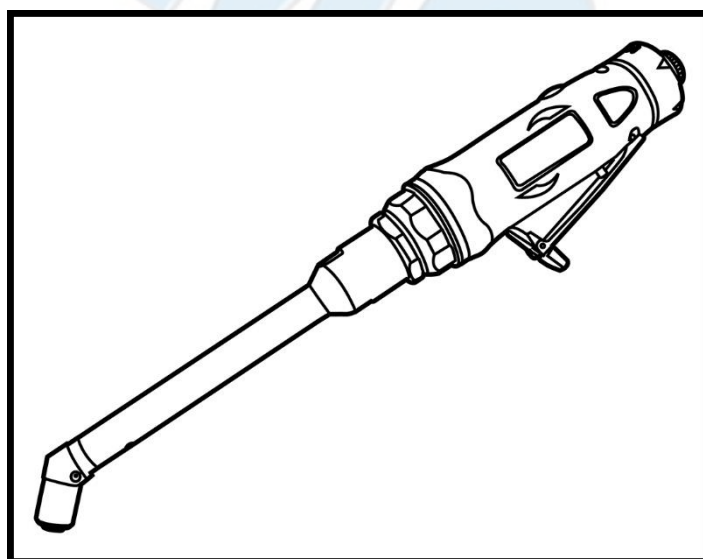




SUMAKE PNEUMATIC TOOLS



45° Angle Extended Air Drill Collet Type (9/32"-40 Thread) ST-AD223DN

Specification:

Free Speed	3,600 r/min
Motor	0.5HP
Spindle Threaded	9/32"-40
Air Consumption	13 CFM (368 L/min)
Overall Length	13-5/6" (351mm)
Air Inlet (PT)	1/4" (6.35 mm)
Air Hose (I.D.)	3/8" (10 mm)
Air Pressure	90 psi (6.3 bar)
Net Weight	2.2 lbs (1.0 kg)

Noise and Vibration:

Vibration EN ISO 28927-5	Noise EN ISO 15744	Remark
Load: < 2.5 m/s ²	Sound Pressure Level No load: 82 dB(A)	Please always wear ear protector at environment noise level > 80 dB(A) due to risk of impaired hearing!
	Sound power level No load: 93 dB(A)	
Uncertainty K= 1.5 m/s ²	Uncertainty K= 3dB	

SUMAKE INDUSTRIAL CO., LTD

4F,NO.351,Yangguang St.,Neihu District TAIPEI, TAIWAN, ZIP:114-91

ST-AD223DN-S-2004A-JUF



EC DECLARATION OF CONFORMITY

We: **SUMAKE INDUSTRIAL CO., LTD.**

4F, No. 351, Yangguang St., Neihu District, Taipei City, Taiwan

declare in sole responsibility that the equipment

Equipment : **45° ANGLE EXTENDED AIR DRILL COLLET TYPE (9/32"-40 THREAD)**

Model/ Serial No. : **ST-AD223DN**

to which this declaration applies, complies with these normative documents:

- Machinery Directive: 2006/42/EC

and conforms to the following EN standard,

- EN ISO 12100: 2010
- EN ISO 11148-3:2012

Name and Signature/Position


Mike Su - Managing Director

Date and Place

2019/11/29

Taipei, Taiwan

ST-AD223DN-D-2004A-JUF

Application:

Can be used as daily tool in ranging from aerospace to oil fields and refineries. this right angle drills are designed for high level operation condition, ie aerospace, engineering and material removal applications.

