DEVILBISS

EN

SB-E-2-660 ISS.07

CE

Operation Manual

AGN-502 Automatic gun



EC Declaration of Conformity

We, **Finishing Brands UK Limited, Ringwood Rd, Bournemouth, Dorset, BH11 9LH, UK**, as the manufacturer of the **Automatic Spray gun model AGN**, declare, under our sole responsibility, that the equipment to which this document relates is in conformity with the following standards or other normative documents:

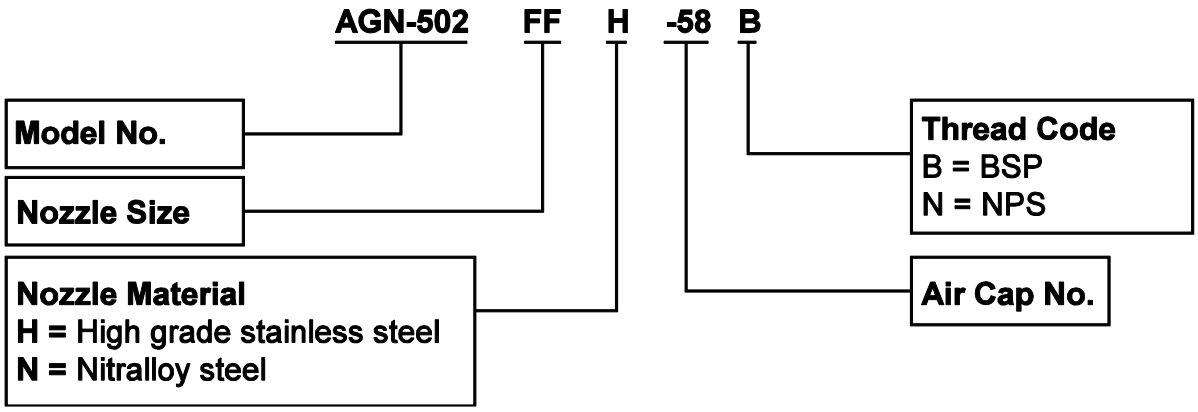
BS EN ISO 12100: 2010, BS EN 1953:2013; and thereby conform to the protection requirements of Council Directive **93/37/EC** relating to **Machinery Safety Directive**.

This product also complies with the requirements of the EPA guidelines, PG6/34. Transfer efficiency certificates are available on request.



D. Smith, General Manager
18th December 2014

Finishing Brands UK Limited reserves the right to modify equipment specification without prior notice.



AGN-502 Spray gun fitted with fan air control valve.
For ordering information see chart 1 for the selection of air cap and nozzle combinations. Add thread code for the hose connection thread required.

Important
Read and follow all instructions and Safety Precautions before using this equipment

Operational Description

This **AGN-502** Is *a lightweight diaphragm operated automatic spray gun for use with ceramic glaze, vitreous enamels, liquid polishing compounds and similar materials. The standard gun fitted with a rubber diaphragm is not suitable for use with solvent based coating materials; however it can be converted for use with solvent based coating materials by fitting a PTFE protective diaphragm see Accessories. Nozzles are available in high grade stainless steel and case hardened Nitralloy steel. Remotely positioned valves (supplied by user) control the air supplies for atomisation and diaphragm operation. Coating material supply is by a pressure feed system.*

IMPORTANT: *These guns are not designed for use with highly corrosive or highly abrasive coating material and if used with such materials it must be expected that the need for thorough cleaning and/or the necessity for replacement parts will be increased. If there is any doubt regarding the suitability of a specific material, advise what material is to be used and/or submit a sample for test.*

© 2015 Finishing Brands UK Ltd.

⚠ SAFETY WARNINGS

Fire and explosion



Solvents and coating materials can be highly flammable or combustible when sprayed. ALWAYS refer to the coating material supplier's instructions and COSHH sheets before using this equipment.



Users must comply with all local and national codes of practice and insurance company requirements governing ventilation, fire precautions, operation and house-keeping of working areas.



This equipment, as supplied, is NOT suitable for use with Halogenated Hydrocarbons.



