



OPERA

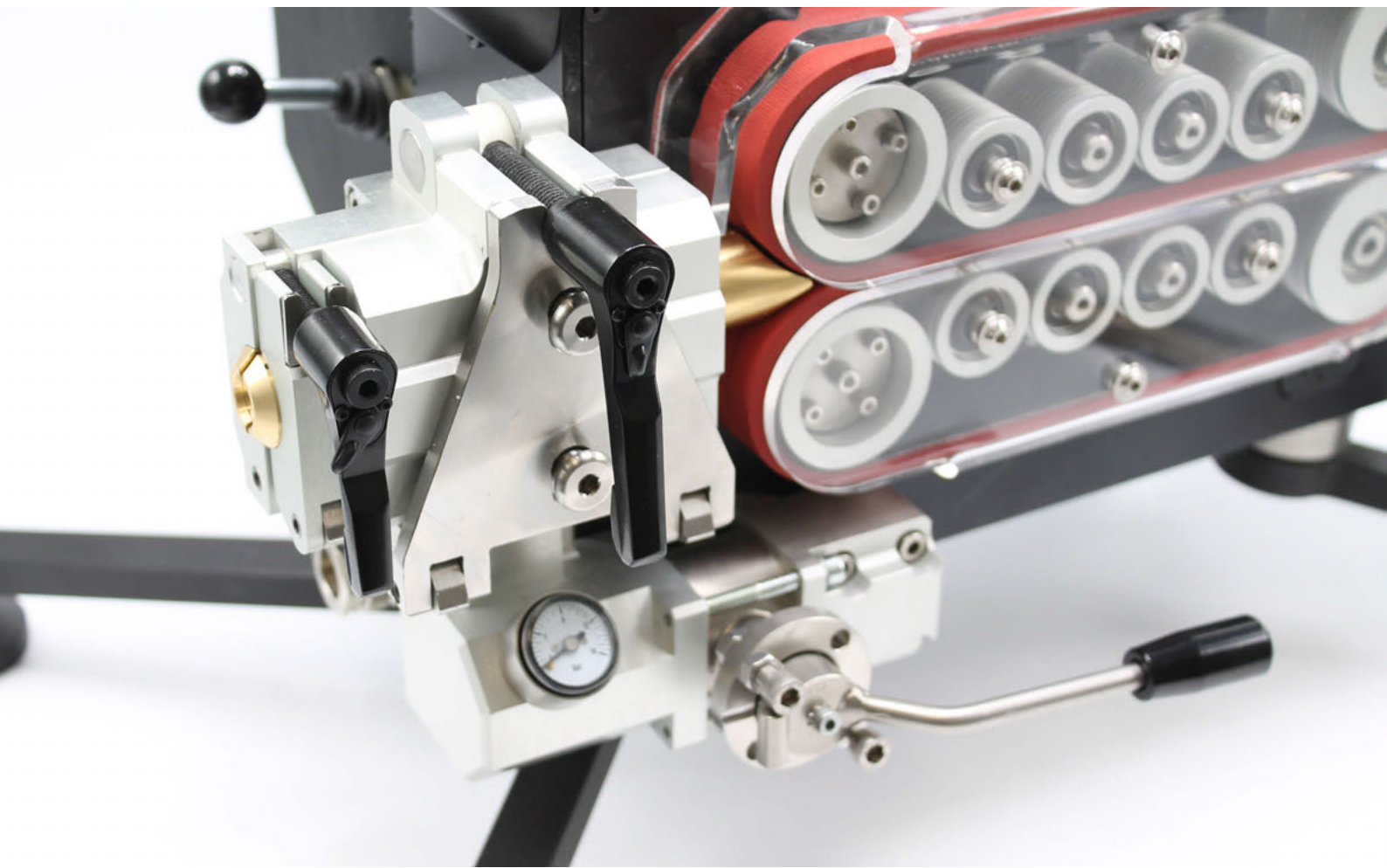


USER & MAINTENANCE MANUAL



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OPERA

Opera is a technologically advanced cable blowing machine designed for the installation of fiber optic cables over long distances, ensuring efficient and safe installation. It is capable of laying cables with diameters ranging from 2.4 to 16 mm inside ducts with diameters from 7 to 50 mm (from 7 to 16 mm with an internal adapter and from 16 to 50 mm with an optional external adapter).

The machine is equipped with an integrated multi-function touch screen display, allowing for precise management of laying parameters and real-time monitoring of the installation process. If the set laying parameters are exceeded, **Opera has a cable protection system** that automatically stops the machine to prevent cable breakage.

At the end of the installation, it is possible to create a comprehensive report of the operation performed through a specially developed application, thus obtaining a detailed account for documentation and verification purposes.

Opera is a product entirely conceived, developed, and manufactured in Italy, characterized by a typically Italian design that combines functionality and aesthetics.

Opera blowing machine ensures optimal performance with cables ranging from 4 to 12 mm in diameter.

SAFETY REGULATIONS



The air pressure must never exceed the limit of 16 bar.



Do not open the adapter clamps during regular operation with the emergency button deactivated.



Before use, ensure that the device is placed and secured on a solid surface or its own case. Verify that the cable blower is properly connected to the duct and that the cable is correctly positioned between the two drive belts.



Before beginning, make sure no one is standing near the cable reels to prevent any potential risks.



Ensure not to touch the cable when it is inserted in the machine to avoid possible finger injuries. Also, make sure that the cable does not become tangled, which could create hazardous situations for the personnel involved.



Before closing the belt closure carriages, ensure that the space between the belts is clear and that no people are near the machine. Pay close attention not to place hands or clothing near the belts when the machine is in use and the emergency button is deactivated.



Do not remove the plexiglass guards during installation operations (this could cause hand injuries).

