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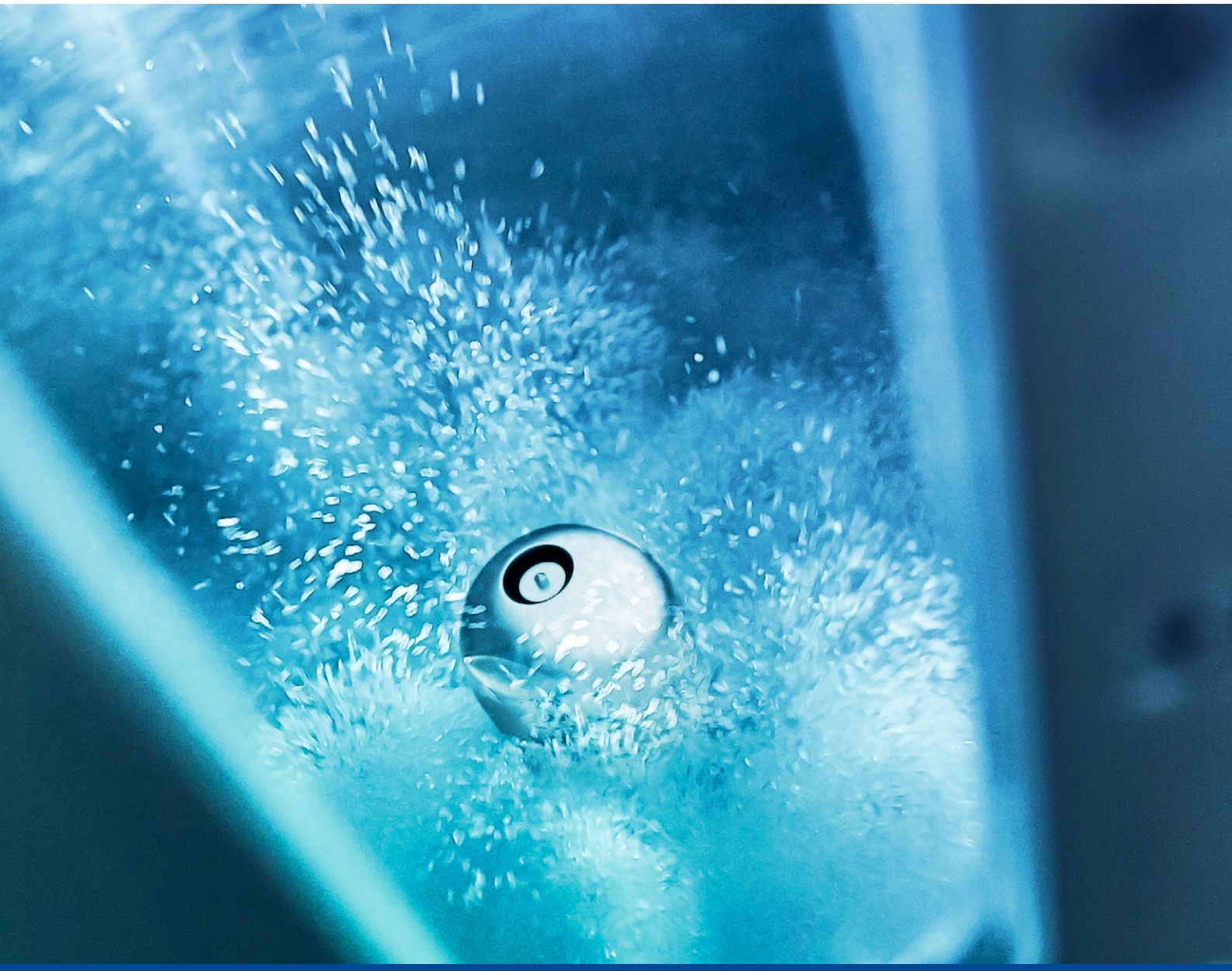
Schlick
Atomizing technologies

Living for Solutions:
Expertise and enthusiasm for nozzle systems



SCHLICK Technology – Overview

Index

Thinking solutions.
Who we are, what we do and why.

As manufacturer of nozzles and nozzle systems for a wide variety of applications, we are represented with our solutions worldwide and in almost all industries. In particular, we have a wealth of experience in the manufacturing, pharmaceutical and food technology sectors. For us at SCHLICK, it is always about finding the best solution for the customer.

Living for Solutions

Our guiding principle „Living for Solutions“ stands for permanent motivation, the only way to meet individual customer requirements sustainably to a high level. Our solution-oriented approach is based on ongoing research and product optimisation, as well as the constant development of new techniques and procedures.

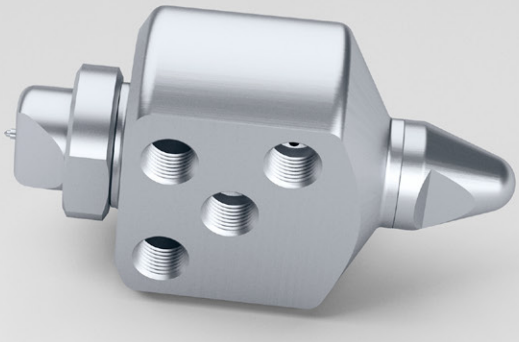
Partnerships built on trust

Reliability and trust are at the heart of every long-standing successful business relationship. Only by maintaining close contact with our customers can we develop the innovative solutions and support services they need, both now and in the future. Our dialogue with our customers inspires us to achieve more and also brings with it a sense of responsibility: a satisfactory solution is not enough; we want to work together with our customers to achieve the very best outcome for them.

Why not get in touch to see what we can do for you?

The ABC family

ABC-nozzles are for all performance ranges from 1 – 180 g/min (coating) available; for nano-size, lab-size and production-size. The ABC spray shows in all throughput capacities constant and homogeneous liquid distribution as well as a very fine consistent and reproducible droplet size distribution. The separate connections for pattern air (PA) and atomizing air (AA) allow extremely convenient adjustment options for droplet size and spray angle via air pressure.



Lab-size

Production-size

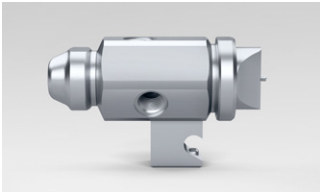
Nano-size

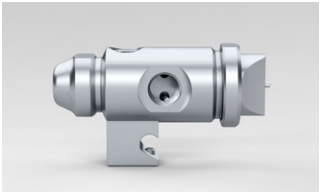
ABC-Technology® for Pharma & Food

Category	ABC-Technology®	ABC-Technology®
Type	Nano-size	Lab-size
Model	951 S24 NANO ABC	970 S75 ABC
Drum size	8.5“ / 10.5" / 12“	12“ / 15" / 19“
Spray pattern	Oval flat spray	Oval flat spray
Spray angle	approx. 60°	approx. 60°
Capacity	1 – 10 g/min (coating)	5 – 60 g/min (coating)
Standard orifices	0.5 mm	0.5 – 1.2 mm
Control	Separate attachments for pattern air (PA) and atomising air (AA)	Separate attachments for pattern air (PA) and atomising air (AA)
GMP-compliant design	9 individual pieces + SCHLICK Precision-O-sealing-rings (EPDM-FDA)	8 individual pieces + SCHLICK Precision-O-sealing-rings (EPDM-FDA)
Setting	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system (locked as standard)	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available
Features	Atomising smallest quantities, air cap attached with special stop position. ATEX version also available.	Conversion kit for the coating of sugar solutions obtainable separately (it takes very little effort to replace the liquid insert and ABC cap with a flat spray tip). ATEX version also available.
Mounting	Atomising air connection can also be used as a retaining tube (M5), Min ID = 2.0 mm	Factory fitted mounting block allows various options for installation
Applications	Coating, (tablet) coating	Coating, (tablet) coating
Material*	Materials which conform to FDA: 1.4404 (AISI 316 L), with surface quality of Ra < 0.8	Materials which conform to FDA: 1.4404 (AISI 316 L), with surface quality of Ra < 0.8

