SmartPro™

NF Series

Next generation design for the future-focused hatchery

Pas Reform
Hatchery Technologies

SmartPro™
NF Series

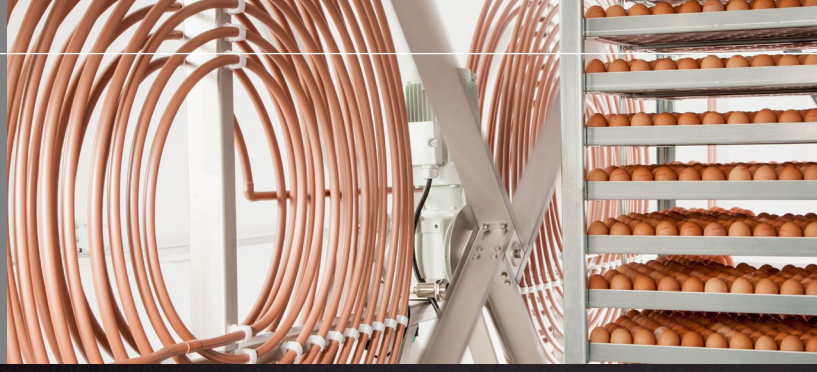
The modern hatchery faces three key challenges to future growth and profitability: genetic progress, uniformity and post hatch performance.
Pas Reform meets these challenges with our next generation SmartPro™ product range, now expanded with the NF Series to accommodate a wide variety of tray types.

SmartPro™ NF Series
Meeting tomorrow's challenges in the hatchery... today!

Pas Reform has been at the forefront of single-stage incubation design and technology for the past fifty years. Building on the tried and trusted success of our Smart™ incubation systems, Pas Reform's new SmartPro™ system takes this principle a stage further, to fully maximise the benefits of homogenous temperature control.

The modular design of the SmartPro™ incubation system enables you to carefully manage the individual conditions required by the developing embryos. By controlling each incubator fan tower zone separately, a range of incubation environments can be fully tailored, to meet the specific needs of every egg being incubated, according to its breed, flock, age or storage profile.

The full SmartPro™ NF incubation system comprises SmartSetPro™ (Setter) and SmartHatchPro™ (Hatcher), combined with the SmartTouch™ incubator control system. SmartCenterPro™, the most complete hatchery management software in the industry, completes the set up by combining a powerful hatchery management information system with data from incubation, HVAC and hatchery automation - all in one, seamlessly integrated software module.



SmartSetPro™

NF Series

Homogeneous temperature distribution is the single most important parameter for successfully incubating today's modern breeds, each of which has a unique temperature 'signature' for embryonic development.

With capacities up to 137,088 hen eggs, SmartSetPro™ has the broadest capacity range of any single-stage incubator available on the market today. In combination with its counter flow airflow principle, SmartSetPro's™ fully sealed cabinet enables uniform temperature, humidity and CO2 build up in the initial stages of incubation, for a uniform start of the incubation process.

And when even minor temperature fluctuations can have a major impact on uniformity and post hatch performance, SmartSetPro™ maintains the smallest average difference in eggshell temperature that is possible in commercial incubation. Modular design meets this specific requirement, by enabling set points to be defined separately for each fan tower zone, while cooling is uniquely enabled by four circular cooling coils that balance cooling capacity uniformly in each individual zone.

Highest industry cooling capacity

Modern breeds generate more metabolic heat now than in the past – and detailed research to forecast future developments has enabled Pas Reform to calculate cooling capacities not only for today's breeds, but also for their offspring in twenty years from

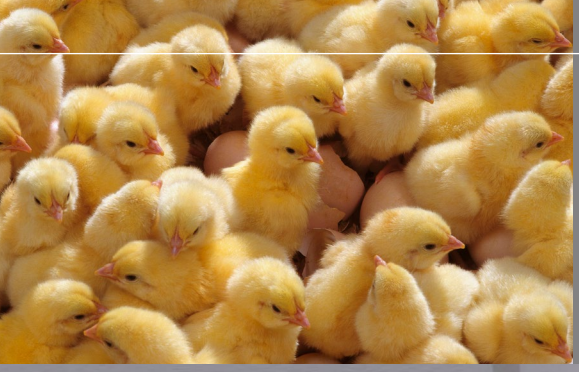
- Fully sealed cabinet, for optimum control of temperature, humidity and airflow
- Unique, double coil 'circular cooling system™' per incubator fan tower delivers precision cooling
- Independent turning mechanisms per individual trolley, with unique, laser protected turning control
- Simultaneous humidity and CO2 control (Adaptive Metabolic Feedback™) for optimised weight loss patterns
- ESM™ Energy Saving Module™, for fully programmable incubator fan RPMs
- Energy efficient, IP65, frequency controlled direct drive motors

