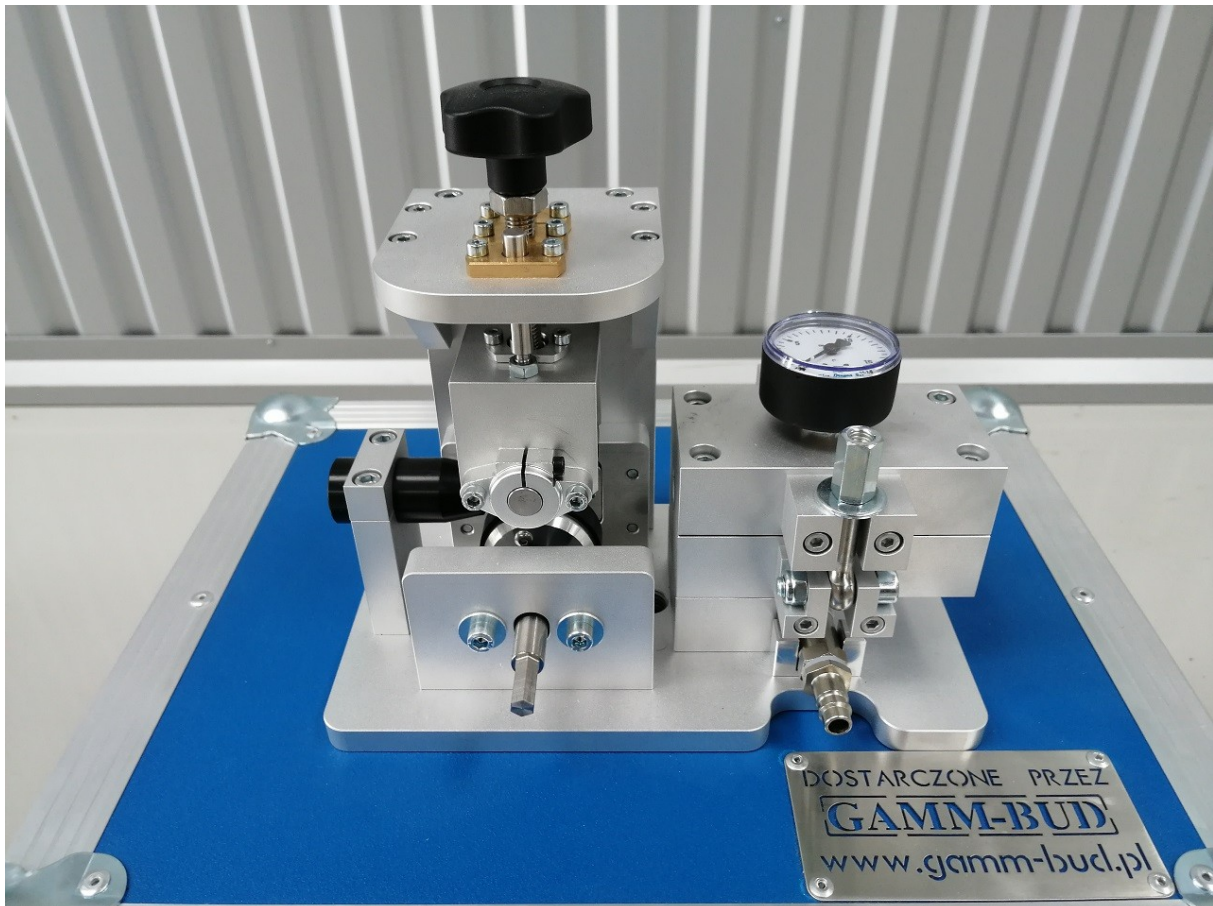


Operating Manual

Fiber optic micro cable blowing machine

Blue Dragon Jet

Mini



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Safety Precautions

General Safety Precautions

As the general rule, the owner of the machine is responsible for maintaining good technical condition of the machine and safe work environment. The machine is built in accordance with the latest technical knowledge and general safety standards. However, a serious injury may occur to personnel operating the machine or other parties present near it while in operation.

