

Bluebe

BX Type

-MQL Semi-dry External Applicator-

User Guide

-Installation & Operating Instructions-



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INTRODUCING BX TYPE

BX Applicators are positive displacement lubrication systems for Minimum Quantity Lubrication that regulate the amount lubricant applied to a tool's cutting edge in exact quantities.

BX Applicator are designed to accurately deliver a constant, consistent and large amount of lubricant and variable lubricants granted as soluble, straight(neat) oils.

Accuracy and precision year after year to deliver lubricant to the cutting edge each time, every time.

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READ INSTRUCTIONS CAREFULLY BEFORE USE

FOR YOUR SAFETY

- USE only genuine lubricant Bluebe LB-Series.

Any other lubricants usage may result in the applicator malfunctioning.

- DO NOT USE low flash point oils such as volatile oils. It would cause an explosion or fire.
- DO NOT disassemble mist applicator. It would cause mist applicator malfunctioning.
- Please make sure machining center is stopped when inspecting mist output.

Manual operating required to run mist unit.

If machining center is NOT stopped, cutting tool and/or mechanical equipment would move.

There is a possibility that workers would get caught in machines.

WARRANTY

All Products sold carry a ONE-YEAR PARTS WARRANTY by FUJI BC ENGINEERING, only to purchasers for in business or original equipment manufacture, against defects in workmanship or materials under normal business.

Any part which is determined by FUJI BC ENGINEERING, to be defective in material or workmanship and returned to FUJI BC ENGINEERING, will be repaired or replaced at FUJI BC ENGINEERING.

All Warranties, expressed and implied, are null and void if the equipment is subject to improper installation, application, misuse, neglect, and/or accident or if a lubricant other than Fuji BC brand lubricant, BLuebe is use in the warrantied equipment.

SPECIFICATIONS

Supported fluid	Clean air (Remove dirt, oil and moisture)
Lubricant	USE ONLY genuine lubricant BLuebe LB series
Supply Air	0.4~0.7 MPa
Air flow	over 120 L/min[ANR] as per one nozzle
Air Inlet port	Rc 1/4
Temperature	5~50°C granted



Bluebe Genuine Lubricants

PREPARING

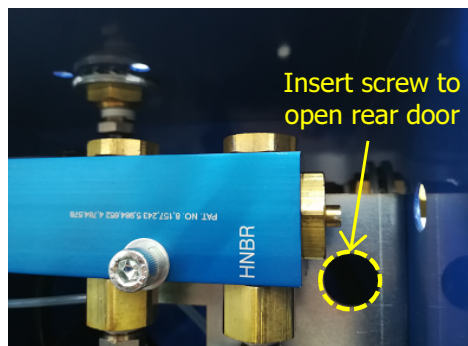
1. Attach reservoir to the machine.
2. Attach the applicator to the machine, make sure that it is as level as possible.
3. Security box is available to open front and rear side.

Following condition required to maintain mist applicator.

- (1) Please make sure enough room maintained to open front and rear doors.
- (2) DO NOT prevent any piping and wiring from opening both doors.



