UD series

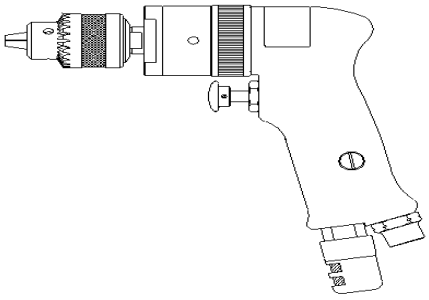
Drills

Instruction Handbook

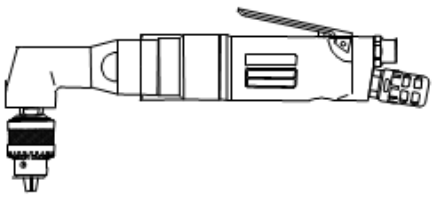
-Read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on or working near the drill. Failure to follow the warnings and instructions in this handbook can result in serious bodily injury.
-Do not discard the safety and operating instructions. Give them to the operator. Retain these instructions for future reference.

Intended Use：The tool is designed for drilling, reaming, tube expanding and for boring metal, wood and other material.

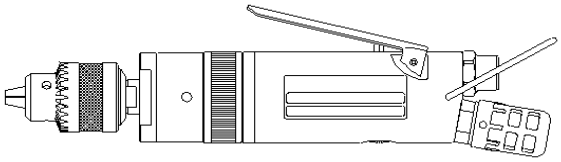
-The tool is intended for professional use only.
-Avoid misuse and abuse of the tool.
(e.g. Do not throw the tool on the floor, strike the housing in any way or use the tool as a hammer to knock material into place.)



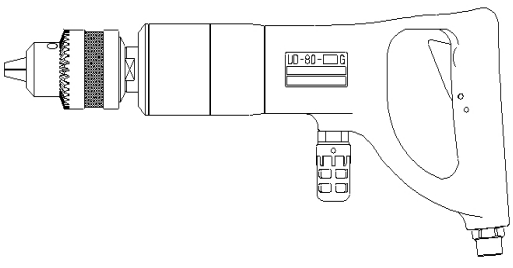
Pistol Grip Drill



Corner Drill



Straight Drill



Grip Handle Type Drill

URYU SEISAKU, LTD.

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For further information, contact your nearest URYU distributor or URYU Japan.
Find URYU distributor in your country at www.uryu.co.jp/english/network.html.

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EC DECLARATION OF CONFORMITY
MACHINERY DIRECTIVE

WE, URYU SEISAKU, LTD., DECLARE UNDER OUR SOLE RESPONSIBILITY THAT UD SERIES DRILLS CONFORM WITH THE HARMONISED INTERNATIONAL STANDARD,ISO 11148-3:2012 AND THEREFORE COMPLY WITH THE ESSENTIAL REQUIREMENTS OF THE EUROPEAN PARLIAMENT AND THE COUNCIL DIRECTIVE, 2006/42/EC (17 MAY 2006) ON MACHINERY.

Kazumasa. URYU

KAZUMASA URYU, EXECUTIVE DIRECTOR
URYU SEISAKU, LTD.
OSAKA, JAPAN
23 OCTOBER 2017

Technical Specifications

*Specifications are subject to change without prior notice.