Operation Method:

1. Use clamps or another practical way to secure and support the workpiece to a stable platform.
2. Do not force the tool. Use the correct tool for the application.
3. Do not use the tool if the switch does not tune the tool on or off.
4. Disconnect the tool from the air source before making any adjustments, changing accessories, or storing the tool.
5. Use only accessories that are identified by the manufacturer for the specific tool model.
6. Accessories must be rated for at least the speed of the tool marked on the tool label.
7. A 3/8"(10mm) air hose is required up to a length of 2.5M. if more length is required a 1/2"(13mm) air hose should be connected to the 3/8"(10mm) hose to ensure the tool had the necessary air supply. Be sure all hoses and fitting are the correct size and tightly secured.
8. Drill bits should be inserted into drill chuck as far as possible.
9. For key chuck drill, use appropriately size chuck key to securely tighten drill bit, tap or reamer in drill chuck.
10. Locate center of new hole by using a center punch. Place drill bit tip in punch mark. Hold drill square with work and start motor. Apply steady, even pressure. Do not force! Too much pressure can cause bit from cutting and cause it to overheat.
11. Reduce pressure just before bit cuts through the work. When bit has penetrated work and is spinning freely, take it from the work while the motor is running, then release throttle.



Please add MOLY (Molybdenum Disulfide) grease.



Use hex wrench to fix spindle.



How to change angle head.

1. Use open wrench to fix the lock nut and then another wrench to rotate front casing in anticlockwise direction.

How to assemble angle head:

2. Attach angle head set to #27(lock nut) with glue (similar HOLDIT T43) , then adjust position and tighten #28(lock nut).



Connect fitting with the air hose.



For 360° offset angle drill type:
Use wrench to loose screws and then adjust 360° angle housing



360° swivel air exhaust.



Please add lubricant 1~2drops.



For collet type:
Use hex wrench to fix spindle and then fasten collect by an open wrench.



For chuck type:
Using a chuck key to tighten the drill bits.



For threaded type:
Fasten the drill bit



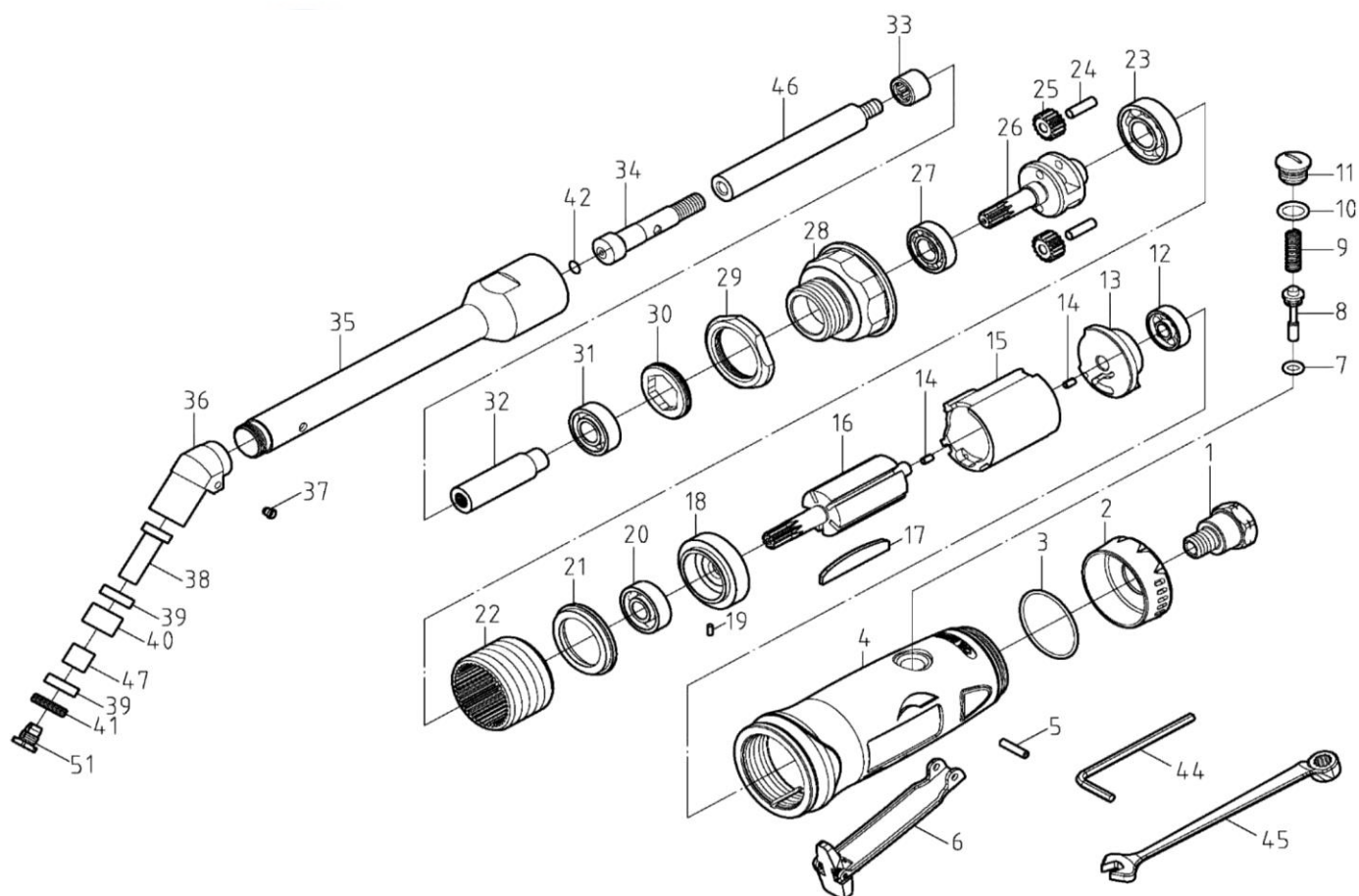
Press the trigger for running.
ATTENTION: Pls make sure the drill bit has been locked tightly before pushing trigger. Also, pls do not touch drill bit when tool is operating.