Static electricity can be generated by fluid and/or air passing through hoses, by the spraying process and by cleaning non-conductive parts with cloths. To prevent ignition sources from static discharges, earth continuity must be maintained to the spray gun and other metallic equipment used. It is essential to use conductive air and/or fluid hoses.

Personal Protective Equipment



Toxic vapours – When sprayed, certain materials may be poisonous, create irritation or be otherwise harmful to health. Always read all labels, safety data sheets and follow any recommendations for the material before spraying. If in doubt, contact your material supplier.



The use of respiratory protective equipment is recommended at all times. The type of equipment must be compatible with the material being sprayed.



Always wear eye protection when spraying or cleaning the spray gun.



Gloves must be worn when spraying or cleaning the equipment.

Training – Personnel should be given adequate training in the safe use of spraying equipment.

Misuse

Never aim a spray gun at any part of the body.

Never exceed the maximum recommended safe working pressure for the equipment.

The fitting of non-recommended or non-original spares may create hazards.

Before cleaning or maintenance, all pressure must be isolated and relieved from the equipment.

The product should be cleaned using a gun-washing machine, and should be removed and dried immediately after cleaning is completed. Prolonged exposure to cleaning solutions can cause damage to the product.

Noise Levels



The A-weighted sound level of spray guns may exceed 85 dB (A) depending on the set-up being used. Details of actual noise levels are available on request. It is recommended that ear protection is worn at all times when spraying.

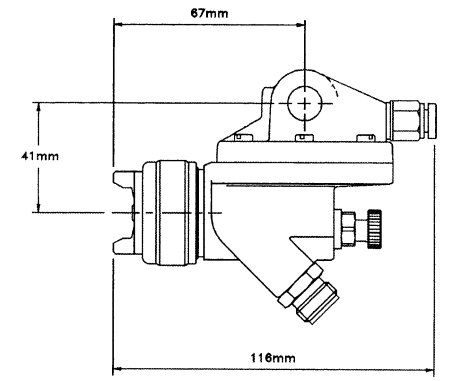
Operating

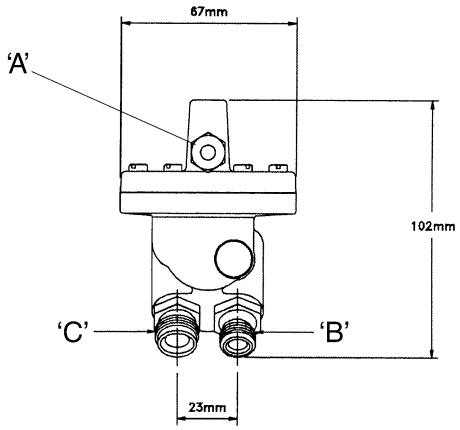
Spray equipment using high pressures may be subject to recoil forces. Under certain circumstances, such forces could result in repetitive strain injury to the operator.

© 2015 Finishing Brands UK Ltd.

Specifications

Hose connections	Thread code	
	‘B’	‘N’
Air supply Atomising:	¼" BSP	¼" NPS
Diaphragm:	6mm push-in tube connector	6mm push-in tube connector
Coating material supply:	⅜" BSP	⅜" NPS
MAXIMUM RECOMMENDED WORKING PRESSURES		
Atomising air supply	P1=7 bar (100 lbf/in2)	
Diaphragm air supply	P3=7 bar (100 lbf/in2)	
Coating material supply	P2=6 bar (87 lbf/in2	
Air consumption:	SEE CHART 1	
Weight	560g	