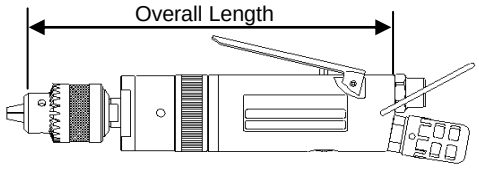
Model	Drilling Capacity	Free Speed	Overall Length	Weight with Chuck	From Center to Outside	Nominal Chuck Size	Spindle Type	Average Air Consumption	Sound Pressure Level	Vibration Level	Vibration Uncertainty *K*
	mm	rpm	mm	kg	mm	mm	in-thr'd	m^3/min.	dB(A)	m/sec^2	m/sec^2
Pistol Grip Type											
UD-50-200	3	23000	136	0.70	21.0	8	3/8-24UNF	0.40	73	<2.5	0.61
UD-50-45	6	5000	145	0.86	21.0	8	3/8-24UNF	0.40	72	<2.5	0.58
UD-50-22	8	2200	142	0.90	21.0	8	3/8-24UNF	0.40	72	<2.5	0.59
UD-60-29	8	2900	166	1.10	22.5	8	3/8-24UNF	0.50	77	<2.5	0.61
UD-60-20	8	2000	178	1.20	22.5	8	3/8-24UNF	0.50	77	<2.5	0.60
UD-60-15	8	1600	178	1.20	22.5	8	3/8-24UNF	0.50	76	<2.5	0.57
UD-60-07	13	700	221	1.40	22.5	13	1/2-20UNF	0.50	75	<2.5	0.58
UD-60-04	13	500	219	1.40	22.5	13	1/2-20UNF	0.50	75	<2.5	0.57
UD-80-12	13	1200	217	1.80	26.0	13	1/2-20UNF	0.65	79	<2.5	0.62
UD-80-07	13	700	240	2.30	26.0	13	1/2-20UNF	0.65	79	<2.5	0.6
UD-80-04	16	400	247	2.90	26.0	16	5/8-16UN	0.65	79	<2.5	0.63
Straight Type											
UD-50S-200	3	23000	195	0.70	21.0	8	3/8-24UNF	0.40	78	<2.5	0.6
UD-50S-45	6	5000	204	0.85	21.0	8	3/8-24UNF	0.40	77	<2.5	0.61
UD-50S-22	8	2200	201	0.83	21.0	8	3/8-24UNF	0.40	77	<2.5	0.61
UD-60S-29	8	2900	222	1.05	22.5	8	3/8-24UNF	0.50	77	<2.5	0.6
UD-60S-20	8	2000	234	1.15	22.5	8	3/8-24UNF	0.50	77	<2.5	0.62
UD-60S-15	8	1600	234	1.15	22.5	8	3/8-24UNF	0.50	77	<2.5	0.61
UD-60S-07	13	700	278	1.35	22.5	8	1/2-20UNF	0.50	75	<2.5	0.60
UD-60S-04	13	480	276	1.35	22.5	8	1/2-20UNF	0.50	75	<2.5	0.60
UD-80S-12	13	1500	277	1.60	26.0	13	1/2-20UNF	0.65	79	<2.5	0.6
UD-80S-07	13	830	301	2.10	26.0	13	1/2-20UNF	0.65	79	<2.5	0.6
UD-80S-04	16	460	308	2.70	26.0	16	5/8-16UNF	0.65	79	<2.5	0.7
UD-80-12G	13	1500	283	2.30	26.0	13	1/2-20UNF	0.65	79	<2.5	0.6
UD-80-07G	13	830	306	2.80	26.0	13	1/2-20UNF	0.65	79	<2.5	0.62
UD-80-04G	16	460	313	3.40	26.0	16	5/8-16UN	0.65	79	<2.5	0.62

Model	Drilling Capacity	Free Speed	Overall Length	Weight with Chuck	Height with Chuck	From Center to Outside	Nominal Chuck Size	Spindle Type	Average Air Consumption	Sound Pressure Level	Vibration Level	Vibration Uncertainty *K*
	mm	r/min.	mm	kg	mm	mm	mm	in-thr'd	m^3/min.	dB(A)	m/sec^2	m/sec^2
Angle/Corner Type												
UD-50S-45A	4	5000	252	0.90	40	21.0	-	1/4-28UNF	0.40	79	<2.5	0.68
UD-50S-22A	4	2200	249	0.88	40	21.0	-	1/4-28UNF	0.40	79	<2.5	0.67
UD-60S-29C	8	2900	269	1.52	90	22.5	8	3/8-24UNF	0.50	79	<2.5	0.7
UD-60S-15C	8	1600	281	1.60	90	22.5	8	3/8-24UNF	0.50	79	<2.5	0.69

The uncertainty in the sound levels is 3 dB(A).Air Inlet Thread (Pipe Type) : N.P.T. 1/4"

Air Hose Size : ϕ 9.5mm x 5m

Note: Overall length does not include the length of nail tip of chuck.

