



SmartStart™

Inspired by nature

Post-hatch feeding
made easy, practical
and flexible



Pas Reform
Hatchery Technologies



A smart start for newly hatched chicks

In a unique partnership Pas Reform, biotech start-up In Ovo, DSM Premix company Twilmij and Philips NatureDynamics have developed SmartStart™ – a flexible, ground-breaking post-hatch feeding solution that gives newly hatched chicks the earliest possible access to feed, water and light.

Inspired by nature

Taking our lead from nature, SmartStart™ uses natural deep eutectic solvents (NADES) to retain water inside a semi-moist feed for a practical, simple post-hatch feeding solution.

The SmartStart™ system offers a perfect start for newborn chicks, enabling them to eat from the moment of hatching. It promotes the development of robust day-old chicks and helps to reduce the need for antibiotics.



Animal
welfare



Antibiotics
reduction



Field
performance



Understanding NADES

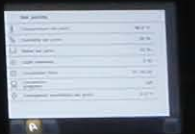
How is it possible for desert plant seeds to germinate, despite having been buried in hot, dry sand for long periods of time?

The answer lies in natural compounds – known as NADES – that can lock water inside the seeds, so that it doesn't evaporate. Neither lipid nor water, NADES are formed when two or more solids are mixed in a certain ratio and subsequently become liquid in the mixture. NADES are natural and edible. These wonders of nature are well known to biochemists and they have been extensively studied by a research team at Leiden in the Netherlands.

Pas Reform



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A flexible approach to post-hatch feeding

SmartStart™ helps you to implement post-hatch feeding as easily and flexibly as possible. It comprises two key elements, that can be applied individually or together: precision feeding and intelligent lighting.

- Flexible combination of individual components**
- Easily integrated into existing hatcheries**
- Adjustable to different circumstances**
- Applied to some or all flocks**
- Provided in one, two, or all hatchers**



Precision feeding

Meeting the nutrient requirement of newly hatched chicks as accurately as possible

Semi-moist feed

To provide the newborn chick with nutrition and hydration in a single formulation

- Soft crumble feed with high water content
- Combining nutrition and hydration in a single feed formulation
- Based on a proven starter feed
- Containing easily digestible lipids, proteins and carbohydrates to provide the new-born chick with essential nutrients for growth and development
- Attractive fragrances and red-coloured ingredients, easy for the chicks to find
- Fixed feed : water ratio prevents gut-health problems caused by excessive water consumption
- Added preservatives and water-binding agents control microbial quality



The semi-moist SmartStart™ feed provides the optimal combination of nutrients and water to support the chicks' gut health, metabolism and immune systems. Formulated with a scent and colour that chicks find appealing, SmartStart™ feed performs well in the warm conditions of the hatcher and provides a safe, convenient and hygienic feeding solution.



NADES

To retain water inside the semi-moist feed

- A patented, nutritional compound that retains water in the semi-moist feed
- Hygroscopic and stable composition locks-in water naturally
- First discovered in seeds of desert plants
- Made from natural sugars mixed with small amounts of vitamins and water

Hatcher basket

To give day-old chicks free access to feed with water

- Uniquely designed feeding balconies on the exterior of the hatcher basket
- Flexible capacity from 90 (standard low-density hatching) to 128 eggs per basket
- Providing more space, with a bottom design that concentrates eggs into the centre of the basket, like a natural bird nest
- Microban® antibacterial protection in hatcher basket
- Blind-find bottom design for easy stacking



Seamless automation

Easily incorporated into your daily hatchery practice

Dosing unit

To dose a flexible amount of feed into the feeding balconies of the SmartStart™ hatcher basket

- Feed bags are emptied into the buffer hoppers of the dosing unit (2 hoppers – 1 for each hatcher basket side)
- A pneumatic mixing and dosing system ensures that feed is correctly placed into the feeding balconies of the hatcher basket
- Available as in-line and stand-alone unit
- Easy to clean, stainless steel design for maximum hygiene