The machine may only be used for its intended purpose, ie. blowing fiber optic cables and only if its technical condition is impeccable.

Prior to operating the machine, its technical specifications must be learnt, as well as the ambient temperature must be measured. The appropriate use of the machine is described in detail on the following pages.

The basic condition for safe operation and proper functioning of the machine is the knowledge of the basic safety instructions and general safety regulations. In the workplace where the machine is operated Health and Safety regulations must be strictly meet at all times. Both, when operating and servicing the machine, good care should be taken to keeping the workplace clean and orderly.

In the event of any modifications to the design of the machine or operating in ways different from those intended, the Manufacturer is exempt from any liability and warranty service.

Liabilities of the machine's owner

It is the owner's responsibility to make sure that only properly trained personnel is allowed to operate the machine. Such persons must be:

- familiar with Health and Safety regulations
- familiar with the operating instructions of the machine
- familiar with manual instructions and aware of warnings related to work safety, and
- whose knowledge of work safety is checked at regular intervals.

Service and repair works may be carried out by only trained personnel and any defect that may affect work safety must be removed immediately.



Liabilities of personnel operating the machine

All persons working with the machine are obliged to:

- comply with generally applicable safety regulations
- learn and comply with the safety precautions while operating the machine.

Warranty and liability of the producer.

Unless stated otherwise, the general terms conditions of sale and delivery by GAMM BUD Ltd apply.

The producer shall have no liability for damage of property or injuries if these occur due to one or more of the following:

- operating the machine in violation of its operating instructions and intended use
- incorrect installation, operation or maintenance of the machine
- operating the machine with defective, incorrectly installed or missing safety guards
- unauthorized design changes to the machine or improper performance parameters of the machine
- allowing for excessive wear and tear of some parts of the machine
- repairs or operations of the machine carried out incorrectly

-accidents due to external factors or force majeure.

Detailed recommendations

Personnel operating the machine must read operating manual beforehand and comply with its provisions while operating the machine.

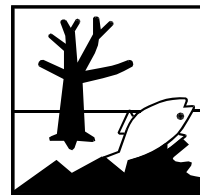
Failure to comply with safety instructions and general Health and Safety regulations can result in accidents or death.

WARNING! Keep hands away from rotating parts of the machine due to possible injury.

Maintenance and repair work on pneumatic equipment may only be performed only by trained personnel.

Compliance with environmental regulations

Oils should not be mixed with any other liquids. They should not be poured into drains or waste or onto the ground. All the oils, greases and other liquids used during repairs or maintenance of the machine should be collected in special containers, stored, transported and disposed of in accordance with the pertaining laws and regulations.





Product Description

Blue Dragon Jet mini microcable blower is designed for blowing fiber optic micro cables into micro ducts with use of compressed air.

While being blown, the fiber optic cable is moved through the machine's feeder and the blowing head equipped with gaskets.

Two rollers ensure transfer of driving force to the blown cable.
The top roller may be raised and lowered with a knob.

The bottom roller is driven (moved) by an optional cordless screwdriver.

The rollers pressed against the cable force it to move forward.

The pushing force transmitted by the rollers to the cable is assisted by a stream of compressed air blown into the microduct by the blowing head.

The blowing speed can be adjusted by changing the rotation speed of the screwdriver. In addition, the correct setting of the screwdriver's clutch protects the cable from breaking when the cable is suddenly stopped.

Sturdy aluminum casing provides stability of the machine while maintaining a light weight.