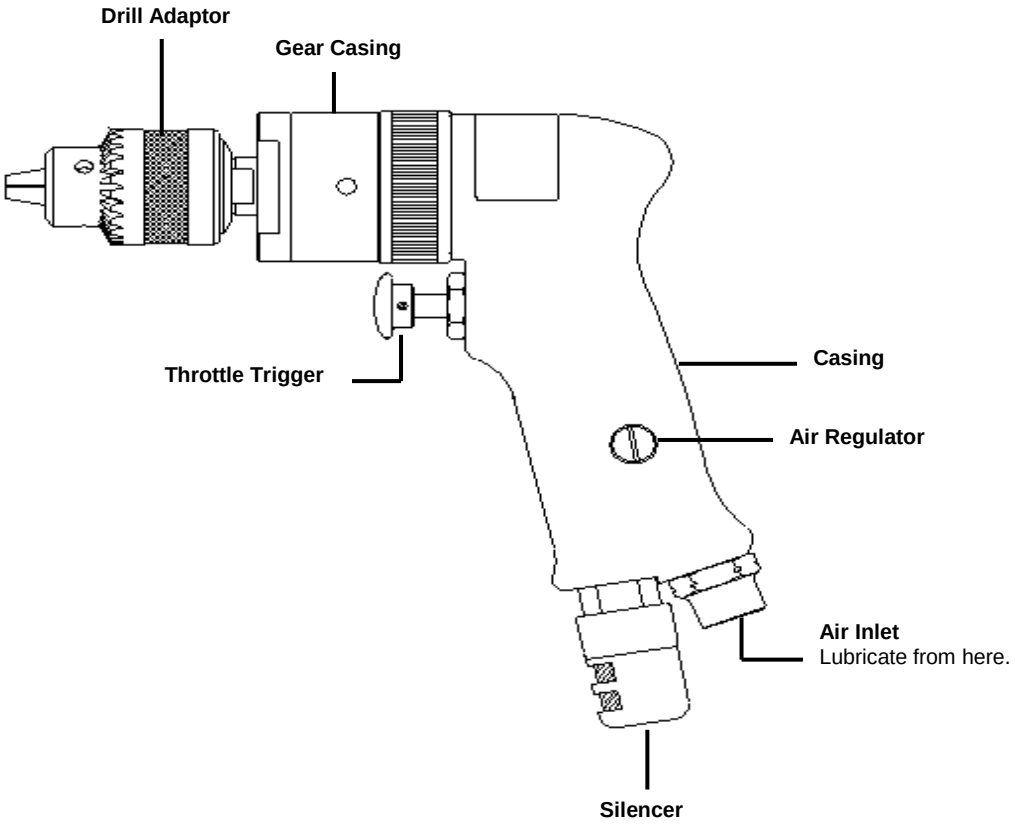


These declared values were obtained by laboratory type testing in accordance with ISO15744 for sound levels and ISO28927-5 for vibration levels. These declared values are not adequate for use in risk assessments and values measured in individual work places may be higher. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, the workpiece and the workstation design as well upon the exposure time and the physical condition of the user.