Common Troubleshooting:

Event	Appearance	Possible Cause	Solution
Not operating	Air is coming from the exhaust valve	Blades broken or worn out	Replace blades
		Ball bearing damaged	Replace ball bearing
		Rusty motor or clogged with objects	Disassemble and repair
	No air coming from the exhaust valve	Regulator is set at OFF	Adjust regulator
		No air flow	Check air system and connections
Low efficiency	Low revolution rate	Valve set damaged or broken	Disassemble and repair
		Not enough air pressure	Check air pressure
	Motor running abnormal or unusual noises occur	Forwarder/reverse valve is not set properly	Adjust forwarder/reverse valve
		Not enough lubrication, ball bearing, upper/lower end plate, cylinder, rotor, blade damaged	Lubricate or replace parts
Motor keeps running	Torque rate decreases	Gear set broken or blade worn out	Replace gear set or replace blade
	Trigger does not bounce back or does not bounce back correctly	Trigger set has other objects stuck on it or the spring is broken, deformed or rusty	Disassemble and repair
	Trigger function normally	Trigger O-ring worn out or valve set damaged or broken	Disassemble, repair and replace parts

ST-AD223DN

45° ANGLE EXTENDED AIR DRILL COLLET TYPE (9/32"-40 THREAD)



PARTS LIST

No.	Parts No.	Description	Q'ty
1	J2-005114501	Air Inlet (PT19)	1
	J2-005114501-02	Air Inlet (NPT18)	1
2	J2-004112701	Exhaust Deflector	1
3	J2-916029515	O-Ring	1
4	J2-001112701	Housing	1
5	J2-9283016	Spring Pin	1
6	J2-030112701	Trigger	1
7	J2-916004819-02	O-Ring	1
8	J2-010112701	Pin Valve Rod	1
9	J2-007112701	Spring Pin	1
10	J2-916008819	O-Ring	1
11	J2-049105201	Screw	1
12	J2-902626-05	Ball Bearing	1
13	J2-011112701	Rear Plate	1
14	J2-9282505	Spring Pin	2
15	J2-012112701	Cylinder	1
16	J2-013113101	Rotor	1
17	J2-014112701	Blade	5
18	J2-015122101	Front Plate	1
19	J2-91702005	Pin	1
20	J2-902608-06	Ball Bearing	1
21	J2-016122101	Washer	1
22	J2-034102201	Internal Gear	1
23	J2-9026001-02	Ball Bearing	1
24	J2-91704014	Pin	2
25	J2-036102201	Gear	2
26	J2-037122101	Gear Carrier	1
27	J2-9026900-04	Ball Bearing	1
28	J2-035122101	Lock Nut	1
29	J2-035121802	Lock Nut	1
30	J2-035121803	Lock Nut	1
31	J2-90206-03	Ball Bearing	1