TECHNICAL SPECIFICATIONS

Drive: pneumatic

Maximum laying speed: 90 m/min

Recommended speed: 60 m/min

Cable diameter: \varnothing 2.4 to 16 mm

Duct diameter: \varnothing 7 to 50 mm (from 16 to 50 mm with external adapter)

Maximum air pressure: 16 bar

Pushing force: 0 - 900N

Maximum clamping force on the cable: 3200 N

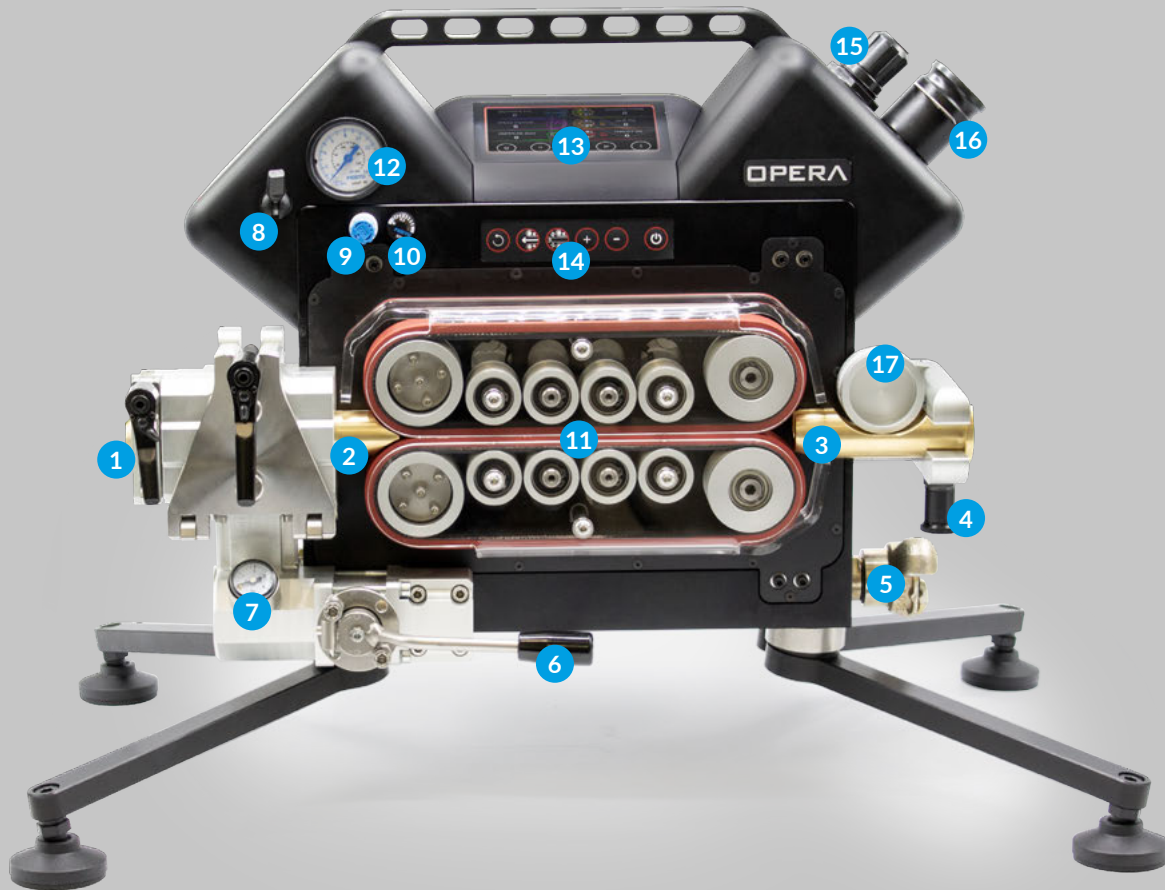
Weight: approximately 25 kg

Dimensions: 565 x 252 x 360 mm

4.2" TFT touch screen display with operational information (speed, distance, belt clamping force, actual cable pushing force, maximum pushing force, cable slippage, maximum cable slippage, compressed air pressure).

Automatic installation stop upon reaching maximum pushing or slippage levels.

Wi-Fi connection for remote management and data acquisition (requires Tablet with Fibernet App).



- 1 DUCT ADAPTER
- 2 CABLE ADAPTER
- 3 CABLE ENTRY GUIDE
- 4 CABLE ENTRY GUIDE RELEASE KNOB
- 5 COMPRESSED AIR INLET CONNECTOR
- 6 COMPRESSED AIR ADJUSTMENT LEVER IN DUCT
- 7 DUCT AIR PRESSURE MANOMETER
- 8 BELT OPENING/CLOSING
- 9 BELT CLOSING FORCE ADJUSTMENT
- 10 BELT CLOSING FORCE PRESSURE MANOMETER
- 11 BELTS
- 12 MOTOR PRESSURE MANOMETER
- 13 MULTI-FUNCTION DISPLAY
- 14 CONTROL PANEL
- 15 MACHINE START / MOTOR SPEED ADJUSTMENT
- 16 EMERGENCY STOP
- 17 METER COUNTER



- 18 ON/OFF DISPLAY
- 19 FORWARD/REVERSE SELECTOR
- 20 SECONDARY COMPRESSED AIR OUTLET
- 21 DISPLAY BATTERY
- 22 ENGINE OIL

DISPLAY - DESCRIPTIONS AND FUNCTIONS



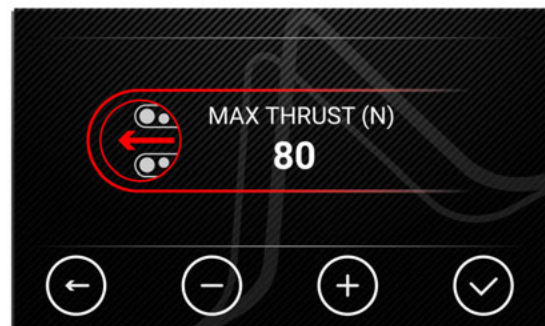
- | | | | |
|---|-------------------------|----|--------------------------------|
| 1 | DISTANCE (m) | 7 | STOP THE OPERATION |
| 2 | SPEED (m/min) | 8 | PAUSE / FREEZE FRAME OF VALUES |
| 3 | PRESSURE (bar) | 9 | PLAY - START OPERATION |
| 4 | BELTS CLOSING FORCE (N) | 10 | INFORMATION SCREEN |
| 5 | SLIPPAGE (%) | 11 | MACHINE STATUS |
| 6 | THRUST (N) | 12 | BATTERY LEVEL DISPLAY |

SLIPPAGE AND MAXIMUM FORCE SETTINGS SCREENS

Slippage Settings Screen



Maximum Force Settings Screen



DISTANCE - Shows the length of cable laid; the value can be positive or negative in case of cable rewinding.