now. SmartSetPro™ has the highest cooling capacity of any incubator in the industry, based on two double circular cooling coils per fan tower zone.

Turning in line with airflow, set points per fan tower zone
To achieve homogeneous temperature distribution throughout the machine, SmartSetPro™ has a double fan blade per fan tower zone, to ensure that the mixing profile is optimised throughout the incubator. Incubator trolleys are individually turned by a pneumatic piston, in line with the airflow produced by the incubator's fan tower. Fan blade design combined with accurate trolley positioning in the incubator achieves counter flow air movement in the cabinet, for superior temperature distribution in the entire incubator, whether it holds 4 or 24 trolleys.

Optimised weight loss patterns through simultaneous humidity and CO2 control (Adaptive Metabolic Feedback™)
In a single stage incubation environment, achieving the correct weight loss profile for each hatching egg is critical to producing maximum numbers of the best quality day old chicks.

SmartSetPro™ incubators provide the active, simultaneous measurement and control of humidity and CO2 during incubation. Based on the Adaptive Metabolic Feedback™ (AMF™) principle developed by Pas Reform Academy, this ensures the accurate replication of predetermined breed or flock specific weight loss patterns.



SmartHatchPro™

NF Series

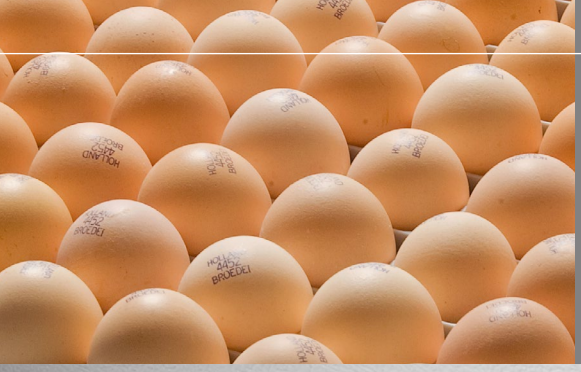
- Fully sealed cabinet, for optimum control of temperature, humidity and airflow
- Unique, double coil 'circular cooling system™' per incubator fan tower delivers precision cooling.
- Automated, CO2-controlled hatching system (SmartWatch™)
- SmartTouch™ user interface, for total control over every function and setting in each individual incubator
- Robust, easy-to-clean construction, with patented E-polymer coated cooling coils also available as an option

SmartHatchPro™ is a fully-automated hatching system that delivers accurately regulated temperature, humidity and ventilation: an exemplary hatcher for high day old chick uniformity, with no need for human intervention.

Circular cooling system™
With a deep understanding of the impact that metabolic heat production has on the growing embryo, Pas Reform has calculated SmartHatchPro's™ cooling capacities for today's breeds and also for projected breed requirements in twenty years from now. SmartHatchPro™ incorporates two double coil 'circular cooling systems™' per hatcher fan tower zone. The circuits are fully integrated with robust, double fans on either side of the cooling coils, to deliver uniform cooling and temperature distribution throughout the cabinet.

Automated hatching system
Fully automated processes deliver greater accuracy. SmartWatch™ monitors and adjusts the hatching process automatically, from the day of transfer through to the hatching of the last chicks, eliminating any need for human intervention. Field trials prove that the systematic measurement and control of temperature, humidity and CO2 production, combined with the use of current and historical data to adjust the hatcher environment automatically, consistently produces high uniformity in every hatch cycle.

Hygiene
SmartHatchPro™ is constructed of high quality, smooth-walled 'food-safe' anodized aluminium profiles and polystyrene panels. Its robust cabinets are resistant to strong disinfectants and corrosion and extremely durable. The absence of closed air ducts on top of the machine improves hygiene and sanitation.



