



Collins Aerospace

DELAVAN[®]
www.delavan.co.uk

VCN Pro **VARIABLE COATING NOZZLE**

➔ Product Guide



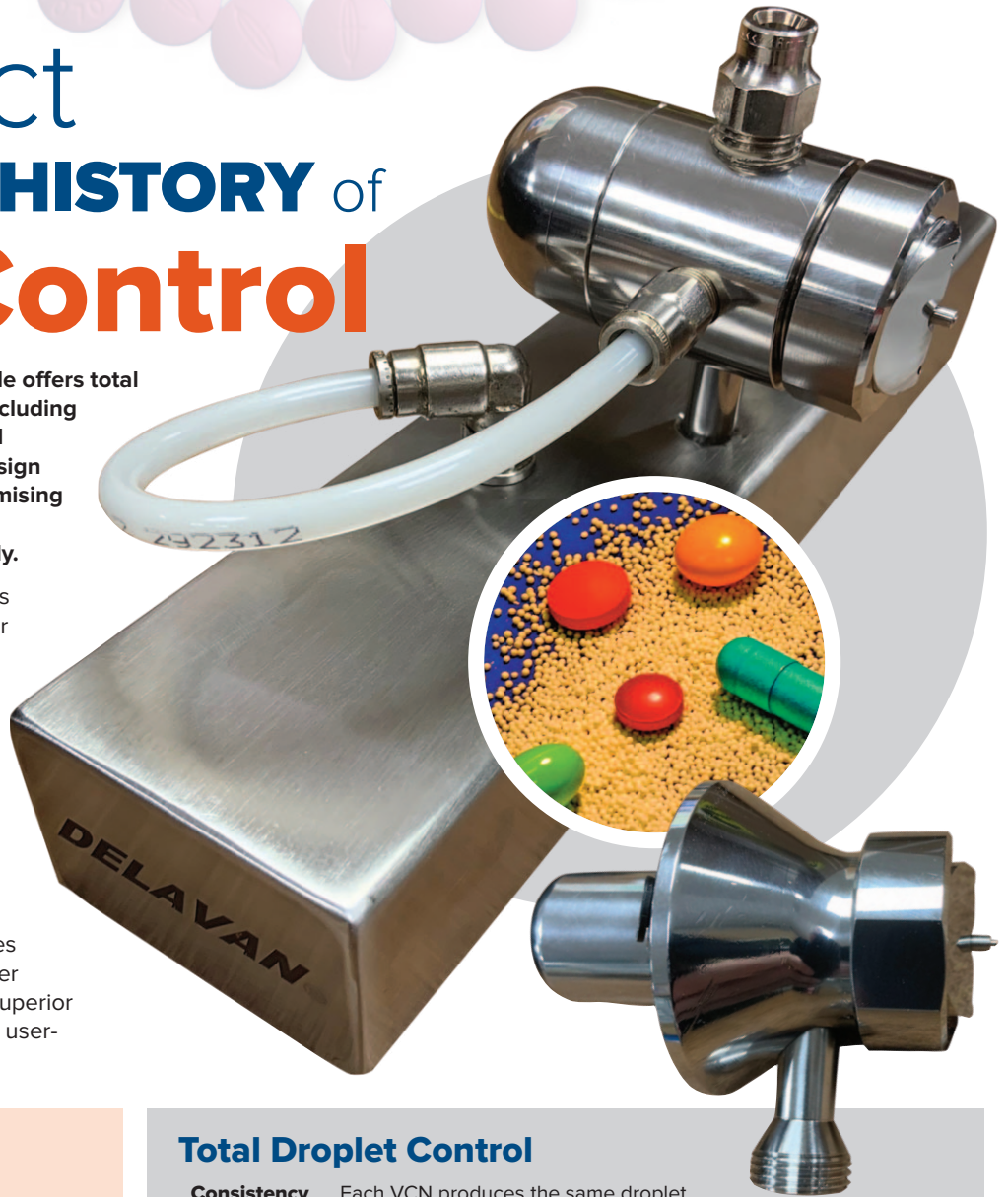
A product with a **LONG HISTORY** of **Total Control**

Delavan's new Variable Coating Nozzle offers total control for demanding applications including those in the pharmaceutical, food and engineering industries. The VCN's design allows the width of the spray, the atomising air and the flow of the liquid all to be controlled independently and remotely.

The specially designed Air Cap reduces the build up of product, enabling longer production runs with reduced maintenance.

Delavan has been making precision nozzles for more than 65 years and we have designed and manufactured high technology, variable width, tablet coating nozzles for a major pharmaceutical equipment manufacturer for the last 15 years.

Our latest Variable Coating Nozzle takes our technical leadership one step further by offering class leading atomisation, superior droplet control and a host of advanced user-focused innovations.



