



**SCHLICK Two-Substance Nozzle Model 940 Form 7-1
(D4.356 Version 1.0)**

Register

3-D-View	Page 1
Safety-Engineering Data Sheet	Page 3
Operating Instructions	Pages 4 – 5
Recommended Accessories	Page 6
Components-Drawing and Spare Parts List	Page 7
Assembly Instructions	Pages 8 – 11
Error-Checklist	Page 12
Drawing	Page 13
Atomization-Air Consumption Diagram	Page 14
Liquid-Consumption Diagram	Page 15

Safety-Technical Data Sheet

Important Information for Operators, Users and Fitters

Introduction: This nozzle has been developed using the latest state of technology and accomplishes the current national and international safety requirements. This nozzle offers a high degree of operational reliability, thanks to experience of many years in the field, research and development and to a permanent quality control provided in our company. **In normal operation the nozzle is safe.** Nevertheless and in particular if certain operational parameters are not met, there are some potential sources of danger to personnel, material and for the optimal sequence of the operation.

So, these operating instructions are comprising basic safety instructions which are to be observed with regard to the configuration, the operation and the assembling and disassembling of the nozzle. They have to be studied by the operator, user and fitter before assembling or disassembling the nozzle and have steadily to be at the disposal of the aforesaid persons.

General safety requirements:

- The nozzles have to be used only as per their usage to the intended purpose. Any changes of the operational conditions are to be clarified with the manufacturer.
- A usage to the intended purpose includes also the observance of the various information and instructions of this safety-technical data sheet and of those given in the operating and assembling instructions, as well as the observance of all the regulations of the Employer's Liability Insurance Association.
- The operators have to be familiarized with the method of function and with the handling of the nozzle.
- Installation, configuration, putting-into-operation and disassembling or assembling are to be carried out only by experienced and skilled personnel.
- Operation of the nozzle only by experienced resp. authorized users.
- Conversions and changes of the nozzle to be made only by authorized skilled personnel and after having consulted the manufacturer. Each and every conversions or changes made by other persons or conversions and changes, which have not been agreed with the manufacturer, will lead to a complete exclusion of liability.
- Prior to every putting-into-operation, the following has to be carried out, resp. to be observed:
 - functional test
 - checking, that all the nozzle connections are fitted firmly and tightly
 - labour safety
- The nozzles are exposed to the following kinds of wear and tear:
 - Chemical
 - Thermal
 - mechanical
- Therefore, the nozzles have to be checked regularly and if necessary, to be replaced. **Operation of the nozzles only in a technical perfect condition.**



Do not ever direct the liquid jet or the spray towards persons or electrical appliances. Risk of injury by chemical additives, high pressures, solid agents, current strike. **ATTENTION: In case of media like gas, air or steam, the spray jet is hardly visible.**



The danger exists, that the spray jet will be inhaled. In particular when chemicals or other noxious substances are atomized, remedial measures are to be taken by appropriate steps and devices (e.g. exhaustion, suitable breathing protection). The working area has to be adequately identified by suitable warning symbols.



During the atomizing process, the temperature of the medium/the media to be atomised is to be taken into consideration. The risk of burns or frostbite exists – remedy: suitable protective clothing to be worn.



If media are atomized which are detrimental to health, appropriate protective clothing has to be worn during assembling or disassembling of the nozzle.

- For adjustment, assembling and disassembling of the nozzle, only suitable tools shall be used.
ATTENTION: For adjustment, assembling or disassembling of the nozzle, all the pipes have to be depressurized and emptied.
- Before assembling, the connections have to be cleaned.

In case of a non-professional and/or material appropriate handling of the nozzle, any claim on guarantee is cancelled.

Operating Instructions for SCHLICK Two-Substance Nozzle Model 940 Form 7-1 (D4.356 Version 1.0)

Design characteristics:

The nozzle exhibited static charge. The design, construction and inspection of the nozzle has been carried out in accordance with Directive 2014/68/EU and the AD-2000 (article 4 paragraph 3) legislative body.

