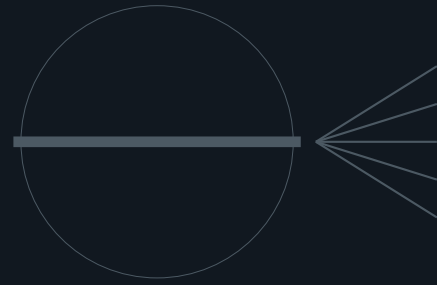


VEYLCORE / INDUSTRIAL SPRAY TECHNOLOGY

Master Engineering Catalog

Nozzle systems, selection architecture and controlled data-release framework



REVISION 0

ENGINEERING REVIEW DRAFT

NOT FOR QUOTATION, PROCUREMENT, INSTALLATION OR SAFETY DECISIONS

Client-supplied product data transcribed for controlled engineering review. All performance values, material limits, tolerances and conformity statements require approval before commercial release.

DOCUMENT CONTROL

Release state and use restrictions

CURRENT STATUS

Revision 0 is an uncontrolled engineering-review draft derived from client source CLIENT-002. It establishes the catalog structure; it is not a released product specification.

Document identity

Field	Value
Document	Veylcore Master Engineering Catalog
Revision	0 / Engineering review draft
Issuer	Veylcore Precision Systems
Domain	veylcoreprecision.com
Contact	info@veylcoreprecision.com
Source basis	CLIENT-002 plus external scope references listed in this document

Release gates

- Assign a document owner, approver, approval date and controlled revision identifier.
- Resolve all K-factor, flow-table, model-code and material-form discrepancies.
- Approve configuration-specific drawings, bills of material, pressure/temperature envelopes and inspection plans.
- Publish test methods, conditions, tolerances, measurement uncertainty and traceable records for performance claims.
- Complete legal review of patents, trademarks, certifications and region-specific conformity statements.

SELECTION ARCHITECTURE

Specify the duty before the nozzle

A defensible selection starts with the process duty and works inward to pattern, capacity, interface and material. Product-series names alone are not a suitability determination.

Step	Decision	Required inputs
01	Process duty	Fluid, concentration, solids, viscosity, temperature, required outcome and cleaning regime
02	Operating envelope	Minimum/normal/maximum pressure and flow; available air for two-fluid systems
03	Spray geometry	Pattern, angle, target distance, coverage, overlap, orientation and impact
04	Droplet requirement	Metric, measurement method, sampling location, test fluid and acceptable distribution
05	Construction	Wetted materials, seals, wear surfaces, corrosion/erosion allowance and retention
06	Interface	Thread/flange standard, size, gender, facing, seal method and installation envelope
07	Verification	Approved drawing, test record, certificate requirements and change-control status

Hydraulic relationship

EQUATION

For a fixed liquid nozzle and consistent units: $Q = K \times \sqrt{P}$. Published K values must declare the flow and pressure units, reference fluid and test conditions.

Droplet metrics

Dv0.5 (volume median diameter) and D32 (Sauter mean diameter) are not interchangeable. A released droplet claim must identify the distribution metric, validated method, instrument configuration, operating point, sampling plane, fluid properties and uncertainty. PDA uses light-scattering interferometry; it must not be labeled as laser diffraction.

SERIES VFC / CLIENT DRAFT

Full Cone Spray Nozzles

PATTERN

Uniform circular impact

Intended application envelope

Chemical processing / dust suppression / gas cooling / quench towers / washing / scrubbers

Architecture

Client draft: vane architecture with open flow passages. Patent and clog-resistance claims require evidence.

