

Living for Solutions:
Model 121. The perfect hollow cone.



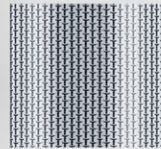
Precise pressure nozzle even at the lowest flow rate



Nozzle head



Swirl insert



Filter



Screw fitting

Distinctive.

In the SCHLICK hollow-cone nozzles, the liquid flows tangentially into the swirl chamber of the nozzle head, which causes it to rotate. During this process, the energy in the pressurised liquid is converted into rotational or kinetic energy. A rotating film of liquid forms around an air core.

Precise.

At the exit of the nozzle, rotational forces of the liquid produce a thin film reacting with surrounding air breaking up the liquid into fine droplets. These move away from the nozzle in an axial and radial direction and form a hollow cone. The quality of the atomised spray and the droplet spectrum depend on the bore diameter, the pressure difference, the spray angle, the density, the viscosity and the surface tension. SCHLICK hollow-cone nozzles are especially well suited for lower flow rates with fine atomisation.

Atomisation:

Circular hollow-cone

Spray angle:

Bore diameter 0.1 to 0.5 mm = approx. 60°

Bore diameter 0.6 to 1.6 mm = approx. 70°

Bore diameter 1.7 to 2.5 mm = approx. 78°

Custom spray angle:

Bore diameter 0.3 to 2.5 mm =
15°, 30°, 45°, 60°, 90°, 120°

Recommended pressure range:

3 – 150 bar for stainless steel

Flow rate range:

0.014 – 3.4 l/min at 6 bar

Standard bores:

0.1 mm – 2.5 mm

Versatile.

In order to prevent blockages from unwanted particles suspended in the liquid, the standard model 121 is equipped with a filter. To assist with reduction in total length the design 121V has no filter. It is particularly well suited for spraying pure, particle-free media with excellent flow properties. Both the standard and the V version are also available in version 121VK with a BSP 1/4" threaded front end to give alternative mounting options.



Model 121



Model 121V



Model 121K



Model 121VK

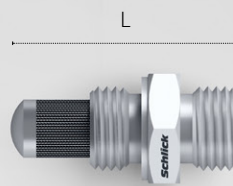
Sophisticated.



Model 121



Model 121V



Model 121K



Model 121VK

Model	Thread G [DIN ISO 228]	Total length [L in mm]	Filter diameter [ø in mm]	Width across flats [AF]
121	1/4	35.5	9	17
121V	1/4	23	-	17
121K	1/4	35.5	9	17
121VK	1/4	23	-	17

Application areas: Moistening, coating, liquid residues, gas washing/cleaning, gas cooling, superheated steam cooling, heating oil EL, cooling, ambient air humidifying, lubricating, rich oil, spray drying, combustion, water treatment

Materials: 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



The benefits at a glance

Precise.

The finest atomisation even at the lowest flow rate.

Straightforward.

Hassle-free and simple assembly/dismantling and cleaning.

Versatile.

A wide range of applications and uses.

Convenient.

An extensive range of material versions.

Sophisticated.

Numerous options for the most wide-ranging requirements.

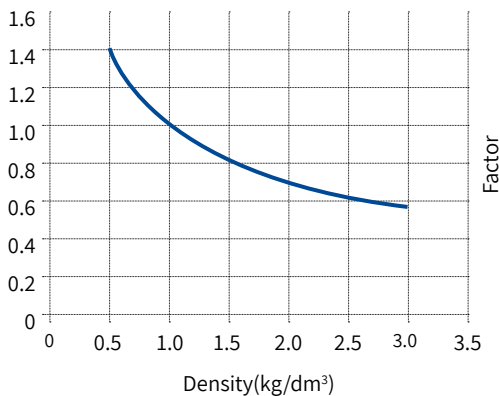
Original.

Consultation, engineering, production and testing from SCHLICK.

Performance data.