Assembly of the connecting pipes:

- Before connecting the nozzle, the connecting pipes have to be cleaned or to be blown through.
- The propellant (compressed air, steam, gas) has to be connected at the connection marked "air" (connecting thread G $\frac{3}{8}$ " outside thread), the liquid at the connection marked "liquid" (connecting thread G $\frac{3}{8}$ " outside thread) and the control air at the connection offset at 90° (connecting thread G $\frac{1}{4}$ " outside thread).
- Make sure, that the pipes are connected completely tightly.

Operating conditions:

Propellant:

The propellant atomizes the liquid at a minimum pressure of 0.5 bar (g). At a higher pressure of the propellant and during sucking operation, the throughput of the liquid is increased, or under constant throughput (non-sucking), the fineness of atomization is increased. For a precision adjustment of the throughput of compressed air or of gas, respectively for re-adjustment of the former throughput after cleaning, the air cap is equipped with a scale.

- Air cap screwed in completely = air-cap position 0 = nozzle is closed
- then air cap has to be opened by 5 scale lines = air-cap position 5 = standard cap position

Each to application, the required air-cap position has to be determined by tests. By turning the air cap back, the throughput of propellant is reduced and the spraying cone becomes more pointed; by turning the air cap forward, the throughput is increased and the spraying cone becomes larger (under constant pre-pressure of the propellant). Throughputs of the compressed air at various cap positions and pressures: see performance diagram (page 14).

Control air:

In the control air distribution, the nozzle opens the liquid feed at pre-pressure about 2.0 bar (g). The needle closes the liquid outlet in the liquid insert by spring pressure as soon as the control air pressure drops under about 0.8 bar (g).

Cleaning of the liquid insert during operation (only for design with cleaning needle):

If, during operation, contaminations at the outlet bore of the liquid insert should occur, they can be cleaned off by switching-off the control air, without having to switch the nozzle off. At this, the cleaning needle penetrates through the outlet bore of the liquid insert, the liquid outlet is interrupted for this short moment and the contaminations are pushed off. After switching-on the control air, the needle is lifted again and the liquid insert is released again.

Liquid:

The liquid can be sucked, supplied or be fed under pressure. At the liquid side, the throughput can be set within certain limits, by varying the pressure of the liquid or the supply- or the sucking height. Throughput of the liquid (water) under various pressures and bore holes: see performance diagram (page 15).

Switching-on and switching-off the nozzle:

- When **switching-on**, first the propellant valve has to be opened, then the control-air valve.
- When **switching-off**, first the control air valve has to be closed, then the propellant valve.

Maintenance and cleaning of the nozzle:

In appropriate cycles, depending on the spraying medium, the nozzle has to be checked for any damages, to be cleaned and to be greased slightly. As detergents, cleaning solvents, cleaning rags, plastic spatula, ultrasonic cleaner or similar means shall be used. No hard objects! Wearing parts (e.g. O-rings and/or seals) have to be examined optically and exchanged if necessary, while cleaning the nozzle.