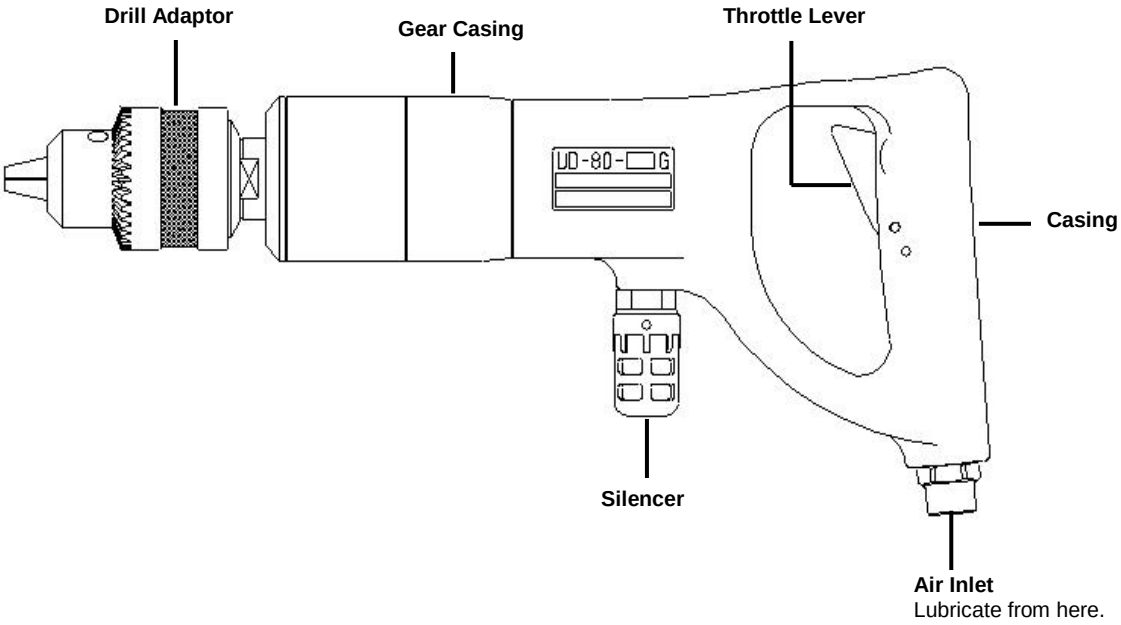
We, URYU SEISAKU, LTD., cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

