

DRIP-PRO™ Anti-Drip Check Valve

Extended Run Times for Superior Powder
Quality & Enhanced Hygiene

Reducing scorched particle contamination and post shut drip



DRIP-PRO™

Smooth Flo Check Valve

Advancing Spray Dry Nozzle
Anti-Drip Technology
Extra long run times
Cost saving technology

Spray Nozzle Engineering
spraydrynozzle.com

*The World's Best Spray Dry Nozzles
with an Advanced Check Valve System!*

Reduced scorched particle | Long run time
| No Post Dryer stop drips!



The Drip-Pro™ Smooth Flo - a new simplified Spray Dry Nozzle Check Valve. Featuring the most cost effective yet more efficient and safer nozzle system.

A call from a spray dryer OEM revealed a problem with nozzle drips, which resulted in scorched particle, deposits at the fluid bed and post shut dripping, compromising the quality of the milk powder.

The challenge issued was to develop an anti-drip check valve, which would function reliably within the milk fluid path & difficult service conditions encountered.

We soon discovered this same problem was extremely common to many other customer's dryers, for all dryer and commodity types.

The result of our work was the unique Drip Pro™ patented design, which

alleviated these problems of drips & reliability, proving to be a great success.

As a result, OEMs set to work converting many existing plants with this first generation valve (GEN 1).

Positive user feedback set the stage for the evolution of what has become the industry best performing anti-drip spray dry valve, the Gen 8.

The Drip-Pro™ Smooth Flo GEN 8 is designed for high solids, viscous products such as nutritional and others, where extra long run times without blockage is required.

We have pioneered new replaceable 'Sealing-Face' technology, removing problematic outdated metal to metal sealing.

The new design incorporates fewer parts making it more cost effective and reducing maintenance, can be connected easily to the New Click & Dry Hygienic Spray Dry Nozzle system.



NEW TEFLON ASSEMBLY

A new smarter approach to spray drying

Drip Pro™ Gen. 9 Check Valves with Click & Dry™

Improved pressure risk management and safety from one assembly



The new Drip-Pro™ Smooth Flo Gen 9 valve - a simplified nozzle system for extra long run time. Fewer parts, less maintenance and reduce cost.

Spray Nozzle Engineering has been an industry leader in hygienic and effective spray dry nozzle design technology. For two decades we have partnered with industries to design a complete spray dry nozzle system that improves quality, ensures code compliance and reduces risk and most importantly, reduce wear part costs. The Click & Dry™ system incorporating the optional Drip-Pro™ Smooth Flo Gen 9 Check Valve is the latest in delivering extra long run times anti drip spray dry technology, whilst being known for its hygienic and reduced cost solutions.

1

Various valve spring and replaceable seal options

Choose from various valve spring options to optimise spring pressure. You can also opt for PTFE or Durocon replaceable seals for longer seal life and reliable shut off. Customise your opening/closing pressures to suit your applications.

2

NEW patented high flow cage free system

The NEW cage free system has fewer parts making it easier to assemble, more cost effective and less maintenance. Full flow design in ports giving extra long run times and reduced fouling.

3

Unique patented concentric design

Our unique patented removable seal guide keeps seals concentric for reliable seating and sealing whilst allowing the use of our unique replaceable seal inserts which increase valve body seat life and suit your product application.

4

Integrated NEW Drip-Pro™ Smooth Flo GEN 9

Springs clip in action keeps all parts contained in nozzle body during swirl and disc changes while keeping valve components concentric for reliable action (parts are only separated during disassembly). Its new high flow design delivers extra long run time compared to previous designs and is easily removed for cleaning. This 'open-port' design can be run on all dryer types.

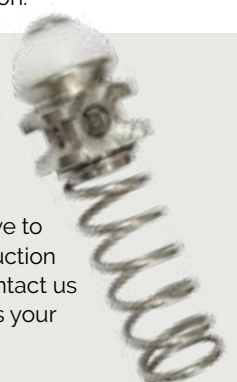
5

Low cost replaceable soft seal

Choose from Teflon or Durocon low cost replaceable soft seals to ensure improved sealing without damage to the nozzle body seat. Avoiding seat damage prevents expensive replacement of nozzle bodies, particularly when welded or using old metal to metal seal designs.

