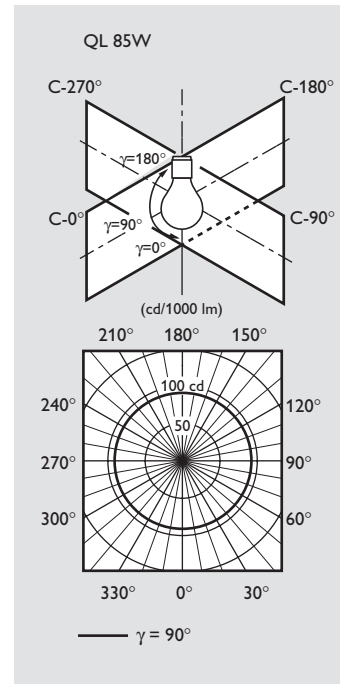
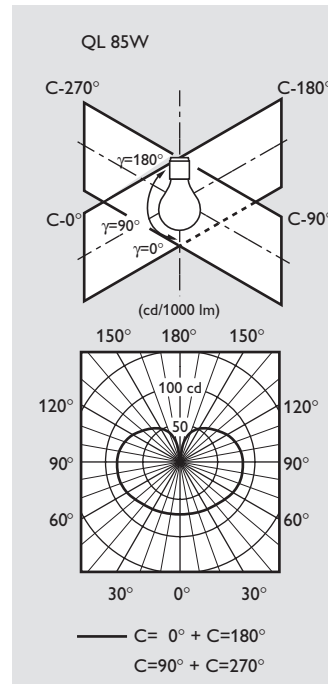
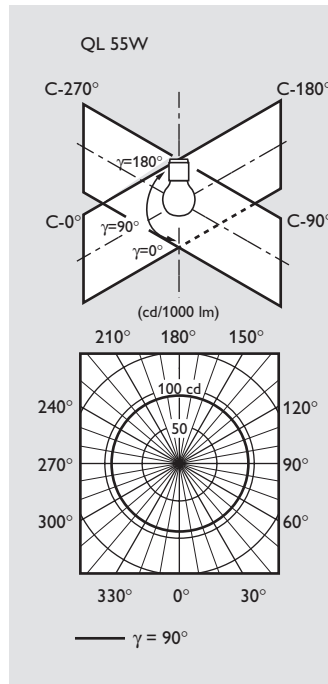
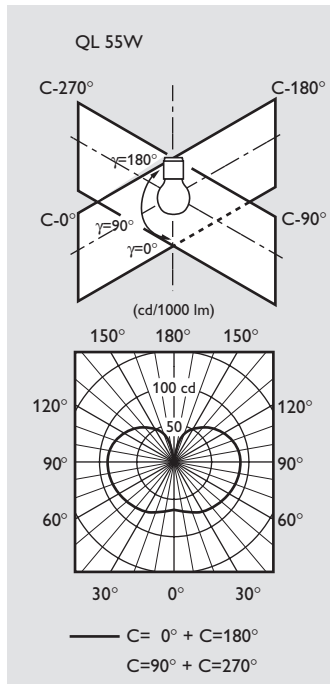


Spectral power distributions



# Induction lamps

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Polar light distributions