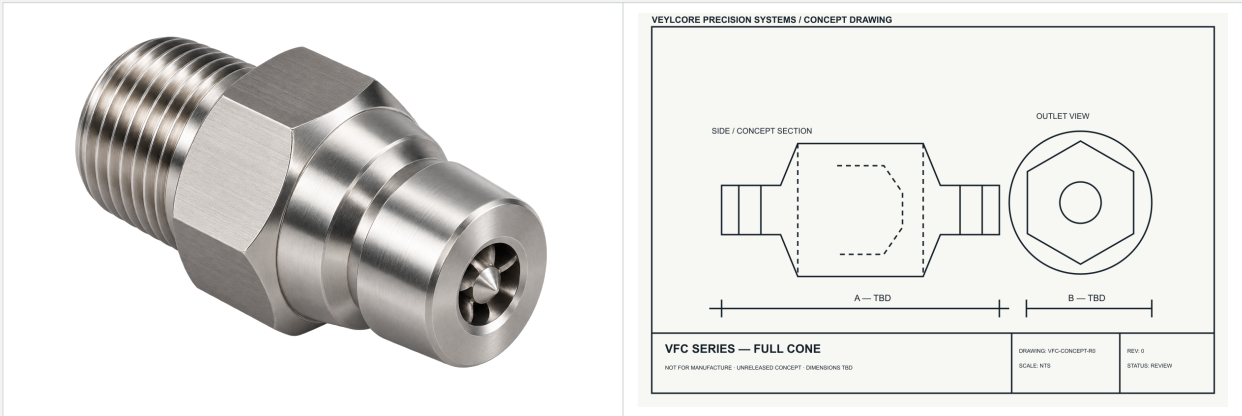
Client-supplied preliminary data

Model	Orifice	K metric / US	Pressure	Flow	Angles
VFC-050	1.2-3.2 mm	0.82 / 5.6	0.5-10 bar	1.4-4.5 L/min @ 3 bar	60 / 90 / 120 deg
VFC-100	3.5-6.5 mm	3.10 / 21.2	0.5-14 bar	5.2-18 L/min @ 3 bar	60 / 90 / 120 deg
VFC-200	6.8-12 mm	12.50 / 85.5	1-20 bar	21.5-78 L/min @ 3 bar	60 / 90 / 120 deg

Construction	Draft basis
Materials	316L stainless steel or CF3M (product form to be resolved); C36000 brass; PVC; PVDF; Stellite-faced inserts
Operating limits	Draft: 0.5-20 bar by model; metallic versions to 400 C; PVDF to 120 C. Assembly derating pending.
Connections	Draft: 1/8 to 2 in NPT or BSPT, male or female.

**ENGINEERING
DISPOSITION**

K-factor conversion is inconsistent and each flow range needs configuration-specific coefficients and test conditions.



CONCEPT PRODUCT VISUAL · FINAL GEOMETRY MAY DIFFER

VFC-CONCEPT-R0 · NTS · NOT FOR MANUFACTURE

SERIES VHC / CLIENT DRAFT

Hollow Cone Swirl Nozzles

PATTERN

Ring-form spray distribution

Intended application envelope

Gas scrubbing / cooling towers / evaporative cooling / reaction vessels / air-pollution control

Architecture

Axial and tangential swirl concepts intended to create a hollow-cone pattern and exposed liquid surface area.