Front view



How to open rear door



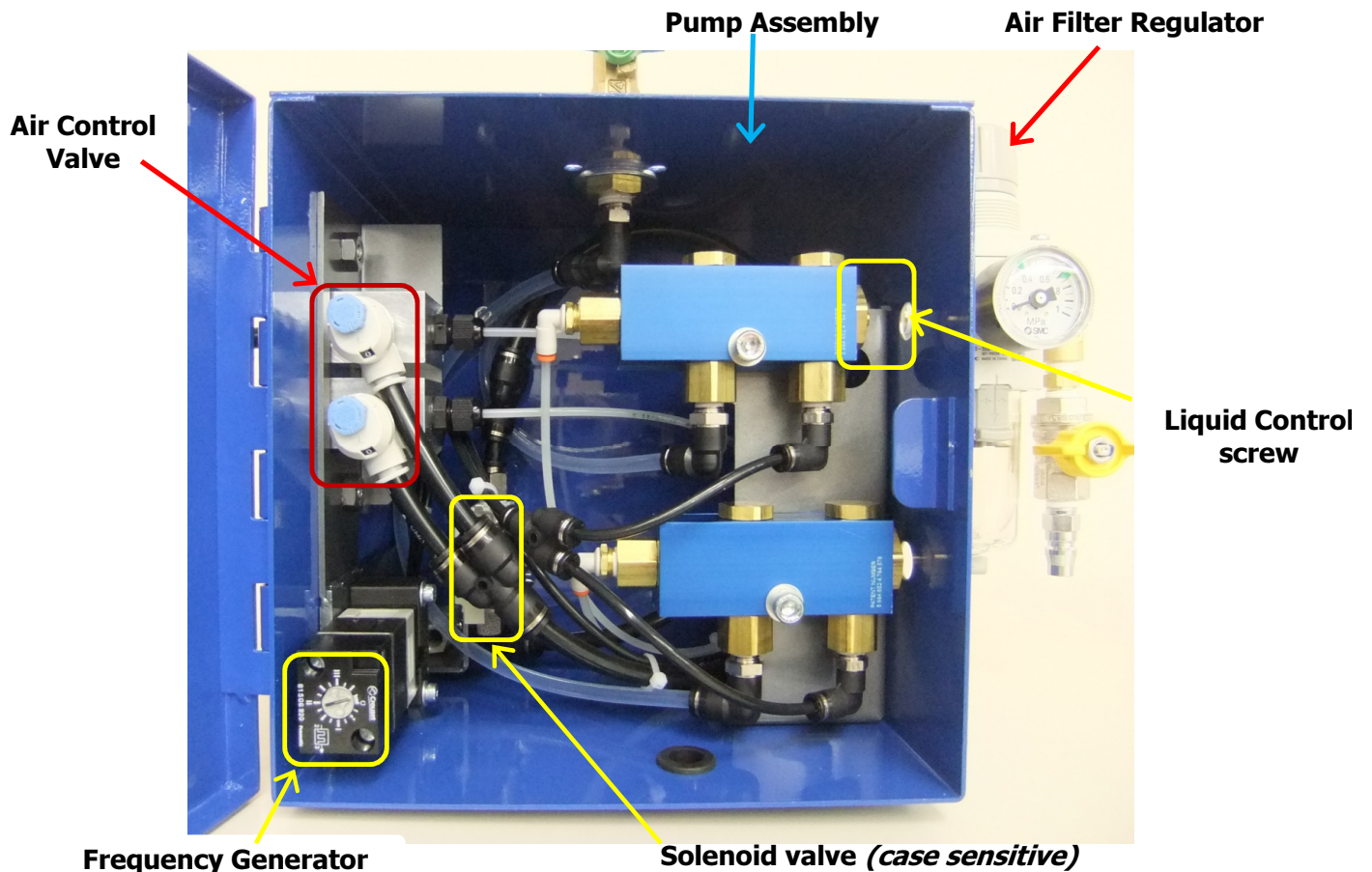
Rear view

INSTALLING

1. Install Reservoir and fill reservoir with lubricant.
 - *Make sure lubricant level is higher than L line or minimum quantity line.
 - *Make sure chips and/or other objects do not get into reservoir.
2. Make sure the air supply is connected and then turn the applicator on.
3. Adjust frequency generator to "I" to use a small flat screwdriver.
4. Check lubricant is observed from nozzle and turn air valve control clockwise.
5. Pulling blue knob to unlock air control valve.

Please be noted that it would take time to get lubricant output.

COMPONENTS



■ Air Control Valve

Controls the amount of continuous air supplied to the nozzle.

■ Pump Assembly

Uses air pressure to power the pump cycle; provides consistent and accurate lubrication instantly.

■ Frequency Generator

Primary lubrication control; regulates the pump cycle.

■ Liquid Control screw

Controls quantity of lubricant per pump stroke.

■ Liquid Reservoir

1900mL or 4L tank available.

Please make sure lubricant level is higher than L line or minimum quantity line.

If lubricant line is lower than L line, air would be into pump assembly makes it broke.

■ Air Filter Regulator/Pressure Gauge

Helps prevent particles and water from entering the applicator through the air supply.

■ Electric solenoid valve

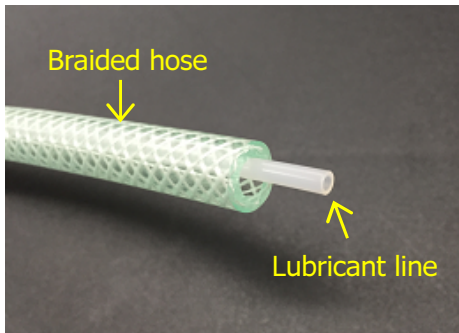
Electronic solenoid controls the applicator by regulating airflow.