* other materials available on request

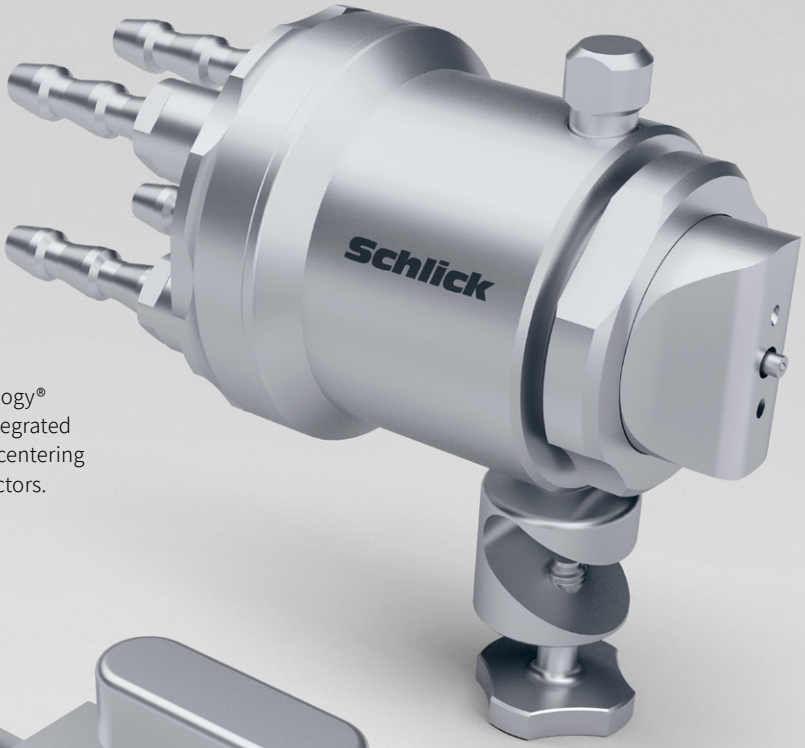
ABC-Technology® for Pharma & Food



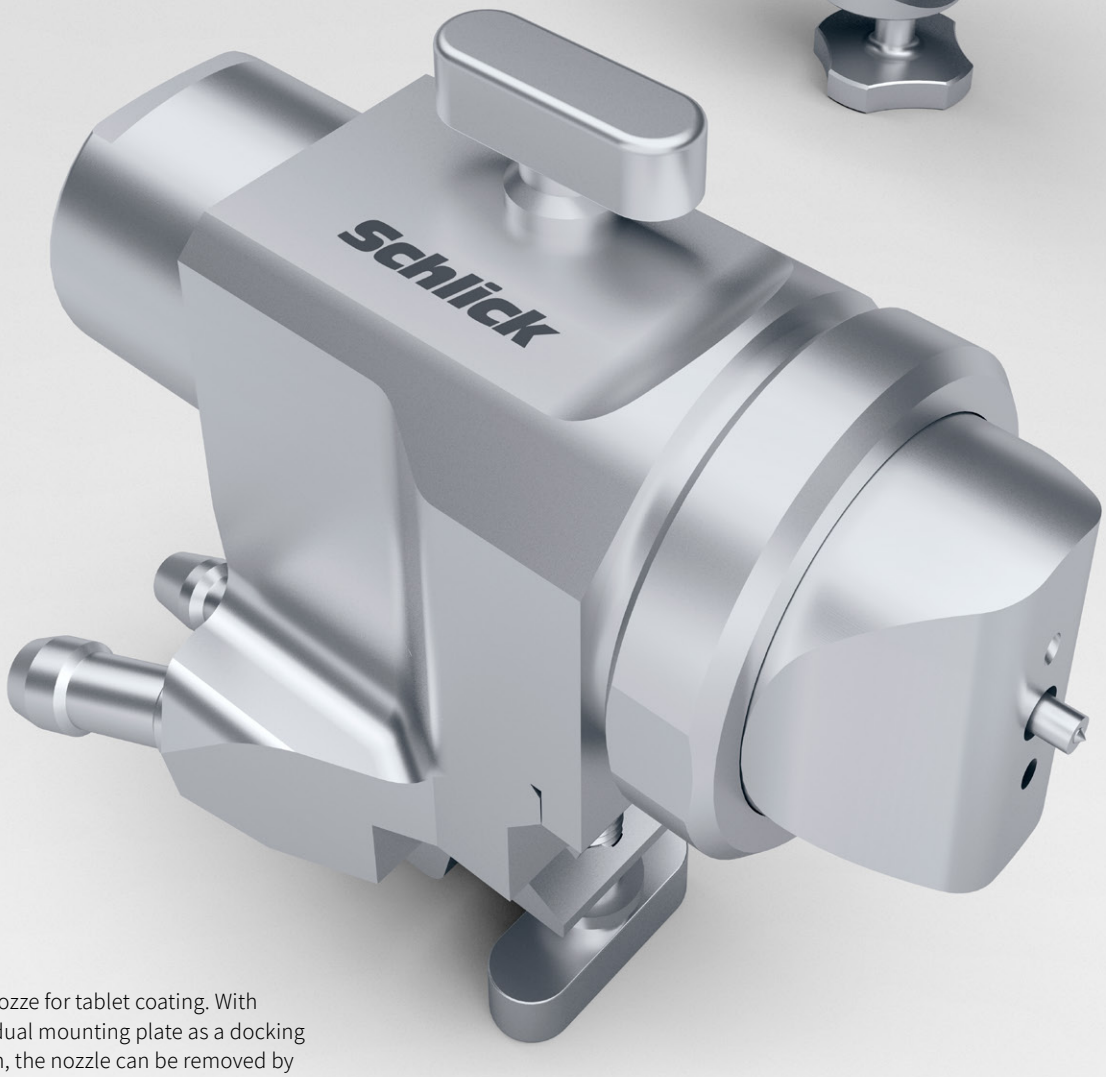


Category	ABC-Technology®	ABC-Technology®	ABC-Technology®
Type	Production-size	Production-size	Production-size
Model	930 S35 ABC	930 S35 ABC EVO	930 S45 ABC
Drum size	19“ / 24" and larger	19“ / 24" and larger	19“ / 24" and larger
Spray pattern	Oval flat spray	Oval flat spray	Oval flat spray
Spray angle	approx. 60°	approx. 60°	approx. 60°
Capacity	30 – 180 g/min (coating)	30 – 180 g/min (coating)	30 – 180 g/min (coating)
Standard orifices	0.5 – 2.2 mm	0.5 – 2.2 mm	0.5 – 2.2 mm
Control	Separate attachments for pattern air (PA) and atomising air (AA)	Separate attachments for pattern air (PA) and atomising air (AA)	Single attachment for pattern air (PA) and atomising air (AA)
GMP-compliant design	7 individual pieces + SCHLICK Precision-O-sealing-rings (EPDM-FDA)	7 individual pieces + SCHLICK Precision-O-sealing-rings (EPDM-FDA)	7 individual pieces + SCHLICK Precision-O-sealing-rings (EPDM-FDA)
Setting	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available
Features	Conversion kit for the coating of sugar solutions obtainable separately (it takes very little effort to replace the liquid insert and ABC cap with a flat spray tip). ATEX version also available.	Spray units with integral hose connectors, manufactured from a solid stainless steel block, 30% weight reduction. ATEX version also available.	Adjusting the spray angle using various slats in the body of the nozzle. ATEX version also available.
Mounting	Fixing unit for attachment to a rod (diameter = 10 mm) that is available separately; other diameters available on request	Fixing unit for attachment to a rod (diameter = 10 mm) that is inclusive; other diameters available on request	Fixing unit for attachment to a rod (diameter = 10 mm) that is available separately; other diameters available on request
Applications	Coating, (tablet) coating	Coating, (tablet) coating	Coating, (tablet) coating
Material*	Materials which conform to FDA: 1.4404 (AISI 316 L), with surface quality of Ra < 0.8	Materials which conform to FDA: 1.4404 (AISI 316 L), with surface quality of Ra < 0.8	Materials which conform to FDA: 1.4404 (AISI 316 L), with surface quality of Ra < 0.8

