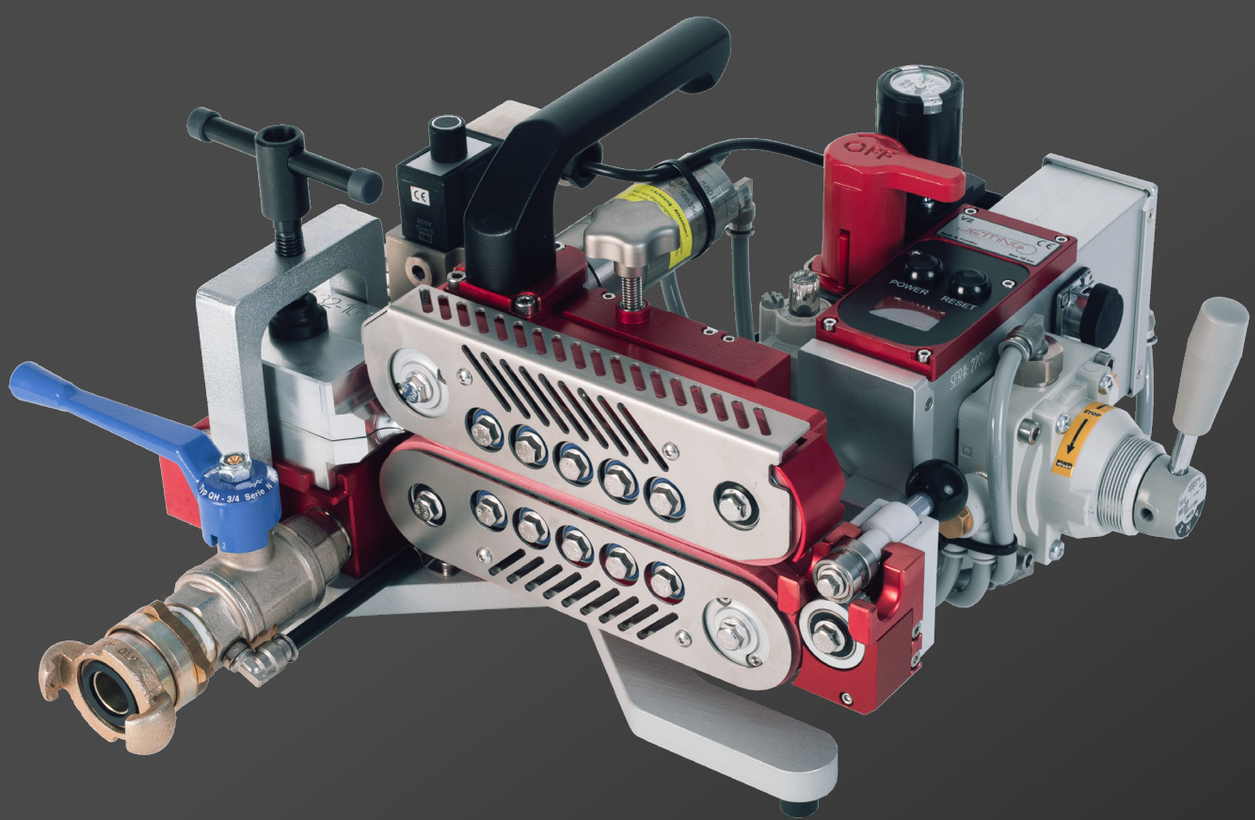
V2

Product model/type: V2 2020-SW > 2.0

V2 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 V2 micro cable 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 V2 is a unique device for installing cable optic cable directly into duct. The V2 is comprised of an air block and a belt drive that, when combined installs a cable into an airtight duct, run at speeds of 0 to 0-200 m/min.

The V2 greatly reduces pulling stress on the cable. The adjustable clamping force (push force) of the belts will (stall the motor or) slip if the cable hits an obstruction.

The V2 comes standard with a Digital LCD meter display, lube, oil and a service kit in a wooden case.

These operating instructions contain a full description of the V2, which have been designed for the purpose of feeding cable through duct of uniform cross section. The duct must have previously been installed underground or overhead to receive the optic cable and must be of sufficient length on exit to be received by the machine. The duct must be of material with sufficient compression strength for it to be adequately sealed in the duct clamps of the machine. The duct must be airtight up to a pressure of 16 bar. Duct(s) sizes range from 7 mm-50 mm, while cable optic cable(s) range from 2,4 mm-16 mm.

The V2 consists of an air block that is made in two halves that clamp together around the duct/pipe. The duct/pipe clamps hold a seal that the optical cable is fed through before entering the duct/pipe. The duct/pipe clamps and cable seals can be interchanged to accommodate different duct/pipe and cable sizes. The duct/pipe is mechanically clamped between the duct clamps at the exit of the air block, preventing movement in any direction. Seals conform around the duct when clamped.

The optic cable is fed through the duct 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 cable from airflow passing over it. The pushing force is created by engaging the belt drive system. As the belt drive feeds cable into the duct, drag force is created by the airflow. The optic cable floats in the duct, minimizing any resistance to being pushed in by the belt drive.