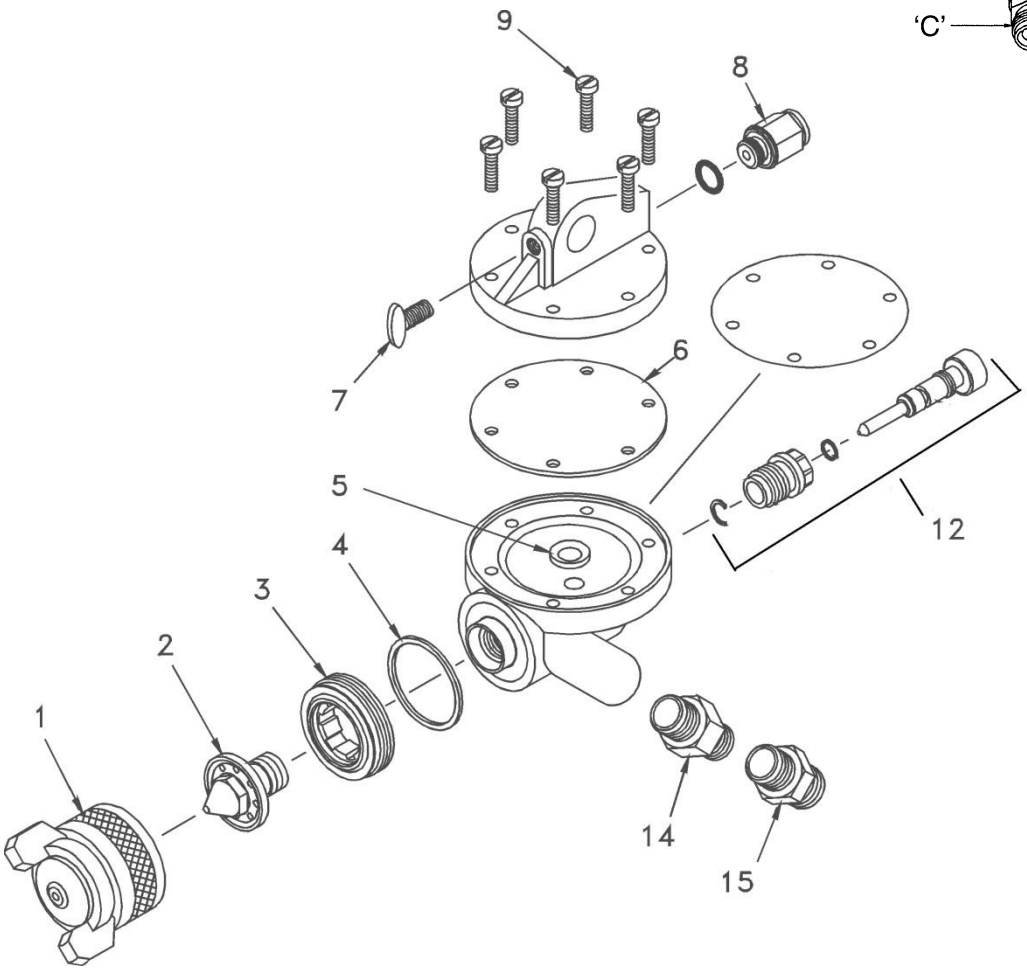


Figure 1.

© 2015 Finishing Brands UK Ltd.

REF.No.	DESCRIPTION	PART NUMBER	QTY.
1	AIR CAP	SEE CHART 1	1
2	NOZZLE	SEE CHART 2	1
3	BAFFLE & SEAL	JGD-402-K	1
+4	BAFFLE SEALS	GTI-33-K5	1
5	VALVE SEAT	AGN-18	1
6	DIAPHRAGM	AGN-7	1
+7	THUMB SCREW	SSF-5711-ZN	1
+8	TUBE CONNECTOR 6mm	AGMD-126	6
9	SCREW	SSF-4272	1
	CIRCLIP	SST-8434-K5	1
	'O' RING	SSG-8069-K5	1
12	SPREADER VALVE	AGN-498	1
14	CONNECTOR ¼" NPS/BSP	H-2008	1
15	CONNECTOR 3/8" NPS/BSP	H-1580	1

Chart 1 Air cap order No (1) and nozzle (2) size (mm) combinations

NO	ORDER NO	AC 2.8	D 2.2	DE 2.0	E 1.8	EE 1.8	EX 1.8	FF 1.4	FW 1.6	FX 1.1	FZ 1.2	G 0.7	AIRFLOW 1/MIN	PRESSURE BAR
30	AV-4239-30												275	3.4
35	AV-4239-35												144	4.1
43	AV-4239-43												396	4.1
58	AV-439-58												215	3.4
62	MB-4039-62HD												444	3.4
64	MB-4039-64HD												462	3.4
67	MB-4039-67HD												467	3.4
78	MB-4039-78												617	4.1
80	MB-4039-80												391	4.1
186	AV-4239-186												331	3.4
704	AV-4239-704												419	3.4
705	AV-4239-705												260	2.1
765	AV-4239-765												547	4.8
777	AV-4239-777												674	4.8
797	AV-4239-797												680	4.8
880	MB-4039-880												346	3.4

© 2015 Finishing Brands UK Ltd.