* other materials available on request

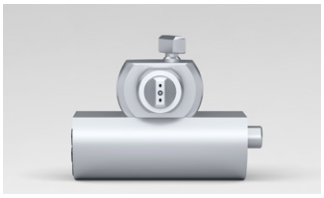


Special model with ABC-Technology®
for use in tablet coating. With integrated
mounting block and removable centering
plate with all media hose connectors.



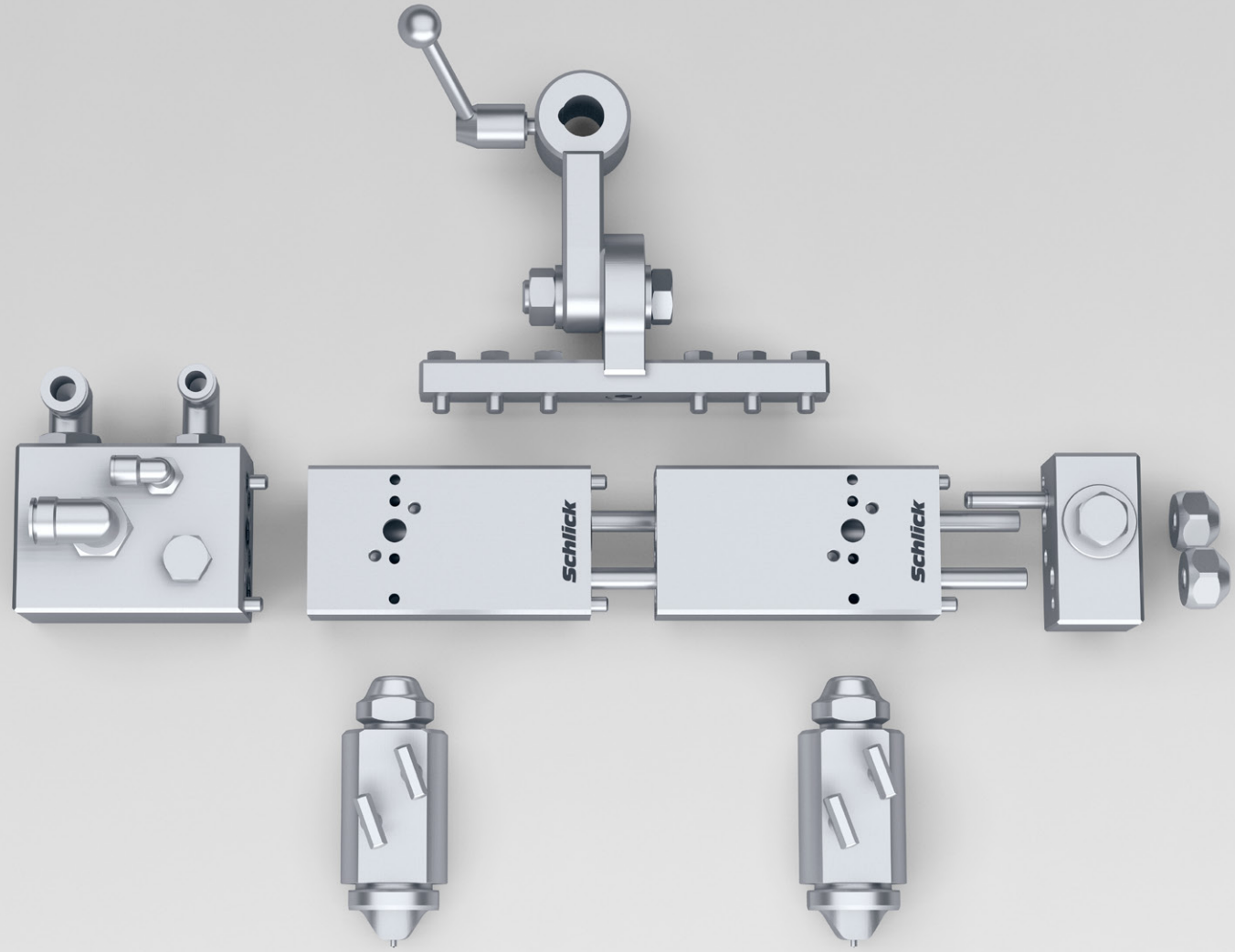
ABC-nozze for tablet coating. With
individual mounting plate as a docking
station, the nozzle can be removed by
loosening just one wing screw.

Professional Coating Arm for Pharma & Food



Category	ABC-Technology®	ABC-Technology®	ABC-Technology®
Type	PCA, Nano-size	PCA, Lab-size	PCA, Production-size
Model	951 S24 NANO ABC	970 S89 ABC	930 S37 ABC
Spray pattern	Oval flat spray	Oval flat spray	Oval flat spray
Spray angle	approx. 60°	approx. 60°	approx. 60°
Capacity (single nozzle)	1 – 10 g/min (coating)	5 – 60 g/min (coating)	30 – 180 g/min (coating)
Standard orifices	0.5 mm	0.5 – 1.2 mm	0.5 – 2.2 mm
Control	Separate control for pattern air (PA) and atomising air (AA)	Separate control for pattern air (PA) and atomising air (AA)	Separate control for pattern air (PA) and atomising air (AA)
Number of nozzles (standard)	2 – 5	2 – 8	2 – 13
Setting	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available	SCHLICK Anti-Bearding Cap (ABC), cleaning needle, liquid return system available
Features	Atomising smallest quantities, air cap attached with special stop position. ATEX version for PCA nozzles also available.	ATEX version for PCA nozzles also available.	ATEX version for PCA nozzles also available.
Mounting	Assembly using two screws	Assembly using one screw	Assembly using two screws
Applications	Coating, (tablet) coating	Coating, (tablet) coating	Coating, (tablet) coating
Material*	Materials which conform to FDA: 1.4404 (AISI 316 L) / Titan 3.7035 with surface quality of Ra < 0.8	Materials which conform to FDA: 1.4404 (AISI 316 L) / Titan 3.7035 with surface quality of Ra < 0.8	Materials which conform to FDA: 1.4404 (AISI 316 L) / Titan 3.7035 with surface quality of Ra < 0.8

* other materials available on request



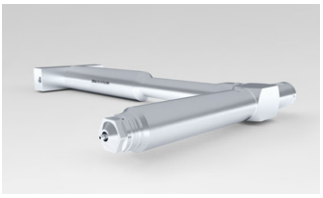
Living for Solutions.