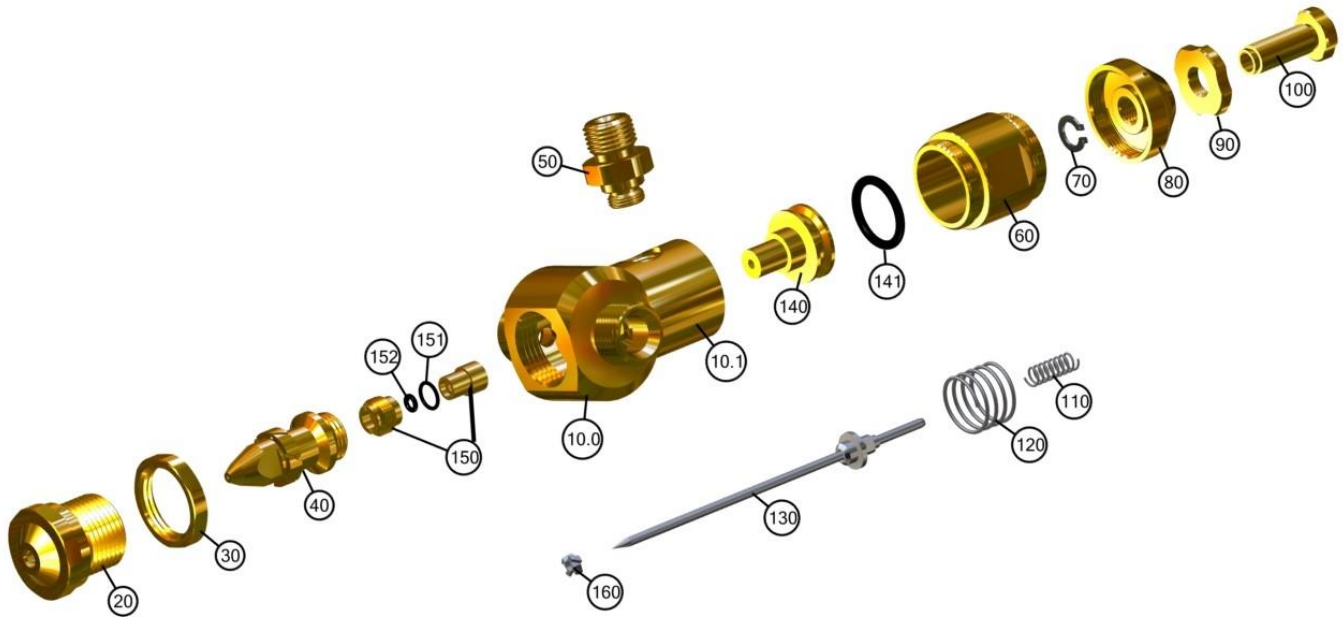
To avoid nozzle leakage, we recommend that dynamically loaded O-rings and seals are replaced at least every 6 months and that statically loaded sealing elements are replaced at least every 12 months.

In addition, the sealing elements should be visually checked by the operator during regular nozzle maintenance. The operating life of these components can be considerably reduced as a result of additional loads such as the influence of the medium being sprayed (viscosity, solids content, temperature, etc.), other environmental influences, and / or demanding operating conditions.

Use only suitable tools!

Before assembly, movable parts (piston, needle), all threads and all O-rings have to be greased slightly with a suitable lubricant.

Suitable lubricants are available at SCHLICK! Ask for our advice.



ID	Quantity	Name	Item-Number
10.0 + 10.1	1	Nozzle Body with Transition Piece	15495
20	1	Air Cap	15517
30	1	Lock Nut for Air Cap	15531
40	1	Liquid Insert Bore 0.8 mm	15435
50	1	Connecting Nipple for Control Air	15581
60	1	Control Cylinder	46824
70	1	Safety Ring	27647
80	1	Sealing Cap	46211
90	1	Lock Nut for Sealing Cap	46822
100	1	Stroke Adjusting Screw	46821
110	1	Needle Pressure Spring	16055
120	1	Piston Pressure Spring	16095
130 + 160	1	Adjusting Needle with Twist Body	15547
140 + 141	1	Piston with O-Ring	15573
141	1	O-Ring for Piston	16482
150	1	Sealing Screw, Divided	15562
151	1	O-Ring 1 for Sealing Screw	16437
152	1	O-Ring 2 for Sealing Screw	16411
160	1	Twist Body	15513

Numerical combined parts (e.g. 10.0 – 10.1) can be supplied only in one assembly and not as a single part!

Complete Item-Number of the Nozzle: 21091

SCHLICK-Mod.940/7-1 Version 1.0, D 4.356

Bore 0.8 mm

Adjusting Needle with Twist Body

O-Rings Viton®/FKM / Perbunan®/NBR

Brass

Assembly Instructions for SCHLICK Two-Substance Nozzle Model 940 Form 7-1 (D4.356 Version 1.0)

Disassembly:

CAUTION! If the nozzle shows any external pollution, it has to be cleaned unconditional before disassembly.
(Recommendation: Use an Ultrasonic-Cleaner)

Figures in squared brackets represent the parts number of the detail drawing on page 7.

All threads are right-handed threads!

Required Tools:

Vice with protective jaws made of plastic material
Slotted screwdriver.
Flat Spanner # 9
Flat Spanner # 24

1. Chuck the nozzle at the nozzle body [10.0] into a vice with protective jaws made of plastic material.



2. Loosen locking nut for air cap [30] (wrench # 24= width across flats) and unscrew air cap [20] (wrench # 24= width across flats) by hand.