Chart 2 Nozzle Order No

NOZZLE	ORDER NO
H- HIGH GRADE STAINLESS STEEL (HARD SEAT)	
AV-1915-AC	AV-645-AC
AV-1915-D	AV-645-D
AV-1915-E	AV-645-E
AV-1915-EX	AV-645-EX
AV-1915-FF	AV-645-FF
AV-1915-FW	AV-645-FW
AV-1915-FX	AV-645-FX
AV-1915-FZ	AV-645-FZ
AV-1915-G	AV-645-G
N- NITRALLOY STEEL	
AV-115-AC	AV-611-AC
AV-115-D	AV-611-D
AV-115-DE	AV-611-DE
AV-115-EE	AV-611-EE
AV-115-FF	AV-611-FF
AV-115-FZ	AV-611-FZ

Installation

IMPORTANT: To ensure that this equipment reaches you in first class condition, protective coatings, rust inhibitors etc., have been used. Flush all equipment through with a suitable solvent before use to remove these agents from the material passages.

The AGN gun operation is different to models that have a needle valve to control the coating material flow. To shut coating material flow off, air pressure must be maintained on the diaphragm (6) to seal against seat (5). The simplest method of gun control is to use a normally open three way valve for the diaphragm air supply ‘A’ and a normally closed three way valve for the atomising air supply ‘B’. These valves can be automatically or manually operated.

To prevent unatomised coating material spoiling the finish the sequence of control valve operation should be;

To Spray	1.	Atomising air ‘B’	ON
	2.	Diaphragm air ‘A’	OFF
Stop spraying	3.	Diaphragm air ‘A’	ON
	4.	Atomising air ‘B’	OFF

The timing of these valve operations will depend on the speed of gun operation required, for some applications the atomising air supply could be continuously ON and the diaphragm air control valve operated when spray is required.

Caution: In case of an air supply failure it is recommended that a fail-safe valve is fitted to the coating material supply to prevent accidental spillage.

Separate filtered regulated air supplies are required for atomising and diaphragm operation.

Mount the gun on a 12.5 mm (1¼2") diameter rod and secure with screw (7).

Hosing

1. Connect a 6 mm outside diameter nylon tube to the push-in connector ‘A’ via a three way normally open valve.
2. Attach atomising air supply hose to connector ‘B’ via a three way normally closed valve.
3. Attach coating material hose to connector ‘C’ from a pressure feed source.

Recommended hose sizes, up to 10 metres long.

Atomising air supply 8mm (5/16") internal diameter.

Coating material supply 9.5mm (3/8") internal diameter.

© 2015 Finishing Brands UK Ltd.

Operation

The AGN gun operation is different to models that have a needle valve to control the coating material flow. To shut coating material flow off, air pressure must be maintained on the diaphragm (6) to seal against seat (5). To prevent coating material leaks from the nozzle the regulated diaphragm air supply pressure 'A' must be at least 0.5 bar (8 lbf/in2) higher than the coating material supply.

Caution: To prevent accidental discharge of coating material always turn off and release coating material pressure when the gun is not in use.

1. Mix, prepare and filter the coating material to be sprayed to the manufacturer's instructions.
2. Adjust the spray gun control and regulate air and coating material pressures before turning on the air and coating material supplies.

2.1. Fan pattern valve (13). Turn adjusting screw to fully open position, by turning counter- clockwise.

2.2. Regulate the atomising air supply 'B' pressure to 4 bar (60 lbf/in2).

2.3. Adjust diaphragm air supply pressure 'A' to 2 bar (30 lbf/in2).

2.4. Regulate coating material pressure to 1 bar (15 lbf/in2).

3. Turn on atomising and diaphragm air supply to the spray gun before turning on coating material supply. Test spray by operating atomising and diaphragm air control valves,

Test Spray	1.	Atomising air 'B'	ON
	2.	Diaphragm air 'A'	OFF
Stop spraying	3.	Diaphragm air 'A'	ON
	4.	Atomising air 'B'	OFF

If the finish is too wet or dry adjust the coating material supply pressure until the desired pattern is achieved.