Description of Functions

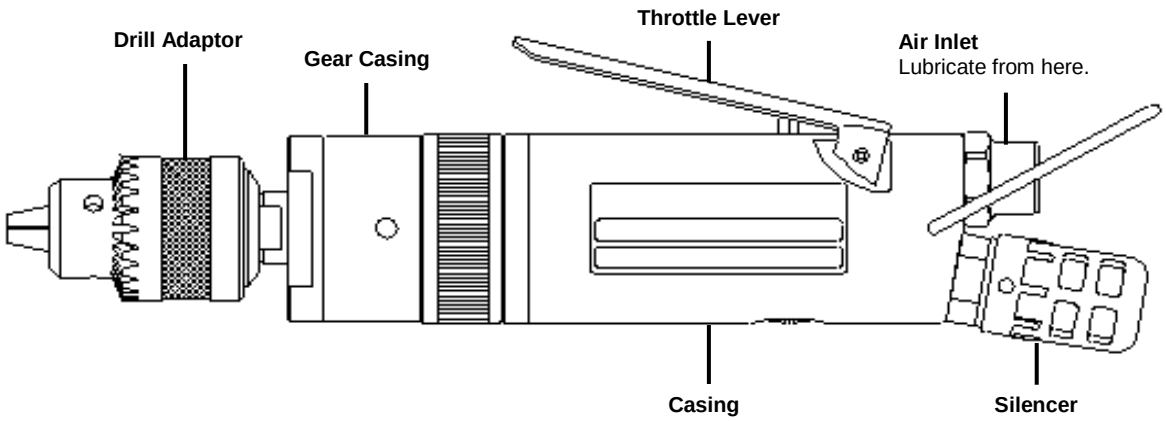
Pistol Grip Type



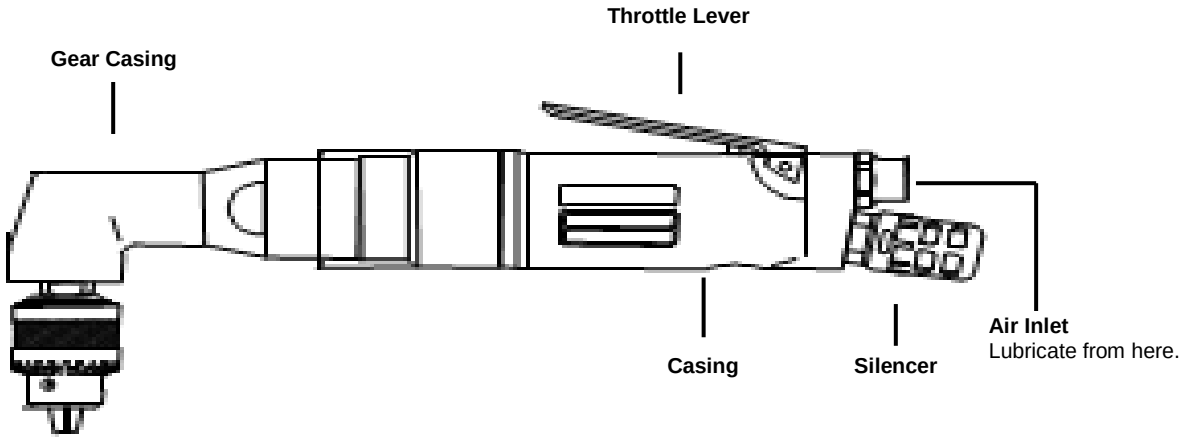
Grip Handle Type



Straight Type



Corner Type



Safety Instructions

General Safety

-Only qualified and trained operators should install, adjust or use the tool. Operators and maintenance personnel must be physically able to handle the bulk, weight and power of the tool.
-Do not modify the tool. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
-Stop using the tool if discomfort, tingling feeling or pain occurs.

Work Area Safety

-Keep work area clean and well lit. Cluttered or dark areas invite accidents.
-Do not use the tool in potentially explosive atmospheres, such as in the presence of flammable liquids, gases or dust. The tool is not insulated from coming into contact with electric power. Proceed with care in unfamiliar surroundings. Hidden hazards may exist.
-Always secure workpiece. Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the workpiece by hand or against your body is unstable and may lead to loss of control.
-Be aware of slippery surfaces caused by use of the tool and of trip hazards caused by the air line.
-Keep bystanders, children and visitors away while operating the tool. Distraction can cause you to lose control.

Pneumatic Safety

-Do not exceed the maximum air pressure of 0.6MPa stated on the tool.
-Always shut off air supply, drain hose of air pressure and disconnect the tool from air supply when not in use, before changing accessories or when making repairs. Plug the air inlet when not in use.
-Use correct hoses and always check for damaged or loose hoses and fittings. Whipping hoses can cause severe injury.
-An accessible means to shut off air supply should be provided at each tool station.
-Do not use quick-disconnect couplings at tool inlet. Use hardened steel (or material with comparable shock resistance) threaded hose fittings.
-Whenever universal twist couplings (claw couplings) are used, install lock pins and use whipcheck safety cables to safeguard against possible hose-to-tool and hose-and-hose connection failure.
-Do not abuse the hose. Never use the hose for carrying, pulling or hanging the tool.
-Keep the hose away from heat, oil, sharp edges or moving parts. Damaged or entangled hoses increase the risk.
-Release the throttle trigger / lever in the case of an interruption of the air supply.
-Never direct air at yourself or anyone else.

1. Clean and inspect all parts. (Inspect the teeth of the internal gear and planet gears for pitting and grooving. Inspect the needle rollers for wear. Inspect the bearing for side play and knocking.) Replace all worn parts.

Removal of Cone Jaw Chuck or Drill Adaptor for UD-50S-A series Angle Head type

1. Holding the driven gear with the spanner (8x2x90) (Part No.:936-100-0), unscrew the cone jaw chuck or drill adaptor by the spanner (12) (Part No.:936-512-0).

Gear Section

Dis-assembly (for UD-50S-A series Angle Head type)

1. Tap on the top of the gear cage to remove the gear section from the gear casing.

Gear Section

Dis-assembly (for UD-60 series):

2. Holding the chuck retainer by the spanner, unscrew the drill chuck from the anvil.
3. Remove the chuck retainer.
4. Remove the key from the anvil.

9-1. **For UD-60-04/07/29, UD-60S-04/07/29, UD-60S-29C**
Tap on the top of the anvil and the gear section will be removed from the gear casing.

9-2. **For UD-60-15/20, UD-60S-15/20, UD-60S-15C**
Loosen the gear casing by spanner, and tap the top of anvil softly and the gear section will be removed from the gear casing.

9-3. **For UD-80 series**
Unscrew gear casing cover by spanner. Separate gear casing cover from gear casing. Remove the anvil assy.
Tap the top of anvil and the gear parts will be removed.