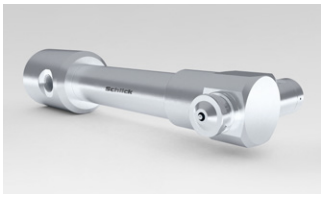
SCHLICK uses its own spray arm, the Professional Coating Arm (PCA). It consists of individual blocks that can be easily linked, each with one nozzle. Through clearly defined block dimensions, assembly-related spacing or alignment errors between the nozzles are excluded, reducing the assembly times enormously. The system operates according to the ‘manifold’ principle – all nozzles are supplied evenly via a common distribution system, thus ensuring reproducible spray results can be achieved on an ongoing basis. No additional hoses or fittings are required in the coater. The intelligent product design of the SCHLICK PCA therefore meets all requirements.

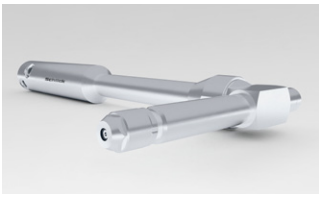
Perfectly connected.

Increasingly more applications in the pharmaceutical industry are requiring spray systems that comprise a special Media-connector and the nozzle itself. For this requirement, SCHLICK developed the Pharma Spray-unit.

Pharma Spray-units





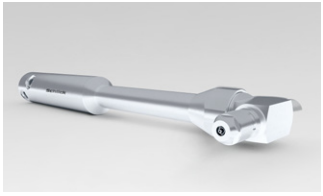


Category	Two-substance nozzles	Two-substance nozzles	Two-substance nozzles
Type	Lab-size	Production-size	Production-size
Model	970	940	0/2 – 0/5
Process engineering	Top spray, bottom spray	Top spray, bottom spray	Top spray, bottom spray
Spray angle	10° – 40° ** max. 70° ***	10° – 40° ** max. 70° ***	10° – 40°
Droplet size	10 – 50 µm	10 – 150 µm	10 – 150 µm
Capacity	min. (S8): 0.028 l/h max. (S4): 30.0 l/h	0.05 – 2.0 l/min	0.1 – 10.0 l/min
Spray pattern	Circular full-cones ** / oval flat spray ***	Circular full-cones ** / oval flat spray ***	Circular full-cones
Characteristics	Atomises very small quantities of liquid, suction or compression principle, modular system, available with ABC-Technology®	Atomises very small quantities of liquid, suction or compression principle, modular system, wide range of models	Lance model with shaft, modular system, wide range of models
Applications	Fluidised bed (agglomerating, coating, granulation), spray drying	Fluidised bed (agglomerating, coating, granulation), spray drying, sugar coating	Fluidised bed (agglomerating, coating, granulation), spray drying
Materials*	Materials which conform to FDA: 1.4404 (AISI 316 L), titanium, hastelloy (surface quality of Ra < 0.8), PTFE	Materials which conform to FDA: 1.4404 (AISI 316 L), titanium, hastelloy (surface quality of Ra < 0.8), PTFE	Materials which conform to FDA: 1.4404 (AISI 316 L), titanium, hastelloy (surface quality of Ra < 0.8), PTFE

* other materials available on request

** with standard air cap / *** with flat air cap

Pharma Spray-units



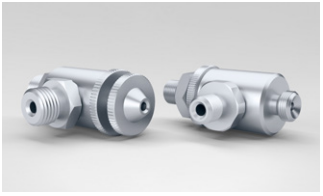
Category	Two-substance nozzles	Three-/Four-substance nozzles
Type	Production-size	Production-size
Model	937	946 – 0/56
Process engineering	Top spray	Top spray
Spray angle	30° – 120°	10° – 40°
Droplet size	10 – 150 µm	10 – 150 µm
Capacity	Dependent on application	0.05 – 40.0 l/min
Spray pattern	Several circular full-cones	Circular full-cones
Characteristics	External multi-head mixing system for producing a wider spray cone, large surface coverage, nozzle heads have 3, 6 or 7 heads as standard	Very fine atomisation, simultaneous mixing of several liquids, wide range of models
Applications	Fluidised bed (agglomerating, granulation)	Fluidised bed (agglomerating, coating, granulation), spray drying
Materials*	Materials which conform to FDA: 1.4404 (AISI 316 L), titanium, hastelloy (surface quality of Ra < 0.8), PTFE	Materials which conform to FDA: 1.4404 (AISI 316 L), titanium, hastelloy (surface quality of Ra < 0.8), PTFE

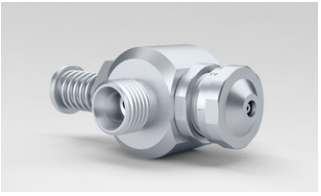
* other materials available on request

The Pharma nozzle and Media-connector are firmly connected. For example, via a screw thread, clamp connection or push-in connectors, or even using customised solutions. Pipe lengths for the Media-connector made of acid-resistant stainless steel are produced precisely according to the customer's requirements. Owing to processing specifications, lengths of up to two meters or longer are possible. Inconvenient installation and adjustment errors are a thing of the past, as the nozzle is securely connected to the Media-connector.

Fluidized bed model used in the bottom spray process with riser pipe (Wurster method). Very even coating. The liquid hose equipped with connectors is pullable.

Two-substance nozzles

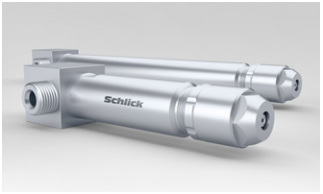


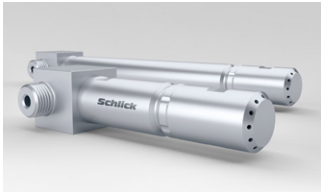


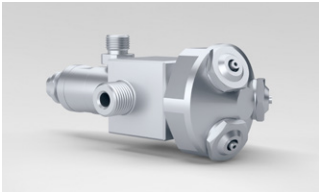
Category	Two-substance nozzles	Two-substance nozzles	Two-substance nozzles
Type	External Mixing	External Mixing	External Mixing
Model	950 – 951	970	940
Spray angle	approx. 10° – 40°	10° – 40° ** max. 70° ***	10° – 40° ** max. 70° ***
Spray pattern	Circular full-cone	Circular full-cone ** or oval flat spray ***	Circular full-cone ** or oval flat spray ***
Droplet size	10 – 150 µm	10 – 50 µm	10 – 150 µm
Capacity	0.012 – 0.1 l/min	min. (S8): 0.028 l/h max. (S4): 30.0 l/h	0.05 – 3.0 l/min
Characteristics	Compact design, a wide range of models with a minimum of space requirements	Atomises very small quantities of liquid, 28 ml/h – 30 l/h, suction or compression principle, modular system, wide range of models, also available with ABC-Technology®	Very fine atomisation, suction or compression principle, modular system, wide range of models
Applications	Ambient air moistening, cooling, disinfection, lubricating, moistening, reaction processes, varnishing	Agglomerating, ambient air moistening, coating, combustion, cooling, disinfection, fluidised bed, gas cooling, gluing, granulation, heating oil EL, liquid residues, lubricating, marking/signing, mixing, moistening, reaction processes, SCR procedure, SNCR procedure, superheated steam cooling, varnishing	Agglomerating, ambient air moistening, coating, combustion, cleaning, cooling, disinfection, flavouring, fluidised bed, gas cooling, gluing in blender, granulation, heating oil EL, liquid residues, lubricating, MDF/HDF fibreboard gluing, mixing, moistening, reaction processes, SCR procedure, SNCR procedure, spray drying, sugar coating, superheated steam cooling
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, plastic, tantalum, titanium, hard metal, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel, brass, tantalum, titanium, hastelloy, inconel, PVC, PTFE, polypropylene	Acid-resistant stainless steel, heat-resistant stainless steel, brass, tantalum, titanium, hastelloy, inconel, PVC, PTFE, polypropylene