BELT CLOSING FORCE - Displays the amount of force, in newtons, that the belts apply to the cable once clamped.

SPEED - Represents the cable laying speed.

SLIPPAGE - Indicates the percentage difference in speed between the belts and the cable. A slippage of 100% means the belts are moving at twice the distance compared to the cable. The "Max" value can be set and indicates the control threshold beyond which the machine is automatically stopped.

PRESSURE - Displays the pressure measured in bars inside the duct.

THRUST - Represents the force the machine is applying to push the cable into the duct. The "Max" value can be set and indicates the control threshold beyond which the machine is automatically stopped.

STOP - Button to stop the motors while keeping the belts clamped at the set pressure.




PAUSE / SCREEN SHOT - This button does not stop the motors but freezes the data displayed on the screen at that moment, while laying continues. Current data becomes available again when the machine is returned to Play mode.

MACHINE STATUS - Represents the current state of the machine (Play - Stop - Pause).

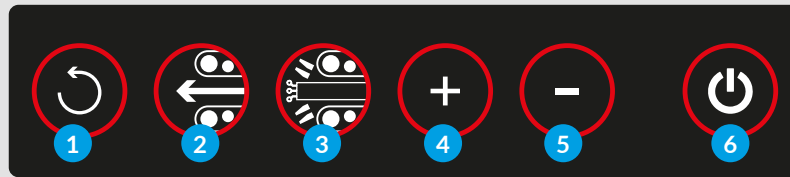
BATTERY LEVEL - Displays the charge level of the electronic component battery of Opera.

PLAY - Represents the operational state of the machine and the state it must be in to start laying.

INFORMATION SCREEN - Contains the machine's name and SSID for app connection, the total distance laid by the machine, the currently installed firmware version, and the machine's language. Available languages are Italian, German, and English.

NOTE: To set the values for slippage and maximum pushing force controls, tap the corresponding icon on the touch screen, select the values using the  and  buttons, and confirm with the  button. If you navigate away without confirming, the values will not be saved.

CONTROL PANEL




- 1 BACK / RESET DISTANCE LAID METERS (HOLD FOR 5 SECONDS)
- 2 PUSHING FORCE ADJUSTMENT / CONFIRM SET VALUE
- 3 SLIPPAGE ADJUSTMENT / CONFIRM SET VALUE
- 4 INCREASE VALUES
- 5 DECREASE VALUES
- 6 START / STOP LAYING

CONTROL PANEL

It is possible to use the control panel as an alternative to the touch screen.

BACK - Returns to the previous menu screen. Holding the button for 5 seconds will reset the distance counter for laid meters.

PUSHING FORCE ADJUSTMENT / SLIPPAGE ADJUSTMENT These buttons open the corresponding menu on the screen. To set a value, use the buttons next to **+** and **-** as an alternative to those on the display. To confirm the chosen value, click the icon of the adjustment being set again. To exit the screen without saving changes, press Back. 

START / STOP LAYING - Press this button  to stop the laying process and put the machine in "Stop" mode. Press it again to resume laying.

USAGE OF THE MACHINE

PRELIMINARY OPERATIONS

To prepare Opera for its first use, follow these steps:

- **ENGINE OIL:**

- Unscrew the oil reservoir (Fig. 1).
- Fill the reservoir with oil up to $\frac{3}{4}$ of its capacity. Note: Use oil suitable for pneumatic applications.
- Screw the reservoir back onto the machine (Fig. 2).



Fig. 1



Fig. 2



**ALWAYS CHECK THE OIL LEVEL BEFORE EACH USE.
RUNNING WITHOUT OIL WILL DAMAGE THE MOTORS.**

Note: The lubricator is delivered pre-set (1 drop of oil every 60 seconds). No further adjustments are necessary.

- **BATTERY CHARGING:**

- Press the test button on the battery itself (Fig. 1) to check the charge level. The charge level can also be viewed on the Opera screen once it is powered on (Fig. 2).
- If the battery is low or partially depleted, charge it accordingly.



Fig. 1

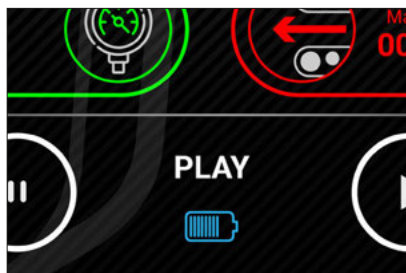


Fig. 2

• **TUBE AND CABLE ADAPTER:**

If you plan to use a tube or cable of a different size than the one currently mounted on the machine, follow these steps:

- Acquire the appropriate adapters and seals for the new size. These can be purchased from your trusted distributor.
- Unscrew the current tube or cable adapter (Fig. 1).
- Place the new adapter into its designated slot.
- Screw the new adapter into place.
- Ensure that the linear seals in the air chamber are correctly positioned in their slots (Fig. 2).

NOTE: For frequent and quick adapter changes, we can provide specific PIMs upon request.

