V0 HD

Product model/type: V0 HD 18 V

V0 HD 18 V USER'S GUIDE AND SAFETY MANUAL

JETTING
DARE TO DO IT DIFFERENTLY.

Jetting AB, Murgatan 1, 522 30 Tidaholm, Sweden

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Important safety notice

Read and understand all procedures and safety instructions before using the V0 HD micro fibre blower. Observe all safety information on this page and note specific safety requirements as explained by procedures in this manual. Failure to follow these instructions could result in serious personal injury or death.

Caution: Noise will exceed 70 db

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1. General information

The V0 and V0 HD is unique devices for installing fiber optic directly into a pipe. The V0 HD is consist of an air block/pipe clamp and a drive wheel that, when combined installs a fiber into an airtight pipe. The V0 HD has 200 N in pushingforce and speed is 0-110 m/min.

The V0 HD's built in adjustable clamp force, greatly optimize the pulling stress on the fiber. The electronic fiber protection system stops the motor within 250 ms. if the wheels are not running synchronized (like if the fiber hits an obstruction).

The V0 HD comes standard with a digital LCD Meter Display, 2 pcs 18 V, 4 Ah lithium batteries and charger in a hard side case.

These operating instructions contain a full description of the V0 HD, which have been designed for the purpose of feeding fiber through a pipe. The pipe must have previously been installed underground or overhead to receive the fiber optic and must be of sufficient length on exit to be received by the machine. The pipe must be of material with sufficient compression strength for it to be adequately sealed in the pipe clamps of the machine. The pipe must be airtight up to a pressure of 16 bar. Pipe sizes range from 3 mm-16 mm, while fiber optic fiber(s) range from 0,5 mm-6,5 mm.

The V0 HD consists of an air block/pipe clamp that is made in two halves that clamp together around the pipe. The pipe clamp holds a seal that the fiber optic fiber is fed through before entering the pipe. The pipe clamp and fiber seals can be interchanged to accommodate different pipe and fiber sizes. The pipe is mechanically clamped between the duct clamps at the exit of the pipe clamp, preventing movement in any direction. Seals conform around the pipe when clamped.

The fiber optic is fed through the pipe by a combined pulling/pushing force. The pulling force is achieved when pressurized air is fed into the air block and forced into the duct, generating drag on the fiber from the airflow passing over it. The pushing force is created by engaging the drive wheel system. As the drive wheel feeds fiber into the pipe, drag force is created by the airflow. The fiber optic floats in the pipe, minimizing any resistance to being pushed in by the drive wheel.

The use of the V0 HD for operations other than those described in this manual are considered dangerous and are discouraged. Use of this machine for work other then what is intended, relieves the manufacturer from any responsibility, civil or penal. The manufacturer's responsibility ceases, and the warranty is voided when one of the following occurs:

A. When V0 HD is used for purposes other than what is detailed in this manual.
B. Tampering and/or modifications carried out without written approval of the manufacturer.
C. Not using original manufactured replacement parts.
D. Poor maintenance.
E. Not using supplied safety devices or equipment.
F. Connection of this unit to machines and/or parts not produced or authorized in writing by the manufacturer.
G. The V0 HD should not be used to install any fiber other than optic fiber specified within the range outlined in this instruction manual.

Jetting AB is not responsible for injuries incurred as a result of improper use of the V0 HD.

2. Technical information

A. Condition of use

1. Temperature from -15° C to +40° C
2. Humidity from 20 % to 90 %
3. Weather conditions relevant to working conditions
4. Natural and/or artificial lighting of the work site, >200 lux

B. Air compressor requirements

1.	Pneumatic pressure	16 bar maximum
2.	Required air flow	0.14 - 11 m3/min
3.	Air hose fittings	Cejn type

C. Operational capacities

1.	Pushing force	0-200N
2.	Pushing speed	0-110 m/min
3.	Fiber sizes	0,5 mm to 6,5 mm
4.	Pipe sizes	3-16 mm

D. Electrical requirements

1.	Power requirements	18 V 4 Ah
2.	Power connection	Hitachi standard

E. Physical specifications

1.	Height	240 mm
2.	Length	170 mm
3.	Width	120 mm
4.	Weight	2,2 kg

F. Wheel drive specifications

1.	Maximum pushing force	200N
2.	Adjustable clamp force	

G. Pipecoupling requirements

1. Must withstand maximum air pressure of 16 bar
2. Must withstand axial loading and vibration
3. Must be a compression type coupler
4. Must fit snugly
5. Pipe ends must be cut off squarely and deburred
6. Pipe must be fully seated into the coupler