3. Unscrew liquid insert [40] (wrench # 9= width across flats).

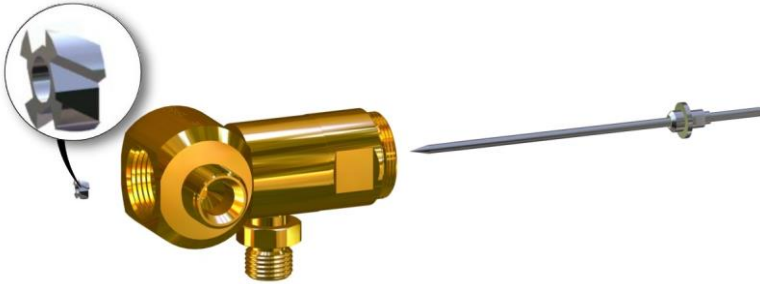


4. Unscrew sealing cap [80] by hand.

 **CAUTION: SEALING CAP** is under **SPRING PRESSURE!**



5. Remove needle-pressure spring [110] and piston-pressure spring [120].



6. Withdraw the adjusting needle [130] by hand upwards out of the nozzle. One hand has to be hold under the nozzle as when withdrawing the needle, the twist body [160] will be loosened from the needle and will fall out of the nozzle. If the twist body is a tight fit on the needle, additional force may be required to remove it. **CAUTION:** When assembling the nozzle, the twist body **has to** be brought to his origin position on the needle; otherwise leakages on the liquid insert will appear. Origin position is reached, when maximum distance between the top of the needle and the twist body is obtained (see key plan page 11, left side shows right position). Press the twist body onto the needle by hand force only.



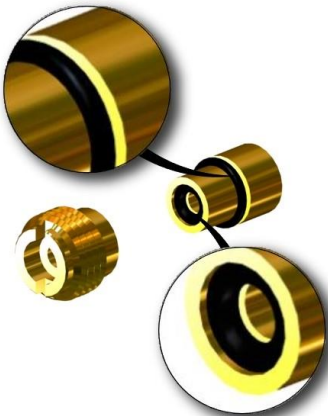
7. Unscrew control cylinder [60] (wrench # 24= width across flats).



8. Press piston [140] out of the cylinder by hand. Check the O-ring [141] of the piston for any damages and replace it, if necessary.



9. Unscrew sealing screw [150] from transition piece [10.1] by means of a suitable slotted screwdriver and remove it from nozzle.



10. Dismantle sealing screw [150] by hand; check the two O-rings [151 + 152] of the sealing screw for any damages and replace them, if necessary.

Use only suitable tools!

For **re-assembly** of the nozzle the steps 1. – 10. have to be carried out in reversed order.

Do not clean the nozzle with any hard objects, use only plastic spatula, cleaning solvents, cleaning rags, ultrasonic cleaner etc. A nozzle cleaning set with suitable tools is available with Item-No. 53066-2.

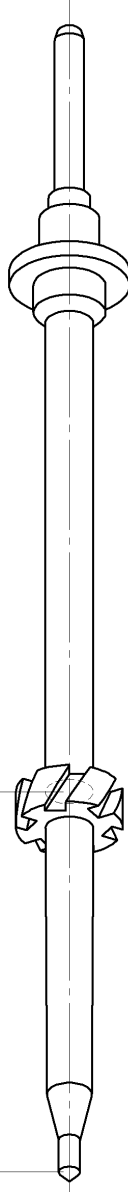
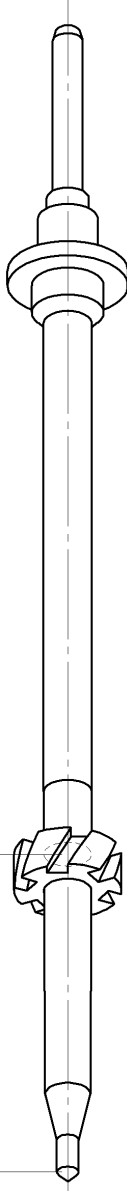

Before assembly, all movable parts (piston, needle), all threads and O-rings have to be greased slightly with a suitable lubricant.