Quality Assurance & Certification

Inspection

All parts are manufactured on our world class CNC machinery and inspected at every stage of manufacture in our ISO9001 manufacturing facility.

Every complete unit is tested and individually serial numbered prior to dispatch.

Characterisation Certificate

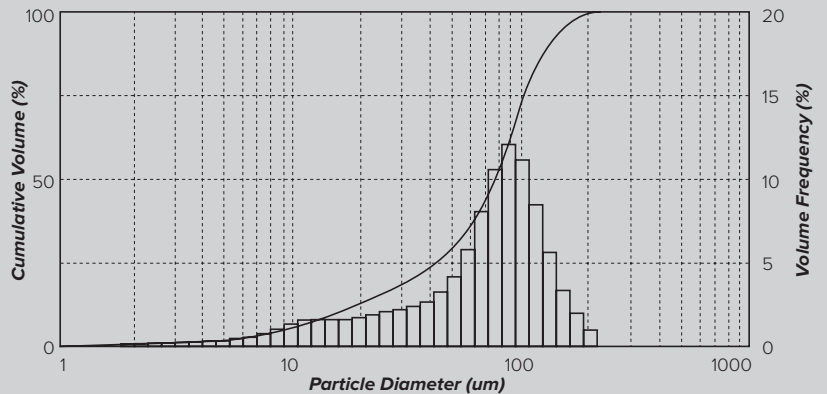
We are also able to offer a full material certificate with each nozzle (nominal charge).

Droplet size characterisation data can be provided on a cost covering basis.



Total Droplet Control

- Consistency** Each VCN produces the same droplet spectrum throughout the run, every run.
- Accuracy** Our technical expertise guarantees a closely controlled droplet spectrum
- Adaptability** The VCN Unit is available in sizes ranging from 0.8 to 2.5mm and will cope with a wide variety of coating media. If you need help to specify a nozzle for your application please contact us.



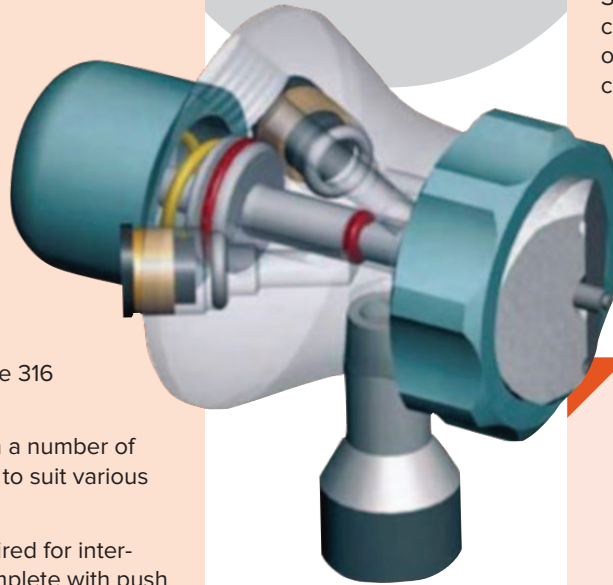
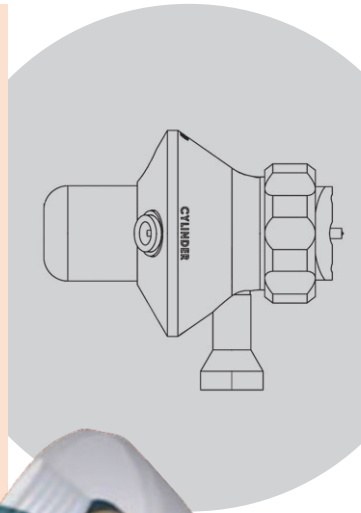
This graph shows the control and accuracy of the VCN's droplet spectrum. This graph was generated on a Malvern Instruments, Insitex laser diffraction droplet analyser. The Delavan VCN was spraying a typical tablet coating medium with a viscosity of approximately 200 cP.



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Cleaning & Service

- Special Anti-Bearding Air Cap design reduces buildup of coating material during the run.
- Compact aerodynamic design reduces disturbance of the rotating air in the drum, giving more coating media on the product resulting in less cleaning and wastage.
- Rapid strip-down and re-assembly saves time between batches.
- Push in connectors eliminate the need for special tools.
- Clearly marked ports speed up re-connection and reduce operator error.
- All parts can be ultrasonically cleaned.
- New design avoids entrapment of dirt and organisms
- All wetted metal parts are 316 Stainless Steel.
- Seals can be provided in a number of FDA approved materials to suit various coating media.
- No additional parts required for inter-connection – comes complete with push in connectors.



Variable Spray Width

- Optimises the wetted area.
- Minimises the risk of localised over wetting.
- Maintains the optimum inter-nozzle distance for all common coating media
- Spray width is remotely controllable and is easy to adjust either manually, via a pressure regulator or automatically from a control panel.