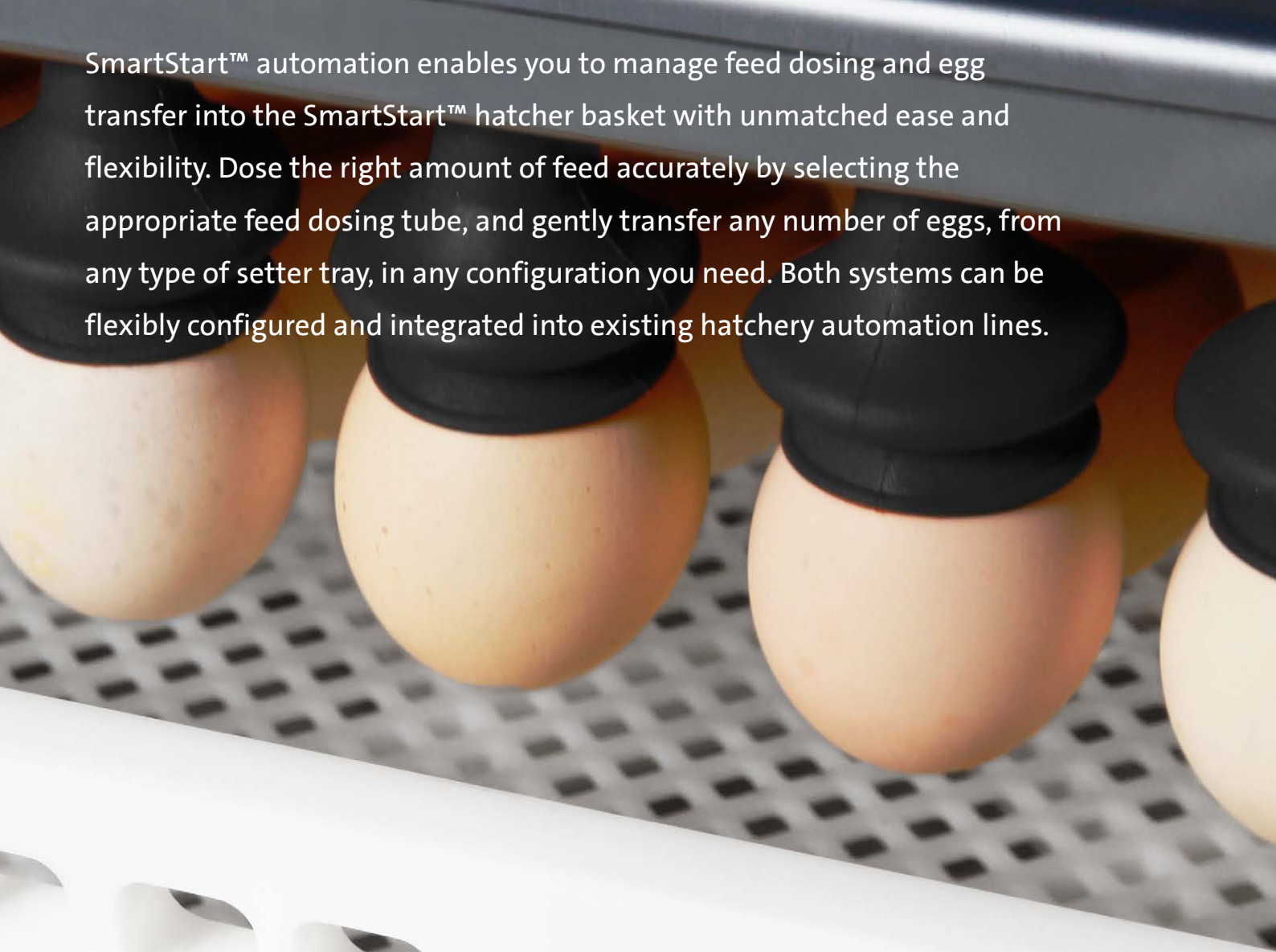
Transfer system

To transfer a flexible amount of hatching eggs from any type of setter tray

- At day 18 of incubation, eggs are transferred to candling for infertile eggs to be removed
- The remaining fertile eggs are then moved from setter trays onto a specially designed in-feed conveyor belt and routed to a transfer unit



SmartStart™ automation enables you to manage feed dosing and egg transfer into the SmartStart™ hatcher basket with unmatched ease and flexibility. Dose the right amount of feed accurately by selecting the appropriate feed dosing tube, and gently transfer any number of eggs, from any type of setter tray, in any configuration you need. Both systems can be flexibly configured and integrated into existing hatchery automation lines.