■ Double tube (2 channel system: Lubricant and Air line)

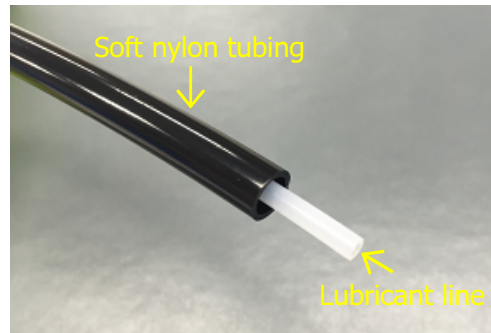
Air Hose(outside): Carries compressed air to the nozzle.

Lubricant Line(inside): Capillary tube that runs inside the air hose.

Air hose will be selected as (O.D.) ϕ 10.5 Braided hose, ϕ 8 Soft Nylon tubing or ϕ 10 Soft Nylon tubing.



**Dual tube [2 channel system]
(Braided air hose)**



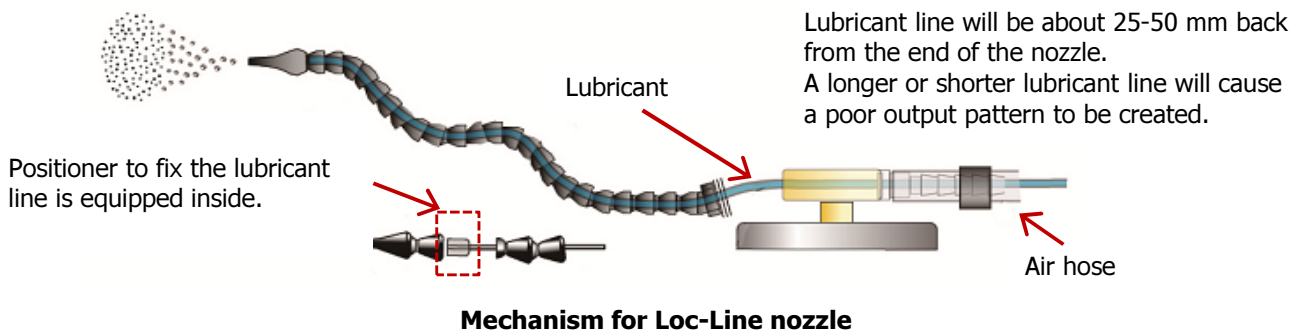
**Dual tube [2 channel system]
(Soft nylon air tubing)**

■ Nozzle

Variable nozzles available.



Loc-Line nozzle



Mechanism for Loc-Line nozzle

OPERATING

■ LUBRICANT CONTROL

Lubricant amount control is adjustable to set pump stroke as per one-shot by ①liquid control screw and to regulates the pump cycle by ②frequency generator.

① Liquid Control screw

● How to use

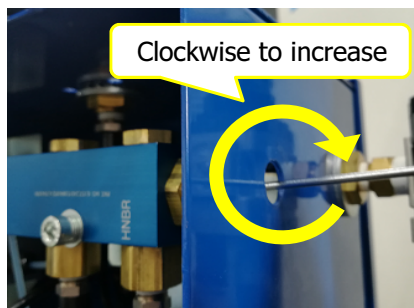
Control quantity of lubricants to turn screw with a small flat screwdriver.

- Counterclockwise to increase
- Clockwise to decrease

● Notes

Shipping State: Maximum pump stroke (turned counterclockwise).

DO NOT use the pump state with screws turned about 7 or 8 times.



How to set pump stroke



Maximum stroke
(before shipping)



Minimum stroke

② Frequency Generator

● How to use

1. With a stop watch determine the length of the pump cycle in seconds.
2. Use a small flat screwdriver to adjust the frequency generator, counterclockwise increases the cycle speed and clockwise decreases the speed.