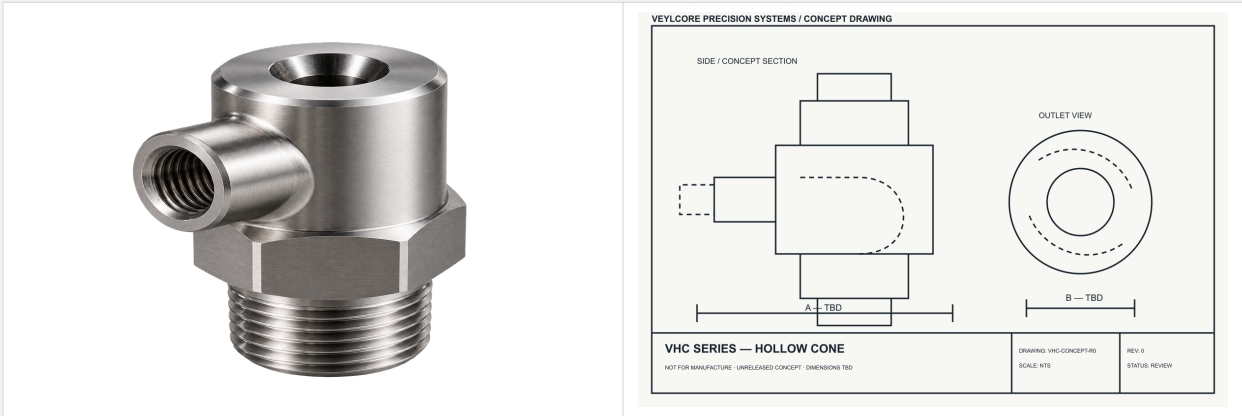
Client-supplied preliminary data

Model	Orifice	K metric / US	Pressure	Flow	Angles
VHC-AXL	1.5-5 mm	1.45 / 9.9	0.7-15 bar	2.1-12.6 L/min @ 2 bar	60 / 80 / 90 deg
VHC-TNG	2-8 mm	4.80 / 32.8	0.3-10 bar	6.8-34 L/min @ 2 bar	90 / 120 deg

Construction	Draft basis
Materials	316L stainless steel; titanium Grade 2; silicon carbide; PTFE
Operating limits	Draft: 0.3-15 bar by model; up to 850 C for silicon-carbide/titanium variants. Assembly scope pending.
Connections	Draft: 1/4 to 1-1/2 in NPT male and Class 150 flanged configurations.

ENGINEERING DISPOSITION

Define flange standard, facing, bore and material; release model-level flow distribution and droplet evidence.



CONCEPT PRODUCT VISUAL · FINAL GEOMETRY MAY DIFFER

VHC-CONCEPT-R0 · NTS · NOT FOR MANUFACTURE

SERIES VFF / CLIENT DRAFT

Flat Fan High-Impact Nozzles

PATTERN Linear fan distribution

Intended application envelope

Surface preparation / metal washing / industrial cleaning / parts washing / conveyor cooling / PCB processing

Architecture

Draft describes a parabolic fan distribution with tapered edges for overlapping header layouts.

Client-supplied preliminary data

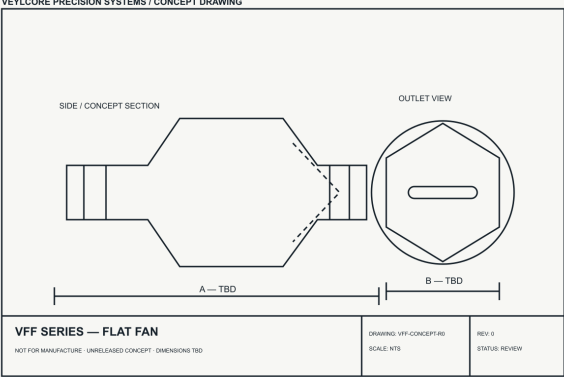
Model	Capacity	K metric / US	Pressure	Flow	Angles
VFF-15	015-100	0.58 / 3.96	1-35 bar	1-5.9 L/min @ 3 bar	0-110 deg options
VFF-30	120-390	2.32 / 15.8	1-40 bar	4-24 L/min @ 3 bar	30 / 60 / 90 / 110 deg

Construction	Draft basis
Materials	Hardened 420 stainless steel; 316L stainless steel; tungsten-carbide inserts; brass
Operating limits	Draft: 1-40 bar by model; metallic variants to 300 C. Pressure/temperature envelope pending.
Connections	Draft: 1/8, 1/4, 3/8 and 1/2 in NPT or BSPT male.

ENGINEERING DISPOSITION Define impact-force method and target distance; map each capacity code to orifice, angle and verified flow.



VEYLCORE PRECISION SYSTEMS / CONCEPT DRAWING



VFF SERIES — FLAT FAN
NOT FOR MANUFACTURE · UNRELEASED CONCEPT · DIMENSIONS TBD

DRAWING: VFF-CONCEPT-R0 SCALE: NTS	REV: 0 STATUS: REVIEW
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CONCEPT PRODUCT VISUAL · FINAL GEOMETRY MAY DIFFER VFF-CONCEPT-R0 · NTS · NOT FOR MANUFACTURE

SERIES VSS / CLIENT DRAFT

Solid Stream Jet Nozzles

PATTERN Concentrated coherent jet

Intended application envelope

Tank washing / jet cutting / descaling / web trimming / trash-rack cleaning

Architecture

Concentrated liquid-jet concept intended to maximize localized impact at a defined operating point.