Suitable lubricants are available at SCHLICK! Ask for our advice.



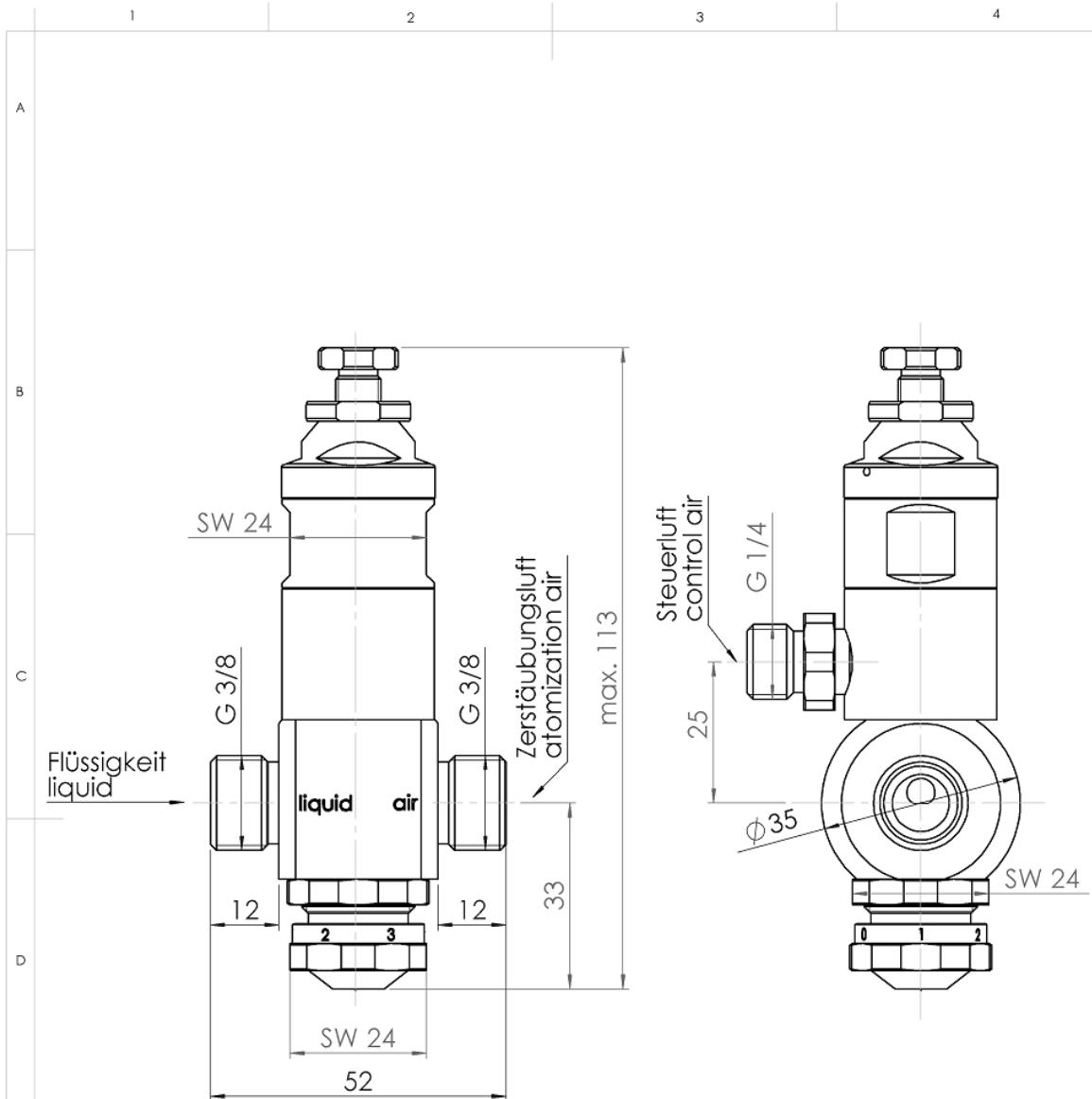
To avoid nozzle leakage, we recommend that dynamically loaded O-rings and seals are replaced at least every 6 months and that statically loaded sealing elements are replaced at least every 12 months.