Standard equipment:

- 1) *Blue Dragon Jet mini*
- 2) Transport case
- 3) Set of gaskets
- 4) Set of bushings
- 5) Airhose 10 m
- 6) Spare rollers
- 7) Tools

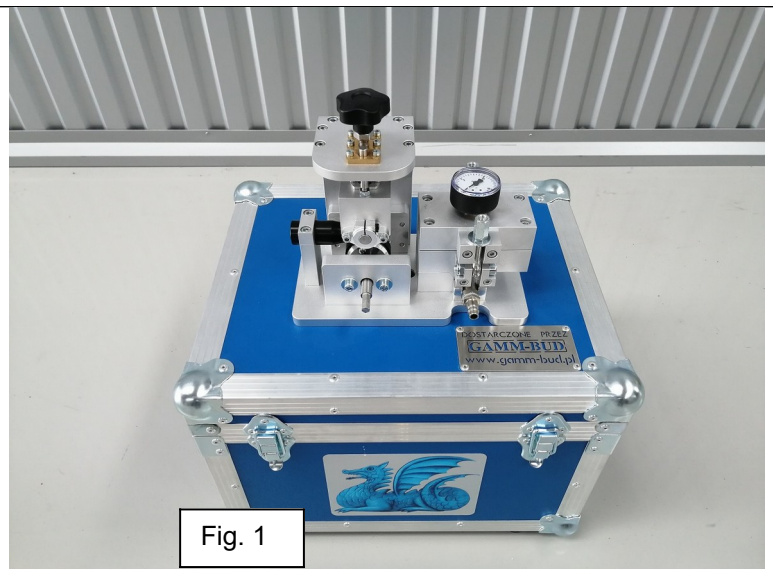


Fig. 1

Cable Blowing

Preparation

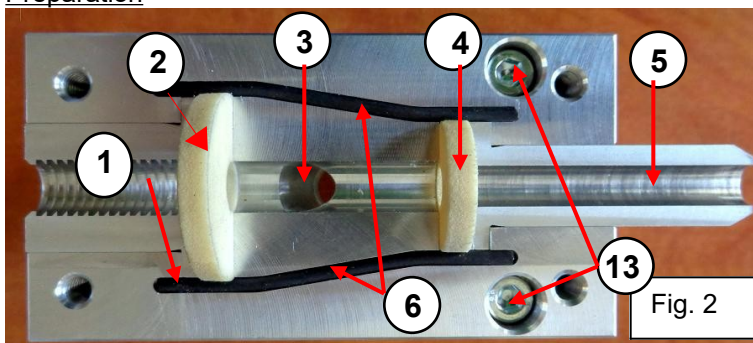


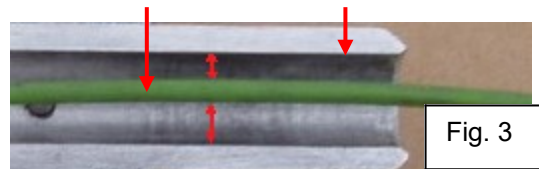
Fig. 2

- 1) Microduct fastening bushing
- 2) Microduct gasket
- 3) Head air inlet
- 4) Cable gasket
- 5) Cable leading bushing
- 6) Blowing head sealing