3. Safe operating practices

Read and understand all procedures and safety instructions before using the V0 HD. Observe all safety information on this page and note specific safety requirements as explained by procedures called out in this manual. Failure to follow these instructions could result in serious personal injury, property damage or death.

A. Work area safety

1. Wear personal protective equipment: hard hat, safety glasses, safety shoes, and light leather work gloves (OSHA approved or personal protective equipment directive 89/686/EEC compliant).
2. Wear close fitting clothing to avoid clothing getting trapped in belt drive.
3. Keep long hair tucked back and refrain from wearing any jewlery.
4. The safe operation of this equipment requires that the operators be on stable footing.
5. Stay clear of fibers or lines under tension.
6. Stay clear of pressurized line and conduit.
7. Use the blower only for its intended purpose.
8. Do not place fiber reel too close to unit. Place the reel far enough away from the unit to ensure proper control.
9. Keep hands away from belt drive while blower is in operation.

B. Working with air

The V0 HD, using pressurized air to project the fiber at high velocities. Please observe the following precautions when operating the blower:

1. Forced air creates flying debris. Always wear personal protective equipment.
2. Ensure no personnel are in the destination access vault during the blowing operation.

C. Electrical devices

The motor, controller, and digital display are electrical devices. Electrical shock hazards exist that could result in severe personal injury or death. Observe the following precautions to avoid electrical hazards:

1. Do not operate in or near water. This includes setting the unit on a wet surface or exposing to rain.
2. Do not operate when there is lightening or extreme weather. An earth stake driven into the ground as added protection is recommended if there is any chance of extreme weather developing.
3. Do not remove the digital display cover. There are no user-serviceable parts inside.
4. The drive should be switched off before connecting or disconnecting any cords.
5. Important safety Information about batteries and chargers:
   - Never submerge the battery in water.
   - Never leave the battery in the machine when cleaning.
   - If you suspect your lithium battery has water inside do not use or attempt to recharge.
   - Never use the charger or battery if the leads, contacts or casings are damaged.
   - Dropping the battery may damage the cells or circuit components inside.
   - A LITHIUM BATTERY THAT HAS BEEN SUBMERGED IN WATER OR SUSTAINED DAMAGE IS A FIRE HAZARD. DO NOT USE THE BATTERY. Place outdoors in a noncombustible container well away from flammable materials. DO NOT RECHARGE THE BATTERY.
   - Avoid charging your battery in temperatures below 0° C or exposing the battery to temperatures below -5° C or above 40° C.

- Do not wrap or cover as the charger generates heat during use.
- Never expose the charger to rain, moisture or damp. If you suspect any of thes have occurred then do not use the charger.
- Only charge your battery using the compatible Jetting charger provided with your battery. Never discharge your battery other than in normal use on the V0.
- At the end of the battery's life, dispose at your local recycling centre.

6. Charging your lithium batteries. Place your battery and charger on a hard level surface and connect the battery to the charger first before plugging in the mains power. The charger has 2 indicator lights to represent the status of the battery during the charging process. When connecting a discharged battery, the red light will illuminate to indicate the bulk charge state. When the bulk charging process is complete, the green light will illuminate. The battery should be removed from the charger after the green light is active. Never leave the charger connected to the battery with the mains supply switched off.

   We recommend you check/recharge your battery within 24 hours of use. It may take up to 7 hours for a Lithium battery depending on the capacity of the battery and depth of discharge when charging. Never leave your battery in a discharged condition for prolonged periods, this will reduce the life of the battery and your charger may be unable to recharge it. If the battery is not to be used for a period our advice is to store in a cool, dry place. Please ensure the battery is fully charged before storing and charge every month thereafter.