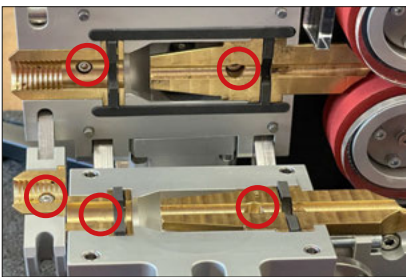


Fig. 1

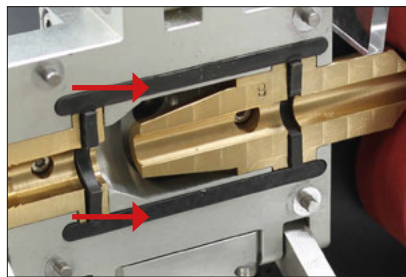
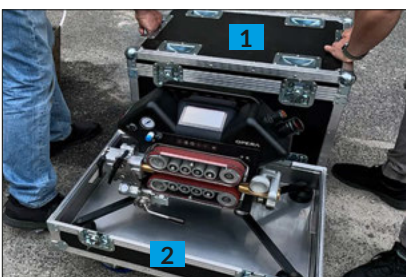
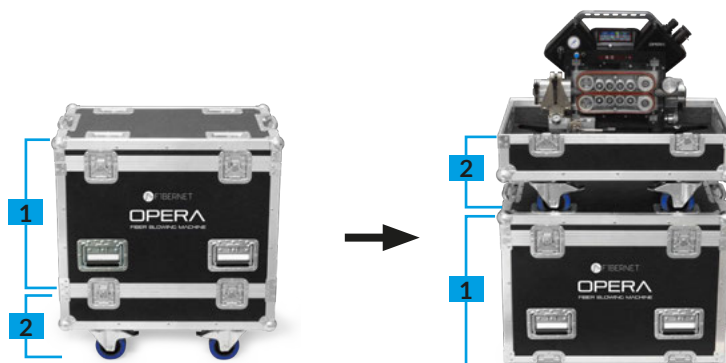


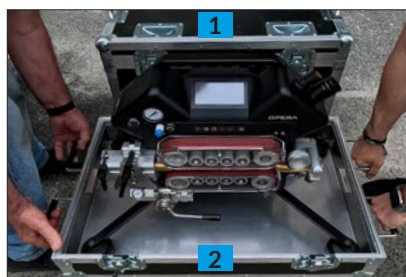
Fig. 2

OPERA CASE

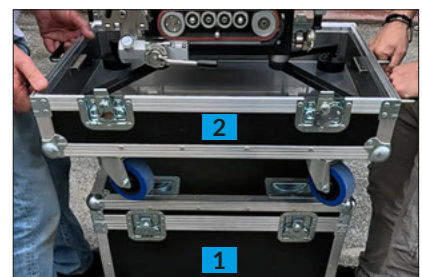
The Opera case has been designed as the ideal support for the machine during installation work.



open and remove the upper part (1)



lift the lower base (2)



place the base (2) on the upper part (1)

PRE-OPERATION CHECKS

- Ensure that the orange central part of the emergency stop button is not pressed in (Fig. 1). This indicates that the button is enabled and the machine will not apply pressure until it is supposed to, which is crucial for safety during preparation. If the orange part is pressed in, it means the button is disabled and the machine could activate (Fig. 2).
- Make sure the compressed air adjustment lever is in the lowered position (Fig. 3).
- Ensure that the air release valve, located behind the adapter block, is closed (Fig. 4).
- Check the machine's oil level (Fig. 5).
- Ensure the dryer does not contain any water (Fig. 6). If water is present, either visually or upon inspection, contact technical support.
- Turn on the display (Fig. 7).
- Check the battery level on the display or directly on the battery indicator (Fig. 8). The battery should be at least 20% charged.



Fig. 1

Fig. 2



Fig. 3

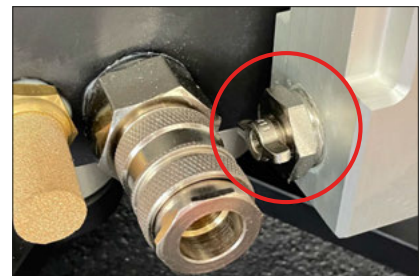


Fig. 4



Fig. 5



Fig. 6



Fig. 7

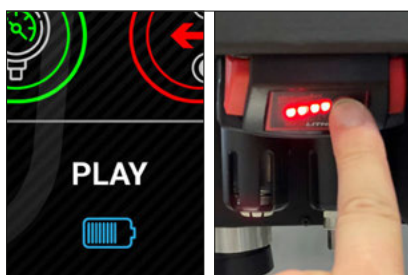


Fig. 8

INSERTING THE DUCT

- Ensure that the duct is prepared so that it does not have excessive curvature once inserted into the machine. If necessary, cut it to the appropriate length.
- Open the clamps of the duct adapter and the cable adapter, and insert the tube into the duct adapter (Fig. 1).
- Secure the tube between the first gasket and the cable adapter, ensuring there is enough space to allow air to enter the duct (Fig. 2). This is the chamber where the pressurized air is directed into the tube along with the cable.
- Tighten the duct adapter clamp until the movable part is aligned with the fixed part (Fig. 3).

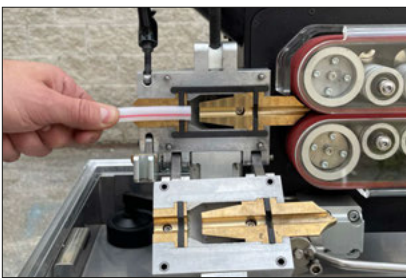


Fig. 1

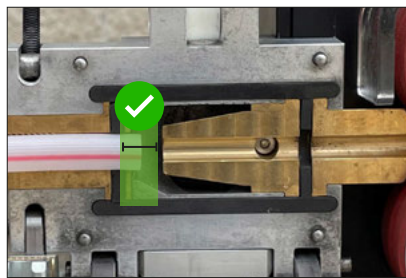


Fig. 2

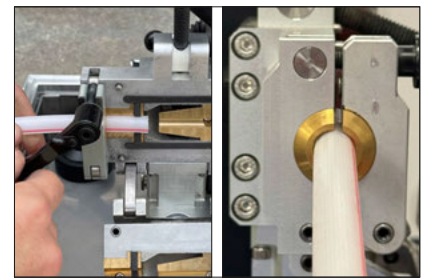


Fig. 3

INSERTING THE CABLE

- Insert the cable into the cable entry guide (Fig. 1).
- Place the cable into the cable gasket. Ensure that the “lip” of the gasket is facing towards the duct (Fig. 2). This orientation allows the air passing through the chamber to enter the gasket cavity, expanding the lip and providing a tighter gasket.
- Fit the gasket into the adapter and slide the cable a few centimeters into the tube, then close the adapter clamp by tightening it securely (Fig. 3).