In addition, the sealing elements should be visually checked by the operator during regular nozzle maintenance. The operating life of these components can be considerably reduced as a result of additional loads such as the influence of the medium being sprayed (viscosity, solids content, temperature, etc.), other environmental influences, and / or demanding operating conditions.

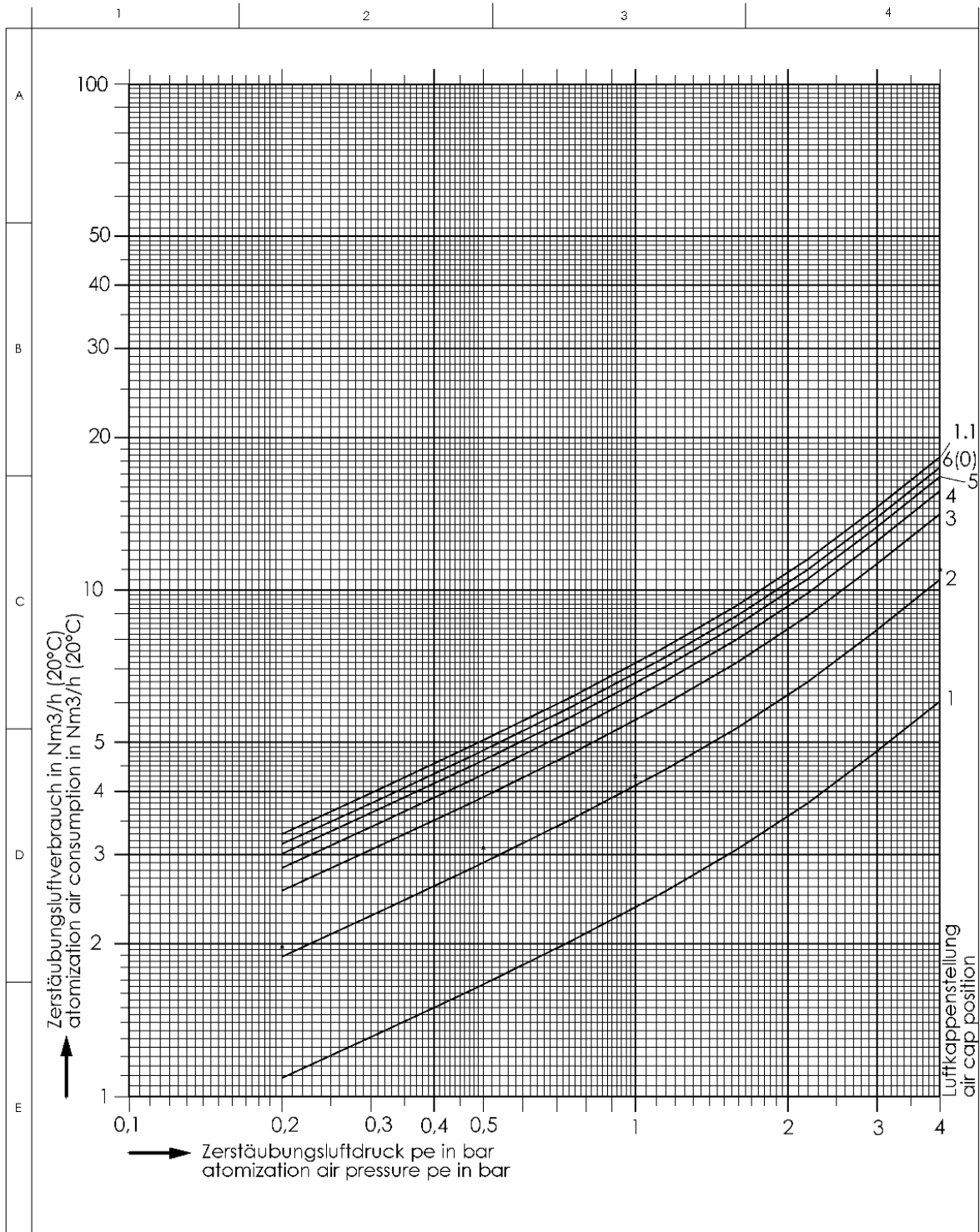
	1	2	3	4
C				
D	<p>größerer Abstand * larger distance *</p>		<p>kleinerer Abstand * smaller distance *</p>	
E	<p>Richtig Right</p>		<p>Falsch Wrong</p>	
	<p>* Abstand je nach Bohrungs- bzw. Nadel-durchmesser variabel * Distance variation is dependant on the spinners correct orientation</p>			
<p>Bemerkungen Das Urheberrecht an dieser Zeichnung verbleibt uns. Die Überlassung an Dritte, Vervielfältigung u. widerrechtliche Benutzung ist untersagt. -BGB 157, 823, 826, 1004-</p>			<p>Maßstab DIN A4</p>	
<p>Nadel/281</p>			<p>assembly instruction needle and twist body</p>	
			<p>Montagehinweis Nadel und Drallkörper</p>	
			<p>Blatt</p>	
			<p>von</p>	
F				
	Nr.	Änderung	Datum	Name
			Ursprung:	
			Ers. für	Ers. durch