Client-supplied preliminary data

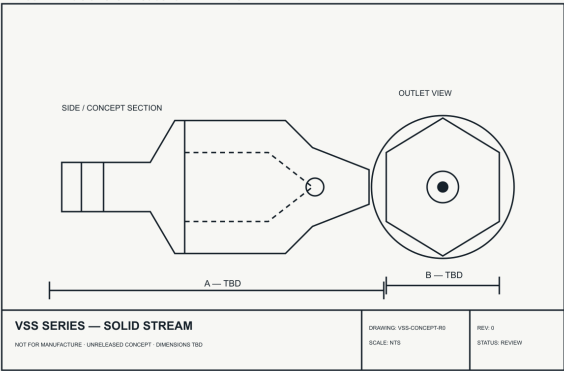
Model	Orifice	Pressure	Impact	Connections
VSS-STD	0.8-6.4 mm	2-70 bar / 30-1000 psi	1.2-48.5 N @ 5 bar	1/4, 3/8, 1/2 in NPT

Construction	Draft basis
Materials	Ruby or sapphire inserts; tungsten carbide; 316L stainless steel
Operating limits	Draft: 2-70 bar; up to 500 C. Insert retention, body configuration and pressure derating pending.
Connections	Draft: 1/4, 3/8 and 1/2 in NPT male.

ENGINEERING DISPOSITION Define the impact calculation or measurement method and standoff; complete application-specific safety review.



VEYLCORE PRECISION SYSTEMS / CONCEPT DRAWING



VSS SERIES — SOLID STREAM NOT FOR MANUFACTURE · UNRELEASED CONCEPT · DIMENSIONS TBD	DRAWING: VSS-CONCEPT-R0 SCALE: NTS	REV: 0 STATUS: REVIEW
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CONCEPT PRODUCT VISUAL · FINAL GEOMETRY MAY DIFFER VSS-CONCEPT-R0 · NTS · NOT FOR MANUFACTURE

SERIES VAA / CLIENT DRAFT

Air-Atomizing Two-Fluid Nozzles

PATTERNIndependent liquid and air control

Intended application envelope

Humidification / coating / spray drying / chemical injection / odor control / flue-gas conditioning

Architecture

Internal- and external-mix concepts with independent liquid and atomizing-air inputs.

Client-supplied preliminary data

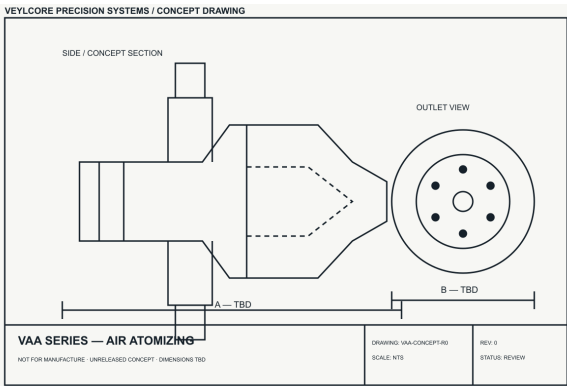
Model	Mix	Liquid flow	Air consumption	Patterns
VAA-INT	Internal	2-150 L/h	0.03-0.45 Nm3/min	Round / wide flat / 360 deg
VAA-EXT	External	5-320 L/h	0.08-0.90 Nm3/min	Flat fan / round

Construction	Draft basis
Materials	316L stainless steel; nickel-plated brass; Hastelloy C-276
Operating limits	Draft: liquid 2-320 L/h; air 0.03-0.90 Nm3/min; assembly to 250 C. Configuration validation pending.
Connections	Draft: dual 1/4 in NPT inlets for liquid and atomizing air.

ENGINEERING DISPOSITIONDefine test fluid, operating conditions, sampling plane and measurement method for every droplet-size claim.



CONCEPT PRODUCT VISUAL · FINAL GEOMETRY MAY DIFFER



VAA-CONCEPT-R0 · NTS · NOT FOR MANUFACTURE

PART NUMBER ARCHITECTURE

Encode only controlled attributes

The draft proposes: SERIES - CAPACITY - ANGLE - MATERIAL - CONNECTION - OPTIONS. The structure is useful, but every token needs an approved dictionary and one-to-one mapping to released configuration data.