Theoretical nominal bore [mm]*	Flow rate in l/min at									
	1 bar	2 bar	3 bar	4 bar	6 bar	8 bar	10 bar	15 bar	20 bar	30 bar
0.10					0.014	0.016	0.018	0.022	0.025	0.031
0.15					0.021	0.024	0.027	0.033	0.038	0.047
0.20					0.030	0.034	0.038	0.047	0.055	0.067
0.25					0.042	0.048	0.054	0.066	0.076	0.094
0.30					0.050	0.057	0.064	0.076	0.090	0.111
0.35			0.0478	0.055	0.067	0.078	0.087	0.106	0.123	0.151
0.40			0.0625	0.072	0.088	0.102	0.114	0.139	0.161	0.197
0.45			0.0790	0.091	0.112	0.129	0.144	0.176	0.203	0.249
0.50			0.0976	0.112	0.138	0.159	0.178	0.218	0.252	0.308
0.55		0.096	0.1180	0.136	0.169	0.192	0.215	0.263	0.304	0.373
0.60		0.115	0.141	0.163	0.199	0.230	0.257	0.315	0.364	0.445
0.70		0.156	0.191	0.220	0.270	0.312	0.348	0.427	0.493	0.603
0.80		0.204	0.250	0.288	0.353	0.408	0.456	0.559	0.645	0.790
0.90		0.258	0.316	0.365	0.447	0.516	0.577	0.706	0.815	0.999
1.00	0.226	0.319	0.391	0.451	0.553	0.638	0.713	0.874	1.009	1.236
1.10	0.273	0.386	0.473	0.546	0.668	0.772	0.863	1.057	1.221	1.495
1.20	0.325	0.460	0.563	0.650	0.796	0.919	1.027	1.258	1.453	1.780
1.30	0.381	0.538	0.660	0.762	0.933	1.077	1.205	1.475	1.704	2.087
1.40	0.442	0.652	0.766	0.884	1.083	1.251	1.398	1.712	1.977	2.422
1.50	0.507	0.717	0.879	1.015	1.243	1.435	1.604	1.965	2.269	2.779
1.60	0.577	0.816	1.000	1.154	1.414	1.633	1.825	2.236	2.581	3.162
1.70	0.652	0.922	1.129	1.303	1.596	1.843	2.061	2.524	2.915	3.570
1.80	0.731	1.033	1.266	1.462	1.790	2.067	2.312	2.830	3.268	4.003
1.90	0.814	1.151	1.410	1.628	1.994	2.302	2.574	3.152	3.640	4.458
2.00	0.902	1.276	1.563	1.805	2.210	2.552	2.853	3.494	4.035	4.942
2.10	0.995	1.407	1.723	1.989	2.436	2.831	3.145	3.852	4.448	5.448
2.20	1.091	1.543	1.890	2.182	2.672	3.086	3.450	4.226	4.879	5.976
2.30	1.193	1.687	2.067	2.387	2.923	3.375	3.773	4.621	5.336	6.536
2.40	1.299	1.837	2.250	2.598	3.182	3.674	4.107	5.031	5.809	7.115
2.50	1.409	1.993	2.441	2.818	3.452	3.986	4.456	5.458	6.302	7.719

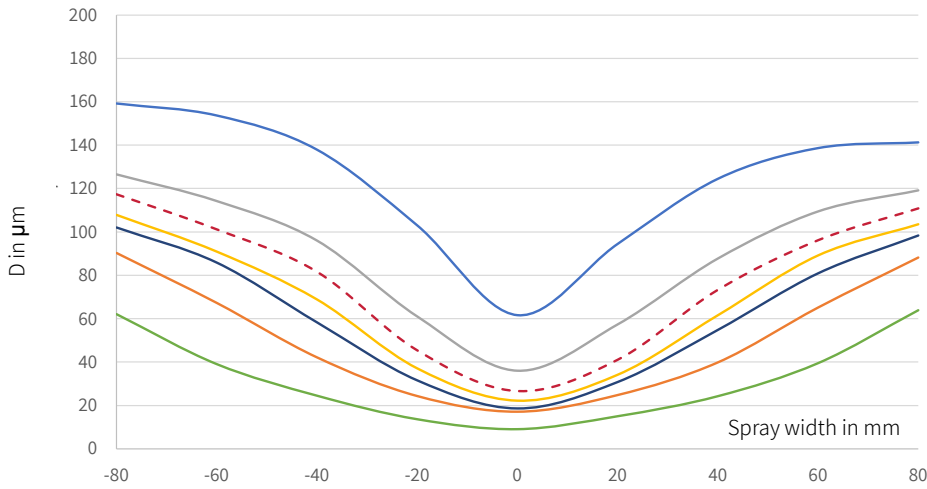
* Valid for spray angle of approx. 60° with a bore diameter of 0.1 to 0.5 mm, for spray angle of approx. 70° with bore diameter of 0.6 to 1.6 mm and for spray angle of approx. 78° with bore diameter of 1.7 to 2.5 mm. For technical reasons, nozzles with different spray angles must be fitted with smaller or larger bore openings. However, each air flow rate corresponds to the theoretical nominal bore. This is specified on the nozzles in 1/10 mm.