D. Working at night requirements

1. Operator must provide portable lighting that achieves a light intensity of at least 200 Lux (Lumens/m^2).

4. Unpacking the box

A. Blower components

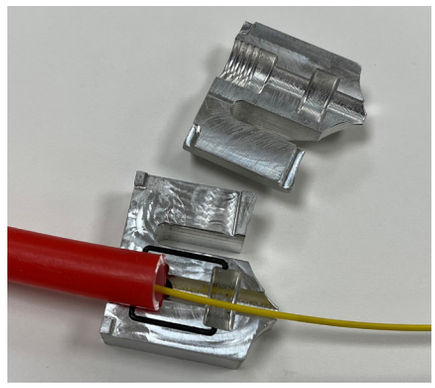
Each V0 HD STD Kit contains the following items:

- V0 HD main unit
- 3 pcs driving wheels
- 2 pcs batteries 18 V 4 Ah Lithium batteries
- 110-240 V charger for batteries
- Duct clamps (varying related to order)
- Cable guides (varying related to order)
- Fiber seal kit (varying related to order)

5. Set up the blower

This manual contains setup and operating instructions for the V0 HD.

Do not connect power supply until setup is complete.



A. Determine fiber size

• Determine fiber size to be installed.

B. Select fiber seal and pipe clamp

• Choose the correct fiber seal and pipe clamp for the application according to pipe and fiber size. Choose the smallest possible rear fiber guide.

C. Install fiber seal and fiber in pipe

• Install the appropriate fiber seal on the cable. Once the cable seal is positioned properly on the fiber you can install the fiber.

D. Install pipe

• Ensure there is adequate length of pipe available to avoid unnecessary strain on the duct.

• Place fiber into pipe, place fiber and seal into the pipe clamp.

• Once the pipe is in place, secure the configuration by installing the top half of the pipe clamp and pressing firmly together. Close pipe clamp cover and hand tighten the knob to secure.

E. Install fiber in wheel drive and tighten

• Feed the fiber in the wheel drive and through the rear fiber guide.

• Tighten wheel drive using the down screw knob to ensure even pressure on the fiber. Tighten down so that the wheel no longer slips at the push force setting determined in the crash test procedure. Do not over tighten.

F. Connect battery to blower

• The power button is on top of the battery connector.

G. Connect air compressor

NOTE: Ensure the air control valve is off before connecting the air hose.

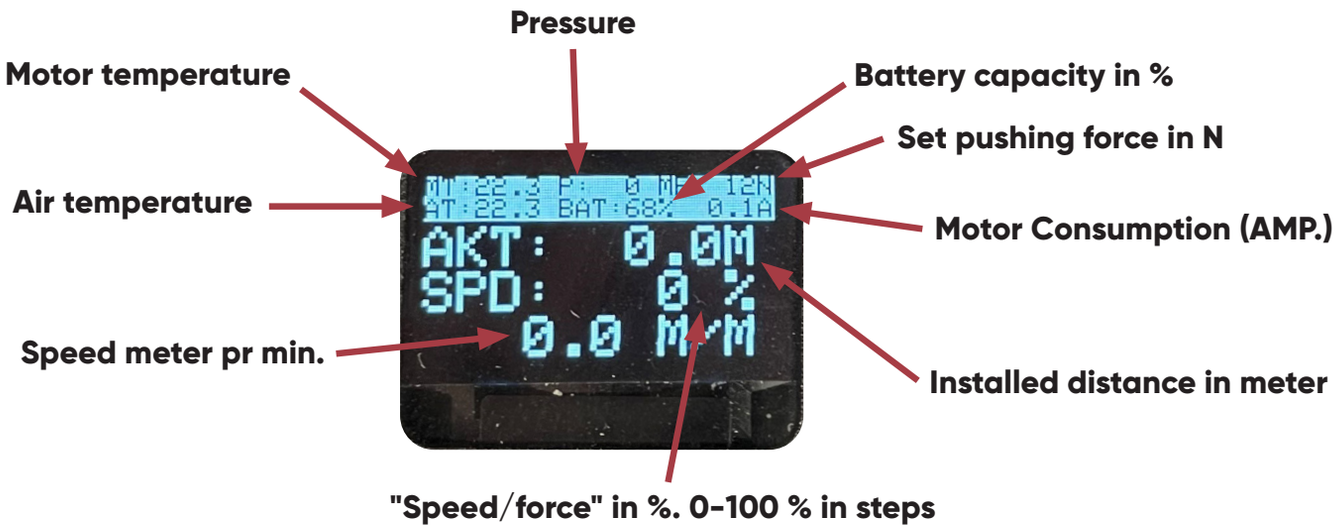
• Attach the air compressor hose to the air compressor if necessary.