No.	Parts No.	Description	Q'ty
32	J2-040121801	Drive Bushing	1
33	J2-9010910-02	Needle Bearing	1
34	J2-078121801	Driving Gear Spindle	1
35	J2-027121801	Front Casing	1
36	J2-073121801	Angle Housing	1
37	J2-91503-02	Oil Drop	1
38	J2-079123901	Bevel Gear	1
39	J2-902679	Ball Bearing	2
40	J2-016123901	Washer	1
41	J2-017123901	Cylinder Set Screw	1
42	J2-9180476-02	Steel Ball	1
44	J3-577121701-03	Wrench	1
45	J3-576123801-09	Wrench	1
46	J2-016123902	Washer	1
*** Collet Chuck For Optional ***			
51	AD210DN-M2.0	Collet Chuck Φ 2.0	1
	AD210DN-M2.4	Collet Chuck Φ 2.4	1
	AD210DN-M2.5	Collet Chuck Φ 2.5	1
	AD210DN-M3.0	Collet Chuck Φ 3.0	1
	AD210DN-M3.1	Collet Chuck Φ 3.1	1
	AD210DN-M3.2	Collet Chuck Φ 3.2	1
	AD210DN-M4.0	Collet Chuck Φ 4.0	1
	AD210DN-M4.5	Collet Chuck Φ 4.5	1
	AD210DN-M4.6	Collet Chuck Φ 4.6	1
	AD210DN-M4.8	Collet Chuck Φ 4.8	1
	AD210DN-M5.8	Collet Chuck Φ 5.8	1
	AD210DN-M5.9	Collet Chuck Φ 5.9	1
	AD210DN-1/8	Collet Chuck 1/8"	1
	AD210DN-3/16	Collet Chuck 3/16"	1
	AD210DN-3/32	Collet Chuck 3/32"	1
	AD210DN-5/32	Collet Chuck 5/32"	1



Read all these safety instructions before operating this product and save these instructions.

The tool has been manufactured in conformity with the instruction of EU machine directive. The EU mark will be considered void in the event of inexpert repairs, the use of non-original parts and in case of non-observance of the safety instructions in the user's manual.

Possible direct or indirect consequential damages are not the responsibility of SUMAKE Industrial co., Ltd.

General safety rules:

1. Watch the tool at all times when in use.
2. People under the influence of alcohol or drugs are not allowed to use, repair or maintain the tool.
3. Keep unqualified persons, children, etc. away from the tool.
4. Keep work area clean and with sufficient daylight or artificial lighting. The work area on which the machine is used must be cleaned up. Disorder is a potential cause of accidents.
5. Danger of explosion. Never use oxygen and combustible gas as an air supply for the tool which may be ignited by spark and cause fire or explosion.
6. Never use gasoline or other flammable liquids to clean the tool.
7. Do not use air tools in potentially explosive atmospheres such as in the presence of flammable liquids, cleaning solvents, fluid energy or stored gases.
8. Do not expose air tools to rain. Do not use air tools in damp or wet locations.
9. When a fault or failure is detected, the tool must immediately be disconnected from the air supply and returned for repair.
10. It is not permitted to modify the tool in any way.
11. When not in use, keep tools in a dry place, either locked up or in a high place, out of the reach of children.
12. Do not force small air tools to do the job of a heavy-duty task. Do not use air tool for purpose of which was not intended.
13. Wear suitable ear protection at environment noise level >80dB(A) and safety spectacles when using the tool. Always wear approved safety goggles if work in dusty. This also applies to other persons in the nearby vicinity.
14. Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid foot wear are recommended when working outdoors. Wear protective hair covering to contain long hair.
15. Keep proper footing and balance at all times.
16. Use clamps or a vice to hold work-piece. It is safer than using your hand and free both hands to operate the air tool.
17. When not use, before performing service or changing accessories, please disconnect tool from air compressor.
18. Do not carry plugged in air tool with your finger on the switch trigger. Be sure switch is in the "OFF" position when connecting to air supply.
19. Watch what you are doing. Use common sense, even unsafe situation or unbalanced positions, particularly when you are tired.
20. Warnings shall be given with regard to significant hazards arising from or associated with the use of the drill.
21. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the drill. Failure to do so can result in serious bodily injury.
22. Only qualified and trained operators should install, adjust or use the drill.
23. Do not modify this drill. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
24. Do not discard the safety instructions; give them to the operator.
25. Do not use the drill if it has been damaged.
26. Tools shall be inspected periodically to verify that the ratings and markings required by this part of ISO 11148 are legibly marked on the tool. The employer/user shall contact the manufacturer to obtain replacement marking labels when necessary.