Flow rate in relation to water at 16°C

Liquids with a different density can be calculated using the conversion table opposite.

Drop size

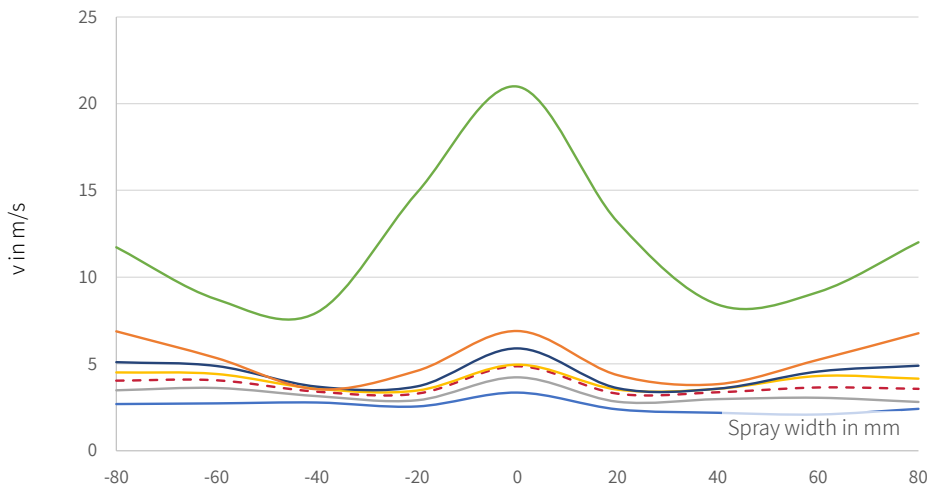


All information relates to model 121 in the following configuration:

Bore diameter of 1.0 mm
Spray angle: 70°
Spray width: 160 mm
Measuring distance: 100 mm

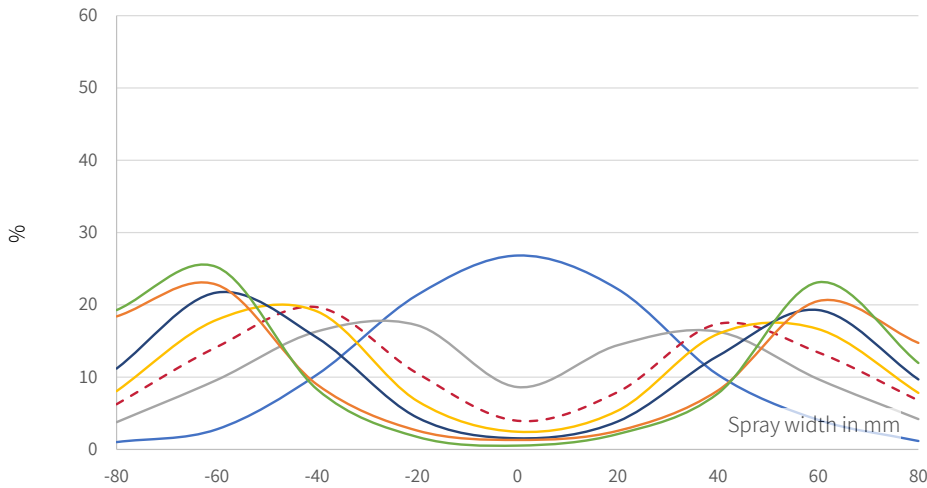
- 1 bar
- 2 bar
- - - 3 bar
- 4 bar
- 5 bar
- 10 bar
- 50 bar

