TriggAIR

Product model/type: TriggAIR

TriggAIR 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 TriggAIR. 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 TriggAIR is a unique handheld device for installing fiber optic directly into a pipe. The TriggAIR consist of an air block with max air pressure of 16 bar and duct clamps for 5,0- and 7,0-mm ducts. The unit's 12 V battery operated drive wheel will combined with air install fibers from 0,5-3,0 mm into an airtight duct, at speeds of 0 to 0-150 m/min. With the build in digital LCD display, displaying speed and distances and the manometer you always have full control of the process. The start button can be locked in the speed you like for "automatic drive". Reverse function helps if you need to pull out a fibre.

The TriggAIR is operated without tools. The built-in adjustable clamp force greatly optimizes the pulling stress on the fiber. The unit have an adjustable clutch for fibre security. This fiber protection system prevent damages on the fiber if the fiber hits an obstruction.

The TriggAIR is supplied in hard side case including the TriggAIR, box for seals, 2 pcs battery and charger. As option for the TriggAIR you can get a tripod and reel arm kit for pre terminated fibre.

These operating instructions contain a full description of the TriggAIR, which have been designed for the purpose of feeding fiber through a duct. The duct must have previously been installed underground or overhead to receive the fiber cable and must be of enough length on exit to be received by the machine. The duct must be of material with enough 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 sizes range from 5 mm-7 mm, while fiber optic fiber(s) range from 0,5 mm-3 mm.

The TriggAIR consists of an air block/duct clamp that is made in two halves that clamp together around the duct. The duct clamp holds a seal that the fiber optic fibre is feed through before entering the duct. The duct clamp can be used for both 5,0- and 7,0-mm ducts. Fiber seals can be interchanged to accommodate different fibre sizes. The duct is mechanically clamped between the duct clamps at the exit of the duct clamp, preventing movement in any direction. Seal is placed around the fibre when clamped.

The fibre 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 fibre from the airflow passing over it. The pushing force is created by engaging the drive wheel system. As the drive wheel feeds the fibre cable into the duct, drag force is created by the airflow. The fibre cable flies in the duct, minimizing any resistance to being pushed in by the drive wheel.

The use of the TriggAIR 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 TriggAIR 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 TriggAIR should not be used to install any fiber other than fiber 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 TriggAIR.

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	0,1-0,3 m3/min
3.	Air hose fittings	Cejn type

C. Operational capacities

1.	Max pushing force	30 N
2.	Pushing speed	Adjustable 0-150 m/min
3.	Fiber sizes	0,5 mm to 3,0 mm
4.	Duct sizes	5,0 and 7,0 mm

D. Electrical requirements

1.	Power requirements	Volt max 12 V, 4,0 Ah
2.	Power connection	Milwaukee standard

E. Physical specifications

1.	Height	260 mm
2.	Length	200 mm
3.	Width	120 mm
4.	Weight	2,3 kg

F. Wheel drive specifications

1. 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. Duct ends must be cut off squarely and deburred
6. Duct must be fully seated into the connector

3. Safe operating practices

Read and understand all procedures and safety instructions before using the TriggAIR. 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. 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.

C. 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. Components

Each TriggAir Kit contains the following items:

- TriggAIR main unit with built in clamps for 5,0- and 7,0- mm duct
- Cejn Air regulator
- 2 pcs batteries
- Battery charger
- Robust protecting case
- Cable seal box
- User manual

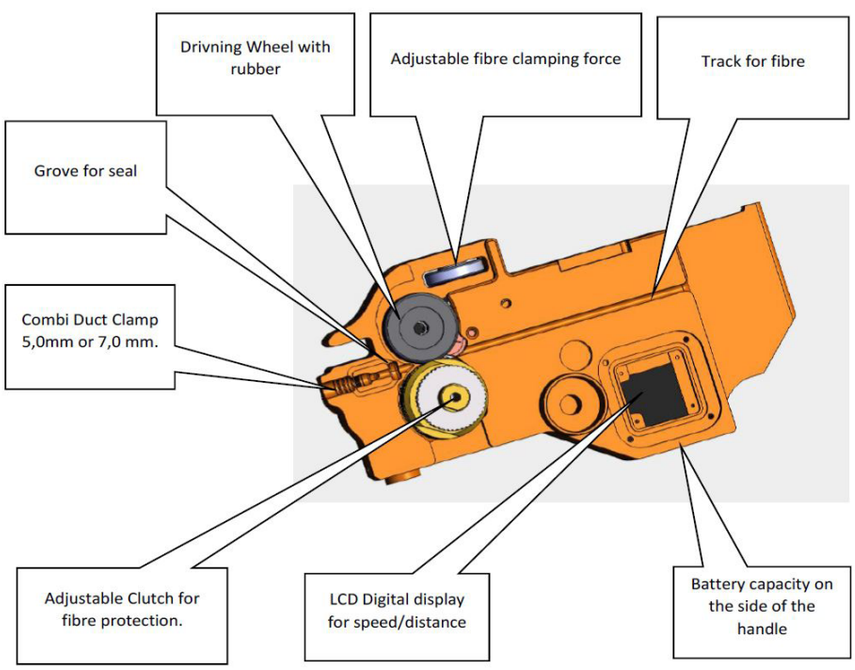
B. Accessories

- Arm for preconnected fibre
- Tripod incl CEJN adaptor
- Table bracket for mounting on table

5. Set up the TriggAIR

This manual contains setup and operating instructions for the TriggAir.