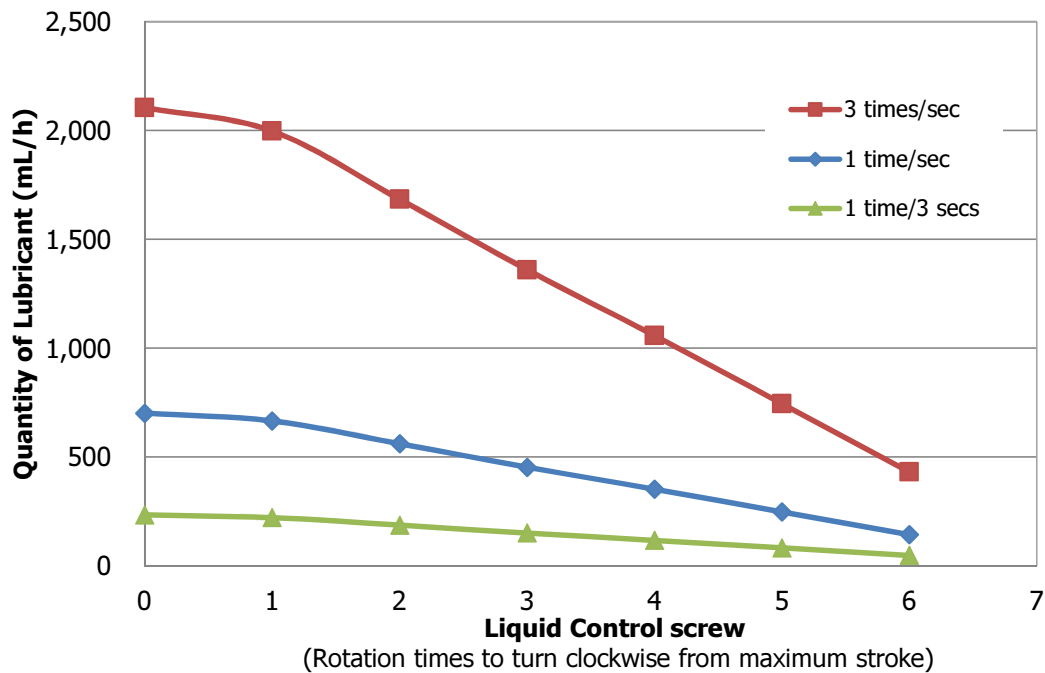
● Notes

- Frequency generator shows ROUGH guideline.
- With the stop watch continue to monitor the pump cycle until the desired cycle rate is reached.



Frequency Generator

■ QUANTITY of LUBRICANT (Pump cycle in seconds and liquid control screw)



Pump stroke by Liquid flow control	Lubricant (mL/h)		
	Pump cycle in seconds by Frequency Generator		
	1time/3sec (0.3Hz)	1time/sec (1Hz)	3times/sec (3Hz)
max stroke--> 0	234	702	2106
1	222	666	1998
Rotation times to turn clockwise from maximum stroke. 2	187	562	1685
3	151	454	1361
4	118	353	1058
5	83	248	745
min stroke--> 6	48	144	432

*The table shows reference because the quantity of output would be effected by any other external factors.

■ AIR FLOW CONTROL

Air Flow Control is adjustable to set air control valve.

③ Air control valve

● How to use

1. Pulling blue knob to unlock
2. Counterclockwise increases the air flow and clockwise decreases the air flow.
*The dial shows amount of air flow rate.
3. Push blue knob to lock

● Notes

Air flow rate increase makes some effect on cooling feature and/or chip removal.