Drop speed



- 1 bar
- 2 bar
- - - 3 bar
- 4 bar
- 5 bar
- 10 bar
- 50 bar

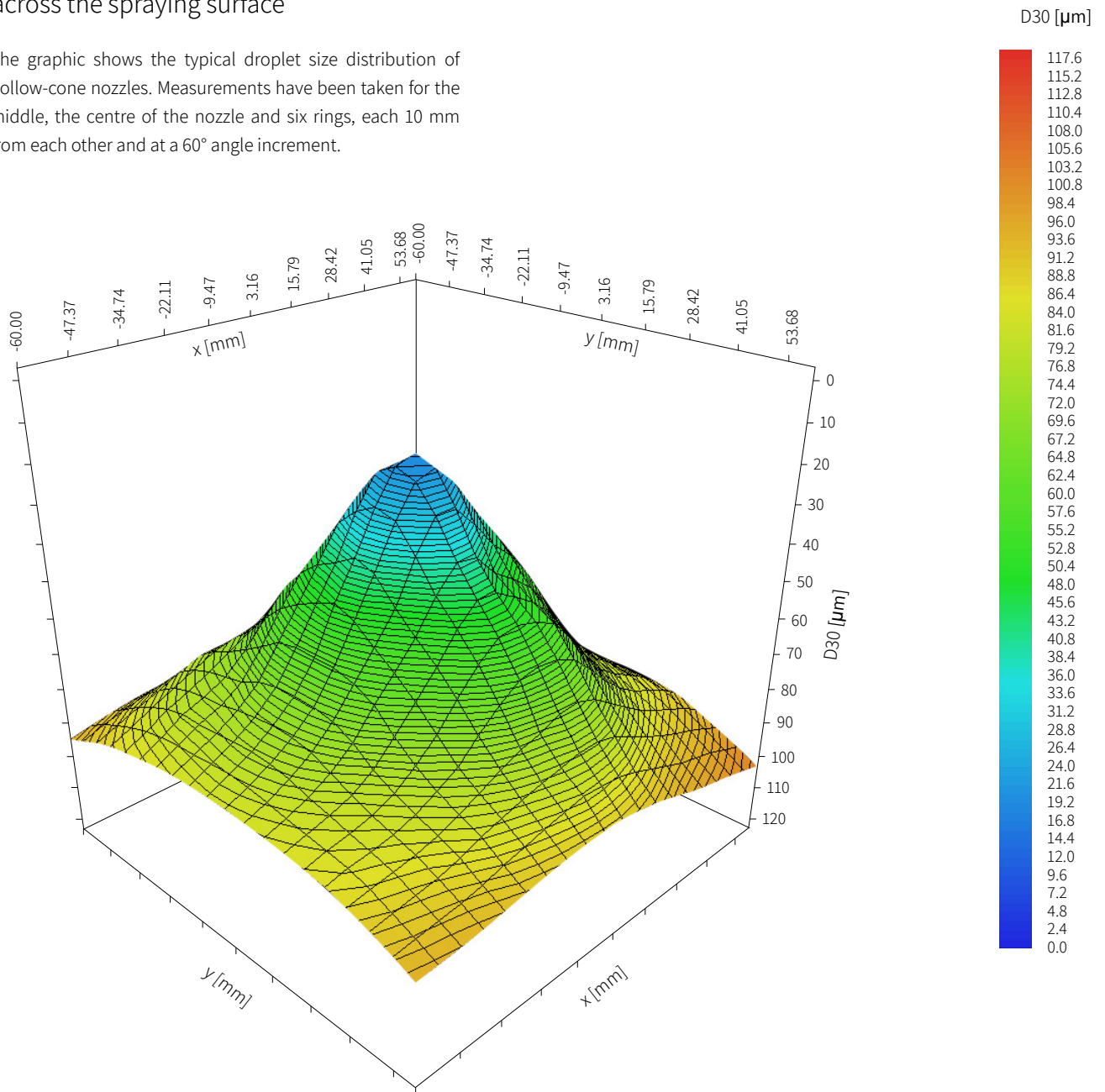
Flow rate density



- 1 bar
- 2 bar
- - - 3 bar
- 4 bar
- 5 bar
- 10 bar
- 50 bar

Droplet size distribution across the spraying surface

The graphic shows the typical droplet size distribution of hollow-cone nozzles. Measurements have been taken for the middle, the centre of the nozzle and six rings, each 10 mm from each other and at a 60° angle increment.