Do not connect power supply until setup is complete.



A. Determine fiber size

• Determine fiber size to be installed.

B. Select cable seal

• Choose the correct cable seal matching the cable size.

C. Install cable seal and fiber in track

• Install the appropriate cable seal on the cable. Once the cable seal is positioned properly on the fiber you can install the fiber cable in the wheel drive, see E.

D. Install duct

• Ensure there is adequate length of duct available to avoid unnecessary strain on the duct.
• Place fibre cable into duct, place fibre cable and seal into the duct clamp.
• Once the duct is in place, secure the configuration by closing the top half of the duct clamp and pressing firmly together. Close duct clamp cover and hand tighten the knob to secure.

E. Install fiber cable in the wheel drive and tighten

• Feed the cable in the wheel drive.
• Tighten adjustable clamp force wheel using the screw knob to ensure even pressure on the fibre cable. Do not over tighten!

F. Adjust clutch for fibre security

• Adjust if needed, tighten it by turning the knob right and loosing it by turning left.

G. Connect battery to blowing 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 if necessary.
• Then connect the compressor hose to the blower unit. The unit uses a standard quick connect air compressor coupling (always use water separator on the compressor).

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

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

6. Crash test

Fiber Crash Testing is a very quick and easy step to be completed before attempting the installation of fiber cable with the TriggAIR. This test is necessary to set the pushing force control of the motor below the point that the TriggAIR may cause fibre 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

1. Insert the fiber and seal inside the duct as it would be for the actual installation.
2. Install a 1 to 2 m test length of duct into the TriggAIR clamp.
3. Block the end of the test length of duct.
4. Tighten the wheel pressure on to the fibre with the wheel drive engaged in the forward direction until the fibre starts to install.
5. Ram the fiber into the blocked end of the duct.
6. Fibre cable should stop before the fiber folds over/are damaged. If the fibre cable do not stop go to step 7.
7. Reduce the adjustable clutch for fibre security.
8. Repeat step 6-8 until the fiber folds. This is your push force slip limit.
9. 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!
10. Swap out test length of pipe with actual installation duct and proceed to operating the TriggAIR.

7. Blower operations

1. Verify adjustable push force

Verify adjustable push force is set to the established crash test value and the speed is at minimum.

2. Engage wheel drive

The wheel drive can be operated forward and backward. For installation, engage the wheel drive in forward by pressing the 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 (approx. >100M).

IMPORTANT

Do not exceed 16 bars when operating the unit.

Forced air creates flying debris.
Always wear personal protective equipment.

Motor is not covered by warranty if motor is overheated. When exceeding maximum pushing force (clutch fully engaged), let the motor cool down between the cycles.

4. Adjust speed

Use the button to adjust the 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 fiber cable

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

6. Switch of the machine to prevent battery damage

When the battery is emptied, the engine stops. Still the display lights up. It is important not to forget to switch off the machine or you will ruin the battery.

8. Maintenance

Procedure	Daily	Weekly	Monthly	60 days	90 days
Clean all assemblies and components thoroughly with dry cloth	X				
Recharge battery	X				
Inspect fasteners and screws	X				
Check rubber on wheels for wear. Replace if excess wear has occurred. Excessive wear has occurred when the rubber is no longer able to effectively grip the fiber optic fiber		X			
Duct pack seal replacement					X
Seals replacement	Inspect seal before each use				
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 TriggAIR.

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

DANGER! Risk of air under pressure penetrating skin.

9. Troubleshooting guide

Fiber becomes jammed in the duct	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 air supply with the air control valve, allowing the air pressure to be depressurized from the duct and the duct clamp air block. 3. Using the counter or the measurement on the fiber cable, 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 cable of the reel. 2. Adjust the clamping force.
Hard to restart after stop	1. Put more/less air to the system. 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 indicator.

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

EC Declaration of Conformity

Manufacturers Name: Jetting AB

Manufacturers' Address: Murgatan 1, 52235 Tidaholm Sweden

Declare that the machinery described below conforms to health and safety requirements of Parts 1and 2.2 of Annex I of Machinery Directive 2006/42/EC. Confidential technical documentation has been compiled as described in Annex VII Part A of Machinery Directive 2006/42/EC and is available to European national authorities on written request. If a request is received documentation will be transmitted either electronically or by post.

Description: **TriggAIR**

The following standards have either been complied with in part or in full or used for reference as relevant:

EN ISO 12100: 2006	Safety of machinery	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2006	Safety of machinery	Electrical equipment of machines - Part 1: General requirements
EN ISO 13849-1:2008	Safety of machinery	Safety Related Parts of Control Systems – Part 1 General Principals for Design
EN 614-1:2006+A1:2009	Safety of machinery	Ergonomic design principles - Part 1: Terminology and general principles
EN 614-2:2000+A1:2008	Safety of machinery	Ergonomic design principles - Part 2: Interactions between the design of machinery and work tasks
EN 953:1997+A1:2009	Safety of machinery	General requirements for the design and construction of guards.
ENISO 11202/A1 1997	Noise	Measurement of emission sound pressure levels at a workstation and at other specified positions.
ISO 20643:2005	Mechanical vibration	Hand-held and hand-guided machinery - Principles for evaluation of vibration emission
EN 61000-6-3:2007		EMC - Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2: 2001		EMC - Generic standards - Immunity for – industrial environments.

Full Name of responsible person and place of signing

Håkan Johansson **Position** Manager

Signature : Håkan Johansson **Date** 20200429

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12. Notes

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