* other materials available on request
** with standard air cap / *** with flat air cap

Two-substance nozzles



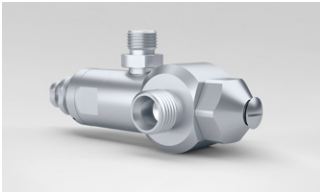




Category	Two-substance nozzles	Two-substance nozzles	Two-substance nozzles
Type	External Mixing	Internal Mixing	External Mixing
Model	0/2 – 0/9	0/64 – 0/60	937
Spray angle	10° – 40°	70° (Standard set-up)	30° – 120°
Spray pattern	Circular full-cone	Circular full-cone	Several circular full-cones
Droplet size	10 – 150 µm	10 – 150 µm	10 – 150 µm
Capacity	0.1 – 100.0 l/min	0.1 – 40.0 l/min	Depends on model
Characteristics	Lance model with shaft, modular system, a wide range of models	Internal mixing two-substance nozzle, modular system, a wide range of models	External multi-head mixing system for producing a wider spray cone, large surface coverage
Applications	Combustion, casing, cooling, disinfection, flavouring, fluidised bed, gas cooling, granulation, heating oil EL, liquid residues, mixing, reaction processes, rich oil, SCR procedure, SNCR procedure, spray drying, superheated steam cooling, tobacco moistening	Agglomerating, ambient air moistening, combustion, cooling, disinfection, fluidised bed, gas cooling, granulation, heating oil EL, liquid residues, mixing, moistening, rich oil, SCR procedure, SNCR procedure, spray drying	Agglomerating, fluidised bed, granulation
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, titanium, tantalum, carbonide, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel, titanium, tantalum, carbonide, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel

* other materials available on request

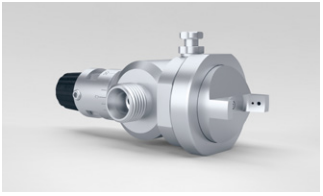
Two-substance nozzles

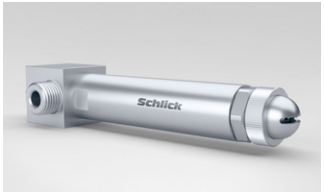


Category	Two-substance nozzles	Two-substance nozzles
Type	External Mixing	External Mixing
Model	822 – 854	938, 848, 0/28, 0/48
Spray angle	20° – 40°	140°
Spray pattern	Circular full-cone	Circular full-cone with wide spray angle
Droplet size	20 – 200 µm	10 – 80 µm
Capacity	0.3 – 40.0 l/min	0.4 – 15.0 l/min
Characteristics	Atomises large quantities of liquids, ideal for highly viscous media, rear screw fitting, suction or compression principle, spray cone can also be set using the shaft position, rugged design	Very fine atomisation, modular system, wide range of models
Applications	Casing, flavouring, gas cooling, gluing, MDF/HDF fibreboard gluing, mixing, moistening, sugar coating, tobacco moistening	Ambient air moistening, combustion, cooling, disinfection
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, titanium, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel, brass, titanium, hastelloy

* other materials available on request

Two-substance nozzles

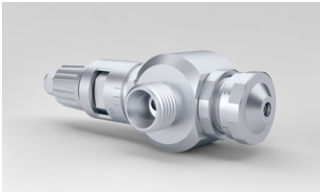


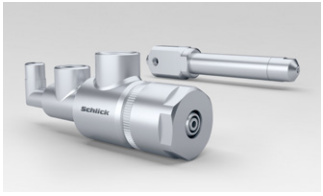


Category	Two-substance nozzles	Two-substance nozzles	Two-substance nozzles
Type	External Mixing	External Mixing	External Mixing
Model	930 Classic Line	0/41 S3, 0/51 S3	700
Spray angle	10° – 90°	60°	90° – 120°
Spray pattern	Oval flat spray	Flat spray	Flat spray
Droplet size	10 – 150 µm	20 – 80 µm	150 µm – 500 µm (water) 50 – 300 µm (water/compressed air)
Capacity	0.016 – 1.5 l/min	1.0 – 12.0 l/min at 3 bar	1.0 – 20.0 l/min at 3 bar
Characteristics	Very fine atomisation, suction or compression principle, modular system, wide range of models	Very fine atomisation, extremely easy to adjust for maximum flexibility, wide range of models, modular system	With centric liquid and right-angled compressed air attachment, can also be used as a pressure or two-substance nozzle, slotted exit for air and liquid
Applications	Cleaning, cooling, disinfection, moistening, varnishing	Combustion, cooling, gas cooling, moistening, SNCR procedure	Cooling, moistening
Materials*	Acid-resistant stainless steel, brass, hastelloy	Acid-resistant stainless steel, heat-resistant stainless steel	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy

