

## Please note:

The values and curves published in this document are for guidance only. The basic data was determined under controlled laboratory conditions for a switching cycle of 11 h on/1 h off. There may be considerable differences in actual practice.

### PF correction capacitor:

The pf correction capacitors are designed so that  $\cos \varphi \geq 0.9$  is achieved at rated voltage.

## Operating instructions

### Supply voltage:

The lamps must be connected via suitable control gear. A 240 V / 50 Hz ac supply is generally required. If a different supply voltage is used (e.g. 400 V / 50 Hz) control gear with appropriate taps must be used.

### Permitted mains voltage deviation: $\pm 3\%$

Sudden fluctuations in mains voltage of more than 10% may cause the lamps to go out. If the deviation from rated supply voltage (230 V or 400 V) is permanent, high-pressure discharge lamps may exhibit changes in colour or luminous flux. Lamp life may also be reduced.

### Control gear:

Conventional control gear: Choke, igniter and pf correction capacitor.

The right igniter for the particular lamp type must be used to ensure reliable and safe ignition. Igniters must always be installed close to the lamp. The choke may be installed any distance from the lamp, provided the permissible voltage drop is not exceeded. For power supplies with a neutral conductor the choke should be connected to the live conductor. In the case of luminaires in which there are no lamps installed, the ignition equipment (igniter, ignition pulser) must be disabled when voltage is applied otherwise the igniters may produce radio interference.

The chokes and pf correction capacitors generally needed for operating discharge lamps may, under certain conditions, create oscillating circuits. These circuits may then produce excessive currents and voltages, which in turn can destroy the lamps, ballasts and capacitors. Such resonance phenomena must be avoided by appropriate circuits and fuses.

When high-pressure discharge lamps come to the end of their lives a rectifier effect may occur (see IEC 62035). This is not manufacturer-specific. Because of the excessive dc current components the ballasts and igniters may become overheated.

High-pressure discharge lamps should therefore only be operated with control gear with thermal protection. This applies also to control gear with the option of power reduction.

### The following lamps with integrated igniters don't need external igniter:

- HQI®-T 2000 /D/I
- HQI®-T 2000 /N

The lamps must not be operated with integrated igniters in luminaires equipped with igniters.

Suitable igniters and control gear for POWERSTAR® are available from the electrical industry. Operation of HQI-TS Excellence at PT-TS ballast – which are not produced or sold anymore for very long time – is not permitted.

### Operating temperatures:

Only high-pressure discharge lamps with external igniters are suitable for low-temperature applications down to  $-50\text{ }^{\circ}\text{C}$ . Such applications call for special (heatable) igniters such as MZN 400 SU-LT from BAG Turgi (for lamps from 100 to 400 W).

### Power factor:

**CCG:** Because of the series connected choke this is around 0.5 to 0.7 (without compensation)

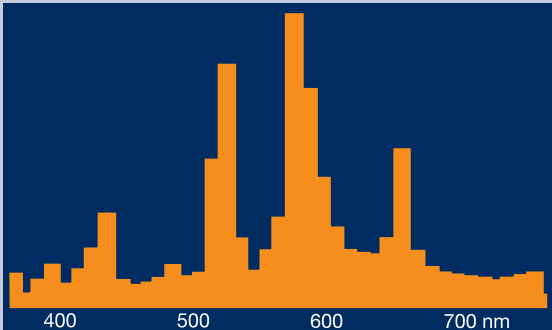
**ECG:** If **POWERTRONIC®** is used the power factor is greater than 0.96. Compensation is therefore not needed here.

### Switching on:

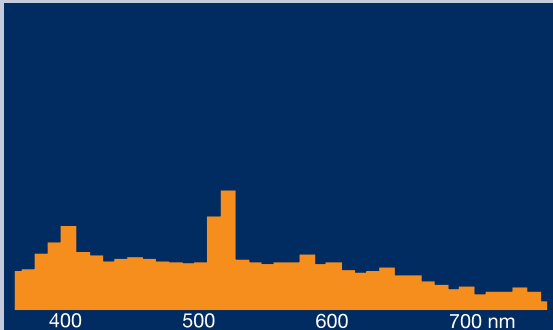
Full luminous flux is reached only a few minutes after the lamp is switched on. The start-up current may be up to twice the operating current depending on the control gear. (See also the graphs on p. 21)

# Spectral power distribution of discharge lamps

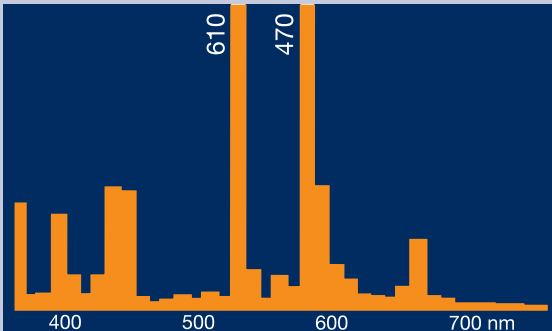
## POWERSTAR®



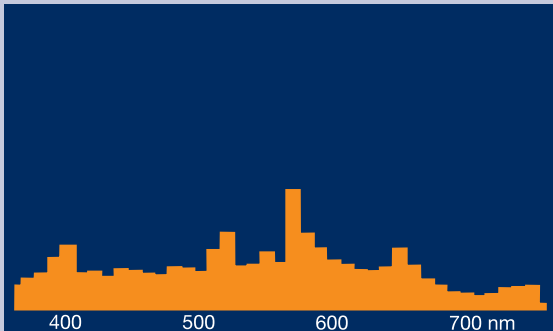
HQI® .../WDL



HQI® .../NDL



HQI® .../N



HQI® .../D

Visible range from 380 to 780 nm

Vertical scale  $\frac{400 \text{ mW}}{1000 \text{ lm} \cdot 10 \text{ nm}}$