Error-Checklist:

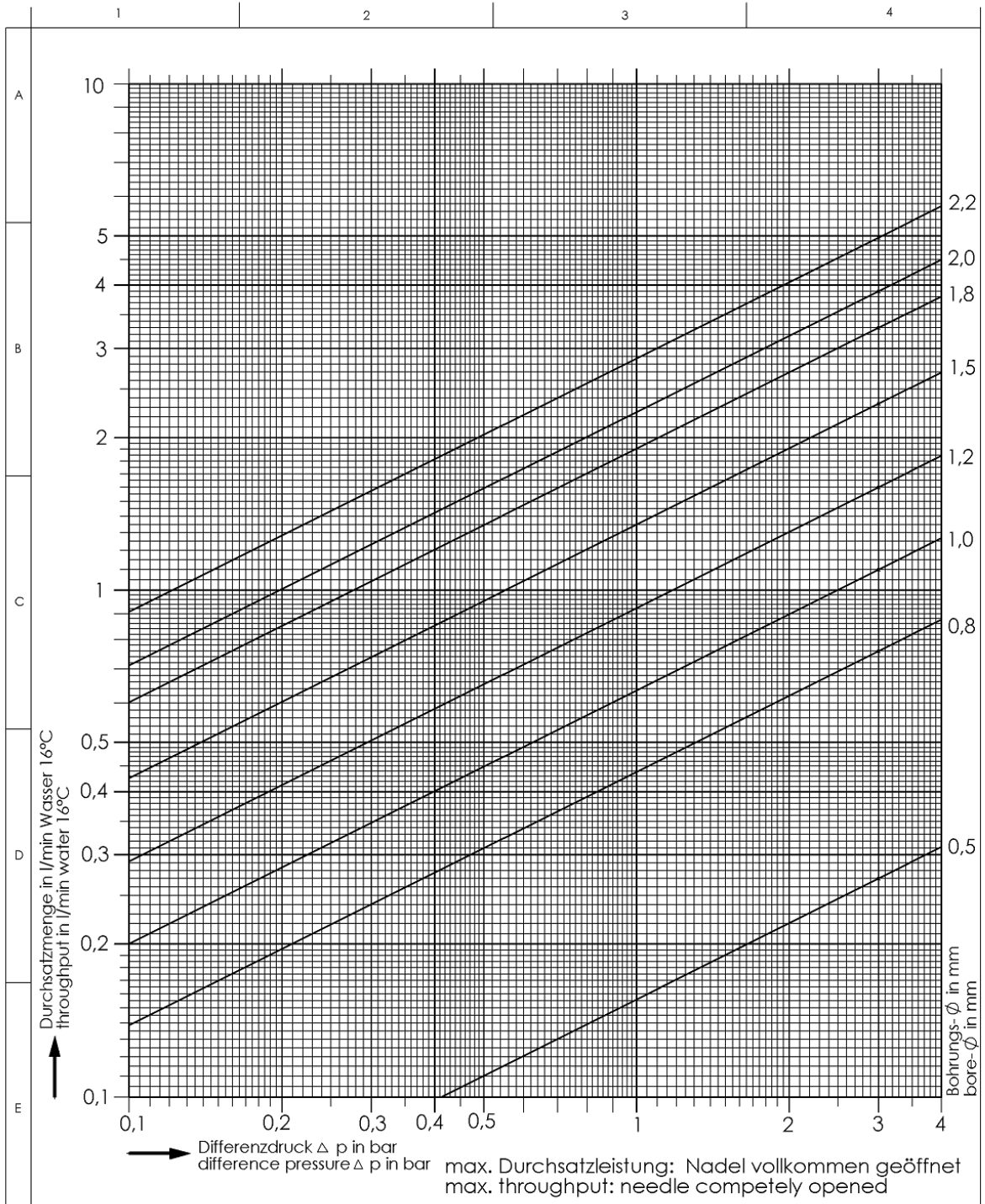
Problem	Reason	Elimination
Spray pattern shows strings and/or is uneven	Liquid insert and/or air cap polluted	Cleaning of the appropriate part
	Liquid insert and/or air cap damaged (scratches, deformation on the outlet-bores etc.)	Replace appropriate part
"Sputtering" spray pattern	Liquid insert not tightened enough	Check liquid insert for a tight fit
	Sealing surface(s) of the liquid insert and/or nozzle body damaged	Replace appropriate part
	Sealing screw not tightened enough	Check sealing screw for a tight fit
	O-Rings of the sealing screw damaged	Replace O-Rings of the sealing screw
Liquid runs out, although the needle is closed.	Liquid insert and/or needle polluted	Cleaning of the appropriate part
	Sealing surface of the liquid insert and/or of the needle damaged	Replace appropriate part
	Wrong assembly of the twist body	Correct assembly of the twist body (see page 11)
Liquid runs into the control air distribution	Sealing screw not tightened enough	Check sealing screw for a tight fit
	O-Rings of the sealing screw damaged	Replace O-Rings of the sealing screw