Angle Head Section (for UD-50S-A Series Angle Head type)

Dis-assembly:

1. Holding the hexagonal part of the middle shaft casing in a vice, loosen the gear casing by the spanner (32x6x150) (Part No.:936-070-0) to remove the middle shaft casing from the gear casing.
2. Remove the middle shaft from the middle shaft casing.
3. Holding the driving gear in a vice, loosen the middle shaft (right-hand thread) and dismantle the driving gear, middle shaft and needle roller bearing.
4. Loosen the casing front plate (left-hand thread) to remove the driven gear, adjusting spacer and driven gear spindle.

Corner Section (for UD-60S-C Series Corner type)

Dis-assembly:

1. Fix bevel gear casing softly with a vice, and loosen gear casing. Remove inner snap ring and the driving gear section is removed.
2. Remove outer snap ring.
3. Remove the middle shaft, ball bearing, driving gear bushing and driving gear.
4. Unscrew bevel gear casing cover (left-threaded).
5. Remove ball bearing, driven gear, driven gear shaft, needle roller bearing and front cover.

Valve Section

Dis-assembly (for Pistol Grip type):

1. Remove the air inlet bushing.
2. Remove the silencer.
3. Remove the regulator valve.
4. Remove the pin from the throttle trigger.
5. Remove the valve bushing.
6. Pull the valve out from the valve bushing.
7. Clean and inspect all parts. (Inspect the O-ring for wear. Inspect the silencer for dirt. Inspect the valve and valve bushing for wear.) Replace all worn parts.

Dis-assembly (for Straight and Angle Head type):

1. Remove the air inlet bushing.
2. Remove the silencer.
3. Remove the roll pin to remove the valve lever.
4. Remove the valve plug.
5. Remove the valve rod bushing, pin, spring and ball.
6. Clean and inspect all parts. (Inspect the O-ring for wear. Inspect the silencer for dirt. Inspect the valve and valve bushing for wear.) Replace all worn parts.

Thoroughly clean all parts and blow dry and re-assemble them after lubricating the air motor with ISO VG32 oil or equivalent and coating all bearings and gears with good quality lubricant, Nigtight M-2 (see Table 5) or equivalent.

After re-assembled, make sure if the anvil rotates smoothly and measure the no-load speed with a tachometer to see if the no-load speed falls in the speed range (see Table 6).

Table 6 : Free Speed Range

Drills	No-Load Speed (r/min.)
UD-50-200 series	21,900～24,100
UD-50-45 series	4,750～5,250
UD-50-22 series	2,050～2,250
UD-60-29 series	2,700～3,000
UD-60-20 series	1,900～2,100
UD-60-15 series	1,500～1,700
UD-60-07 series	640～720
UD-60-04 series	450～510
UD-80-12 series	1,370～1,610
UD-80-07 series	760～900
UD-80-04 series	420～500

Drill Chuck / Drill Bit

-Use suitable and well-maintained drill chuck and use the appropriate sized chuck key (see Table 1) to securely tighten the drill bit. Choose drill bits according to applications and the tools' power and speed. Use a sharp drill bit to avoid breakage or seizing in hole.

Table 1 : Chucks & Chuck Keys

Spindle	3/8"-24UNF		1/2"-20UNF		5/8"-16UN	
Chuck	8mm	923-070-0	13mm	923-071-0	16mm	923-080-0
	10mm*	927-072-0	10mm*	923-073-0		
Chuck Key	8mm: 927-051-0 10mm: 927-052-0		927-053-0		927-054-0	

*10mm chucks are optional.

Table 2 : Drill Adaptors

Size	Part No.
2mm	924-001-0
3mm	924-007-0
1/8"	924-071-0
5/32"	924-072-0
4mm	924-011-0
5mm	924-013-0
6mm	924-015-0
1/4"	924-074-0

-For UD-50S-A series angle drills, optional drill adaptors (see Table 2) and optional cone jaw chuck (Capacity : up to 6.35mm, Part No. : 923-100-0) are available.

Auxiliary Handle (Optional) (available for UD-60 series and UD-80 series)

-Use an optional auxiliary handle (see Table 3) to reduce the effect of reaction torque.

Table 3 : Auxiliary Handles

Drills	Part No.
UD-60 series	612-896-0
UD-80 series	613-896-0

Throttle Trigger / Lever

-Ensure that the chuck key is removed from the chuck before turning on the tool.
-Grip the handle firmly and pull the throttle trigger or depress the throttle lever slowly to start operation.

