Schlick
Atomizing technologies

Schlick Series 940-943 Two-Substance Nozzles

Applications:

- Air conditioning
- Coating
- Combustion
- Disinfecting
- Finishing
- Fluid bed technology
- Granulating
- Mixing
- Process engineering
- Recovery
- Spray drying
- Tobacco industry

Technical information 16/01

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Schlick two-substance nozzles

- With the help of an atomising medium, two-substance nozzles Series 940-943 can atomise liquid to get a large specific surface.
- The atomising medium can be compressed air, gas, or steam at 0.5 bar upwards.
- External mix nozzles allow independent control of flow rate and droplet fineness.
- Optionally, the nozzle spray angle can be set between 10° and 40° by the air cap setting. Turning the air cap back reduces airflow and spray angle. Turning the air cap forwards increases airflow and spray angle.
- The required air cap setting should be determined by trial and error depending on the application.
  Air cap setting:
  - position 0: the nozzle is closed
  - position 5: normal setting
- The liquid pressure differential can be used to control the flow rate on all versions.
- On versions with a control needle the needle setting can also be used to control the flow rate. Within certain limits the nozzles in this series also function as injectors.
- Depending on viscosity, flow rate, density, and surface tension this series is also available
  - with control needle - without initial atomisation
  - with cleaning needle - with swirl chamber
- Nozzles without initial atomisation are particularly suited to the atomisation of viscous media and suspensions.
- All individual parts are available as spares. This ensures performance repeatability.
- **Atomised spray pattern:**
  - normal:
    Circular full cone of 10° to 40°
  - with flat jet air cap:
    Oval, flat jet of approx. 30° x 70°
- **Type of atomisation:**
  - fog, down to very fine
  - droplet size less than 50 – 150 microns

Design forms

Model 940
Borehole in liquid insert:
0.5 – 0.8 mm

Model 941
Borehole in liquid insert:
1.0 – 1.2 mm

Standard Model 942
Borehole in liquid insert:
1.4 – 2.0 mm

Model 943
Borehole in liquid insert:
2.0 – 2.3 mm

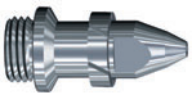


Fig. 16001

All nozzle forms are available with lengthened liquid inserts.

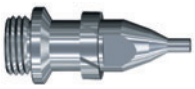


Fig. 16002

Nozzle designs

Form 0
Basic model (with blind plug). Designed for the atomisation of liquids that are either siphoned or fed by gravity at a slight incline.

Fig. 16003

Form 1
With blind plug and swirl chamber. Designed for fine atomisation of liquids under pressure. Especially suitable for integration in textile web moisturising equipment.

Fig. 16004

Form 3
Supplied with a needle.
For fast nozzle orifice cleaning during operation.
Designed for the atomisation of sticky, impure, or highly viscous liquids, etc.

Fig. 16005

Nozzle designs

Form 4
Supplied with a liquid flow control needle for atomising tasks having highly variable flow rates.

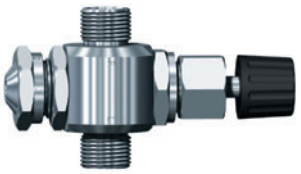


Fig. 16006

Form 5
As Form 4, but with a scale etched on the liquid control needle for fine setting of the flow rate, designed for experiments, laboratories, etc.

Fig. 16007

Form 6
With straight (centrical) liquid feed, for atomisation of highly viscous solutions, pastes, etc.

Fig. 16008

Form 7
Pneumatically controlled using the atomising air. The nozzle needle closes the orifice automatically and abruptly when the atomising air is shut off. Especially suitable for etching, marking, cyclic spraying and above all for liquids under pressure where drips are to be avoided.

Fig. 16009

Form 7-1
As Form 7, but with control by control air, with special connector (atomising air can carry on blowing).

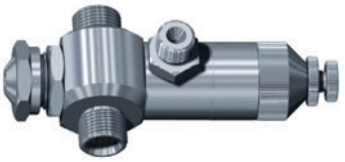


Fig. 16010

Form 8
With solenoid valve.
Standard design: 220 V, 50 Hz, 100 % ED.
Ambient temperature: max. 55 °C, enclosure protection IP 65.
Cycling frequency limited only by the changeover time.