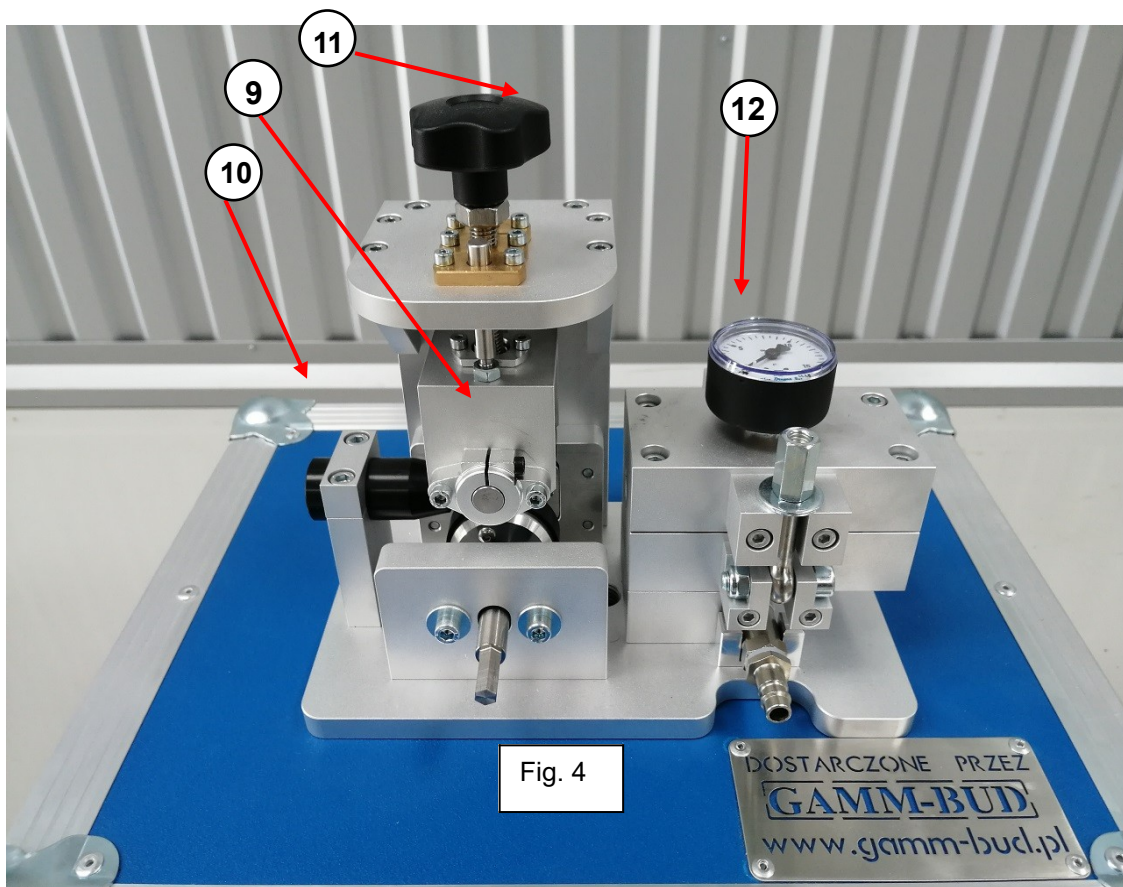


If needed, add a small amount of the prelube liquid directly into the microduct.

The microduct should be installed inside the blowing head with removable bushings (1 Fig. 2). The microduct bushing should match in size the diameter of used microduct. Note that the microduct gasket (2 Fig. 2) should be placed centrally in the head and the mustn't block the air inlet to the head (3 Fig. 2). The cable gasket (4 Fig. 2) and the cable leading bushing (5 Fig. 2) should be fitting the size of the blown cable.



If the diameter of the cable (7 Fig. 3) is significantly smaller than the cable leading bushing (8 Fig. 3), the cable may be damaged by the feeder at the blowing head inlet.



The cable driving bushing must be unscrewed and opened. Top drive roller (9 Fig. 4) has to be lifted up using the knob (11 Fig. 4).

A few meters of cable need to be inserted between the driving rollers and then slid into the microduct. Prior to this, put a properly selected gasket on the cable (4 Fig. 2)



(If the cable is blown in two directions, the gasket should be cut, so it could be put on and removed at any time).

Seal the cable with the gasket (4 Fig. 2) and place it into the head, making sure that the gasket is in the socket. Fix the upper part of the blowing head with the fixing screws.

Fasten the cable guiding bushing with the screws. (10 Fig. 4).

Make sure that the cable is inserted centrally into the blowing head. If necessary, adjust the height of the head. Loosen the fastening screws (13. Fig. 2), then adjust the head by inserting the calibration plate (s) under the blowing head and tighten the screws.

Cable Blowing

Lower the upper drive roller onto the cable and press lightly. Depending on the clamping force and the friction factor between the cable and the rubber on the roller, the cable pushing force will be created.

Too strong or too weak pressure may lead to cable damage or to an excessive wear of the drive rollers.