Fig. 1

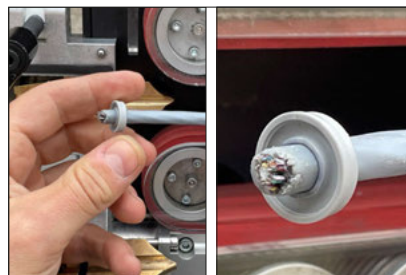


Fig. 2

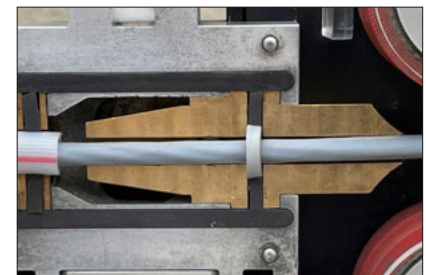


Fig. 3

CONNECTING THE COMPRESSOR

- Ensure that the compressed air lever on the machine is in the closed horizontal position.
- Attach the compressed air hose to the machine by inserting the hose fitting into the corresponding connection on Opera, rotating it, and securely tightening the locking collar (Fig. 1).
- Repeat the process with the compressor fitting (Fig. 2).
- Turn on the compressor and open the compressed air supply (Fig. 3).

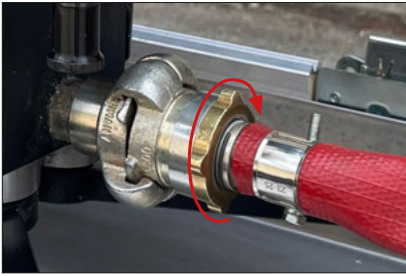


Fig. 1

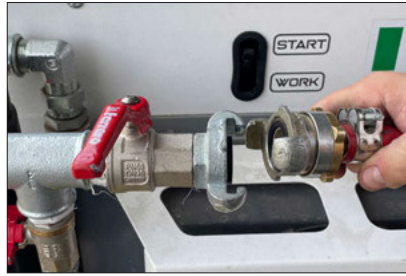


Fig. 2



Fig. 3

CLOSING THE BELTS

- Turn on the display if it is not already on (Fig. 1).
- Ensure the central orange part of the emergency stop button is pressed inward (Fig. 2).
- Use the designated lever to lower the belts (Fig. 3).
- Pull the knob slightly towards you to unlock the pressure regulator (Fig. 4).
- Adjust the clamping force of the belts by rotating the pressure regulator (Fig. 4) and check the value displayed on the screen, expressed in newtons (Fig. 5).

The force should be as low as possible while still preventing cable slippage. This value may vary based on factors such as the type of cable used, the wear level of the belts, whether the cable is wet or lubricated, etc.

- Push the knob inward to lock the pressure regulator in place.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

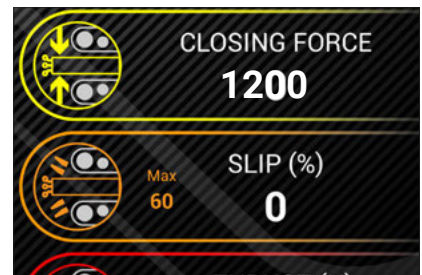


Fig. 5

SETTING THE MAXIMUM PUSHING FORCE

The maximum pushing force setting acts as a control for the force applied to the cable. It prevents the application of a force greater than what the cable can withstand without breaking and automatically stops the machine if this force is exceeded.

To determine the appropriate value, conduct a CRASH TEST. It is advisable to perform a crash test on the cable (see page 28). This test considers environmental conditions (temperature) and the machine's characteristics, which may not be fully accounted for by the manufacturer's guidelines.

- Set the Maximum Pushing Force: Access the settings on the display by clicking the corresponding icon (Fig. 1).
- Input the values obtained from the crash test (preferred) or from the manufacturer's guidelines to prevent cable breakage.
- Press the confirmation icon to save the value (Fig. 2). (If you return to the main menu without confirming, the value will not be saved.)
- The new maximum pushing force value will be displayed on the main screen of the display next to the relevant icon (Fig. 3).

By setting this value, the machine will automatically stop if the specified force is exceeded during operation, ensuring the safety and integrity of the cable.

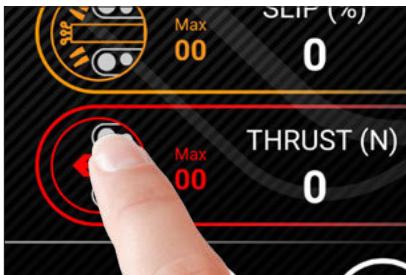


Fig. 1

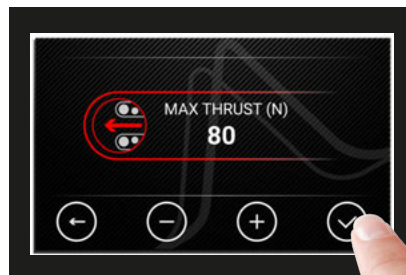


Fig. 2

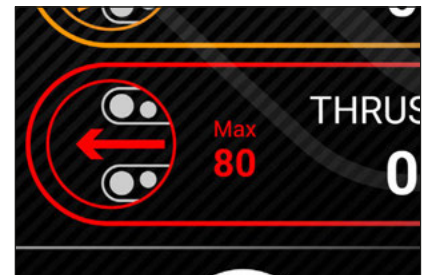


Fig. 3

NOTE: As an alternative to using the touch screen to set the maximum pushing force values, you can also use the control panel and view the data on the display.