Exhaust Air

-The direction of the exhaust air is adjustable for eye and ear protection.
-Silencer turns for your adjustment.

Table 4

Models	A. Volume of Lubrication from Air Inlet per 30 minutes	B. Fastener Q'ty per 0.02mL-drop from Oil-Fog Lubricator
UD-50 series – UD-60S series	about 0.9mL - 1.1mL	one drop per 32 – 40 seconds
UD-80 series	about 1.3mL - 1.5mL	one drop per 20 – 30 seconds

Suspension Device (available for UD-S series straight and angle drills)

-When using a suspension ring, check that it is in good condition and correctly assembled.

Maintenance Instructions

-Continuous satisfactory operation depends upon proper tool care and regular maintenance.
-Have the tool serviced by a qualified repair person.
-Use URYU genuine parts for replacement. This will ensure that the safety and the optimum performance of the tool are maintained.

Lubrication

-It is important to lubricate regularly to get maximum performance and trouble-free operation.
-For air motor, supply light turbine oil, ISO VG32 properly through air inlet (see Table 4–A) or line lubricator (see Table 4-B).
-For bearings in the air motor, coat one-third of the bearing with good quality grease, Nigtight M No. 2 (see Table 5) or equivalent.
-For bearings in other than the air motor, coat two-third of the bearing with good quality lubricants, Nigtight M No. 2 (see Table 5) or equivalent.
-For gears, coat three-fourth of the part with good quality lubricants, Nigtight M No. 2 (see Table 5) or equivalent.
-Do not lubricate the tool with flammable or volatile liquids such as kerosene, diesel or jet fuel.

Table 5

Grease	Quantity	Part Number
Nigtight M No.2	250g	998-708-0
	18L	998-709-0

Overhaul

-It is recommended to inspect the tool at least every 3 months for wear or damage of the components. If the tool is in heavy duty operation or running improperly, inspect the tool more frequently.
-Ensure that any labels on the tool are kept in legible condition. Replace any damaged label.

Disposal of Tool

-Separate collection of used tools and packaging allows materials to be recycled and used again. Re-use of recycled materials helps to prevent environmental pollution and reduces the demand for raw materials. The tool is made of steel, aluminium alloy, casting iron, plastic and rubber. When disposing the tool, make sure not to cause pollution to human being and the environment. Follow your local laws and regulations relating to disposal.

Service Manual

-Refer to the parts list supplied along with the tool and use the correct jigs for proper service. Contact your local URYU distributor.

Removal of Gear Casing from Casing: for All drills except UD-60-15/20/UD-60S-15/20/15C

1. Fixing the casing in a vice, loosen the gear casing by the spanner or casing connector to remove the casing from the gear casing assembly.

Removal of Gear Casing from Casing: for UD-60-15/20/UD-60S-15/20/15C

Fixing the casing in a vice, loosen the casing connector by the spanner to remove the casing from the gear casing assembly.

Air Motor Section

Dis-assembly:

1. Hold the spline part of the rotor softly and pull the motor out of the casing.
   While holding the rotor with the spline part up, tap on the rotor with a dead blow hammer to remove the rotor, blades and rear plate from the cylinder.

2. Clean and inspect all parts. (Inspect the bearings for knocking and side wear. Inspect the blades for splitting and grooving on both sides and ends. Inspect the cylinder for waviness. Inspect the plates for grooving. Inspect the rotor for sharp edges in blade slots, pitting and proving on plates' surfaces.) Resurface only those parts having burrs on them. Adhere a sheet of P320 or finer grit sandpaper to a flat work surface and put a small amount of honing oil as a buffer on it. Move a part round on the sandpaper in a figure of eight motion. If any parts show deep grooving or surface wear, replace them.

Gear Section

Dis-assembly: (for UD-50 Series)

5. Holding the chuck retainer by the spanner, unscrew the drill chuck from the anvil.
6. Remove the chuck retainer.
7. Remove the key from the anvil.
8. Tap on the top of the anvil and the gear section will be removed from the gear casing.