In order to initiate blowing, install a cordless screwdriver into the lower drive roller. The cable will be pushed into the microduct. Pay attention to the machine's stability, if necessary, fasten it with the safety belt. The cable from the drum should be unwind without any resistance. If necessary provide manual unwinding.

Blowing speed can be adjusted with the rotation speed of the cordless screwdriver. To support the blowing process, gradually increase the air pressure applied to the blowing head.

The pressure value inside in the microduct is shown by the manometer (12 Fig. 4).



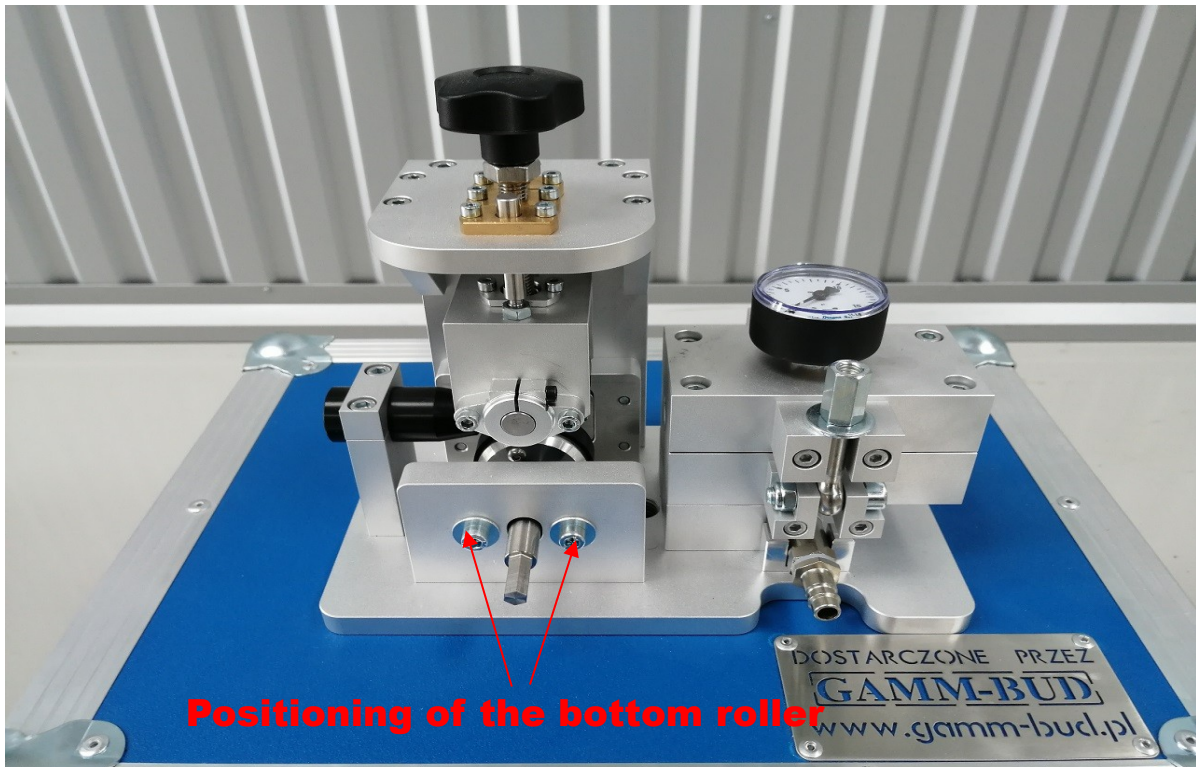
Make sure, that nothing gets between the driver rollers while the machine is being operated.

After finishing blowing, turn off the cordless screwdriver and close the air supply to the blowing head.