- The transfer unit merges an adjustable number of hatching eggs into the hatcher basket via a flexible pattern configuration
- Available as in-line and stand-alone unit
- Easy to clean, stainless steel design for maximum hygiene

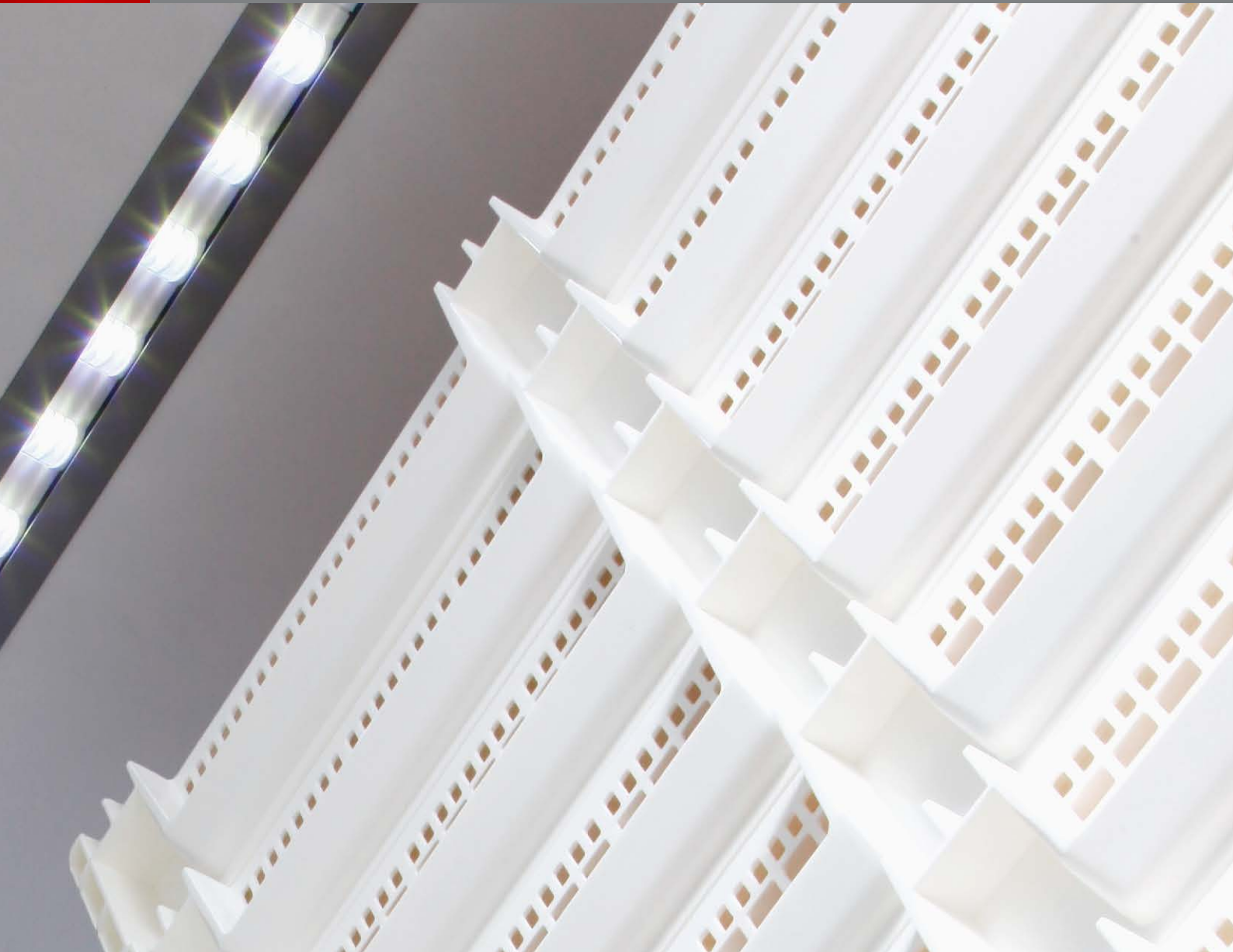


Intelligent lighting

Contributing to a natural, stress-free environment for day-old chicks

SmartStart™ LED lighting guides newly hatched chicks to the feed balconies of the hatcher basket. The soft, indirect lighting operates at a frequency and wavelength that suits day old chicks best. It is gentle on their eyes, allowing them to get used to light without stress. The lighting programs are fully adjustable for natural day and night rhythms, in line with broiler farm lighting programs, and software upgradeable to keep pace with future light colour and temperature requirements.