Personal Safety

-Stay alert, watch what you are doing and use common sense when operating the tool. Do not use any tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating a tool may result in serious personal injury.
-Maintain a balanced body position and secure footing. Avoid awkward or off-balanced postures. Change the posture during extended tasks, which may help to avoid discomfort and fatigue. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensation or stiffness, the operator should tell the employer and consult a qualified health professional immediately.
-Prevent unintentional or inadvertent start. Ensure that the throttle trigger / lever is in the off-position before connecting the tool to air supply, picking up or carrying the tool. Carry the tool only by the handle. Carrying the tool with your finger on the throttle trigger / lever or energising the tool that has the throttle trigger / lever on invites accidents.
-Keep hands away from the rotating chuck and drill bit.
-Dress properly. Do not wear loose clothing, jewellery and neck ware. Keep your hair, clothing and gloves away from the tool.
-Use personal protective equipments such as dust mask, non-skid safety shoes and hard hat as instructed by the employer and as required by occupational health and safety regulations.
-Wear suitable gloves to protect hands against hazards including cuts and abrasions and heat. When using gloves, always be sure that the gloves will not prevent the throttle mechanism from being released.
-Use the auxiliary handle when the reaction torque absorbed by the operator exceeds 4Nm for UD-S series straight type drills, 10Nm for UD series pistol grip type drills. (Parts Nos. for auxiliary handles : 612-896-0 for UD-60 series, 613-896-0 for UD-80 series)

-Always wear impact-resistant eye protection during the operation of the tool. The grade of protection required should be assessed for each use.
-Remove the chuck key before turning the tool on. A chuck key that is left attached to a rotating part of the tool may result in personal injury.
-Ensure that the workpiece is securely fixed.

Noise

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). Risk assessment and implementation of appropriate controls for these hazards are essential.

-Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
-Always ensure that the silencer is in place and in good working order when the tool is operating.

Vibration

Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the tool, tell the employer and consult a physician immediately.
-Support the weight of the tool in a stand, tensioner or balancer if possible.
-Hold the tool with a light but safe grip taking account of the required hand reaction forces. The risk from vibration is generally greater when the grip force is higher.
-Wear warm clothing when working in cold conditions and keep your hands warm and dry. Direct cold air away from the hands.
-Do not allow the inserted tool to chatter on the workpiece as this is likely to cause a substantial increase in vibration.

Dust and Fumes

Dust and fumes generated when using the tool can cause ill health (e.g. cancer, birth defects, asthma and/or dermatitis). Risk assessment and implementation of appropriate controls for these hazards are essential.
-Direct the exhaust so as to minimise disturbance of dust in a dust-filled environment. Where dusts or fumes are created, the priority shall be to control them at the point of emission.

Residual Risks

-Additional residual risks may arise when using the tool which may not be included in the safety warnings. These risks can arise from misuse, prolonged use and so on. Even with the application of the relevant safety regulations and the implementation of safety devices, certain residual risks cannot be avoided. (e.g. injuries caused when changing any parts, blades or accessories)

Tool Use and Care

-Hold the tool correctly: be ready to counteract normal or sudden movements – have both hands available.
-Keep the tool dry and clean – free from oil and grease for better control of the tool.
-Do not force the tool. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.
-Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the tool operation. If damaged, have the tool repaired before use.
-Select and maintain and replace the socket / bit properly to prevent an unnecessary increase in noise / vibration level(s).
-Store the tool out of the reach of children and do not allow persons unfamiliar with these instructions to operate the tool. Tools are dangerous in the hands of untrained users.

Operating Instructions

Air Pressure

-The tools are designed to be operated at the air pressure of 0.6MPa. The air pressure at the tool air inlet shall not exceed the maximum air pressure of 0.6MPa.

Air Hose and Fitting

-Use the correct hoses and fittings for safety operation and optimum performance. See technical specifications for air hose sizes and air inlet threaded.
-Blow out the air hose before connecting a tool.

Dry and Clean Air

-Air filter and oil-fog lubricator should be preferably installed in a position within 3m from the tool.
-Dust, wear particles, corrosive fumes and excessive moisture cause rust and sticking of vanes and ruin the motor.