GKVIA - A Greenhouse evolution

RED DOT SCANDINAVIA

The Red Dot Scandinavia GKVIA Induction lamps give you an energy efficient and effective floriculture lighting system. This technology will allow for Greenhouse operators to optimize the growth conditions and minimize the energy consumption, hence improving the total economic output of the production:

- Transform high energy consuming, high cost operations to sustainable, environmental-friendly, low cost production
- Result: Significantly optimized operation

LIFE SPAN
>100.000 h
0,3% FAILURE RATE

Economics

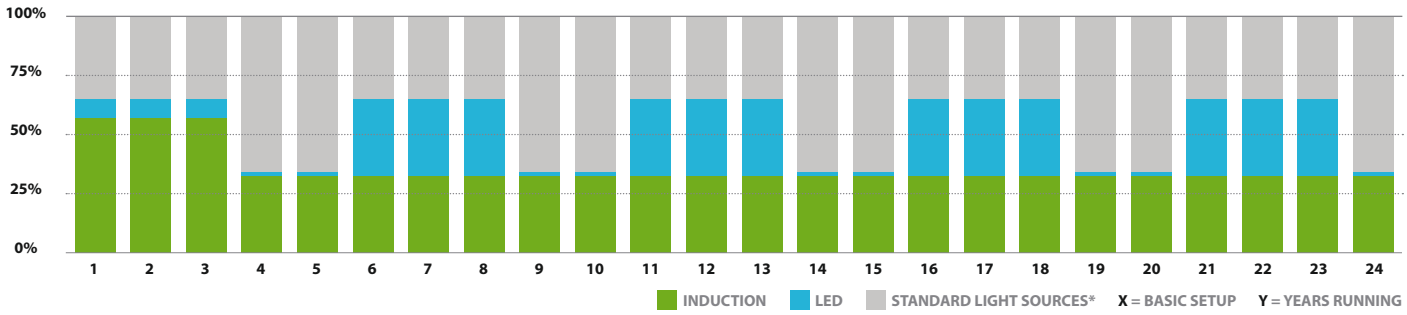
Investment

- **RDS Finance Solution** with ownership after 2-3 years, no down payment and over 40 % savings from day one (compared to before lamp replacement)
- Low investment – up to 30 % cheaper than comparable LEDs

Operation

- On average 75 % cheaper in operation than HPS lamps,
  fluorescent tubes and mercury bulbs
- Long life – up to 4 times longer then LED (>100,000 h)

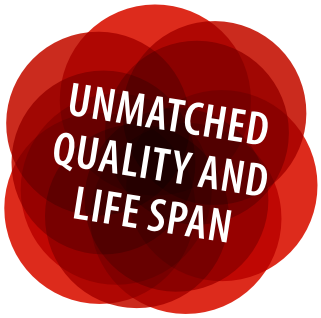
The overall economic aspects of the induction lamps from RDS are exceptional. Profit and better work environment can be achieved instantly, which will lead to a solid production platform form where people and companies will benefit.



*) In this example, fluorescent light with 3 X 58W tubes is used

Why use induction lamps in your greenhouse:

- Operates in the 400-700 NM spectra (optimum for photosynthesis)
- Produces 5 x less heat than High Pressure Sodium or Metal Halide
  – and thereby the ability to be lowered over the plants for optimized growth
- Unmatched quality and >100,000 hours life span
- Uses 50-70% less energy than High Pressure Sodium or Metal Halide lamps
- TüV certified technology
- > 30,000 lamps already installed and operating in the USA
- Short ROI (Return on Investment)
- Environmental friendly
- Superior lumen maintenance
- High lumen per watt technology
- Can be delivered with a range of different censors and control units to optimize energy use even more



GKVIA comes in 3 different colour temperatures:

- GKVIAa: 3000K - focus on red light. It has a significant influence on photosynthesis and photoperiod effect on the plants. Applies to the early period of the plant stage (mainly seedling) – for example: lettuce, herbs
- GKVIAb: 5000K – focus on blue light. Chlorophyll and carotenoids absorbs in large proportions in the plants and has a great influence on photosynthesis. Applies to later period of plant stage (flowering, fruiting) - for example: tomato, cucumber
- GKVIAc: With 50 % of Blue light and 50 % of red light. It has both characteristics for flowering, foliage and fruiting.

Induction vs. Metal Halide and High Pressure Sodium

Comparison	GKVIA Induction Lamp	Metal Halide	High Pressure Sodium
Warranty	**5 years** Lamp, Ballast, Fixture	Lamp: 0 - 1 year Ballast: 3 - 5 years	Lamp: 0 - 1 year Ballast: 3 - 5 years
Bulb hour replacement	**>100.000 hours** 1 every 11 years	12.000 hours 1 every year	24.000 hours 1 every year
Lumen Failure Rate	**10 % @ 70.000 hours**	> 30 % @ 6.000 hours	> 30 % @ 6.000 hours
Lamp Operating Temperature	**60-90 Degree C**	315-425 Degree C	315-425 Degree C
Watts Used	**100 - 400 W**	600 - 1.000 W	600 - 1.000 W
Re-strike	**Yes - Instant**	No	No
Flicker / Glare	**None**	High	High
Environmental Impact	**Low**	High – high mercury content	High – high mercury content
Lamp Failure rate	**0,3 %**	> 20 %	> 20 %

GKVIA enhances the blue and red light spectrum significantly and has proven through testing, that the light appearance has all the qualities that are required for optimized photosynthesis and thereby growth"