Need a custom valve solution?

Spray Nozzle Engineering can customise a valve to meet your production and process. contact us today to discuss your needs.



Our development

The Drip-Pro™ story

began 15 years ago with a call from one of the worlds largest spray dryer OEM's.

They had a problem with nozzle drips during commissioning of a new plant which resulted in scorched particle deposits at the fluid bed.

This greatly compromised the quality of the end product which in this case, was milk powder.

The challenge

they posed was to develop an anti-drip check valve which would function reliability in the difficult service conditions of the milk fluid path.

We soon discovered that many had tried and failed in developing a reliable valve for spray dry nozzles, however with our detailed knowledge of these service problems, we set to work on a new valve design which would satisfy these difficult conditions.

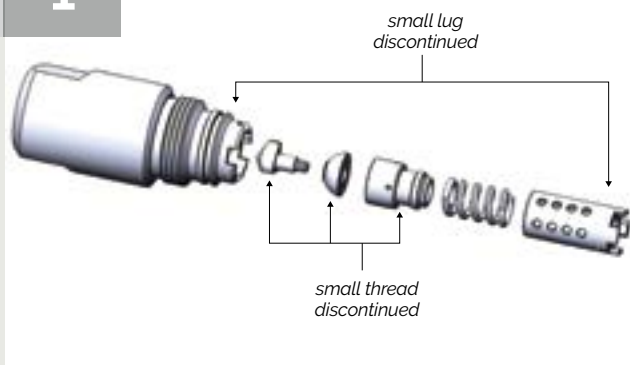
The result

was our unique Drip-Pro™ patented design which proved such a success that the OEM set about converting many existing plants in our region with this first generation valve (GEN 1).

The resultant end user feed back regarding product quality improvements,

Set the stage for the evolution of what has become the industries best performing anti-drip spray dry valve.

1

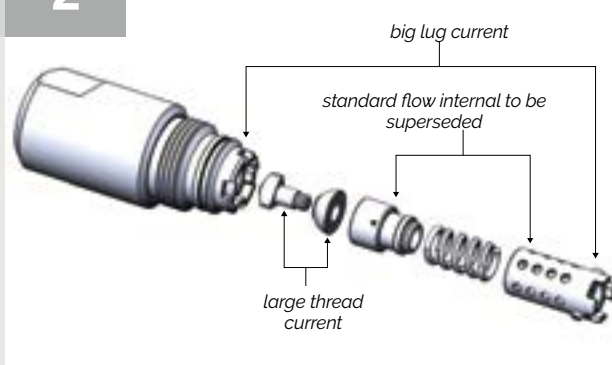


GEN 1 small lug

(fully superseded)

Our first valve was the Click&Dry™ with Drip-Pro™ GEN 1 valve which was accepted as one of the first spray dryer valves in the industry to deliver reliable operation over a full shift run without blockages. Age alone dictates full replacement of this early version.

2



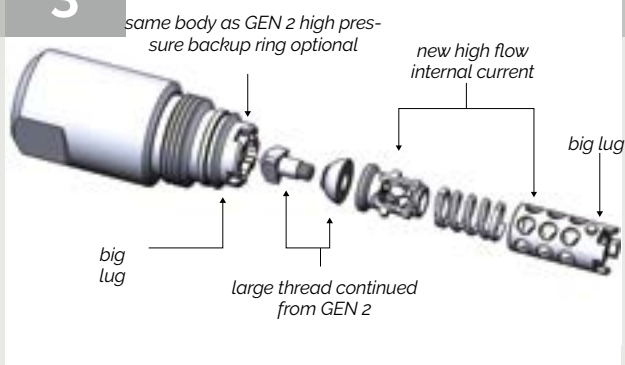
GEN 2 big lug

(Valve body & spring cage superseded)

The Drip-Pro™ GEN 2 valve introduced improvements in component durability with an expanded range of spring pressures & seal materials. This was achieved with larger body/cage lugs & threads, allowing the Drip-Pro™ GEN 2 far greater longevity than its predecessor. Inspect body for wear & damage, replace as required & upgrade to GEN 3 internals.