• Then connect the compressor hose to the blower unit. The unit uses a standard quick connect air compressor coupling.

To avoid creating a trip hazard always route air hose out of the way and secured to a stable object.

The fiber reel should be placed axially perpendicular to the length of micro duct and typically 6 ft (2 m) or more from the V0 HD. The V0 HD must be positioned in-line between the fiber to be installed and the pipe. The fiber should not enter the V0 HD at an angle of more than 10 degrees from the intended axis of trave.

6. Display functions



7. Crash test

Fiber Crash Testing is a very quick and easy step to be completed before attempting the installation of fiber with the V0 HD. This test is necessary to set the push force control of the motor below the point that the V0 HD may cause fiber damage as a result of over pushing or encountering an obstruction in the sub-duct system.

Every fiber has different pushing values and these values vary depending on duct I.D.

Always wear protective equipment: hard hat, safety glasses, safety shoes and work gloves.

IMPORTANT

For the Crash Test to work properly, use the same size fiber and pipe that will be used for the job. Jetting cannot be responsible for any fiber damages.

Crash Test: For all types of fibers > 0,5 mm diameter

The pushing force is adjusted by pressing the Menu button and set with + and – button.To return to main screen/start menu, push the meny button 2 times, or wait 5 s.

Please observe: For model V0 HD, the preset pushing force is 6 N, and can be set between 6-200 N.

The last inserted pushing force will stay in the memory even if the device will be switched off. This will also be the case if the V0 HD battery needs to be replaced during operation.

1. Set wheel clamp force to the lowest possible setting that will allow for a desirable installation speed.

2. Insert the fiber and seal inside the pipe clamp as it would be for the actual installation.
3. Install a 1 to 2 m test length of pipe into the V0 HD clamp and insert clamp into the air block.
4. Block the end of the test length of pipe.
5. Tighten the wheel pressure on to the fiber with the wheel drive engaged in the forward direction until the fiber starts to install.
6. Ram the fiber into the blocked end of the pipe.
7. Wheel should stop in the fiber before the fiber folds over.
8. Reduce the pushing force on the fiber until the wheel stops.
9. Repeat step 6-8 until the fiber folds. This is your push force slip limit.
10. Loosen up the wheel on the fiber a quarter turn and perform test once more to confirm no fold over has occurred. KEEP THIS SETTING APPLIED TO THE FIBER FOR ACTUAL INSTALLATION!
11. Swap out test length of pipe with actual installation pipe and proceed to operating the V0 HD.

8. Blower operations

1. Verify adjustable push force

Set the pushing force for the specific cable, recommended by the cable manufacturer. If crash test has been performed, verify adjustable pushing force is set to the established crash test value and speed is set at maximum.

2. Engage wheel drive

The wheel drive can be operated in forward. For installation, engage the wheel drive in forward by depressing + button. Install the fiber into the duct using push only until the installation has slowed.

3. Engage air

Slowly open the air control valve to allow air flow to the air block. Do not apply maximum air pressure and flow at initial air engagement. Do not open the air supply before adequate fiber has been pushed in (>100M).

IMPORTANT

Do not exceed 16 bars when operating the unit.
Forced air creates flying debris.
Always wear personal protective equipment.

4. Adjust speed

Use the + and – buttons to adjust the drive speed. Activate the machine operation by pushing +. The machine starts in a smooth way, ramping up the speed and pushing force gently, to the set value. Pushing the – button will decrease speed and force. Match the amount of compressed air being used, in gently steps, so that forces are working together, not against each other.

5. Install fiber

It may be helpful to guide/apply back tension to the fiber using your hand at the fiber entrance of the machine to maintain control over the fiber. Always use a cloth or napkin in order to secure clean fiber cable enter into the machine. This will decrease the daily work for cleaning of measure and drive wheel, cable guides and duct clamp compartment and also prevent dust, dirt and moisture/water to enter the machine.

