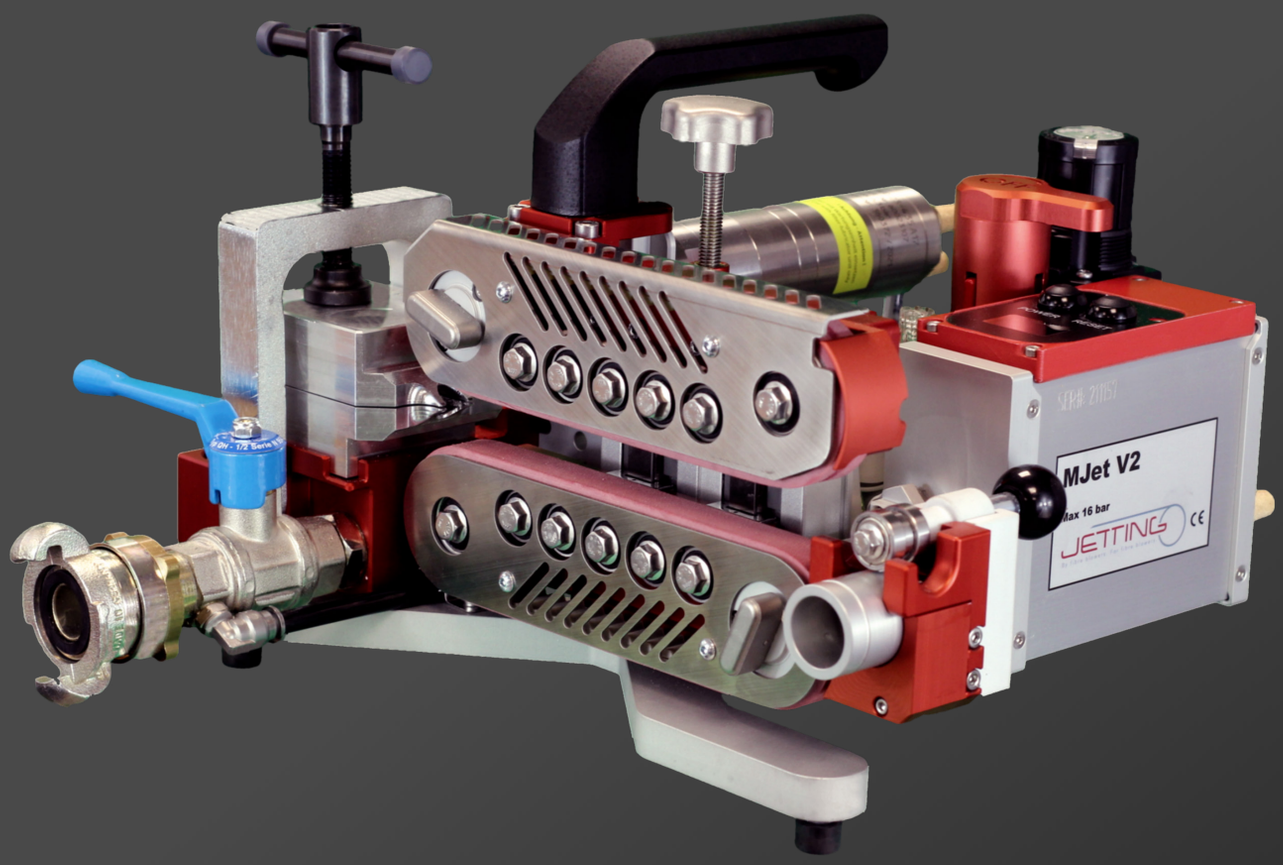
MJet V2

Product model/type: MJet V2 2020-SW > 2.0

MJet V2 USER'S GUIDE AND SAFETY MANUAL



JETTING
By fibre blowers. For fibre blowers.

Jetting AB, Murgatan 1, 522 35 Tidaholm, Sweden

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Important safety notice

Read and understand all procedures and safety instructions before using the MJet 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 MJet V2 is a unique device for installing cable optic cable directly into duct. The MJet 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 0-200m/min.

The MJet 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 MJet 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 MJet 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 16bar. Duct(s) sizes range from 7 mm-50 mm, while cable optic cable(s) range from 2,4 mm-16 mm.

The MJet 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 MJet 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 MJet 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 MJet 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 MJet 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 MJet 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 MJet 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 MJet 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 MJet V2 STD Kit contains the following items:

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

6. Crash test

Cable Crash Testing is a very quick and easy step to be completed before attempting the installation of cable with the MJet V2. This test is necessary to set the push force control of the motor below the point that the MJet 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 > 3mm 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 MJet 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 MJet V2.

7. Blower operations

1. Verify adjustable push force

Verify adjustable push force is set to the established crash test value and the speed are at minimum. Turn the pressure setting valve to 0 bar by lifting the dial ring and turn it fully anti clockwise.

2. Engage belt drive

The belt drive can be operated in forward. For installation, engage the belt drive in forward by slowly increasing the air pressure valve. Install the cable into the duct using push only until the installation has slowed. **Do not exceed 6 bars.** When exceeding 3 bars consider to stop the cable jetting as you might dismantle the cable at motor pressure > 3 bars.

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 air supply before adequate cable 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 pressure setting dial to adjust the belt drive speed to ensure smooth installation and match the amount of air pressure being used so that the forces are working together, not against one another.

5. Install cable

It may be helpful to guide/apply back tension to the cable using your hand at the cable entrance of the machine to maintain control over the cable.

6. Belt drive engages forward

To stop the belt drive reduce the pressure or turn the red emergency shut off valve in the off direction.

7. Check water separator

Check/empty the water separator regular to secure that no water will go into the motors.

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 MJET V2.

DANGER! Risk of air under pressure penetrating skin.

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. Check oil canister.

10. EC Declaration of conformity

	Doc. id.	Issuer	Date
		Carina Magnusson	2021-09-24
	File name		Revision
	9063-Risk assessment.ced		01

EG-FÖRSÄKRAN OM MASKINENS ÖVERENSSTÄMMELSE

Original

Direktiv 2006/42/EG, Bilaga II 1A

Tillverkare (och i förekommande fall dennes befullmäktigade representant):

Företag:	Jetting AB
Adress:	Murgatan 1 522 35 TIDAHOLM SWEDEN

Försäkrar att:

Maskintyp:	Fibre blowing machine
Maskinnr:	MJet V1/V2

Överensstämmer med maskindirektivet 2006/42/EG.

Överensstämmer även med följande direktiv:

2014/30/EU, EMC

Följande harmoniserade standarder har tillämpats:

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

Följande andra standarder och specifikationer har tillämpats:

Behörig att sammanställa teknisk dokumentation:

Namn:	Håkan Johansson
Adress:	Murgatan 1, 522 35 TIDAHOLM

Signatur:

Ort/Datum:	Tidaholm 2020-09-24
Namn:	Håkan Johansson
Namnförtydligande:	Håkan Johansson
Befattning:	VD

Risk assessment prepared in accordance with EN ISO 12100:2010.

11. Notes

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By fibre blowers. For fibre blowers.

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