SmartTouch™

- Highly intuitive 10.4 inch full colour SmartTouch™ user interface
- Pre-heating function with delayed start function
- Individual PID control per fan tower for precise temperature control
- Fully adjustable turning programmes
- Language independent

SmartTouch™ delivers total control over every function and setting within each, individual incubator. From humidity and CO2 levels and the position of air inlet valves, to individual operating parameters – temperature, heating, cooling, ventilation and turning – incubation programming can be fully customised to meet the specific needs of different breed-types, ages and batches of hatching eggs.
Ergonomic design and the use of clear, full colour LCD displays and icons, allow SmartTouch™ to be configured quickly and simply.

Pre-heat function
Achieving consistently high levels of day old chick uniformity requires a synchronised start to every incubation cycle. It is critical that hatching eggs are heated quickly and uniformly once placed in the setter – and SmartTouch™ enables the full programming of pre-heating time, temperature and ventilation, to further reduce the time needed to reach a specific set point from start up.

New PID control combined with set points per fan tower zone
SmartTouch™ incorporates the latest version of PID – Proportional Integral Derivative – control, which enables the hatchery to optimise incubation set points, replicating near natural levels to minimise overshoots. The new PID control is adjustable, with separate temperature set points for each incubator fan tower.

Adjustable turning programmes
With a deep understanding of embryology, Pas Reform has investigated many different incubation programmes and modes, with studies revealing the benefits of different turning principles during incubation. SmartTouch™ reflects that understanding and now offers unrivalled flexibility for adjusting turning programmes as and when required, including frequency of turning, 2 or 3 auto-turning positions and start/stop timing.

SmartCenterPro™

The SmartCenterPro™ hatchery information system delivers precise, consistent process control through every level of hatchery operations. Incubation, climate control and hatchery automation systems can be fully optimised, seamlessly connected and data enabled. Every egg-to-chick journey and hatchery process, from the receipt of hatching eggs to sending the day old chicks to the farm, is captured in a unique and detailed cycle report.

Hatchery Overview
A fully interactive floor plan, customised to the individual hatchery, shows current status in every area of operations in a single screen view. Essential functions and parameters for each incubator, climate control and hatchery automation system connected to SmartCenterPro™ can be accessed and managed from this main overview screen.

- Fully interactive, hatchery-specific floor plan
- ‘Zoom the room’ function for detailed operating parameters
- Monitor and control incubation settings
- Climate reports and hatch windows charted in easy-to-read graphs
- Cycle report, containing batch specific traceability, chick uniformity, setter and hatcher climate, hatchery climate and alarm data
- Remote diagnostics, with full access to Pas Reform Academy

Hatchery Management
A detailed database compiled by Pas Reform Academy is included with SmartCenterPro™, ready-populated with default incubation profiles for layer, broiler, duck or turkey eggs. From this database, unlimited numbers of breed-, age- and storage specific incubation profiles can be added and tailored to specific local circumstances and experience.

Hatchery Analysis
Powerful, simple-to-use data analysis tools make light work of optimising performance while building a detailed historical database that charts every process and event in day to day operations. Integrated data from incubation, climate control and hatchery automation systems produces a unique and detailed ‘cycle report’ for every hatch cycle, which is easily exported in Excel format.

SmartSetPro™

NF Series

Technical specifications

Type	SmartSetPro™ NF 4	SmartSetPro™ NF 8	SmartSetPro™ NF 12	SmartSetPro™ NF 18	SmartSetPro™ NF 24
Capacity hen eggs (42 egg tray)	20,160	40,320	60,480	90,720	120,960
Capacity hen eggs (54 egg tray)	20,736	41,472	62,208	93,312	124,416
Capacity hen eggs (73 egg tray)	19,856	39,712	59,568	89,352	119,136
Capacity hen eggs (82 egg tray)	22,304	44,608	66,912	100,368	133,824
Capacity hen eggs (84 egg tray)	22,848	45,696	68,544	102,816	137,088
Capacity hen eggs (132 egg tray)	19,008	38,016	57,024	85,536	114,048
Capacity hen eggs (150L egg tray)	20,400	40,800	61,200	91,800	122,400
Capacity hen eggs (165 egg tray)	22,440	44,880	67,320	100,980	134,640
Number of setter trolleys	4	8	12	18	24