Caution: Remember to increase the diaphragm air pressure if the coating material pressure is increased.

If the atomisation is too coarse increase the air pressure, if too fine reduce the air pressure.

The recommended spray distance is 150-200 mm (6" – 8"). The spray width can be reduced from fan to round by turning valve (13) clockwise.

Preventative Maintenance

Flushing the system:

1. Turn off atomising air 'B' and coating material 'C' supplies and relieve pressures.
   Caution: DO NOT turn off diaphragm air supply 'A'.
2. Replace coating material with a suitable solvent, reduce pressure and turn on supply.
3. Remove air cap, operate the gun with diaphragm control valve, and do not turn on atomising air supply. Flush system until clean.

Clean air cap by immersing in solvent, brush or wipe clean. If any holes in the air cap are blocked use a toothpick or broom straw to remove the obstruction. Never use a steel wire or hard implement which will damage the air cap and result in a distorted pattern

Replacement of parts

Note: Order numbers shown in parts list for figure 1 with suffix '-K5' etc. at the end of the order No. indicates a kit of parts. Example JGD-14-K5 is a kit of five seals.
Caution: Always ensure that the fan air control valve is in the fully open position by turning the screw (13) counter-clockwise before fitting the valve assembly to the gun body and when removing the nozzle and baffle.
NOZZLE (2) AND BAFFLE (3).
Turn screw (13) counter-clockwise. Remove parts in the following order (1, 2, 3 and 4). Replace any worn or damaged parts. Reassemble in reverse order.
Recommended tightening torque for nozzle (2), 25-27 Nm (221 - 239 lbf in).
SEAT (5) or DIAPHRAGM (6).
Remove screws (9), top plate and diaphragm (6). Unscrew seat (5) using a 1/4" hexagon key. Replace worn or damaged parts. Reassemble in reverse order. Recommended tightening torque for screws (9), 4 Nm (35 lbf in).
Note: Protective diaphragm AGN-8 (see accessories) is fitted between the gun body and the rubber diaphragm (6) to prevent solvent based coating material contacting the rubber diaphragm.
'O' RING (12).
Turn screw (12) counter-clockwise and unscrew valve body . Replace '0' ring and reassemble in reverse order. Turn screw (12) counter-clockwise before fitting valve assembly to gun body.

© 2015 Finishing Brands UK Ltd.

CONNECTORS (14, 15).
Remove connector (14 or 15) and clean threads in gun body. Apply a medium strength thread locking/sealing compound to the taper thread of the new connector, screw into gun body and tighten. Recommended torque 16 Nm (140 lbf in).

Accessories

Service kit **Order KK-4998** contains parts marked with * in Parts List for figure 1.

Protective diaphragm **Order AGN-8-K5**. Converts gun for use with solvent based materials. Fit between the gun body and standard rubber diaphragm.

Multipurpose spanner **Order SPN-5**. Contains necessary sizes for maintenance and hose connections.

Cleaning brush Order **4900-5-1-K3** for cleaning threads and recesses of gun.

Remote pressure Cup: maximum working pressure 2 bar (30 lbf/in2), capacity 2.0 litres.

Order hoses separately.

KB-522: NOT SUITABLE FOR USE WITH HYDROGENATED HYDROCARBON SOLVENTS OR WATERBOURNE MATERIALS.

KB-522-SS: IS SUITABLE FOR USE WITH HYDROGENATED HYDROCARBON SOLVENTS OR WATERBOURNE MATERIALS.

Pressure feed tanks: A range of sizes are available manufactured in zinc coated steel or stainless steel construction. Please contact your local DEVILBISS Distributor for information.

Finishing Brands UK Limited,
Ringwood Road,
Bournemouth,
BH11 9LH,
UK.
Tel.No: 01202 571111
Fax No: 01202 581940
Website address: http:// www.finishingbrands.eu

Registered office:
Finishing Brands UK Limited,
400, Capability Green,
Luton,
Bedfordshire,
LU1 3AE,
UK.
Registered in England No: 07656273
Vat No: GB 113 5531 50

© 2015 Finishing Brands UK Ltd.