SETTING THE MAXIMUM SLIPPAGE

Slippage refers to the percentage difference between the speed of the belts and the cable installation speed.

Setting the slippage control helps prevent cable damage if the cable gets stuck for any reason, by stopping the machine.

0% Slippage: This means the slippage control is disabled. The machine will not stop if the cable encounters an obstacle and stops moving through the tube. The belts will continue to rotate on the cable, potentially causing damage.

100% Slippage: The machine will stop only when the cable is completely stopped.

Set Maximum Slippage Parameters:

- Access the settings on the display by clicking the icon (Fig. 1).
- Adjust the maximum slippage based on the cable specifications and characteristics. This ensures the machine will automatically stop if the set value is exceeded during installation, protecting the cable from damage. (see tips and tricks SLIPPAGE pag. 30)
- Press the confirmation icon to save the value (Fig. 2). (If you return to the main menu without confirming, the value will not be saved.)
- The new maximum slippage value will be displayed on the main screen of the display next to the relevant icon (Fig. 3).

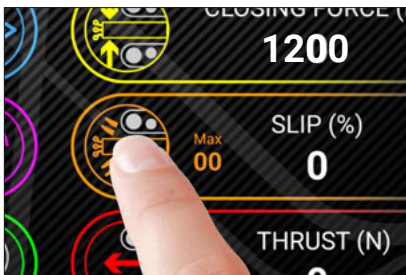


Fig. 1

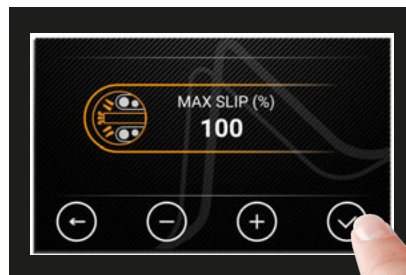


Fig. 2

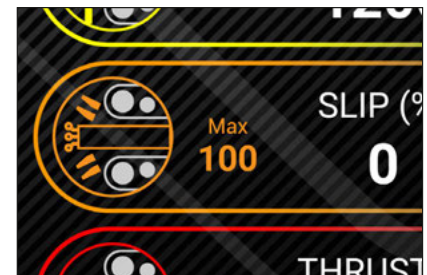


Fig. 3

NOTE: As an alternative to using the touch screen to set the maximum slippage, you can also use the control panel and view the data on the display.

STARTING THE INSTALLATION

- Choose the direction of operation using the appropriate lever located on the side of the machine (Fig. 1).
- Ensure the machine is in the “Play” mode on the touch screen. If it is not, press the Play button to set the machine to this mode (Fig. 2).
- Make sure the emergency stop button is deactivated (Fig. 3).
- Pull the speed regulator upwards to unlock it and gradually rotate it clockwise to start the installation (Fig. 4).
- Use compressed air to assist with cable installation by gradually opening the air flow adjustment handle on Opera to ensure the cable continues to move through the tube (Fig. 5).

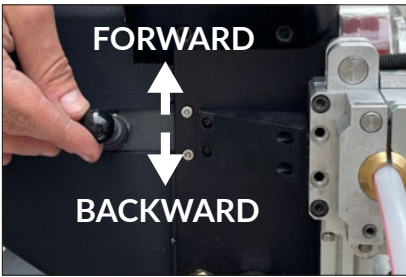


Fig. 1

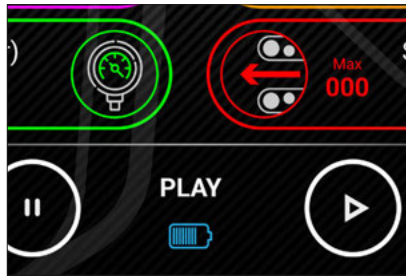


Fig. 2



Fig. 3



Fig. 4

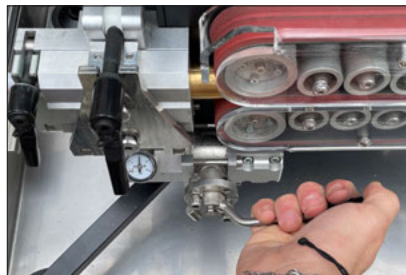
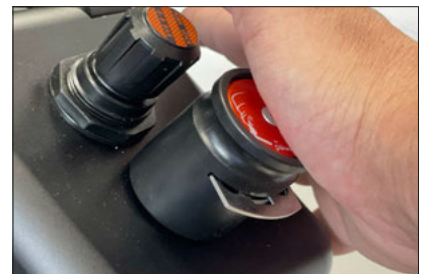


Fig. 5



**IN CASE OF PROBLEMS,
USE THE EMERGENCY
STOP BUTTON.**



ENDING THE INSTALLATION

- To end the installation, gradually reduce the speed using the motor speed regulator (Fig. 1) until it is fully down.
- To release the air from the tube without turning off the compressor, use the air release valve located behind the adapter block, or wait for the pressure to naturally discharge (Fig. 2).
- Remove the tube from the machine and withdraw the cable.



After completing all installation operations, turn off the compressor and release any residual air pressure in the machine using the designated lever (Fig. 3).



Fig. 1



Fig. 2

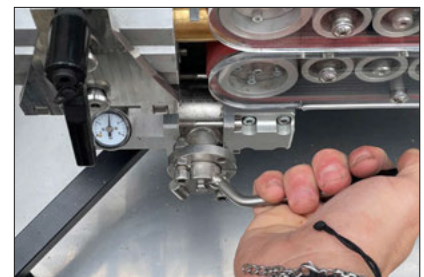


Fig. 3

Note: Opera is equipped with a condensation water removal valve located underneath the machine (Fig. 4). Compressed air generates moisture, which is captured by Opera. When the compressed air stops flowing into the machine, the valve opens to release the water. As a result, you may find some water under Opera at the end of the installation. The water may be mixed with lubricating oil and appear semi-oily. This is entirely normal and does not indicate a malfunction.