Safety precautions for projectile hazards

1. Be aware that the failure of the workpiece, or accessories, or even of the inserted tool itself can generate high-velocity projectiles.
2. Always wear impact-resistant eye protection during the operation of the drill or tapper. The grade of protection required should be assessed for each use.
3. Remove the chuck key before drilling starts.
4. Ensure that the workpiece is securely fixed.

Safety precautions for entanglement hazards

1. Choking, scalping and/or lacerations can occur if loose clothing, personal jewellery, neckware, hair or gloves are not kept away from the tool and accessories.

Safety precautions for operating hazards

1. Use of the tool can expose the operator's hands to hazards, including cuts, abrasions and heat. Wear suitable gloves to protect hands.
2. Operators and maintenance personnel shall be physically able to handle the bulk, weight and power of the tool.
3. Hold the tool correctly; be ready to counteract normal or sudden movements and have both hands available.
4. Maintain a balanced body position and secure footing.
5. High-reaction torque can be developed in the case of stalling, which can be caused by excessive loads being applied to the drill bit, by the drill bit snagging on the material being drilled into or by the drill bit breaking through the material being drilled.
6. In cases where the means to absorb the reaction torque are requested, it is recommended to use a suspension arm whenever possible. If that is not possible, side handles are recommended for straight case tools and pistol-grip tools. In any case, it is recommended to use a means to absorb the reaction torque above 4 Nm for straight tools and above 10 Nm for pistol-grip tools.
7. Keep hands away from the rotating chuck and drill bit.
8. Release the start-and-stop device in the case of an interruption of the energy supply.
9. Use only lubricants recommended by the manufacturer.
10. Personal protective safety glasses shall be used; suitable gloves and protective clothing are recommended.

Safety precautions for repetitive motions hazards

1. When using a drill to perform work-related activities, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. While using a drill, the operator should adopt a comfortable posture whilst maintaining a secure footing and avoiding awkward or off-balanced postures. The operator should change posture during extended tasks, which can help avoid discomfort and fatigue.
3. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warning signs should not be ignored. The operator should tell the employer and consult a qualified health professional.

Safety precautions for accessory hazards

1. Disconnect the drill from the energy supply before fitting or changing the inserted tool or accessory.
2. Use only sizes and types of accessories and consumables that are recommended by the drill manufacturer.
3. Avoid direct contact with the inserted tool during and after use, as it can be hot or sharp.

Safety precautions for workplace hazards

1. Slips, trips and falls are major causes of workplace injury. Be aware of slippery surfaces caused by the use of the tool and also of trip hazards caused by the air line or hydraulic hose.
2. Proceed with care in unfamiliar surroundings. There can be hidden hazards, such as electricity or other utility lines.
3. The drill is not intended for use in potentially explosive atmospheres and is not insulated against coming into contact with electric power.
4. Ensure that there are no electrical cables, gas pipes, etc., that can cause a hazard if damaged by use of the tool.