Segment	Example	Release requirement
Series	VFC	Unique product-family definition
Capacity	TBD	Controlled map to orifice and verified flow coefficient
Angle	090	Nominal angle plus pressure, tolerance and test distance
Material	316L / CF3M	Separate codes for grade and product form
Connection	NPT / BSPT / BSPP	Standard, size, gender, class and seal interface
Options	TBD	Approved mutually compatible option codes

OPEN CONFLICT

The supplied capacity-code explanation does not map consistently to the supplied model numbers. Do not generate commercial SKUs until engineering approves a coding table.

Configuration record minimum

- Unique part number and revision
- Approved drawing and dimensional interface
- Wetted materials and material specifications
- Flow coefficient with declared units
- Performance table with tolerances and test conditions
- Pressure/temperature envelope and derating
- Applicable inspection and certification requirements

STANDARDS & MEASUREMENT

Applicability matrix

These references define scope and release questions; they are not declarations that Veylcore products comply. Obtain licensed standards where required and perform product-level engineering review.

Reference	Potential application	Current disposition
ASME B1.20.1	NPT thread designation, dimensions and gaging	Reference only; drawings/gages pending
ISO 7-1:1994	Pressure-tight pipe threads such as BSPT	Reference only; licensed review pending
ISO 228-1:2000	Parallel pipe threads where sealing is not on the thread	Seal interface and gaging pending
ISO/IEC 17025:2017	Competence of testing/calibration laboratories	No Veylcore accreditation claim evidenced
NIST traceability policy	Calibration chain and uncertainty terminology	Traceability records pending
ISO 10625:2018	Color coding for in-scope crop-protection sprayer nozzles	Not a general industrial-nozzle standard
ISO 6182-14:2019	In-scope open water-spray fire-protection nozzles	Not a general certification

CERTIFICATE
LANGUAGE

EN 10204 type 3.1 should not be described as a generic certificate of conformance. If contractually applicable, define the material/product, order, specification, inspection results and responsible validation.

QUALITY EVIDENCE

Turn draft claims into auditable records

CLIENT-002 mentions hydrostatic testing, spray-pattern profiling and positive material identification. Those statements remain proposed controls until approved procedures, calibrated equipment and retained records demonstrate execution.

Claim area	Evidence package before release
Hydrostatic test	Approved procedure; configuration and test pressure; dwell time; acceptance criteria; equipment ID; calibration status; signed batch record
Flow and K factor	Reference fluid/properties; pressure and flow instruments; traceability; uncertainty; repeatability; configuration-level results
Spray angle/pattern	Definition; pressure; distance; image/profile method; tolerance; setup drawing; raw and processed results
Droplet distribution	Metric; PDA or other validated method; instrument settings; sampling plane; fluid; air/liquid rates; uncertainty
PMI	Material specification; lot identity; analyzer ID; calibration/reference checks; acceptance criteria; operator and retained result
Material certificate	Supplier/mill identity; heat/lot; specification and grade; ordered requirements; inspection results; linkage to finished part

Traceability wording

A measurement result is traceable when it is related to a reference through a documented, unbroken calibration chain in which each link contributes to uncertainty. Avoid the shorthand 'NIST calibrated' unless the complete chain and uncertainty are documented.

RELEASE CHECKLIST

Approval record

Gate	Owner / signature	Date / record
Product owner		
Engineering authority		
Quality authority		
Regulatory review		
Models and SKU dictionary approved		
Performance tables approved		
Drawings and materials approved		
Test methods and uncertainty approved		
Standards applicability approved		
Legal claims approved		

RELEASE DECISION

No field above is completed in Revision 0. This document remains an engineering-review draft until a controlled approval record is issued.

Source register

CLIENT-002: Veylcore client-supplied Master Engineering Catalog and Selection Architecture. External scope references: ASME B1.20.1; ISO 7-1:1994; ISO 228-1:2000; ISO/IEC 17025:2017; NIST Metrological Traceability; ISO 10625:2018; ISO 6182-14:2019; Dantec Dynamics PDA measurement principles. Standards content is not reproduced.

VEYLCORE PRECISION SYSTEMS

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