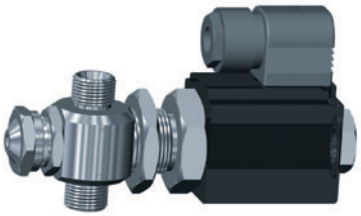


Fig. 16011

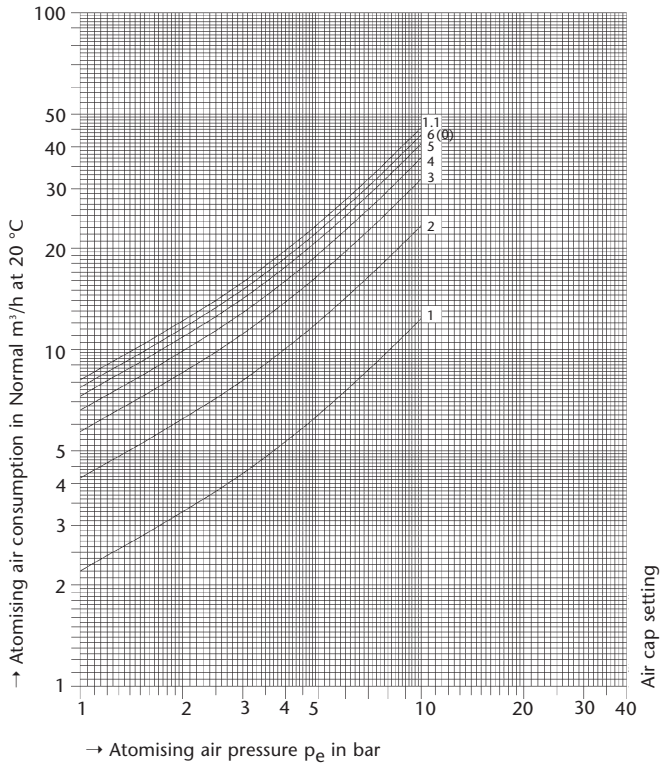
Materials

- Brass
- Acid resistant stainless steel
- Heat resistant stainless steel
- HASTELLOY
- Tantalum
- Titanium
- INCONEL
- PVC
- PTFE
- Polypropylene

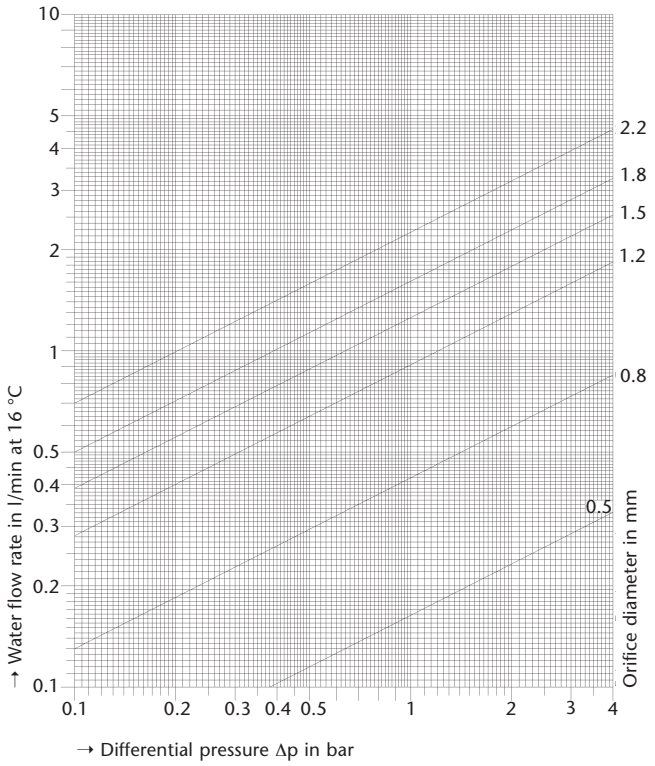
Custom products from other materials available on request

Performance specification

Model 940-943 – Two-substance nozzles
Atomising air consumption in Normal m³/h at 20 °C



Model 940-943 – Two-substance nozzles
Water flow rate in l/min at 16 °C



Model 940-943 – Two-substance nozzles
Performance specification

Model	Borehole in liquid insert in mm	Atomising air pressure in bar	Atomising air consumption in Normal m³/h	Max. siphon volume in l/min, Form 0, siphon height in mm			Max. siphon volume in l/min, Form 3-8, siphon height in mm			Best air cap setting
				50	150	300	50	150	300	
940	0.8	0.3	2.1	0.080	0.060	0.040	0.060	0.045	0.030	2
		0.5	4.0	0.100	0.080	0.050	0.075	0.060	0.035	3
		1.0	6.4	0.125	0.110	0.090	0.100	0.085	0.070	3
		1.5	8.2	0.150	0.125	0.110	0.115	0.100	0.085	4
941	1.2	0.3	2.0	0.140	0.110	0.060	0.105	0.085	0.045	3
		0.5	4.0	0.175	0.150	0.110	0.130	0.115	0.085	3
		1.0	7.4	0.220	0.190	0.160	0.165	0.140	0.120	4
		1.5	10.2	0.250	0.220	0.185	0.190	0.165	0.140	5
942	1.8	0.3	2.9	0.180	0.125	0.070	0.135	0.100	0.050	3
		0.5	4.7	0.280	0.220	0.140	0.210	0.165	0.105	4
		1.0	8.2	0.380	0.330	0.250	0.280	0.250	0.190	5
		1.5	11.5	0.500	0.400	0.300	0.380	0.300	0.220	1-2
943	2.3	0.3	2.9	0.260	0.175	0.085	0.200	0.130	0.065	3
		0.5	4.7	0.370	0.270	0.170	0.280	0.200	0.130	4
		1.0	8.2	0.500	0.400	0.290	0.280	0.300	0.210	5
		1.5	11.5	0.550	0.450	0.380	0.410	0.340	0.220	1-2