Operating conditions

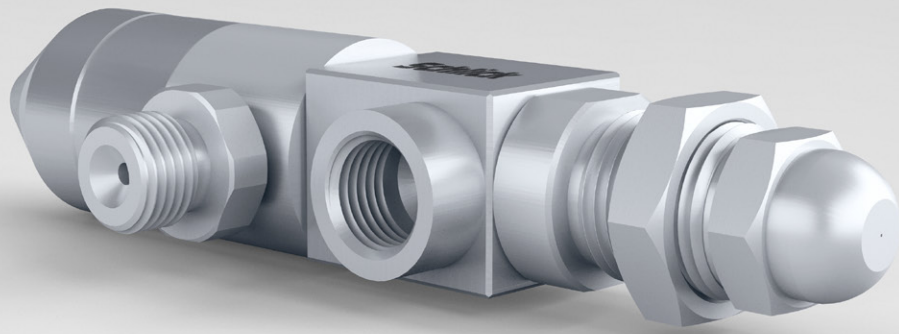
(Water, reference liquid):

Bore diameter: 0.5 mm
 Spray angle: 60°
 Distance to measuring volume: 100 mm
 Measuring points: 79
 Angle increment: 60°
 Increment: 10 mm
 Pressure: 10 bar

Averaged volume distribution

per ring and individual measurements:

Ring	Middle	1	2	3	4	5	6
D30 averaged [μm]	20.3	26.2	42.8	59.1	72.9	82.8	88.1
Volume distribution [%]	1.5	2.8	12.9	26.6	28.9	18.8	8.6



Model 121V design 7-1 with
pneumatic on/off control.

Model 121V design 7-1 is equipped with a pneumatically controlled needle valve, giving precise control of turning liquid flow on and off drip-free. Ideal for marking, signing, rhythmic spraying and pressurised liquids. Electrical activated solenoid valve for needle control is incorporated in the 121V design 8 version. Available in DC and AC options with various power supply choices. The needle actuation rate is limited by the control signal switchover time. The model can be used at a maximum ambient temperature of 55°C.

Model 121V design 8
with solenoid valve.