The use of the V2 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 V2 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 V2 should not be used to install any cable other than cable optic cable specified within the range outlined in this instruction manual.
H. The V2 should not be run without oil in the oil mist canister, this will immediately void the warranty.

Jetting is not responsible for injuries incurred as a result of improper use of the V2.

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	1/" European quick connect
4.	Maximum pressure to motors	6 bar
5.	Clean dry air only	

C. Operational capacities

1.	Pushing force	550N max push force
2.	Pushing speed	200 m/min maximum
3.	Cable sizes	2,4-16 mm
4.	Duct sizes	7-50 mm

D. Electrical requirements

1.	Power requirements	9V alkaline battery
2.	Power connection	Battery compartment

E. Physical specifications

1.	Height	230 mm
2.	Length	410 mm
3.	Width	360 mm
4.	Weight	10,5 kg

F. Belt drive specifications

1. Maximum clamping force is 2000N
2. Constant cable centerline design
3. Forward
4. Independent pushing drive belts

G. Duct coupling 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. Duct ends must be cut off squarely and deburred
6. Ducts must be fully seated into the coupler

3. Safe operating practices

Inappropriate operation could result in serious personal injury, property damage or death. Read and understand all procedures and safety instructions before using the V2. 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 cables 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 cable 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. Pneumatic devices

The V2 is a pneumatic device, using pressurized air to project cable at high velocities. Please observe the following precautions when operating the blower:

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

C. Electrical devices

The 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.
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. Refer servicing to qualified service personnel.

D. Working at night requirements

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

Misuse will void warranty

4. Unpacking the box

A. Blower components

Each V2 STD Kit contains the following items:

- V2 main unit
- Machine mount
- Hose Assembly
- Quick Connect
- Air clamp/air block (varying related to order)
- Cable Seals Kit (varying related to order)

5. Set up the blower

This manual contains setup and operating instructions for the V2.

Do not connect power supply until setup is complete.

A. Determine cable size

• Determine cable size to be installed.

B. Select cable seal & pipe

• Choose the correct cable seal and air block for the particular application according to duct and cable size.

C. Install cable seal & cable in air block

• Install the appropriate cable seal on the cable. Make sure orientation of seal on cable is correct so that it will seat in the air block properly. The seal lip of the cable seal should be facing the duct end.

• Once the cable seal is positioned properly on the cable, install the cable seal in the bottom half of the appropriate air block.

D. Install duct

• Place cable seal over the cable.

• Position the duct properly in the bottom half of the air block.

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

• Place cable into duct, place cable and seal into air block.

• Once the duct is in place, secure the configuration by installing the top half of the air block and pressing firmly together.

E. Install duct & cable in blower

• Loosen the knob on the air block assembly. Open the air block cover. Insert the duct into the air block as shown. Close air block cover and hand tighten knob to secure.

F. Install cable in belt drive and tighten

- Insert duct, assembly, tighten knob into air block.
- Feed the cable between belt drive and through the rear cable guide.
- Tighten belt drive using the down screw knob to ensure even pressure on the cable.
- Tighten down so that the belts no longer slip at the push force setting determined in the crash test procedure. Do not over tighten.

G. Power on the counter unit

H. 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.
- Then connect the compressor hose to the blower unit. The unit uses a standard claw connect air compressor coupling.

NOTE: Always use clean and dry air.

NOTE: Route all hoses properly to prevent tripping hazard.

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

The cable reel should be placed axially perpendicular to the length of the duct and typically 6 ft (2 m) or more from the V2. The V2 must be positioned in-line between the cable to be installed and the duct. The cable should not enter the V2 at an angle of more than 10 degrees from the intended axis of travel.

I. Display

- Start the display by pushing the POWER button. Reset the values by pushing RESET.
- The V2 display shows number of meter of blown fiber cable into the duct (m) and current speed (m/m meter/minute).
- For V2-JLP versions it shows the connection with the JetLogger documentation system as follows: Connected (LOGON)/Disconnected (LOGOF) & low battery (LOWB).
- When the machine is not in operation, the display should be switched off in order to save the battery.

6. Crash test

Cable Crash Testing is a very quick and easy step to be completed before attempting the installation of cable with the V2. This test is necessary to set the push force control of the motor below the point that the V2 may cause cable damage as a result of over pushing or encountering an obstruction in the pipe system.

Every cable 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 cable and duct that will be used for the job. Jetting cannot be responsible for any cable damages.

Crash Test: For all types of cables > 3 mm diameter

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

1. Insert the cable and seal inside the duct clamp as it would be for the actual installation.
2. Install a 1 to 2m test length of duct into the V2 duct clamp and insert duct clamp into the air block.
3. Block the end of the test length of duct.
4. Tighten down belts on to the cable with the belt drive engaged in the forward direction until the cable starts to install.
5. Ram the cable into the blocked end of the duct.
6. Belt slip should occur on the cable before the cable folds over.
7. Tighten down belts on the cable a half turn.
8. Repeat step 6-7 until the cable folds. This is your push force slip limit.
9. Loosen up the belts on the cable a quarter turn and perform test once more to confirm no fold over has occurred. KEEP THIS SETTING APPLIED TO THE CABLE FOR ACTUAL INSTALLATION!
10. Swap out test length of duct with actual installation pipe and proceed to operating the V2.