Our development

3

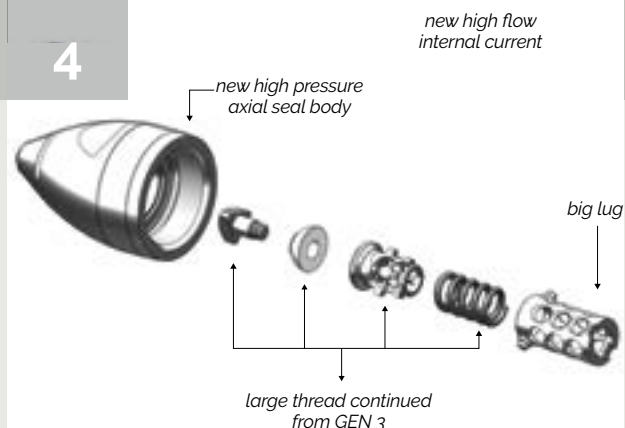


GEN 3

(Superior high flow, long run performance)

The Drip-Pro™ Hi-Flo GEN 3 was created to meet the higher productivity demands of the spray dry industry, not only to meet the demand for higher flow rates, but to also meet the requirements of longer run times. The increased flow was achieved with changing two low cost interchangeable internal components allowing the user to keep the same body as previously used.

4

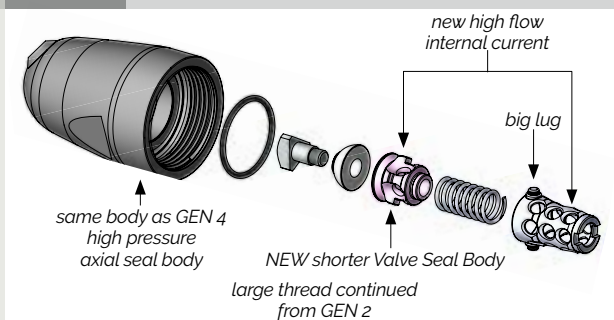


GEN 4 - latest version

(superior high flow, long run performance)

The Drip-Pro™ Hi-Flo GEN 4 was created to meet the higher productivity demands of the spray dry industry, not only to meet the demand for higher flow rates, but to also meet the requirements of longer run times. The increased flow was achieved with changing two low cost interchangeable internal components allowing the user to keep the same body as previously used so Upgrading to the new Drip-Pro™ Hi-Flo Gen 4 is easy!

5

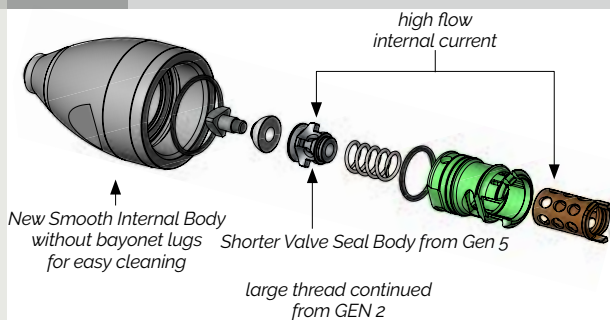


GEN 5

(Superior high flow, improved long run performance)

The new Drip-Pro™ Hi-Flo GEN 5 was created to meet the demand for higher flow rates, and improved longer run times. The increased flow was achieved with changing two low cost interchangeable internal components allowing the user to keep the same body as previously used. The NEW shorter Valve Seal Body design take pressures off the spring allowing for improved long run time.

6



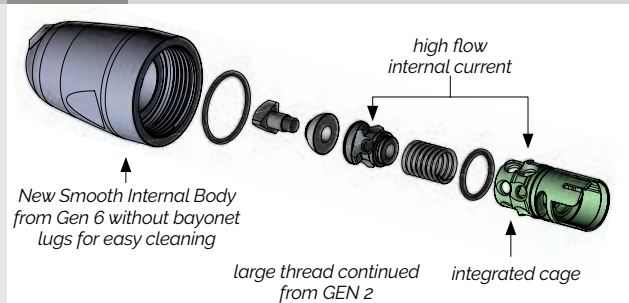
GEN 6

(superior high flow, long run performance)

The new Drip-Pro™ Hi-Flo GEN 6 was created to meet the higher hygiene demands. The New Check Valve Drop Cage was introduced to accommodate for the new smooth and easy to clean SuperMaxi Body. Like the Gen 5, the Gen 6 also achieves higher flow rates and improved long run times.