Note: Opera is equipped with oil drain ports (Fig. 5 - 6). The air motor of Opera features a turbine that is lubricated by oil mixed with air. As the oil mixed with air passes through the motor, it lubricates it and is then expelled. Consequently, you may find oil residues near the drain ports. This is entirely normal and does not indicate a malfunction of the machine.



Fig. 4



Fig. 5



Fig. 6

USE OF OPERA IN MECHANICAL ONLY MODE

Opera can also be used in mechanical only mode, without relying on the electronic components. If the display or electronics stop functioning, you can still continue with the cable laying operations.

The battery only powers the electronics and the display of the machine, which are not essential for its operation. The button on the back of the machine turns on only the display and electronics, not the machine itself.

With the screen off, the machine is automatically set to “Play” mode and is therefore ready to operate.

All mechanical procedures for activating the machine’s operation remain valid.

- The emergency stop button must be deactivated (the orange center must be pressed inward).
- The motor speed adjustment knob must be unlocked (pulled upward).
- The display power button should be pressed down (screen off).

Without the display to adjust and view the various parameters, manual adjustment will be necessary.

- The pressure gauge reading (Fig. 1) corresponds to the pushing force applied to the cable. As a reference, use the motor speed adjustment knob to set this value according to the table below.

bar	newton
6	900
3	450

- The strap closing pressure gauge (Fig. 2), adjusted with the corresponding knob, uses the MPa (Mega Pascal) scale. For reference in adjusting this value, refer to the table below.

MPa	newton
1	3200
0.5	1600

- The tube air pressure gauge (Fig. 3), controlled by the corresponding lever, indicates the pressure of the compressed air within the tube.



Fig. 1



Fig. 2

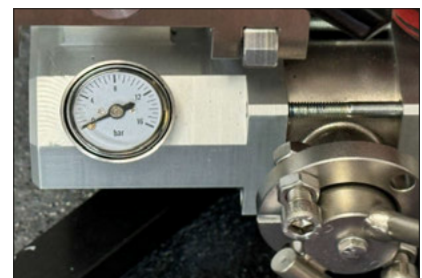


Fig. 3

REPLACEMENT OF DUCT AND CABLE ADAPTERS

- Unscrew the screws and remove the adapters to be replaced. (Fig. 1)
- Insert the adapters of the desired size and screw them back in place.
- Inspect the condition of the adapter seals and replace them if necessary. (Fig. 2)
- Ensure that the linear gasket of the air chamber are correctly positioned in their seats. (Fig. 3)

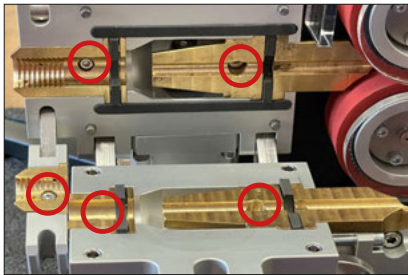


Fig. 1

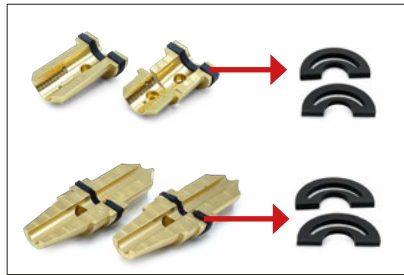


Fig. 2

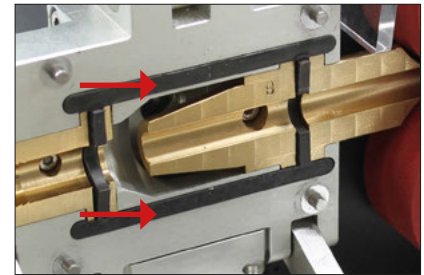


Fig. 3

REPLACING THE CABLE ENTRY GUIDE

- Pull down the knob for releasing the cable entry guide to remove it. (Fig. 1)
- Insert the desired size adapter (Fig. 2) into the machine while pulling down the knob to secure it.

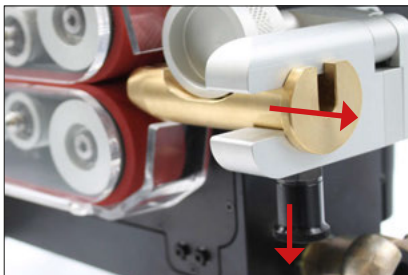


Fig. 1



Fig. 2

MAINTENANCE AND CLEANING

- Ensure the machine is dried off after use to remove any water residues.
- Clean the machine with a damp cloth (not soaking wet) using water only. Do not use other chemicals.
- Avoid using alcohol to clean the plexiglass surfaces.
- Do not use water jets to clean Opera.
- Compressed air can be used to remove any dust.

REPLACING THE BELTS

Opera's belts are subject to wear and should be checked and replaced if they show signs of wear and have lost their grip on the cable.

To replace the belts, follow these steps:

1. Start with the top belt and remove the plexiglass cover by unscrewing the fastening screws. (Fig. 1 - 2)
2. Using an Allen key, adjust the first roller on the right by turning counterclockwise to loosen the tension on the belt. (Fig. 3)
3. Slide the belt out of its position. (Fig. 4 - 5)
4. Insert the new belt, ensuring that its grooves align perfectly with those of the rollers. (Fig. 6 - 7)
5. Adjust the belt tension by turning the first roller clockwise with an Allen key. (Fig. 8)
6. Reinstall the plexiglass cover. (Fig. 9)
7. Follow the same procedure for the lower belt.