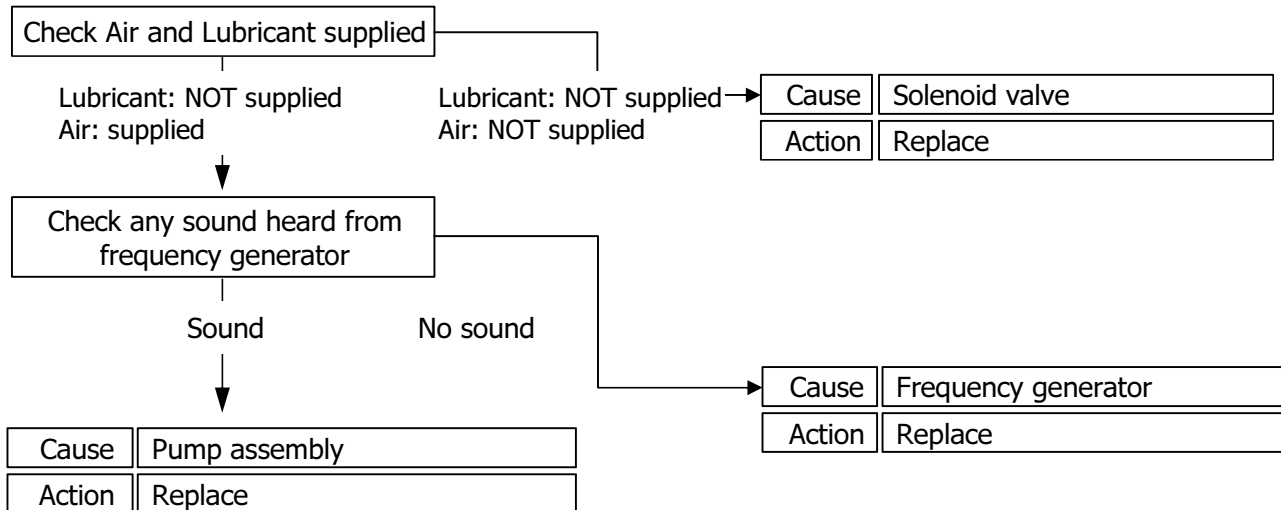


TROUBLESHOOTING

Read instructions before investigation

1. Check supply air runs 0.4MPa over and inlet port opened.
2. Check Lubricant filled in tank.
3. Please follow below procedure to clarify what causes problems.

Procedures to analysis problems



Please feel free to contact sales distributor to order and replace parts

Table of broken components to clarify

Output	Air supplied	No Air output
Lubricant supplied	No problem	<ul style="list-style-type: none"> • Check air control valve • Check air tubing broken
No Lubricant output	<ul style="list-style-type: none"> • Frequency generator broken • Pump assembly broken • Lubricant line is missing from pump 	<ul style="list-style-type: none"> • Solenoid valve broken

SPECIFICATIONS

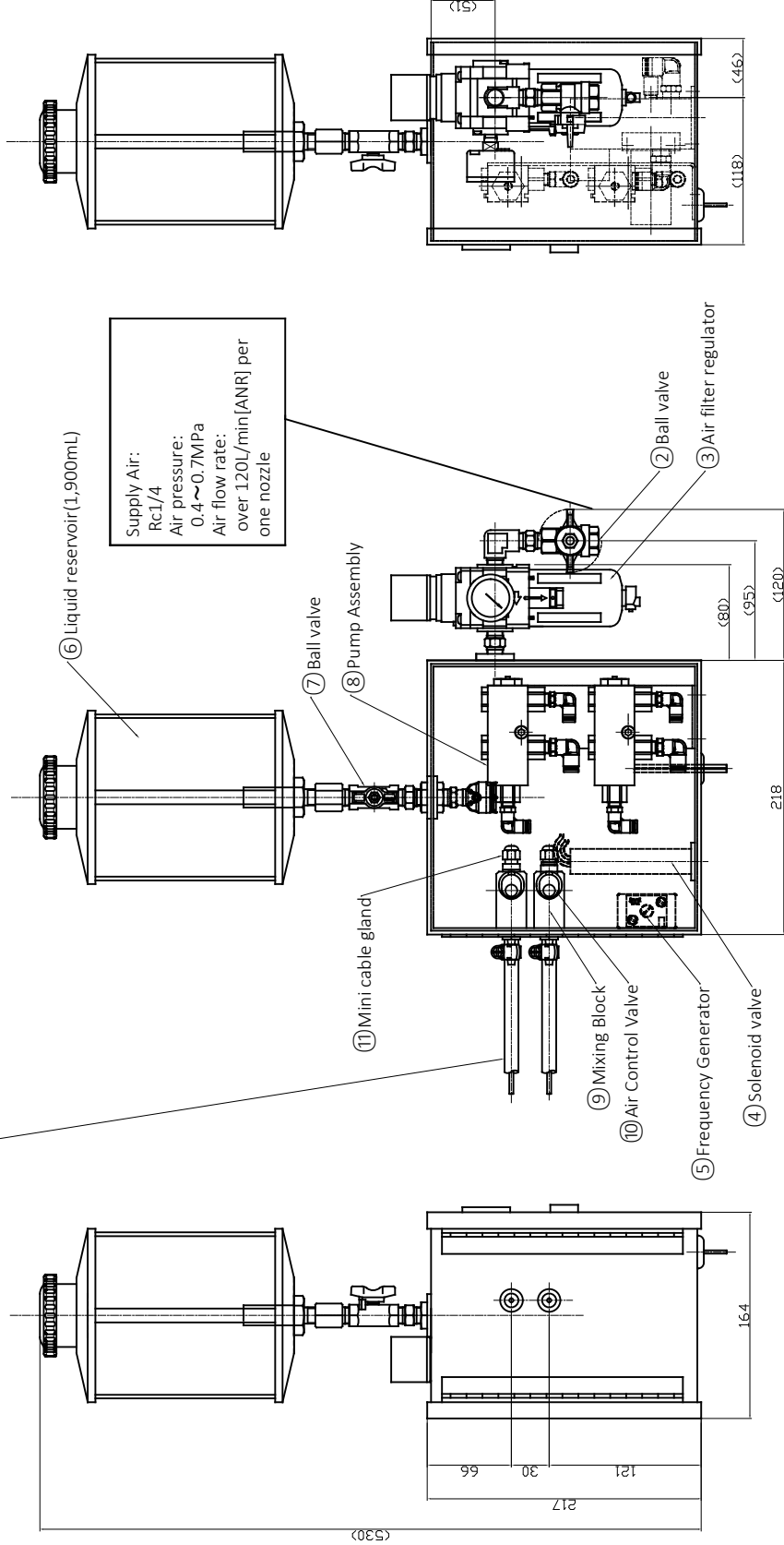
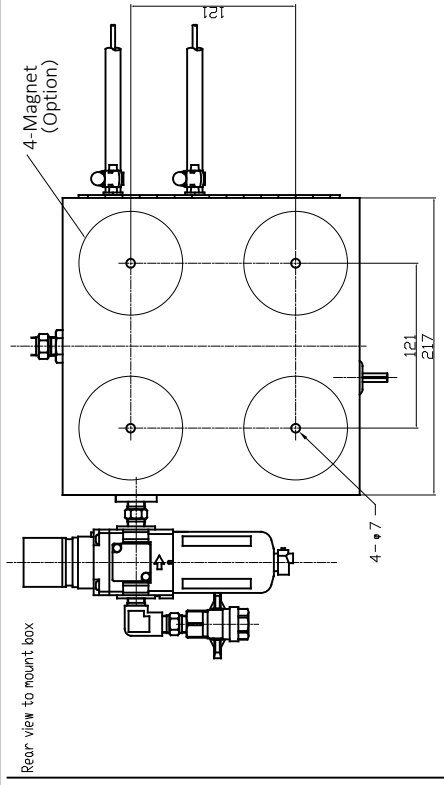
BX2H(F)-S00-00-0-19000-0