* other materials available on request

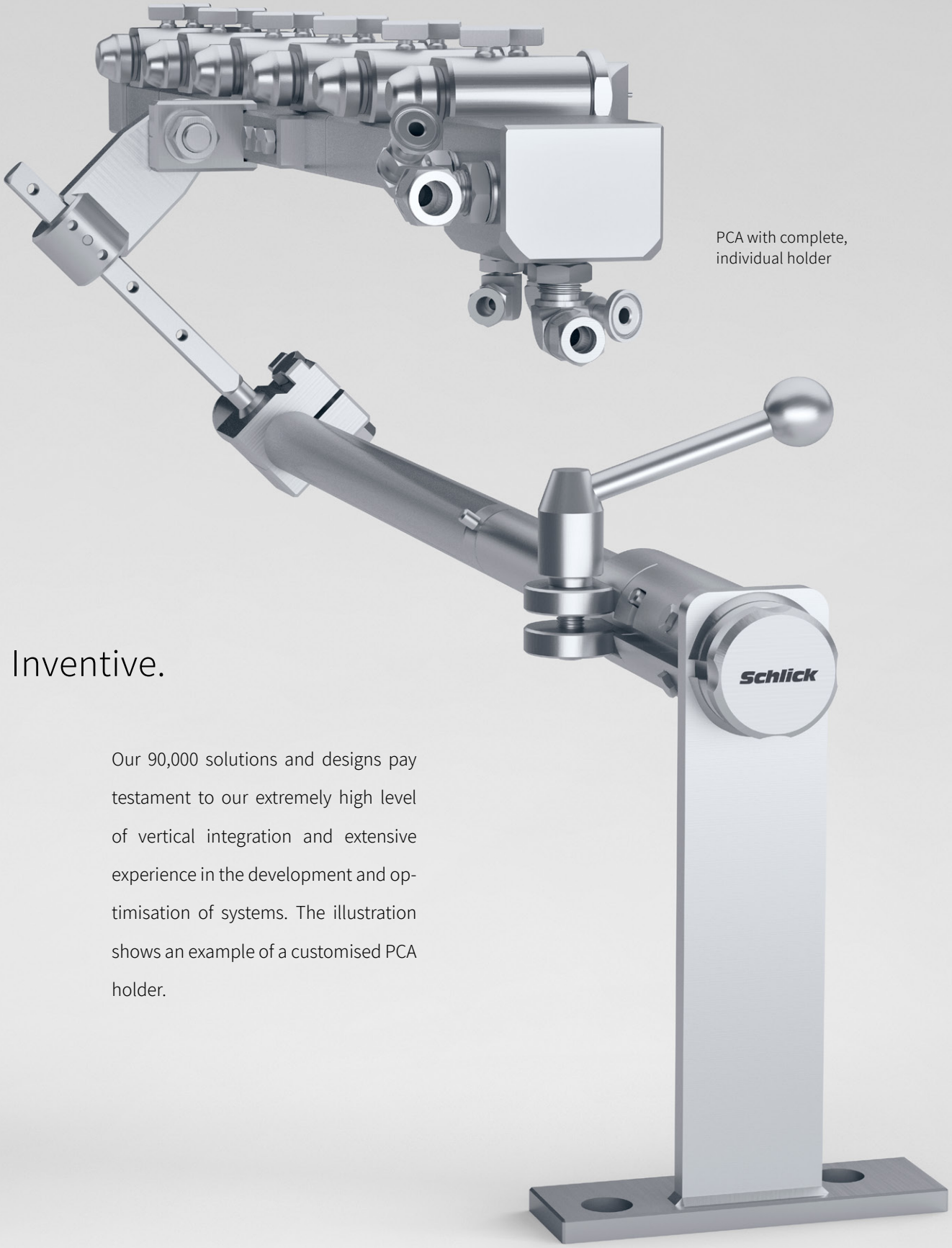
Three-/Four-substance nozzles





Category	Three-/Four-substance nozzles	Three-/Four-substance nozzles
Model	946 S1	0/4 S41 – 0/56
Spray pattern	Circular full-cone	Circular full-cone
Spray angle	10° – 40°	10° – 40°
Droplet size	10 – 100 µm	10 – 100 µm
Capacity	0.05 – 1.7 l/min	0.5 – 40 l/min
Characteristics	Very fine atomisation and simultaneous mixing of several liquids, modular system, wide range of models	Very fine atomisation and simultaneous mixing of several liquids, modular system, wide range of models
Applications	Agglomerating, coating, combustion, fluidised bed, mixing, reaction processes, SCR procedure, SNCR procedure, spray drying	Agglomerating, coating, combustion, fluidised bed, mixing, reaction processes, SCR procedure, SNCR procedure, spray drying
Material*	Acid-resistant stainless steel, heat-resistant stainless steel, tantalum, titanium, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel, tantalum, titanium, hastelloy, inconel

* other materials available on request



PCA with complete, individual holder

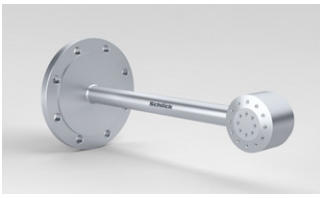
Inventive.

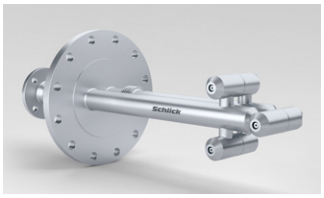
Our 90,000 solutions and designs pay testament to our extremely high level of vertical integration and extensive experience in the development and optimisation of systems. The illustration shows an example of a customised PCA holder.

Application:
Air, gas or superheated steam cooling

Application:
Gas cooling, SCR procedure, spray drying

Industrial Spray-units





Category	Industrial Spray-units	Industrial Spray-units
Type	Pressure nozzles	Two-substance nozzles
Characteristics	Spray system consists of a Media-connector and the nozzle, individually designed or adapted to customer specifications for the desired application, Media-connectors for pressure nozzles can be fitted with any pressure nozzle or complete nozzle heads depending on the requirements and area of application. Flow rates and drop sizes are dependent on the difference in liquid pressure, Pressure Equipment Directive 2014/68/EU	Spray system consists of a Media-connector and the nozzle, individually designed or adapted to customer specifications for the desired application, Media-connectors for two-substance nozzles can be fitted with any two-substance nozzle or complete nozzle heads depending on the requirements and area of application. Flow rates and drop sizes are dependent on the difference in liquid pressure and atomising air pressure, Pressure Equipment Directive 2014/68/EU
Applications	Ambient air moistening, cleaning, cooling, dosing, gas cooling, gas washing/cleaning, moistening, reaction processes, spray drying, starch application, superheated steam cooling, varnishing	Gas cooling, moistening, reaction processes, SCR procedure, SNCR procedure, spray drying, superheated steam cooling
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, hastelloy, inconel, PP, PTFE, PVC, PVDF, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, hastelloy, inconel, PP, PTFE, PVC, PVDF, titanium

* other materials available on request

Blowline

In industrial woodworking, professional spraying is of great importance, especially in MDF panel production. It makes a significant contribution to reducing costs and increasing quality at the same time. The demand for suitable methods to apply liquids as homogeneously as possible to prepared base materials is therefore great.

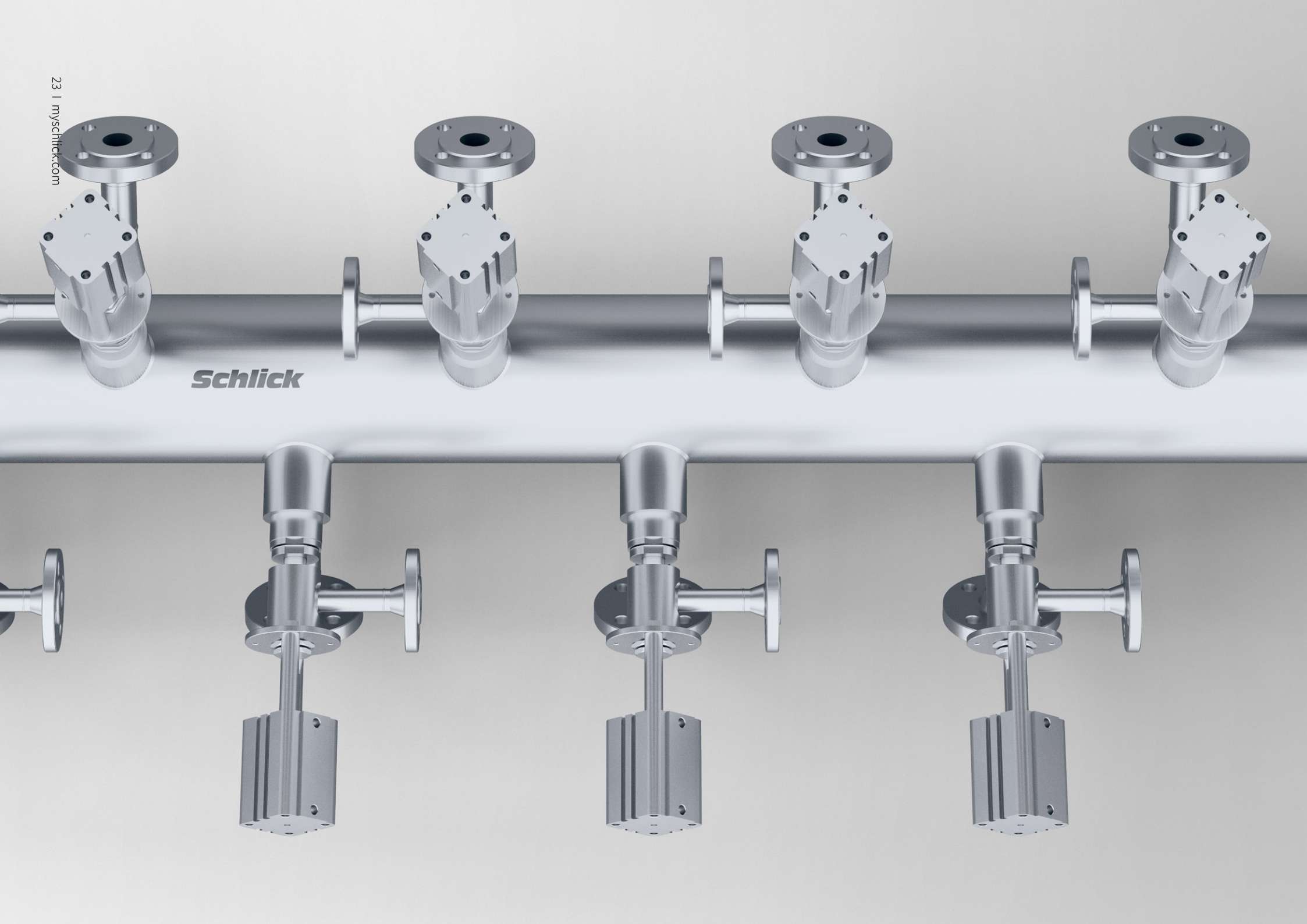
SCHLICK experts have been supporting plant engineers and manufacturers in this branch of industry for many years when it comes to process-optimized atomization technology. This results in innovative solutions, such as the SCHLICK blowline system, which is used throughout the industry.