Ursprung/ Alte ZG-Nr.:		Werkstoff: siehe Einzelteile		Gewicht/gr:	
Das Urheberrecht an dieser Zeichnung verbleibt uns. Die Überlassung an Dritte, Vervielfältigung u. widerrechtliche Benutzung ist untersagt. Jede Zuwiderhandlung wird zivil- und strafrechtlich verfolgt. The copyright of this drawing remains the sole property of Düsen-Schlick. It is illegal to make copies and pass to a third party. Every contravention will be prosecuted and brings a civil action.		Maßstab: 1:1		DIN A4	
© Düsen-Schlick GmbH		SCHLICK-Zweistoffdüse SCHLICK Two-Substance Nozzle		113/52/49	
Datum Name		Modell (model) 940 Form 7-1		Version 1.0	
Bearb. 13.06.2016 BP		Gepr. 13.06.2016 JZ		D4.356	
Freigeg.: 13.06.2016 UP				Seite 1	
Nr.	Änderung	Datum	Name		



46	Das Urheberrecht an dieser Zeichnung verbleibt uns. Die Überlassung an Dritte, Vervielfältigung u. widerrechtliche Benutzung ist untersagt. Jede Zuwiderhandlung wird zivil- und strafrechtlich verfolgt. The copyright of this drawing remains the sole property of Düsen-Schlick. It is illegal to make copies and pass to a third party. Every contravention will be prosecuted and brings a civil action.		Leistungsdiagramm Modell 940 diagram model model 940
F	© Düsen-Schlick GmbH		T 940 4-100 L 0 0
	Ursprung:	Ers. für	Ers. durch



81

<p>F</p> <p>Das Urheberrecht an dieser Zeichnung verbleibt uns. Die Überlassung an Dritte, Vervielfältigung u. widerrechtliche Benutzung ist untersagt. Jede Zuwiderhandlung wird zivil- und strafrechtlich verfolgt. The copyright of this drawing remains the sole property of Düsen-Schlick. It is illegal to make copies and pass to a third party. Every contravention will be prosecuted and brings a civil action.</p> <p>© Düsen-Schlick GmbH</p>		<p>Leistungsdiagramm Modell 940 mit Nadeldrall diagram model model 940 with needle twist-body</p>	
		<p>T 940-43/1/3/4/5/7 4-10 W D 0</p>	
		<p>Ers. für</p>	<p>Ers. durch</p>