Modular design	Heating, cooling, humidification (optional) and ventilation systems in each fan tower zone
Heating	Electrical heating per fan tower (integrated heating optional)
Cooling	Water cooling system with double coil circular cooling system™ per fan tower zone
Humidification (optional)	Pressurised Air + Water fogging nozzle per fan tower zone
Ventilation	Double blade fan system per incubator fan tower; Gasketed, carburetor-style intake and exhaust vents for totally sealed machine and calibrated/controlled ventilation rates
Turning	Individual air piston on each incubator trolley; Laser verified
Set points per zone	Separate temperature set points for each fan tower zone
Incubator control	SmartTouch™ user interface
Display	High-contrast, 10.4 inch colour LCD screen with Projective Capacitive Touch screen technology (PCT)
Embryonic reference	Detailed Pas Reform Academy info on the current status of embryonic development
Performance testing module	To run a performance check on incubators before starting a new incubation cycle
Pre-heating module	Full programming for pre-heating time, temperature and ventilation
Turning programmes	Fully adjustable turning programmes, frequency of turning, start/stop timing, 2 or 3 auto-turning positions
SmartTransfer™ module	Provides programmable turning intervals during egg transfer
AMF™ (optional)	Adaptive Metabolic Feedback™, with high precision humidity and CO2 control
ESM™ (optional)	Energy Saving Module, for fully programmable RPM of the fans
SmartCenterPro™ (optional)	Hatchery Information System
Housing	Fully sealed cabinet; robust, easy-to-clean construction with mainly stainless steel structural support and railings; seamless 'Hotmelt' housing with maximum insulation value; 3-lock door system, includes solid hinges, airtight sealing rubbers and solid door handles

SmartHatchPro™

NF Series

Technical specifications

Type	SmartHatchPro™ NF 4	SmartHatchPro™ NF 6	SmartHatchPro™ NF 8	SmartHatchPro™ NF 12
Eurobox (600 x 400) basket				
Capacity hen eggs (73 egg tray)	19,856	29,784	39,712	59,568
Capacity hen eggs (82 egg tray)	22,304	33,456	44,608	66,912
132 basket				
Capacity hen eggs (132 egg tray)	19,008	28,512	38,016	57,024
150L basket				
Capacity hen eggs (150L egg tray)	20,400	30,600	40,800	61,200
165 basket				
Capacity hen eggs (54 egg tray)	20,736	31,104	41,472	62,208
Capacity hen eggs (165 egg tray)	22,440	33,660	44,880	67,320
168 basket				
Capacity hen eggs (42 egg tray)	20,160	30,240	40,320	60,480
Capacity hen eggs (84 egg tray)	22,848	34,272	45,696	68,544
Number of hatcher dolleys	4	6	8	12

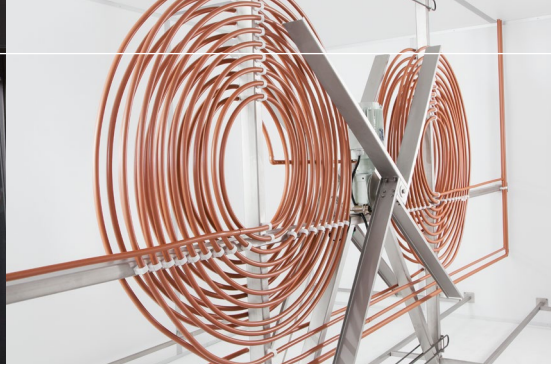
Modular design	Heating, cooling, humidification (optional) and ventilation systems in each fan tower zone

Heating	Electrical heating per fan tower
Cooling	Water cooling system with double coil circular cooling system™ per fan tower zone
Humidification (optional)	Pressurised Air + Water fogging nozzle
Incubator control	SmartTouch™ user interface
Display	High-contrast, 10.4 inch colour LCD screen with Projective Capacitive Touch screen technology (PCT)
Embryonic reference	Detailed Pas Reform Academy info on the current status of embryonic development
Microban® (optional)	Antibacterial protection in hatcher basket
Performance testing module	To run a performance check on incubators before starting a new incubation cycle
SmartWatch™ (optional)	Hatch window module, with high precision humidity and CO2 control
SmartCenterPro™ (optional)	Hatchery Information System
Housing	Fully sealed cabinet; robust, easy-to-clean construction with mainly stainless steel structural support and railings; seamless 'Hotmelt' housing with maximum insulation value; 3-lock door system, includes solid hinges, airtight sealing rubbers and solid door handles