The SCHLICK blowline system produces an entirely homogeneous spray with the finest drop sizes (10 – 120 µm; finer than the wood fibres to be coated). It thus reduces the need for glue in the production of wood fibreboard while also preventing glue flecks such as caking in the spray system.

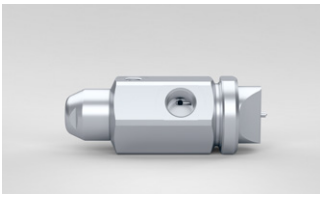
With this special design, an ideal balance between the atomisation quality, drop speed, drop size distribution, volume current density and flow rate has been achieved. The compact design and use of just a few individual parts guarantees easy installation and de-installation for manufacturing companies. The system has a wide variety of applications and is suitable for water, glue, urea solution or hardener.

Less glue consumption and maximum quality for more efficient blowline gluing:

- Homogeneous drop distribution over the entire width of the spray
- Extremely fine, reproducible and adjustable drop sizes without excess moisture
- Optimisation of spray zones and spray jet formation
- Adaptation of penetration depth into the fibre flow
- High drop speed


Schlick

ABC-Technology® for industries



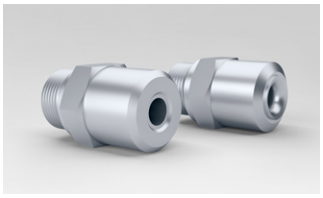
Category	ABC-Technology® for industries	ABC-Technology® for industries
Model	930 7-1 Pro ABC	Professional Coating Arm
Spray pattern	Oval flat spray	
Spray angle	70°	70° per nozzle
Capacity	0.05 – 3.0 l/min	See also Pro ABC
Standard orifices	0.5 – 2.8 mm	See also Pro ABC
Droplet size	10 – 100 µm	10 – 100 µm
Charakteristics	Very fine atomisation, specially developed shape prevents build-up of product on the air cap	Straightforward installation and maintenance thanks to ABC-Technology®, specially developed for the industrial sector, adapted to the different types of machines
Applications	Gluing, lubricating, starch application, varnishing	Gluing in blender, MDF/HDF fibreboard gluing, mixing, moistening, starch application, varnishing
Material*	Stainless steel 1.4305 (AISI 316L) or brass, surface quality: Ra < 0.8	The components are mainly made of stainless steel 1.4404 (AISI 316L) and 1.4305 (AISI 303). To reduce weight, components made of aluminium or titanium can also be used. O-rings made of Viton® are used as standard.

* other materials available on request

Custom variations and individual designs.

Many of our customers demand custom solutions and bespoke adjustments, which can only be achieved through close consultation with expert advisers and engineers. Whether this requires sliding holders or a separate supply of liquid to individual nozzles is irrelevant to SCHLICK. No matter what their requirements, our customers rightly trust in our expertise. With our fast and flexible approach, we will work to find a solution that meets your exact requirements and develop innovative technologies to realise your goals. According to the motto: Your application. Our nozzle.

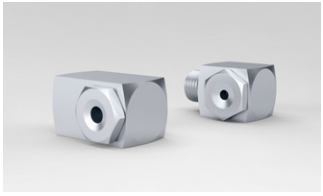
Pressure nozzles



Category	Full-cone	Hollow-cone	Hollow-cone
Model	551 – 565	100 – 200	121
Spray angle	30° – 120°, customized designs from 5° – 140° available	15°, 30°, 45°, 60°, 70°, 78°, 90°, 120°	15°, 30°, 45°, 60°, 78°, 90°, 120
Spray pattern	Circular or square full-cone	Circular hollow-cone	Circular hollow-cone
Capacity	0.5 – 60000 l/min at 3 bar	0.03 – 1400 l/min at 3 bar	0.014 – 3.4 l/min at 6 bar
Characteristics	High flow rates, wear-resistant, uniform atomisation even with varying liquid pressure, homogenous liquid distribution	Wide range of designs provide perfect solutions for almost every imaginable area of application	Fine atomisation, available with sieve and/or head screw thread
Applications	Cleaning, cooling, foam precipitation, gas washing/cleaning, moistening, water treatment	Combustion, cooling, gas cooling, gas washing/cleaning, heating oil EL, liquid residues, lubrication, moistening, rich oil, SCR procedure, SNCR procedure, spray drying, superheated steam cooling, varnishing, water treatment	Ambient air moistening, combustion, combustion of liquid residues, cooling, gas cooling, gas washing/cleaning, heating oil EL, lubrication, moistening, spray drying, superheated steam cooling, varnishing, rich oil, water treatment
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, grey cast iron, inconel, platinum-iridium, PP, PTFE, PVC, PVDF, RCH 1000, SiSiC, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, PP, PTFE, PVC, PVDF, RCH 1000, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, platinum-iridium, PP, PTFE, PVC, PVDF, RCH 1000, tantalum, titanium

* other materials available on request

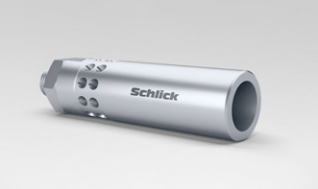
Pressure nozzles



Category	Hollow-cone	Hollow-cone	Hollow-cone
Model	123	400 – 401	586
Spray angle	30°, 45°, 60°, 78°, 90°, 120°	15°, 30°, 45°, 60°, 78°, 90°, 120°	30°, 45°, 60°, 75°, 90°, 120°
Spray pattern	Circular hollow-cone	Circular hollow-cone	Circular hollow-cone
Capacity	0.1 – 4 l/min at 3 bar	0.4 – 800 l/min at 3 bar	0.47 – 47 l/min at 3 bar
Characteristics	Fine atomisation, suitable for spraying liquids of higher viscosity	Particularly suitable for right-angled installation, fine and even atomisation, blockage resistant	Available with a movable swirl body (return valve function)
Applications	Ambient air moistening, combustion, combustion of liquid residues, cooling, gas cooling, gas washing/cleaning, heating oil EL, lubrication, moistening, spray drying, superheated steam cooling, varnishing, rich oil, water treatment	Cooling, gas washing/cleaning, moistening, starch application	Cooling, gas cooling, gas washing/cleaning, moistening, superheated steam cooling
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, platinum-iridium, PP, PTFE, PVC, PVDF, RCH 1000, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, PP, PTFE, PVC, PVDF, RCH 1000, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, tantalum, titanium