Our development

7

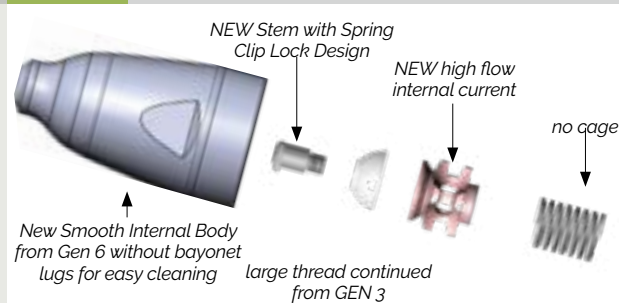


GEN 7

(Superior high flow, long run performance)

The new Drip-Pro™ Hi-Flo GEN 7 was created to meet new hygiene and low maintenance demands of the spray dry industry today, and to meet the demand for higher flow rates, but to also meet the requirements of longer run times. The Check Valve Cage is removed as the new integrated Spring Cage CCT Clasp was introduced. Fewer parts means better hygiene and less maintenance.

8



GEN 8

(superior high flow, extra long run performance)

The new Drip-Pro™ Hi-Flo GEN 8 design features the latest in Check Valve technology with few parts. The Gen 8 was created to not only meet the higher productivity, higher flow rates, extra long run times demands but also meet the new hygiene and low maintenance demands of the spray dry industry. The cage removed in Gen 8 making this combination more affordable and easier to clean. The Check Valve assembly is spring clip into the new Hygiene^{Plus} cap. Parts are only separated during assembly/disassembly. With fewer and simpler design parts, it's easier to clean, assemble and disassemble.

9



GEN 9

The latest innovation in spray dry nozzle anti-drip valve technology

The new Drip-Pro™ Hi-Flo GEN 9 was created with the least amount of parts for easier cleaning, maintenance while achieving higher productivity, higher flow rates, extra long run times demands of the spray dry industry. The New Stem is integrated into the Valve Seal Body. With the least parts, it's easier to clean, assemble and disassemble. Suitable for Durocon Seals only.

Case study



One of our customers couldn't find a Non-Drip Valve to run 17 – 19 hours on Viscous I.F and nutritional.

The answer was Drip-Pro™ GEN 4, the most advanced Spray Dry Nozzle Anti-Drip Valve on the market.

After 17 hours, valves still performed to stop dripping even on highly viscous concentrate.

Upgrade to the latest



Are you still running GEN 1 to GEN 6 Check valves?

Now with the GEN 7 and GEN 8 you get greater flow, extra long run and fewer Check Valve parts making the easiest for cleaning and assembly.

Contact us today on how to upgrade to the latest improved powder quality check valve technology.

10 facts on Spray Dry Safety



The 10 facts on spray dry safety handbook is a new approach to helping dryer owners, operators & OEMs to identify risks in operations and nozzle designs used in high pressure spray drying.

A valuable training guide for all stake holders. Speak to us today for a free copy and consultation about process improvement.

NEW VLB

Reduced build up nozzle cap orifice system

The new Click&Dry VLB technology, featuring an advanced low-profile cap and orifice system, enhances the reduction of product build-up and lump formation during spray-drying, especially for difficult products and longer run times. This system combines a patented cap and orifice disc design, minimizing spray and surface interaction, extending dryer run time, and incorporating Seal-in-Disc™ technology for a robust, hygienic flow path.



In-line or 45 degree weld bodies complete with our unique robust anti thread damaging design

Pat. Pend

NEW VLB orifice disc

The design allows the orifice to sit proud of the cap reducing contact between product and the cap face whilst retaining the excellent performance synonymous with Click& Dry

NEW Low profile VLB System cap

Unique cap design that incorporates all the benefits of the Click&Dry range with a robust and hygienic flat outer profile that negates product build up by sitting flush to the orifice disk. One cap for all spray angles!