LED lighting

To guide newly hatched chicks to the semi-moist feed

- Incorporating LED lighting with primary and secondary optics, to direct light to where it is needed
- Using the most appropriate light spectrum for newly hatched chicks
- Easily fitted into existing hatchers
- Embedded into the ceiling of the hatcher, to meet the most stringent hygiene requirements
- Fully integrated with incubation programs



SmartStart™



Technical specifications

Type	SmartStart™ hatcher
Capacity hen eggs	14,400 fertile eggs (90 eggs per basket) 20,480 fertile eggs (128 eggs per basket)
Width (mm)*	3184
Height (+ height of motor) (mm)	2459 (+300)
Height including louvre (mm)	2978
Depth (+ central operating console) (mm)	2211 (+72)
Number of hatcher dollies	5
SmartStart™ semi-moist feed	Volume: 25 kg boxes consisting of two 12,5 kg bags Shelf life: 6 months after production date Storage conditions: cool and dry
SmartStart™ hatcher basket	Feeding balconies: along both outer sides of the hatcher basket Microban®: Antibacterial protection in hatcher basket Design: Resistant to strong disinfectants
SmartStart™ lighting	6 LED lighting units with primary and secondary optics. Power consumption: 52W (maximum at full output, steady state)
Heating	Electrical heating
Cooling	SurroundCooling™: 12 parallel water cooling circuits, incorporated in aluminium cabinet walls
Humidification	Nozzle (humidity roller upon request)
Incubator control	SmartTouch™, including multiple machine control
Display	High-contrast, 10.4 inch colour LCD screen with projective capacitive touch (PCT) screen technology
SmartWatch™ (optional)	Hatch window module including fully integrated sensor box, with high-precision electronic humidity and CO ₂ control
SmartCenterPro™ (optional)	Hatchery management system
Housing	Fully sealed cabinet; robust, easy-to-clean construction with extruded, anodized aluminium profiles for maximum stability and ease of installation; smooth-walled 'food-safe' anodized aluminium inner walls; seamless 'Hotmelt' panels with maximum insulation value; 3-lock door system, includes solid hinges, airtight sealing rubbers and solid door handles

*Add 51 mm for stand-alone incubator



4 ways that SmartStart™ gives your hatchery an advantage

SmartStart™ gives newly hatched chicks the perfect start



Maximum flexibility

SmartStart™ is easily and flexibly incorporated into your daily hatchery practice



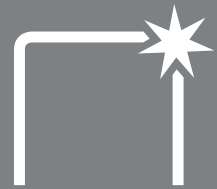
Precision feeding

SmartStart™ meets the nutrient requirement of newly hatched chicks as accurately as possible



Intelligent lighting

SmartStart™ contributes to a natural, stress free environment for day-old chicks



Optimum hygiene

SmartStart™ is specifically designed to meet stringent hygiene requirements

Easy. Practical. Flexible.

SmartStart™ enables hatchery managers to apply post-hatch feeding where it will have most benefit

- Components applied individually or in combination
- Easily integrated into existing hatcheries
- Adjustable to different circumstances, influenced by process, system and biological factors
- Applied to some or all flocks – e.g. breed or flock-age dependent
- Provided in one, two, or all hatchers

Pas Reform Hatchery Technologies

Pas Reform is an international company, which has specialised in the development of integrated hatchery technologies for the poultry sector since 1919.

The company has earned its position as one of the world's leading hatchery equipment manufacturers, through decades of research into the biological and physiological aspects of embryo development, combined with a thorough understanding of all aspects of the poultry production chain – and a dedicated focus on the future.



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