Performance specification

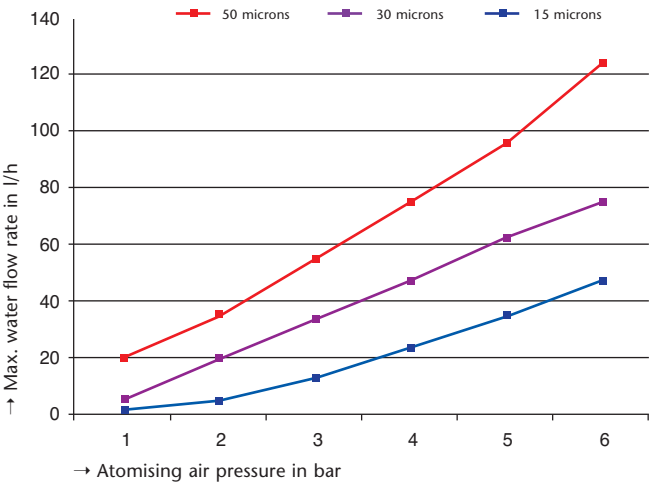
Model 940-943 – Two-substance nozzles
Performance specification

Atomising air pressure in bar	Air consumption in m³/h	Max. water flow rate in l/h	kg air/ kg water
1	9.2	20	0.55
2	13.5	35	0.45
3	18.0	55	0.39
4	23.0	75	0.36
5	27.5	96	0.32
6	32.0	125	0.32

The values quoted in the table are the maximum flow rates at which a fine atomisation with a mean volume droplet size of 50 microns is ensured.

Droplet size

Model 940 – Two-substance nozzles
Droplet size



Custom versions

Model 940 Form 7-1 S132 – Two-substance nozzle

- Custom version S132 is characterised by its compact design and simple construction.
- In comparison to the standard design it consists of fewer components. This simplifies installation, removal, and the cleaning of individual components.
- The function and spray pattern correspond to the standard version.
- All individual parts are available from stock.
- The nozzle can be fitted with a liquid return and a fixing block.
- In comparison to the standard design, however, the versatility is less.
- The nozzle is easily installed with the help of the fixing block.

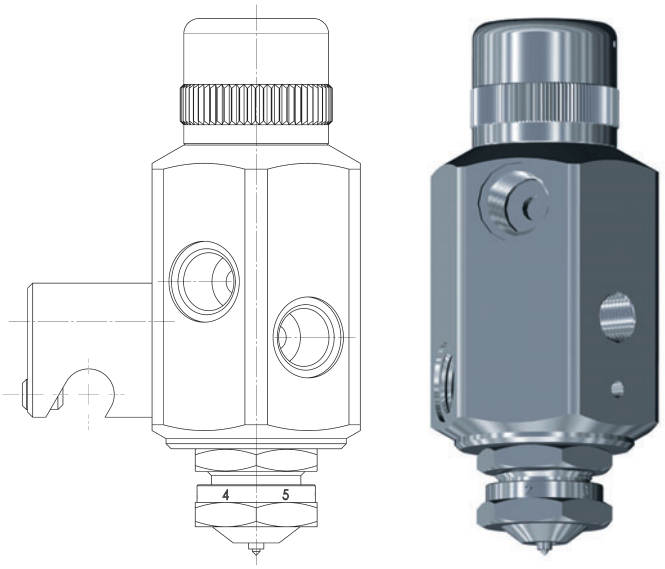


Fig. 16012

Custom versions

Model 0/63 Form 0 – Two-substance nozzle with patented internal mix cap

- The liquid and atomising medium is intensively mixed inside the air cap. A fine, two-phase mix leaves the nozzle through several orifices.
- A wide spray cone angle of approximately 70° is achieved with the help of the internal mix air cap.
- The spray's velocity is significantly less than that of external mix Two-substance nozzles.
- The volume flow density is almost constant over the whole of the spray cone.
- Model 940 is quickly changed to Model 0/63 or vice-versa by simply changing the air cap. Two-substance Model 0/63 is available in all designs.