- Pumps :2
- Control :Electric solenoid valve (Select voltage and lead wire length)
- Nozzle : (case sensitive)
- Hose : Braided Hose(φ8,φ10 soft nylon tubing selectable)
- Liquid reservoir :1,900mL no float switch (4L tank and float switch available)
- Option :No air filter regulator, equip magnets to mount box

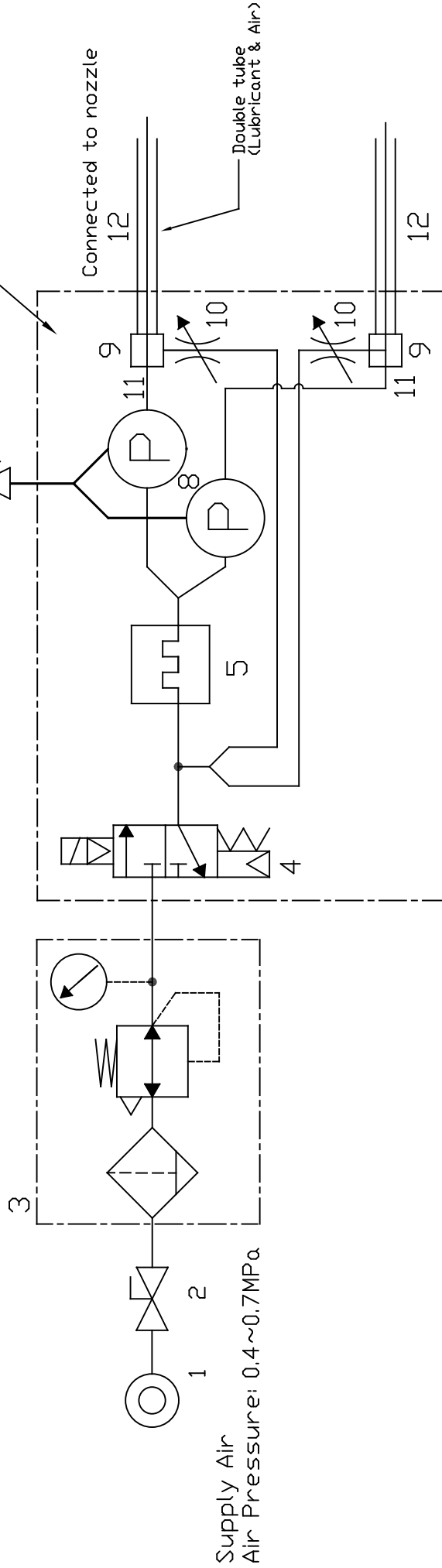
()shows expected size.
Please see actual scale in detail.