* other materials available on request

Pressure nozzles



Category	Mixing nozzles	Mixing nozzles
Model	770 – 772	803 – 804
Spray angle	30° – 90°	approx. 30° (dependent on application)
Spray pattern	Circular hollow-cone	Dependent on application
Capacity	Individually adjusted according to the particular application	Individually adjusted according to the particular application
Characteristics	Nozzle bodies with two or more screw-in elements with swirl slots for thorough mixing of liquids or gases, internal or external mixing	Centric jet nozzle draws in liquid or gas, injector principle
Applications	Mixing, reaction processes, water treatment	Dosing, mixing, reaction processes, water treatment
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, PTFE, PVC, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy ,PTFE, PVC, tantalum, titanium

* other materials available on request

Pressure nozzles

Category	Laval nozzles	Laval nozzles
Model	630	555
Spray angle	approx. 30°	approx. 140°
Spray pattern	Circular full-cone	Circular full-cone
Capacity	Saturated steam at 3 bar: 1.0 – 430 kg/h, compressed air at 1 bar: 0.69 – 280 norm m^3/h	Saturated steam at 3 bar: 50 – 460 kg/h, compressed air at 1 bar: 33 – 290 norm m^3/h
Characteristics	Laval design for extremely critical pressure conditions, very low-noise	For extremely critical pressure conditions, very low-noise, large surface coverage
Applications	Cleaning, cooling, reaction processes	Cleaning, cooling, reaction processes
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, PVC, PVDF	Acid-resistant stainless steel, heat-resistant stainless steel, brass, PVC, PVDF

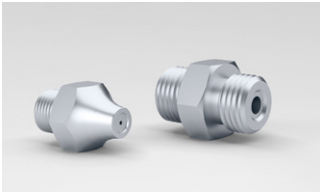
* other materials available on request

Pressure nozzles

Category	Carbide	Carbide	Carbide
Model	118	202	432
Spray angle	40° – 100°	15°, 30°, 45°, 60°, 75°, 90°	40° – 100°
Spray pattern	Circular hollow-cone	Circular hollow-cone	Circular hollow-cone
Capacity	0.1 – 14 l/min at 3 bar	0.1 – 7 l/min at 3 bar	0.1 – 14 l/min at 3 bar
Characteristics	Fine atomisation, nozzle construction with exchangeable swirl chambers and nozzle inserts made from hard metal, ideal for high pressures and abrasive Media, wear-resistant	Fine atomisation, nozzle construction with exchangeable swirl chambers and nozzle inserts made from hard metal, ideal for high pressures and abrasive media, wear-resistant	Fine atomisation, nozzle construction with exchangeable swirl chambers and nozzle inserts made from hard metal, ideal for high pressures and abrasive media, wear-resistant
Applications	Moistening, reaction processes, spray drying	Moistening, reaction processes, spray drying	Moistening, reaction processes, spray drying
Materials*	Acid-resistant and non-corrosive stainless steel, heat-resistant stainless steel, brass, hastelloy. Orifice insert, swirl insert and chamber in carbide.	Acid-resistant and non-corrosive stainless steel, heat-resistant stainless steel, brass, hastelloy. Orifice insert, swirl insert and chamber in carbide.	Acid-resistant and non-corrosive stainless steel, heat-resistant stainless steel, brass, hastelloy. Orifice insert, swirl insert and chamber in carbide.

* other materials available on request

Pressure nozzles



Category	Flat spray	Smooth-jet
Model	650 – 655, 700	629
Spray angle	20° – 160° (depends on model)	0°
Spray pattern	Flat spray	Smooth-jet (no atomisation)
Capacity	0.07 – 1000 l/min at 3 bar (depends on nozzle model)	0.02 – 1000 l/min at 3 bar, standard orifices from 0.1 – 30 mm
Characteristics	Slot-shaped exit, even distribution of liquid	Long cylindrical bore, no fittings, precise jet
Applications	Cleaning, coating semiconductors, cooling, foam precipitation, gas washing/cleaning, lubrication, marking/signing, moistening, sugar coating, varnishing, water treatment	Cleaning, dosing, extrusion, lubrication, marking/signing, water treatment
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, PVC, PVDF	Acid-resistant stainless steel, heat-resistant stainless steel, ebonite, brass, PVC, tantalum, titanium, teflon

* other materials available on request

Cleaning nozzles

Category	Spring activated pressure nozzles	Spring activated pressure nozzles
Model	631, 631 K	641, 641 K
Spray angle	45°, 60°, 90°, 120°, 140°	45°, 60°, 90°, 120°, 140°
Spray pattern	Circular hollow-cone	Circular hollow-cone
Capacity	4.5 – 20 l/min at 3 bar	50 l/min at 3 bar
Characteristics	Annular gap opens by pressure-feeded medium (liquid/gas). Spring closes exit fully when pressure drops.	Annular gap opens by pressure-feeded medium (liquid/gas). Spring closes exit fully when pressure drops.
Applications	Cleaning, dosing, MDF/HDF fibre-board gluing, water treatment	Cleaning, dosing, MDF/HDF fibre-board gluing, water treatment
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel

* other materials available on request

Cleaning nozzles

Category	Cleaning nozzles	Cleaning nozzles	Cleaning nozzles
Model	SCHLICK Pirouette 300/00	300	250
Spray angle		approx. 300°	approx. 300°
Spray pattern	Several smooth-jets	Several smooth-jets	Several smooth-jets
Capacity	1.3 l/min at 1 bar	14 – 50 l/min at 3 bar	135 l/min at 3 bar
Characteristics	Self-rotating nozzle head, outside-diameter only 10 mm	Self-rotating nozzle head, ATEX version also available	Self-rotating nozzle head
Applications	Cleaning	Cleaning	Cleaning
Materials*	Acid-resistant stainless steel	Acid-resistant stainless steel	Acid-resistant stainless steel

* other materials available on request

Specials

Category	Specials	Specials	Specials
Model	Single-part nozzle heads	Multi-part nozzle heads	Multispray
Spray angle	Depends on model	Depends on model	
Spray pattern	Depends on model	Depends on model	
Capacity	Depends on model	Depends on model	
Characteristics	Unibody made from a single piece of solid material is especially compact and robust, quickly ready to operate and easily cleaned	Multi-part nozzle head, can be fitted with different types of nozzle providing a wide range of applications, straightforward assembly and retrofitting	Design for all standard atomisation techniques using two-substance nozzles and pressure nozzles, minimum number of separate components enables easy cleaning and conversion, providing maximum flexibility for use in a wide range of applications. Basic system with pneumatic ON/OFF control giving 100% drip-free and completely homogeneous and reproducible spray results.
Applications	Cleaning, cooling, dosing	Ambient air moistening, cleaning, gas cooling, gas washing/cleaning, moistening, reaction processes, superheated steam cooling	Cleaning, cooling, lubrication, moistening, varnishing
Materials*	Acid-resistant stainless steel, heat-resistant stainless steel, brass, hastelloy, inconel, platinum-iridium, PP, PTFE, PVC, PVDF, RCH 1000, tantalum, titanium	Acid-resistant stainless steel, heat-resistant stainless steel, brass, tantalum, titanium, hastelloy, inconel, PTFE, PP, PVC, PVDF, RCH 1000	Acid-resistant stainless steel

* other materials available on request

SCHLICK dosing systems have been specially developed for installation in spray systems with pulsed operation.

They enable precise dosing without any dripping or idling whatsoever.

Industry sectors where substances need to be physically modified with precision regularly use these systems.

Your application. Our nozzle.
Our promise: Living for solutions.

Consultation, engineering, production and testing.

At SCHLICK, you get everything from one source.

The ideal solution for your application.

> **Please contact us**

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Atomizing technologies
Living for Solutions.

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