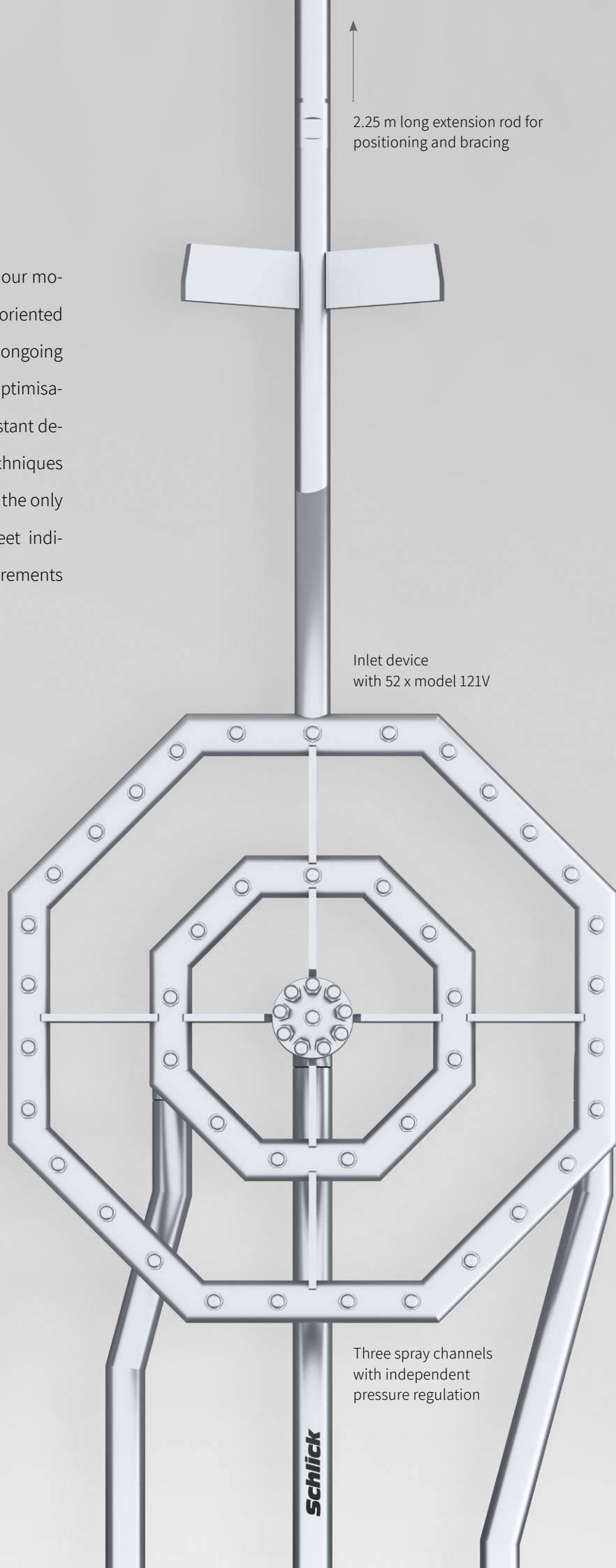
Special and custom versions.

Many of our customers demand custom solutions and bespoke modifications, which can only be achieved through close consultation with expert advisers and engineers. Whatever the requirements, be it an individual system attachment, a specific large-scale spray coverage, or a process-specific design, SCHLICK can help. Our customers rightly trust in our expertise. With our fast and flexible approach, we will work to find a solution that meets your precise requirements and develop innovative technologies to realise your goals. All in line with our motto: Your application – our solution.

Customised.

'Living for Solutions' is our motivation. Our solution-oriented approach is based on ongoing research and product optimisation, as well as the constant development of new techniques and procedures. This is the only sustainable way to meet individual customer requirements to a high standard.

Application:
Reaction processes
(chemical industry)



2.25 m long extension rod for positioning and bracing

Inlet device with 52 x model 121V

Three spray channels with independent pressure regulation

Schlick



Constant and close contact with the customer, from their initial enquiry right through to product renewal, is fundamental to our business model. It ensures we can supply our customers with the very best solutions exactly when they need them. This applies for both standard and custom solutions.