Clasp / Retainer

The clasp system provides safer concentric alignment of wear parts, giving improved spray, powder and less damage to consumables.

Hi-Flo swirl

A compact design for long life, superior strength with great performance.

NEW Optional Drip-Pro™

Check valve drops in-no spread body required.

VLB Very Low Build-up part of CLICK&DRY reduced build-up Technology

Click&Dry™ spray dry nozzle and check valves used by the world's largest powder producers and OEM's.

Built for your dryer

A whole range catered to make it work



Dairy industry award for process excellence outcome

Ahead in dairy innovation



Free consultation

Speak to us today for an upgrade or a free assessment



Our nozzle range

No matter what your dryer size or type, we've got you covered

Conversion range (no welding options)



Lance Conversion Caps

Getting started with CLICK&DRY™ is easy using screw-on caps. Begin with the CLICK&DRY™ advantage today without welding. Receive up to 2 years wear part replacement warranty on select assemblies.*

The Hi Flo Compact range



Hi Flo Compact Series

Hi-Flo Compact Series provide all of the pressure compliance benefits in a smaller and lighter package. Designed for compact inlet dryer types and long life with short lance dryers. Receive up to 2 years hard ware replacement warranty on select Compact assemblies.*

VLB Very low build-up



A world first in low build-up nozzle technology

The new Click&Dry VLB technology, combined with our latest low profile cap and orifice system, brings the newest innovation to the Click&Dry Range. Our latest technology release from our proven RB Reduce Bearding low profile cap range is our continued development of reducing product build-up and lump formation on the cap face during spray dry operations, especially when drying difficult products and longer run times.

Oprator tools & SOP



Compliant - Safer - Improved quality

Testimonials

Dennington Factory Fonterra Australia

Dennington factory has used SNE milk spray nozzles for approximately 10 years. During this time there has been considerable development in this area of operation, and this has been made possible by an innovative, can do approach by both parties. Here are some of the comments Peter Wilson, Process Technologist, at Dennington Factory said about our product:

"The nozzle assemblies proved to be effective, safe, reliable, and easy to use."

"We also made the change to a water start / stop on the drier during this time. However, we noticed that on a stop, there were water drips from the nozzle and this would foul the tower cone and fluid bed below. This eventually would lead to scorched particles in the powder and associated product downgrades. To overcome this problem, SNE developed a non drip nozzle which we trialled and continue to use with success. "

"SNE have been an effective supplier."

"Service and supply has never been an issue, and they are able to train operators to use and look after the product. There is a continuous improvement approach with products made more reliable, and easier to use."

"SNE products to be competitively priced."

"Our current nozzle bodies are over 3 years old and these are used 24/7 continuously."

"I have no hesitation to recommend Spray Nozzle Engineering."

Peter Wilson, Process Technologist, at Dennington Factory

Nestle South Australia

"Dear Click&Dry team,

Below pictures of the non drip assemblies after 23 hours run. This run was with a low viscosity product.

"The nozzle did not drip at all."

"The other (old type) were completely clogged and required some elbow grease and Brasso to clean."

Attie Boshoff from Nestle



Photo credit: Attie Boshoff from Nestle

Check Valve Tools and Accessories

Saving time and money

1 Check Valve Tool

SNE-TD-CV-TOOL



Easy assembly/disassembly tool for Click&Dry Check Valves.

Standard Operating Procedure (SOP) and Placards are available for each series, nozzle and check valve. A helpful reference for all Operators/Managers.



Safer Smarter Dryer Nozzles and Check Valve System

Spray Nozzle Engineering

1-8 27 Shearson Crescent
Mentone 3194
Phone +61 3 9583 2368
Fax +61 3 9585 0218

532C Grey Street
Hamilton East 3216
Phone +64 7 839 6444
Fax +64 7 839 6445

Email sales@spraydrynozzle.com
Request for other catalogues

Spray Nozzle Engineering
spraydrynozzle.com

DRIP-PRO™

Smooth Flo Check Valve

Advancing Spray Dry Nozzle
Anti-Drip Technology
Extra long run times
Cost saving technology