6. Wheel drive engages forward

The wheel drive engages forward by the + button. By the – button the drive wheel will reverse. Please note that the fiber protection system is disabled in reverse drive.

Please observe: Set pushing force is reached by 40 % "speed/force %".

7. Disabling fiber protection

To disable the fiber protection system, press and hold “STOP” and “-” button for 3 seconds. This will be effective until next reset or power cycle of the machine.

8. Activate fiber protection

To reactivate the fiber protection system, press and hold “STOP” and “+” button for 3 seconds or switch on/off the main power supply.

Please observe: With the fiber protection the max. pushing is 200N.

9. Reset of inserted values & total milage/distance

To reset all values, push the stop button for 6 s. To monitor the total milage/distance since the machine was operated the first time, push 2 times on the menu button.

To go back to the start menu, wait for 5 s or push the menu button.

9. Maintenance

Procedure	Daily	Weekly	Monthly	60 days	90 days
Clean all assemblies and components thoroughly with dry cloth	X				
If used in moisture weather. Remove the machine from the transport box and leave it to dry completely	X				
Check/charge batteries in original charger	X				
Inspect fasteners and screws	X				
Check wheels for wear. Replace if excess wear has occurred. Excessive wear has occurred when the wheels are no longer able to effectively grip the fiber optic	X				
Duct pack seal replacement					X
Change rubber rings on drive wheel	Every 50 km unless excessive wear is occurring				
Seals replacement	Every 10 km unless excessive wear is occurring				
Wheel cleaning and tightening	Inspect wheel and tighten before and after each use. Clean after each use, or when necessary				

Disconnect power supply and exhaust any air pressure before servicing any component on the V0 HD.

Avoid handling leaking couplings, valve seal or inadequately sealed pipe in air block.

DANGER! Risk of air under pressure penetrating skin.

10. Troubleshooting guide

Fiber becomes jammed in the pipe	1. Inform the people at the other end of the pipe that a problem has been experienced and the operator is going to shut down the system. 2. Shut off the pneumatic air supply with the air control valve, allowing the air pressure to be depressurized from the pipe and the pipe clamp air block. 3. Using the counter or the measurement on the fiber, determine where the blockage might be located. 4. Notify supervisor about problem and determine a solution accordingly.
Wheels does not pull the fiber	1. Assist the reel by pushing the fiber of the reel.
The fiber run is hard to restart after having stopped	1. Put more air to the system. with the belt drive 2. The wheel can be restarted after the air pressure has increased and stabilized.
Wheel feed does not start	1. Battery is low, check battery meter in the display. 2. Overtemp may have occurred. The display shows "OVERTEMP" and the motors needs to cool down under 75 degrees Celsius. Do not use compressed air or water to cool down the machine, just let it wait until it cools down by itself.

11. Documentation and disposal

Ordering documentation

Documentation, user instructions and technical information can be ordered by contacting Jetting AB by phone or mail, +46 502-65 90 10, info@jetting.se.

Documentation feedback

Comments to our product documentation can be sent to info@jetting.se. We appreciate your comments.

Disposal

Please follow the regulations for your country regarding how to recycle parts and dispose products.

12. EC Declaration of Conformity

EC DECLARATION OF CONFORMITY FOR MACHINERY

Original

Directive 2006/42/EC, Annex II 1A

Manufacturer (and where appropriate his authorised representative):

Company: Jetting AB

Address: Murgatan 1
522 35 TIDAHOLM
SWEDEN

Hereby declares that:

Type of machinery: Fibre blowing machine

No. of machinery: V0/V0 HD

Complies with the requirements of Machinery Directive 2006/42/EC.

Complies also with applicable requirements of the following EC directives:

2014/30/EU, EMC

The following harmonized standards have been applied:

EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2018 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

The following other standards and specifications have been applied:

Authorized to compile the technical file:

Name: Håkan Johansson

Address: Murgatan 1, 522 35 TIDAHOLM

Signature:

Place and date: Tidaholm 2021-04-14

Signature: Håkan Johansson

Name: Håkan Johansson

Position: VD

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