3x connection flange
DIN 2635

Support rod with
counterweight

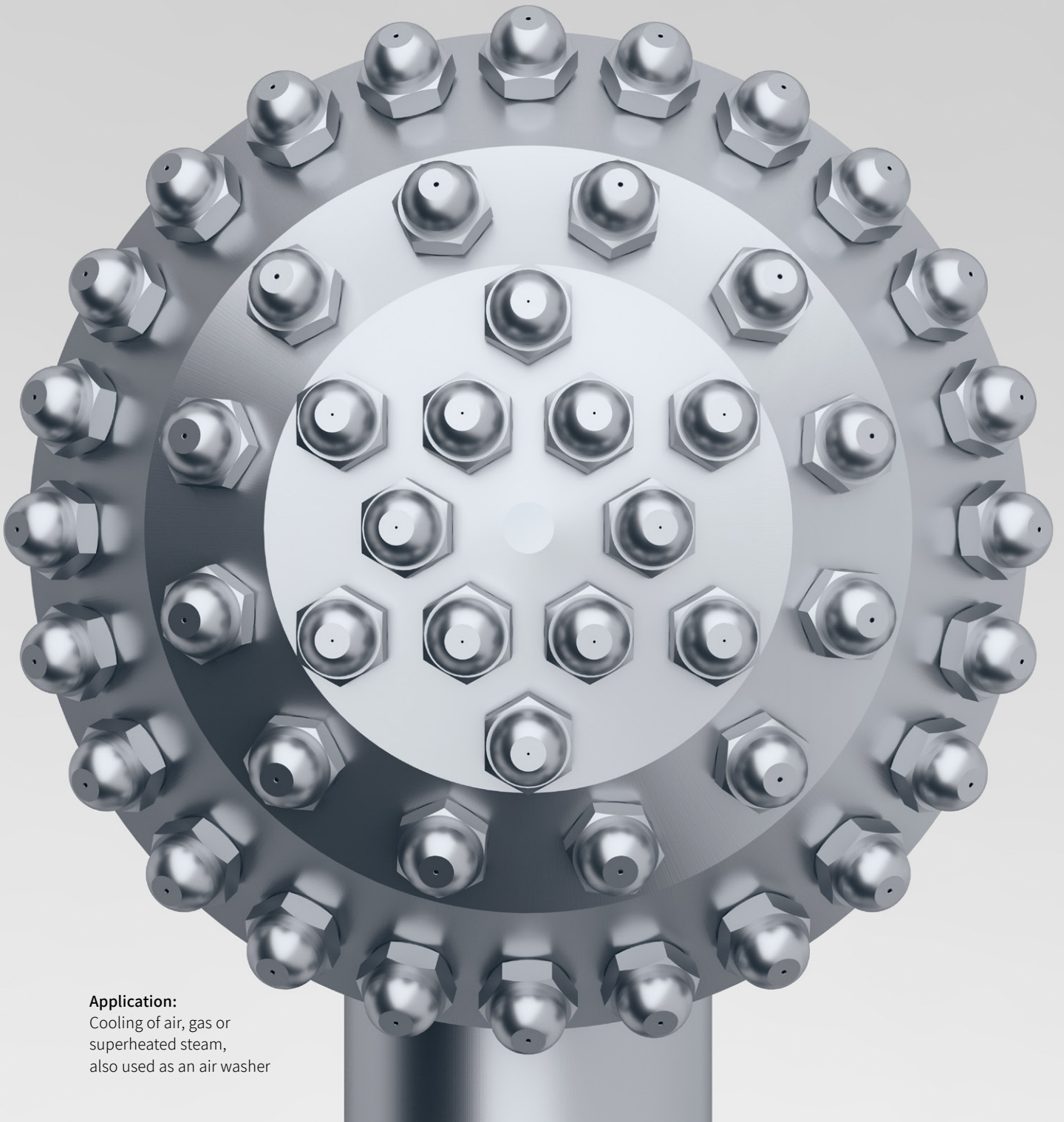
High precision.

SCHLICK always tries to find the best solution for the customer. Alongside our experienced employees, the unique SCHLICK Test & Research Center forms an essential building block in this process. Here, recognised experts use their knowledge to perfect the very latest in measurement technology. The high-tech lab is used by companies from all industries to find solutions to a wide range of issues under practical conditions.

Application:

Moistening (paper, textiles etc.), stainless steel version also for the baked goods industry (moistening dough etc.)





Application:
Cooling of air, gas or
superheated steam,
also used as an air washer

Your application. Our nozzle.

Living for Solutions.

We are one of the world's leading experts in atomisation technology, with a vast wealth of experience, impressive problem-solving abilities, and a high level of manufacturing expertise.

Application:
Cooling of air, gas or superheated steam, also used as an air washer



Application:
Flue gas cooling,
flue gas conditioning



Transforming ideas into reality.

Our approach is based on two key pillars: a high level of vertical integration and extensive experience in the development and optimisation of spray technology systems. More than 90,000 designs and solutions are testament to our success. In fact, examples of our solutions can be found in almost every industry. All have been subject to rigorous functional and reliability testing at the SCHLICK Test & Research Center prior to commissioning, as reliability is key if you want to keep modern manufacturing processes running smoothly.

Application:

Superheated steam cooling



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.

Phone +49 9565 9481-0

Mail info@myschlick.com

Subject to technical alterations . 09.2022



Düsen-Schlick GmbH
Hutstraße 4
96253 Untersiemau/Coburg
Germany
Tel.: +49 9565 9481-0

www.myschlick.com
info@myschlick.com