Fig. 16013

Model 940 Form 3 S2 – Two-substance nozzle

With front end thread for screwing into container or tank walls

Fig. 16014

Model 940 Form 7 – Two-substance nozzle

With fixing block

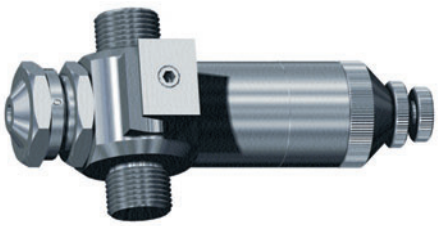


Fig. 16015

Model 940 Form S 124 – Two-substance nozzle

With DIN 11887 screw fitting

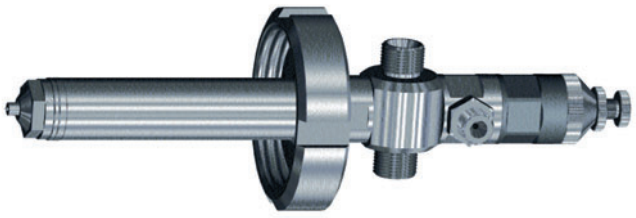


Fig. 16016

Custom designs/specialities

Model 940 Form 7-1 S61 – Two-substance nozzle
With heater/chiller sleeve

Fig. 16017

Model 940 Form 7-1 S 123 – Two-substance nozzle
With membrane (CIP construction)

Fig. 16018

Insertion pipe 940 S39

Fig. 16019

Header spray pipe with three Model 940 Form 7-1 nozzles

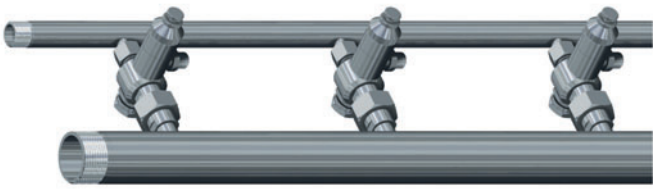


Fig. 16020

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Service spectrum

Pilot test laboratory
Before any new spray nozzles are used we subject them to comprehensive trials in our own test laboratory – if need be to your operational parameters. During these tests, we precisely determine droplet size, velocities and flow densities with our modern DUAL PDA laser-measuring equipment.

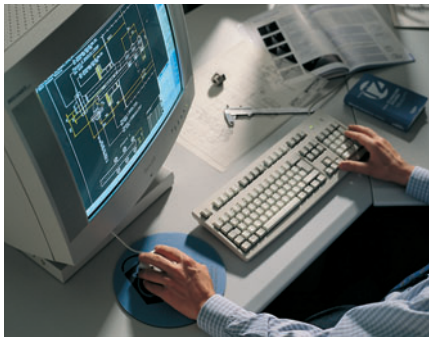
Test nozzles
Schlick spray nozzles are world renowned for highest precision. We can offer you the best and most lasting solution to your requirements. And, if you want, we can supply you with test nozzles in advance – just contact us.

Engineering
Take advantage of our comprehensive expertise – from design to installation – the conception of new products or the optimisation of existing plant. We would be glad to help you improve the success of your operation.

Repair service
As well as competent advice and its inception, you can profit from an efficient after-sales service that guarantees long-term supply of all products. We carry out both repair and conversion of Schlick spray nozzles, and in emergency, we can supply spare parts quickly and reliably.

Onsite service
If required we will investigate and develop an optimal solution to suit individual requirements onsite. We will advise you and give you support during installation and initial start-up of the plant. A further plus is the help available from our worldwide technical field service network.

Custom products
As one of the leading spray nozzle manufacturers in Europe, we can offer both high quality standard solutions and are in the position of developing customised products for individual tasks as fast as possible, even for small production runs.



Documentation to the customer's requirements
Reliability and quality are the basis for successful cooperation with our international customers. This applies both to our products and to our service. If you wish, we will supply you with all necessary documentation such as technical handbooks for the nozzles (drawings, flow diagrams, installation and operating instructions) together with factory and material specifications.

All specifications are subject to change (flow rates/dimensions).
The performance/flow rate specifications quoted are descriptive or product identities and can vary by up to ±5 percent on delivery.

Certified by
TÜV CERT
DIN EN ISO 9001:2000
Zertifikat: 01 100 041248
to DIN EN ISO 9001: 2000

Düsen-Schlick GmbH
Hutstraße 4
96253 Untersiemau
Germany
Tel. +49 95 65 94 81 0
Fax +49 95 65 28 70
info@duesen-schlick.de

www.duesen-schlick.de
www.duesen-schlick.com

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