Setting is uniform between nozzles and consistent each time the nozzle is operated - ideal for repeatable, automatic control in a multi nozzle configuration.

Low air consumption minimises running costs.

Liquid Shut Off

- The flow of the liquid can be shut off automatically to avoid dripping.
- A special shut off sealing kit is available for use with low viscosity liquids.

Potential process time saving using high solids coating system

Process Parameter	HPMC-Based Coating Liquids @ 15% w/w solids	Copovidone-based coating Liquids @ 20% w/w solids ^a	Copovidone-based coating Liquids @ 25% w/w solids ^a
Spray Gun Type	Delavan Opti Coat x 3	Delavan Opti Coat x 3	Delavan Opti Coat x 3
Pan Loading	170	170	170
Gun To Bed Distance (cm)	28	28	28
Pan Speed (rpm)	5	7	6
Process Air Volume (m ³ /h ⁻¹)	2200	2300	2300
(cfm)	1300	1350	1350
Inlet Air Dewpoint (°C)	10 to 13	10 to 13	10 to 13
Inlet Air Temperature (°C)	60	65	65
Tablet bed temperature (°C)	39	40	42
Exhaust-air temperature (°C)	45	49	50
Atomizing-air pressure (bar)	2.5	2.5	2.5
Pattern-air pressure (bar)	2	3.5	3.5
Spray rate (grams per min ⁻¹)	315	388	380
Amount of coating suspension applied (kg)	36.2	31.4	25.2
Coating process time (min)	115	81	66
Process time savings (%)	-	30	43

Manifold Systems from Consultation to Commission

Our team of Air Atomising specialists can work with your team of engineers or users to discover the best solutions to retro fitting a complete manifold system to your existing coater. With several years' experience in updating and replacing coating arms in existing manufacturing sites, we are ideally suited to modernizing the most important part of the coating process.

We have CAD engineers with a full working knowledge of manifold design and commissioning requirement.

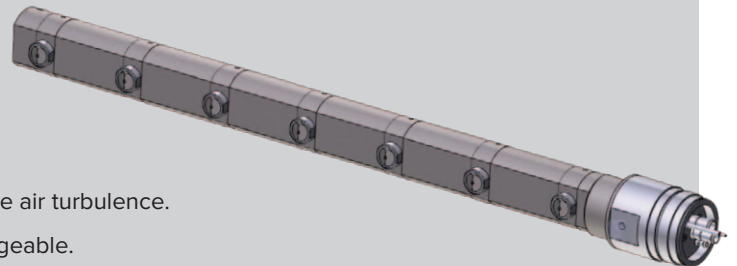
All manufacturing is carried out in the UK at our purpose built workshop with the latest in CNC and production equipment.



Modular Manifold Systems

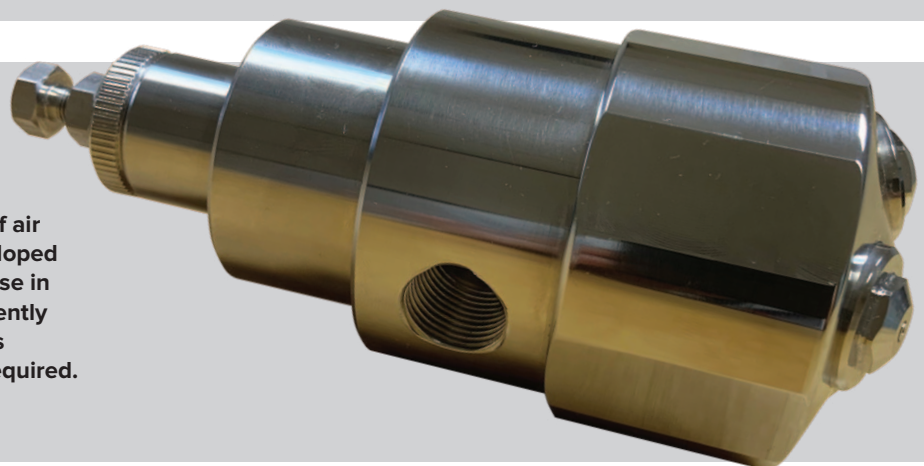
Modular systems are the latest most forward thinking method for tablet processes. This involves completely new design challenges.

- All pipework is incorporated within the manifold to reduce air turbulence.
- Gun spacing is set by the spacers – These are interchangeable.
- Fully sealed units that reduce cleaning down time.
- Recirculating systems can be incorporated within the design.
- Interchangeable gun parts to reduce chance of leaking.
- Wide range of fitting options.



Multi Head Fluid Bed Nozzle

Delavan using our knowledge of air assisted atomization have developed several multi head nozzles for use in fluid bed coating – We can currently supply 3 and 5 nozzle variations depending on the application required.



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