Technical Data

Cable diameter	0,8 - 10 mm
Micro ducts diameter	5 - 16 mm
Length x Width x Height (machine)	260 x 160 x 250 mm
Weight	5 kg
Weight with equipment	7 kg
Max. air pressure (head)	15 bar
Speed	ca. 100 m/min

Operation



Positioning of the bottom roller

When you want to change the diameter of blown cable, adjust the operating height of the bottom drive roller. Make sure that the cable enters the blowing head directly in its center, so the cable does not rub against the cable leading bushing. To make an adjustment, loose the screws marked above from both ends and set the required height of the bottom roller. After that, the screws need to be tightened again. Note: the thicker the cable the lower the position of the roller. The axis of the cable should reflect the line dividing the blowing chamber into two halves.

Risk of property damage!

After each use, the entire machine must be thoroughly cleaned, in particular the drive rollers, head and blowing accessories.

Follow the operating instructions included in the operating manual!

The machine should be regularly cleaned and adjusted.

The machine may only be operated by a trained personnel!

Use only original spare parts.

Risk of injury!

After performing any repairs or adjustments, check if the bolts and nuts are correctly tightened.

Check all connections and air ducts regularly, any defects or damages must be repaired immediately.

During the warranty period, the machine must be subject to mandatory inspection at an authorized service center (after 6-8 months)!



Equipment:

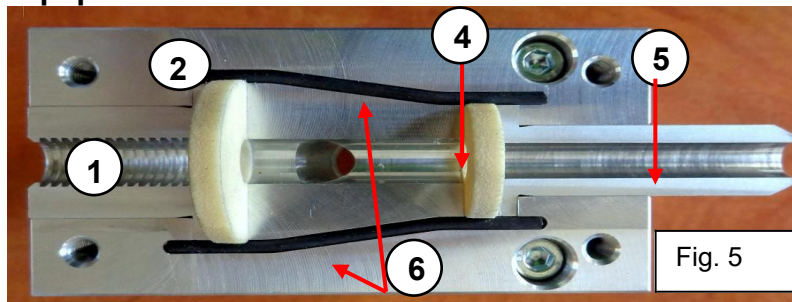


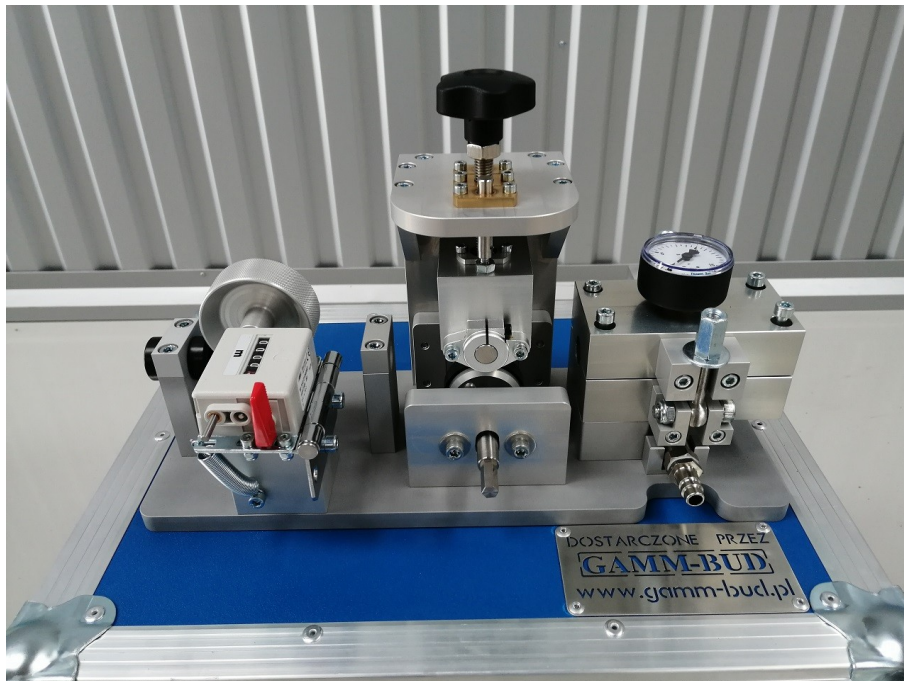
Fig. 5

Item	Name	Catalog No.
1.	Micro duct bushing: 5 mm 7 mm 10 mm 12 mm 14 mm 16 mm	B-W MOCOW 4 B-W MOCOW 6 B-W MOCOW 9 B-W MOCOW 11 B-W MOCOW 13 B-W MOCOW 15
2.	Micro duct gasket: 5 mm 7 mm 10 mm 12 mm 14 mm 16 mm	B-W USZCZ M 4,5 B-W USZCZ M 6,5 B-W USZCZ M 9,5 B-W USZCZ M 11,5 B-W USZCZ M 13,5 B-W USZCZ M 15,5
3.	Cable leading gasket: blind 1.0 mm (optional) 1.5 mm 2.5 mm 3.5 mm 4.0 mm 5.0 mm 6.0 mm 7.0 mm 8.0 mm 8.5 mm 9.0 mm 9.5 mm	B-W USZCZ P 1,0 B-W USZCZ P 1,5 B-W USZCZ P 2,5 B-W USZCZ P 3,5 B-W USZCZ P 4 B-W USZCZ P 5 B-W USZCZ P 6 B-W USZCZ P 7 B-W USZCZ P 8 B-W USZCZ P 8,5 B-W USZCZ P 9 B-W USZCZ P 9,5
4.	Cable bushing: 2.5 mm 4 mm 6 mm 8 mm 10 mm	B-W PROW 2.5 B-W PROW 4 B-W PROW 6 B-W PROW 8 B-W PROW 10
5.	Head sealing	B-W USZCZ LIN 3,2
6.	Head key	B-W IMBUS
7.	Air hose 10 m	
8.	Socket wrench	
9.	Distance plates	



Supplementary Equipment

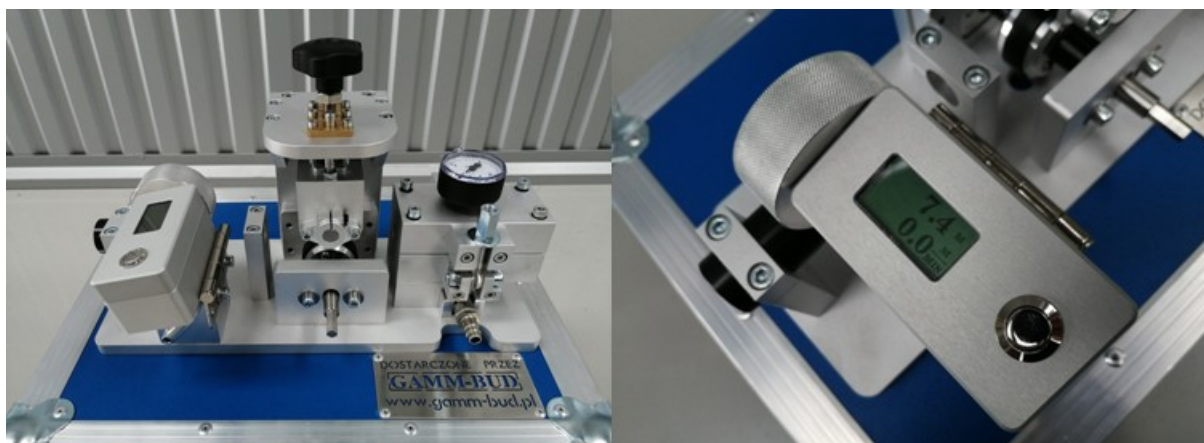
1. Mechanical counter:



Mechanical counter operation:

- insert the cable under the measuring wheel of the counter meter
- check if the wheel is properly pressed against the cable,
- reset the counter with the red lever at the counter
- the measuring process will start automatically during blowing

2. Electronic counter



Electronic counter operation:

- insert the cable under the measuring wheel of the counter meter
- check if the wheel is properly pressed against the cable,
- reset the counter with the button - the electronic counter indicates the average blowing speed and the length of the blown cable
- the measuring process will start automatically during blowing