7. Blower operations

1. Verify adjustable push force

Verify that adjustable pushing force is set to the established crash test value and that the Easy Joystick Controller is in STOP position. The regulator should be on 0 bar – check by lifting the dial ring and turn anti clockwise.

2. Engage belt drive

Make sure the Easy Joystick Controller is in the STOP position. The belt drive can be operated in FORWARD & REVERSE. The cable installation into the duct should be by the machines pushing force only and not in combination with compressed air as a start. See section 3 below "Engage air". When the engine speed drops, air should be applied in steps. Maximum pushing force is reached at 6 bars to the engines.

To start the process for installation, set the regulator to the desired level – e.g. 2,0 to 6,5 bar - by lifting the dial ring and turn clockwise. Gently push the Easy Joystick Controller into FORWARD position.

Using the Easy Joystick Controller, you control the speed and performance with a stepless joystick. Selected drive modes are met by moving the Easy Joystick Controller to the positions FORWARD, STOP & REVERSE.

3. Engage air

Slowly open the air control valve for the duct clamp compartment to allow air flow into the duct. Do not apply maximum air pressure and flow at initial air engagement. Do not open air supply before adequate cable length has been pushed in to the duct (approx. 100 m), in order to avoid air stopping the fiber blowing procedure.

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 Easy Joystick Controller to adjust the belt drive speed to ensure smooth installation. Adjust in combination with the pressure regulator by lifting the dial ring and turn anti clockwise (to reduce power) or clockwise (to increase power) and match the amount of air pressure being used so that the forces are working together, not against one another.

5. Install fiber

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

6. Manage operation

To reduce speed on the belt drive, pull back the Easy Joystick Controller slowly or reduce the pressure regulator by lifting the dial ring and turn anti clockwise.

To stop the belt drive, pull back the Easy Joystick Controller to STOP position, or reduce the pressure regulator by lifting the dial ring and turn anti clockwise to zero.

At emergency situations, turn the red emergency shut off valve in the OFF direction clockwise.

7. Check water separator and oil lubricator

Check/empty the water separator regularly to secure that no water will go into the motors and make sure that oil is in the automatic motor lubricator (use Jetting Pneumatic oil 32). The lubrictation feeds the air intake with about 1 drop per 30 seconds. See also under section 8 Maintenance.

8. Maintenance

Procedure	Daily	Weekly	Monthly	60 days	90 days
Clean all assemblies and components thoroughly with dry cloth	X				
Inspect fasteners and screws	X				
Inspect and check 9 v battery for display. Lifetime is 10-15 hours constant use	X				
Check Belt Tension. Replace if excess wear has occurred. Excessive wear has occurred when the belts are no longer able to effectively grip the cable optic cable	X				
Pipe Pack Seal Replacement					X
Belts Replacement	Every 50 km unless excessive wear is occurring				
Seals Replacement	Every 10 km unless excessive wear is occurring				
IMPORTANT! • Check oil level daily and refill container if needed. Oil level should never be completely empty • Check oil dispenser unit if it´s working by looking at the small glass bulb on top, if properly adjusted and in working order it will dispense 3 drops/min otherwise adjust it by turning it to the correct amount • (Do not run engines with empty or defect oil dispenser!)	How-to • Turn off the machine • Make sure that the machine is level • Un-screw the glass container (no tools needed) • Refill with "Jetting Lubrication 1L Oil32" art.nr: 1030 • Screw it back on (no tools needed)				
• Always dry clean air • Check/empty water separator	• Use compressor with water separator/dryer • Placed on the machine				
• If machine is not used every day or you leave it for the weekend/holiday we recommend cleaning and lubricate the motors	• Inject a good gulp of oil into the motors an rotate the motors				

Disconnect air supply and exhaust any air pressure before servicing any component on the V2.

DANGER! Risk of air under pressure penetrating skin.

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9. Troubleshooting guide

Cable becomes jammed in the pipe	1. Inform the people at the other end of the duct 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 duct and the air block. 3. Using the counter or the measurement on the cable, determine where the blockage might be located. 4. Notify supervisor about problem and determine a solution accordingly.
Belt feed does not pull the cable	1. Assist the reel by pushing it and/or by pulling the cable of the reel.
The cable run is hard to restart after having stopped	1. Put air to the system with the belt drive. The belt can be restarted after the air pressure has increased and stabilized.
Belt feed does not start	1. Estop may still be engaged. Reset the estop button by turning it clockwise. 2. Check oil canister.
The display is down or is acting strange	1. Check the 9 V battery.

10. 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.

11. EC Declaration of conformity

	Dok. id.	Utfärdare	Datum
		Carina Magnusson	2021-09-24
	Filnamn		Revisionsnr
	9063-Risk assessment.ced		01

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:	V2

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 2020-09-24
Signature:	Håkan Johansson
Name:	Håkan Johansson
Position:	VD

12. Notes

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