Safety precautions for dust and fume hazards

1. Dust and fumes generated when using drills can cause ill health (for example, cancer, birth defects, asthma and/or dermatitis); risk assessment and implementation of appropriate controls for these hazards are essential.
2. Risk assessment should include the dust created by the use of the tool and the potential for disturbing existing dust.
3. Operate and maintain the drill as recommended in these instructions, to minimize dust and fume emissions.
4. Direct the exhaust so as to minimize disturbance of dust in a dust-filled environment.
5. Where dust or fumes are created, the priority shall be to control them at the point of emission.
6. All integral features or accessories for the collection, extraction or suppression of airborne dust and fumes should be correctly used and maintained in accordance with the manufacturer's instructions.
7. Select, maintain and replace the consumable/inserted tool as recommended in the instruction handbook to prevent an unnecessary increase in dust or fumes.
8. Use respiratory protection in accordance with employer's instructions and as required by occupational health and safety regulations.

Safety precautions for noise hazards

1. Unprotected exposure to high noise levels can cause permanent, disabling hearing loss and other problems, such as tinnitus (ringing, buzzing, whistling or humming in the ears).
2. Risk assessment and implementation of appropriate controls for these hazards are essential.
3. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpieces from "ringing".
4. Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
5. Operate and maintain the drill as recommended in the instruction handbook, to prevent an unnecessary increase in the noise level.
6. Select, maintain and replace the consumable/inserted tool as recommended in the instruction handbook, to prevent an unnecessary increase in noise.
7. If the drill has a silencer, always ensure that it is in place and in good working order when the drill is operating.

Safety precautions for vibration hazards

1. Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms.
2. Wear warm clothing when working in cold conditions and keep your hands warm and dry.
3. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the drill, tell your employer and consult a physician.
4. Operate and maintain the drill as recommended in this instruction handbook, to prevent an unnecessary increase in vibration levels.
5. Do not allow the inserted tool to chatter on the workpiece, as this is likely to cause a substantial increase in vibration.
6. Select, maintain and replace the consumable/inserted tool as recommended in this instruction handbook to prevent an unnecessary increase in vibration levels.
7. Support the weight of the tool in a stand, tensioner or balancer, if possible.
8. Hold the tool with a light but safe grip, taking account of the required hand reaction forces, because the risk from vibration is generally greater when the grip force is higher.

Additional safety instructions for pneumatic power tools

1. Air under pressure can cause severe injury.
2. Always shut off air supply, drain hose of air pressure and disconnect tool from air supply when not in use, before changing accessories or when making repairs.
3. Never direct air at yourself or anyone else.
4. Whipping hoses can cause severe injury. Always check for damaged or loose hoses and fittings.
5. Cold air shall be directed away from the hands.
6. Whenever universal twist couplings (claw couplings) are used, lock pins shall be installed and whipcheck safety cables shall be used to safeguard against possible hose-to-tool and hose-to-hose connection failure.
7. Do not exceed the maximum air pressure stated on the tool.
8. Never carry an air tool by the hose.

Specific safety instructions

Warnings shall be given about any specific or unusual hazards associated with the use of the drill. Such warnings shall indicate the nature of the hazard, the risk of injury and the avoidance action to take.

General preparation and connection:

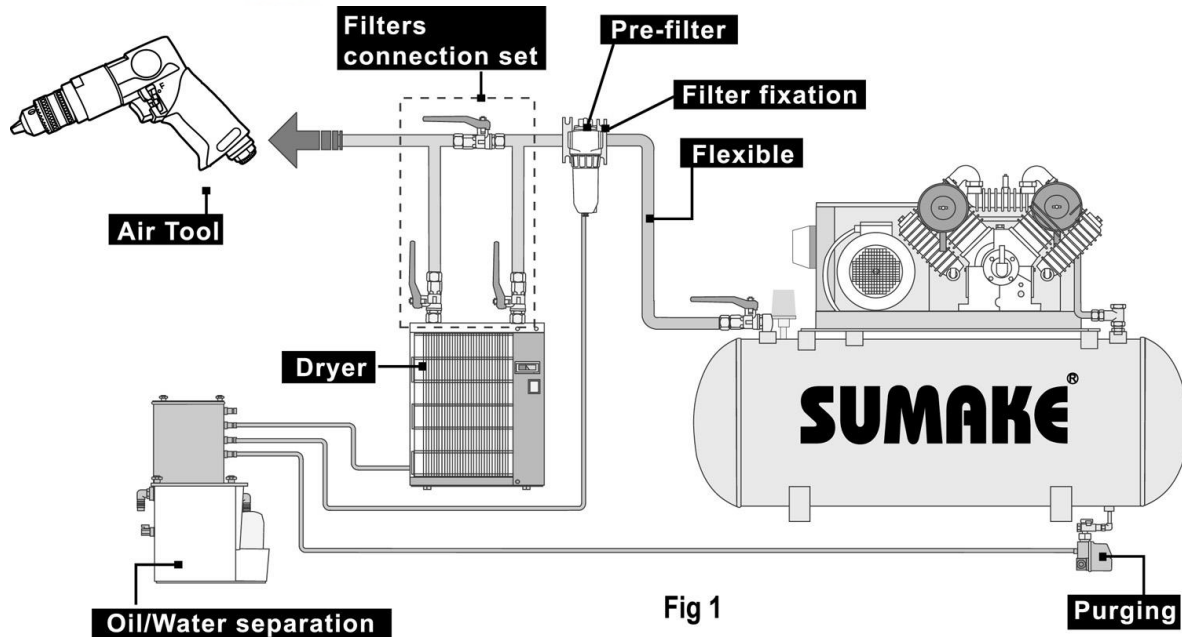


Fig 1

1. Before connecting the air hose, apply 4 to 5 drops of SAE#10-20 spindle oil at the air inlet. Also, every 3 to 4 hours of operation, oiling is necessary. Twist Teflon thread tape to ensure a proper seal air inlet. Then tighten the air coupler into air tool.
2. The supplied compressed air must be clean and dry, with the appropriate oil mist. Use an air treatment unit; filter, regulator and lubricator.
3. Please refer Fig.1 illustration shows the correct mode of connection to the air supply system which will increase the efficiency and useful life of the tool.
4. The quick connect coupling and hose must have sufficient air flow capacity. We recommend an air hose with a diameter of 10mm (3/8").
5. To ensure a good performance. The operation pressure at the compressed air inlet should not exceed 6.2bar (90psi) (unless indicated otherwise). Higher operating pressures may cause damaged or excessive wear. Operating pressures below 5.3bar may cause pressure or power loss.



Risk of injury

1. Compressed air can inflict serious injuries. Therefore never point the air hose at another person or yourself.
2. Shut – off the air supply and disconnect the tool in case:
 - You want to change or replace accessories.
 - You want to clean, repair or maintain the tool.
 - The tool is not going to use for some times.
3. Check compressed air hose before use. If it is damaged, broken, torn, or deformed, the hose is not to be connected to the tool.
4. Always check the pneumatic couplings before using the tool. If they show signs of damage, fracture, cracking or excessive corrosion, the respective tool or the air hose is not to be used.
5. Use only qualified adapters and connectors, In case of wear they are to be replaced immediately.
6. Only use air pipes that are fit for the use at maximum pressure.

Maintenance instruction:

1. Dry the filter (fig1) and the air inlet of the tool.
2. Lubricate the quick connect coupling to prevent blocking.
3. Air tool require lubrication throughout the life of the tool. The air motor and bearing uses compressed air to start the tool. The moisture in compressed air will rust the air motor; you must lubricate the motor daily.
4. Avoid storing the tool in a location subject to high humidity. If the tool is left as it is used, the residual moisture inside the tool can cause rust.
5. Before storage, lubricate tool and run it for a few seconds.
6. Regular inspection of spindles, threads, and clamping devices in respect of wear and tolerances for location of abrasive products.
7. If the tool is too seriously damage to be used anymore, recycle raw material instead of disposing as waste. The machine, accessories and packaging should be sorted for environmental-friendly recycling. Check with your local authority or retailer for recycling advice.

