



## Vitamin D-Booster

### How our Vitamin D-Booster works

The ARCO Vitamin D-Booster ensures that the vitamin D potential in mushrooms is optimally utilized. Mushrooms grown indoors do not contain much vitamin D, but they do contain a lot of ergosterol: a substance that is converted into vitamin D by exposure to UV light. ARCO's Vitamin D-Booster emits exactly the right amount of UV light to ensure conversion of ergosterol in the mushrooms into vitamin D.

The Vitamin D-Booster ensures consistent quality by delivering the optimal amount of UV light based on the mushroom species and other specifications. The Vitamin D-Booster processes up to 120 trays per minute and works for both whole and sliced mushrooms. The enhanced content of vitamin D persists up to nine days after treatment.

### Advantages of our Vitamin D-Booster

The benefits of the ARCO Vitamin D-Booster are:

- Sunlight is replaced by just the right amount of UV light for the conversion to vitamin D;
- The Vitamin D-Booster can process up to 120 trays per minute and increases product value at the expense of little to no time and efficiency;
- The booster can be integrated into new and existing lines;
- The smart lights of the Vitamin D-Booster perform consistently thanks to the internal UV sensor that automatically and continuously adjusts to the power loss of the LEDs.



Ask our experts about the possibilities for your application and see what our machine can do for you.

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**CALL US NOW!**

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# Specifications

Vitamin D-Boosters (single punnets)	Type 1 LED-Booster	Type 2 LED2Dcompact	Type 3 HG-Booster
<b>Lamp type</b>	LEDs	LEDs	Mercury-vapour medium-pressure lamp
<b>Integrating patented LED2D© technology [1]</b>	v	v	x
<b>Maximal production rate (eg. for Vitamin D level of 10 µg /100g) (punnets/min) [2]</b>	85 ppm [at an upstream belt speed of 17m/min and a placement rate of 5 punnets/mtr]	85 ppm [at an upstream belt speed of 17m/min and a placement rate of 5 punnets/mtr]	150 ppm [at an upstream belt speed of 30m/min and a placement rate of 5 punnets/mtr]
<b>Vitamin D level setting range (µg /100g fresh weight) [2]</b>	0-20	0-20	0-20
<b>Maximum product dimension (puppet plus outstanding mushrooms) (W x H in mm)</b>	178x110	178x110	170x120
<b>Waranty period of UV light (total warranty operation hours) / estimated lifetime</b>	2 years (4.000 h) / 5.000h	2 years (4.000 h)	1 year (1.500 h) / 2.000h
<b>Lifetime Boost (+20%) via ultrasonic sensor</b>	Optional (increase of UV-LED life time of approx. 25%)	Optional (increase of UV-LED life time of approx. 25%)	not applicable
<b>Continuous regulation of UV lamp performance [3]</b>	v	x [4]	v
<b>Release of hot exhaust air</b>	x	x	Yes, hot exhaust air of cooling-blower must be released into the open air, due to ozone production [5]
<b>Approx. lengt of machine (mm)</b>	2,5	1,2	3
<b>UV protection system</b>	simple tunnels	simple tunnels [6]	slalom-tracked puppet guides
<b>Compressed air supply</b>	x	x	v
<b>Problematic materials</b>	x	x	Mercurc, quartz glass
<b>Ozone-generating light</b>	x	x	v
<b>Release of hot exhaust air</b>	x	x	v [5]
<b>Electrical data</b>	230 V / 50Hz / 1~	230 V / 50Hz / 1~	400 V / 50Hz / 3~
<b>Extras necessary, not included in standard machine</b>	x	conveyor with adjustable speed, mounting of LED-2Dcompact device and UV shieldings	x

[1] Two-stage UV-LED type combinations wer tested on vitamin D synthesis rate and further photoproduccys (eg. lumisterol, tachysterol, toxisterol, suprasterol) in mushrooms. Based on these results we developed a completely new LED technology approach for which a patent is pending: LED2D® technology. Our technology consist of two narrowband high performance UV LED with different center wevelengts switched in series leading to highest yield of vitamin D and lowest yield of undesired photoproducts.

[2] Modular design of LED2D devise, so taht standard version can be optionally upgraded in 20% performance levels up to 100 or 120 punnets.min with vitamin D levels up to 20 µg /100g.

[3] Integration of UV sensor for continuous and automatic readjustmenst via PLC of the natural continuous but low power loss of Mercury lamps or LEDs. This is the reason why the recipies should start with a maximum lamp power of 75%, so that there is enough range for up-regulations of power over the time.

[4] Lamp power loss over time must be regulated via regulary mobile disc UV measurements combined with belt speed adjustments.

[5] Yes, hot exhaust air of cooling blower must be released into the open air, due to ozone production and that in the case of an accident causing the lamp to burst. (eg. if someone hits the running Booster with a lift truck) there will be NO RISK of Mercure contamina.

[6] Not inculed in the price; LED@D compact devices mut be integrated into a system including some simple UV shieldings and conveyor with speed adjustability.