Fig. 1



Fig. 2

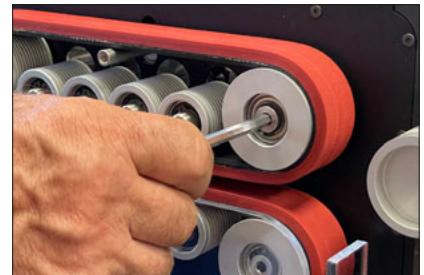


Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

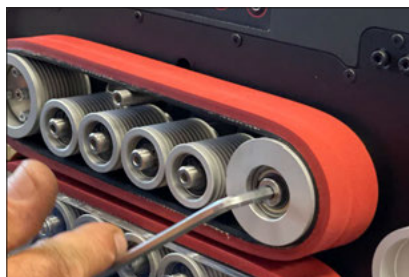


Fig. 8



Fig. 9

TROUBLESHOOTING

The machine can display two types of error messages: one for exceeding the maximum push force and one for exceeding the maximum slippage. In either case, the machine will stop. If this happens:

- Set the speed to zero using the speed regulator.
- Close the pop-up by pressing the “Close” button.
- Investigate the cause of the problem. Only restart the operation if the issue is resolved.
- After resolving the problem, return the machine to “Play” mode by pressing the corresponding button.
- Resume the operation.

or any other issues, please contact Fibernet Technical Support at:

Phone: +39 06 90.40.50.39 - Email: info@fibernet.it

FAQ - FREQUENTLY ASKED QUESTIONS

1. What is the maximum distance Opera can reach?

The maximum distance Opera can achieve is not solely dependent on the machine but is greatly influenced by the tubing and the diameter of the cable being installed. The longest installation ever completed by Fibernet is 1850 meters. There are no hard limits preventing installations beyond two kilometers. In principle, good quality tubing and cable make a significant difference.

2. What are the supported diameters for cables and ducts with Opera?

Opera supports cables ranging from 2.4 mm to 16 mm in diameter. For ducts, it supports diameters from 7 mm to 16 mm with the built-in adapter, and from 16 mm to 50 mm with an external adapter.

3. Can Opera be used to install duct as well as cables?

Yes, Opera can install ducts up to 16 mm in outer diameter.

4. What technical specifications should a compressor have to be used with Opera?

We recommend a minimum compressor specification of 1,000 liters and 16 bar. Generally, a compressor with 1,000 liters and 13 bar could still be acceptable.

5. Is the Lady cable blowing application compatible with Opera?

Yes, the application that connects to both Lady and Opera is the same.

6. Can multiple cables be blown simultaneously?

It is not possible to blow multiple cables simultaneously.

7. Are there different types of belts depending on the cable or tube?

Yes, for cables with a diameter of 2.4 mm, there is a specific smooth belt that must be installed on Opera before starting the installation.

8. What happens if the battery runs out or if the electronics fail?

Opera can still be used even if the electronics are not functioning. See the relevant section of this manual for details.

TIPS AND TRICKS

CRASH TEST

The Crash Test is performed on the fiber optic cable before starting the installation activity. Its purpose is to determine the maximum pushing force to set on Opera to prevent cable breakage during installation.

The test involves pushing the cable into a sealed duct with gradually increasing force until the cable breaks. By determining the force that will break the cable, you can set the parameter to a level slightly below this force to ensure that installation proceeds quickly without damaging the cable.

It is advisable to perform a crash test before installation, as different types of cables and varying ambient temperatures can affect the maximum forces applicable to the cable.

Note: Cables with an outer diameter of 6 mm or greater may require breakage forces that Opera cannot provide.

PROCEDURE

1. Take a segment of tube approximately 3 meters long and seal one end with a plug.
2. Secure the tube to Opera as described on page 16.
3. Extend the tube as much as possible to avoid any obstacles that might hinder the cable's movement.
4. Insert the cable into Opera as per the instructions on page 16.
5. Select the initial maximum push force on the Opera display (see page 18) and start the cable installation in the tube at a determined speed.
6. Check if the cable breaks or gets damaged after hitting the plug at the end of the tube.
7. If the cable does not break or get damaged, rewind the cable and repeat the test with a higher push force (e.g., if you started with a push force of 70 N, try increasing to 80 N).
8. Continue increasing the push force until the cable breaks or gets damaged.
9. Use a push force for installation that is lower than the force that caused the cable to break or get damaged.

TIPS AND TRICKS

SLIPPAGE

It is not recommended to set the slippage control below 50% unless you have very precise knowledge of the machine's parameters. Setting slippage control below 50% might cause the machine to stop undesirably.

As a general guideline for all types of installation, it is recommended to start with a 100% value.

USING THE SECONDARY AIR OUTLET / REVERSE

The potential uses of this additional outlet include:

- 1. Cleaning the duct before** starting the installation. You can directly connect the tube to this outlet without having to clamp the tube in the tube adapter. This reduces setup time and makes it easier to insert cleaning sponges into the tube.
- 2. Facilitating the “reverse” function** by connecting a duct from the pipeline to the connector on the machine (Fig. 2). This allows the air to help the machine pull the cable in the direction of the operator, effectively turning the machine into a blowing machine for both directions of use.

To use this outlet, insert the appropriate adapter (Fig. 2).

To facilitate reverse operations of Opera and expulsion of a potentially blocked cable, follow these steps:

- Using a tube different from the one you are working on (but part of the same underground tubing group), connect one end to the secondary air outlet adapter.
- Connect the other end of this tube to the tube with the blocked cable. This will help the compressed air assist in the reverse operation.
- Keep the tube adapter clamp closed, and ensure the air chamber is open (Fig. 3) to allow the air to escape.
- Start the reverse movement of the belts by adjusting the air flow with the designated lever (Fig. 2).



Fig. 1



Fig. 2



Fig. 3

TIPS AND TRICKS

INSTALLING A CABLE 2.4 mm

When installing small cables with Opera, it is NECESSARY to perform a crash test. A well-conducted crash test helps prevent cable breakage during installation and is therefore a very important procedure.

An initial setup might be as follows:

Maximum pushing force: 70 N

Closing force: 420 N

Speed: 20-30 m/min

Slippage: 100%

Note: These initial values can be affected by environmental conditions as well as the type of tube and cable. This reference is based on a temperature of 20°C. Both high and low temperatures can alter the cable structure and, consequently, the resulting crash test values.