⑫ Double hose: connected to nozzle (sales unit: m)
 Lubricant line
 Air line
 O.D.: 1/8inch (3.18mm)
 I.D.: φ6.0mm
 Material - Nylon
 Min. bend radius - approx. 15mm
 Min. bend radius - approx. 40mm
 Recommend hose nipple - φ7

Min. radius bend conffition: room temperature and no distortion



Diagram



No.	Parts Name	Qty.	Manufacturer	Model	Remarks
1	Supply air				
2	Ball valve	1	Iegris	493308 13 BH	Manual operation only
3	Air filter regulator	1	S M C	AW30-02G-R-A	
4	Solenoid valve	1	S M C	VQZ312-＊YZB1-02	* 5:DC24V,1:AC100V,2:AC200V
5	Frequency Generator	1	FBC	#9707	
6	Liquid Reservoir	1	FBC	Ref (Parts list)	1,900mL / 4L tank
7	Ball valve	1	K I T Z	T K T1/4	
8	Pump assembly	1(2)	FBC	Ref (Parts List)	Water soluble・Straight oil
9	Mixing Block	1(2)	FBC		1 pc per 1 nozzle
10	Air control valve	1(2)	S M C	AS2211FS-01-08S	
11	Mini cable gland	1(2)	Japan AVC	MGB8-04B-ST	
12	Double hose (Lubricant&Air)	1(2)	FBC	#9360・#9363	Soft nylon tube selectable

PARTS LIST

Model BX-1(2)

I. Available parts via general manufacturer

No	Parts Name	Qty	Manufacturer	Model	Remarks
2	Manual on/off valve	1	Legris	493308 13 BH	Manual applicators only
3	Air filter regulator	1	SMC	AW30-02G-R-A	
4	Electric solenoid valve	1	SMC	VQZ312-5YZB1-02 VQZ312-1YZB1-02 VQZ312-2YZB1-02	24VDC 100VAC 200VAC
7	Ball valve	1	KITZ	TKT1/4	
10	Air control valve	1(2)	SMC	AS2211FS-01-08S	
11	Mini cable gland	1(2)	Japan AVC	MGB8-04B-ST	
(12-2)	Soft nylon tubing (φ8)		SMC	TS0806B (φ8×6)	
(12-2)	Soft nylon tubing (φ10)		SMC	TS1075B (φ10×7.5)	

II. FUJI BC Dedicated parts

No	Parts Name	Qty	Manufacturer	Model	Remarks
5	Frequency generator	1	FBC	#9707	Frequency generator + base plate
6	Liquid reservoir 1900mL	1	FBC	#8006	1900mL
				#8006A	1900mL (float switch equipped)
	Liquid tank 4L			#TANKH	4L TANK
				#TANKHL	4L TANK (float switch equipped)
8	Pump assembly	1(2)	FBC	#103PUM2011 #103PUM1006	For water soluble For straight (neat) oil
9	Mixing block	1(2)	FBC		
12-1	Lubricant tube	※	FBC	#9360	Sales unit: meter
12-2	Air tubing	※	FBC	#9363	Sales unit: meter
	Nozzle	1(2)	FBC	#CPNZ	Copper nozzle
				#SSNZ	Stainless nozzle
				#LLMB	Loc-Line nozzle with magnet base
				#CPMB	Copper nozzle with magnet base
				#SSMB	Stainless nozzle with magnet base



Please see dimensions page shows parts number.

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NOTES

Model Number: _____

Serial Number: _____

Purchase Date: _____

Lubricant: _____

The logo for Bluebe, featuring the word "Bluebe" in a bold, blue, sans-serif font. The letter "B" is stylized with a horizontal line extending from its top.

FUJI BC ENGINEERING CO.,LTD.

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