In our commitment to quality improvement through continuous research, we reserve the right to alter the specifications of our products without notice

SmartSetPro™ NF

SmartTouch™ human interface



Double coil circular cooling system™ per fan tower zone

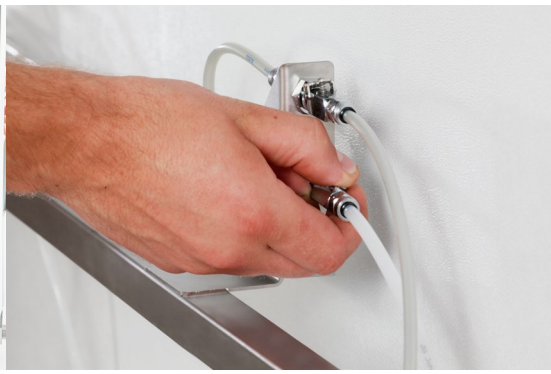
Highly intuitive user interface

SmartHatchPro™ NF

SmartWatch™ hatch window module

SmartSetPro™ NF accommodates a wide variety of tray types

Individual air piston on each incubator trolley



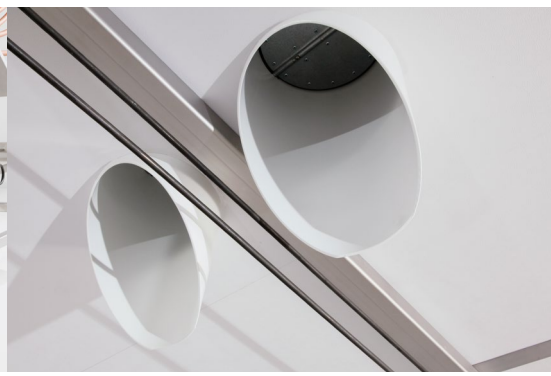
Independent turning mechanisms per individual trolley

Total hatchery control via SmartCenterPro™

Robust, ergonomic design

Backup from Pas Reform Academy

Electrical heating per fan tower



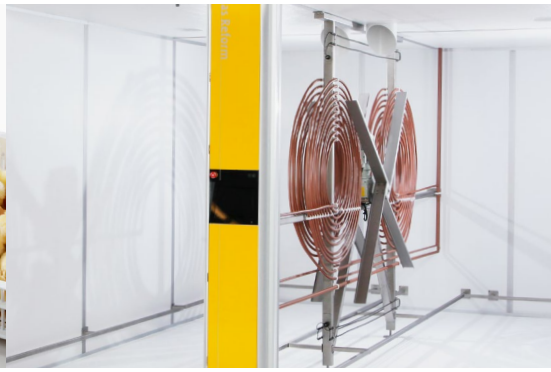
Gasketed, carburetor-style intake and exhaust vents

Adaptive Metabolic Feedback™ software

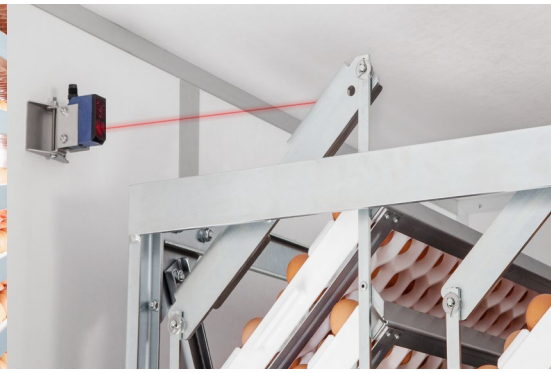
Fully sealed cabinet

High-contrast, 10.4 inch LCD display

Adaptive Metabolic Feedback™



Robust, easy-to-clean construction



Laser protected turning control

Projective Capacitive Touch screen technology

Total hatchery control via SmartCenterPro™

Trolley with ergonomically designed handle bar

Independent turning mechanisms per individual trolley

3-lock, airtight door system

Pas Reform Hatchery Technologies

Pas Reform is an international company, which has specialised in the development of innovative 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.

Pas Reform
Hatchery Technologies

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