OPERATING MANUAL
MicroFlow TOUCH

101-10051 Operating Manual
2017-01-31 EN

From Serial No. 9328.1382

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ORIGINAL

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Best Warranty in the Business

We offer a unique 36-months warranty on all fiber blowing machines resulting in a great cost-benefit.

When purchasing a Fremco fiber blowing machine you automatically get our 12-months warranty. Hereafter, you claim your additional 24-months warranty within the first quarter obtaining the best cost-beneficial warranty in the business.

To maintain your 36-months warranty, you have to accommodate the given service and maintenance requirements for each machine as described in the operating manual.

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Technical Specifications

These specifications cover MicroFlow TOUCH as well as the control unit and the adaptor plates belonging to it. The adaptor plates are replaceable and must fit the actual size of fiber cable and microduct to be used.

Manufacturer	Fremco A/S Ellehammervej 14 9900 Frederikshavn Denmark
Item No.	101-10051
Fiber cable diameter	0.8-6.5 mm
Microduct diameter	4-16 mm
Blowing speed	Up to 90 m/min. (295 ft/min.)
Recommended pressure and airflow[1]:	8-16 bar (120-230 psi), 200-500 l/min. (7.1-17.7 cfm)
Power Supply	24V DC. Can be connected to 100-240V AC, 50/60 Hz with the included transformer. 100-240V AC power supply must be stable and at least 2A.
Weight	9.7 kg (21.4 lbs)
Length	250 mm (9.8”)
Width	150 mm (5.9”)
Height	220 mm (8.7”)
Control unit weight	1.9 kg (4.2 lbs)
Control unit length	200 mm (7.9”)
Control unit width	150 mm (5.9”)
Control unit height	80 mm (3.1”)
MicroFlow in carrying case, weight/dimension	23 kg (50.7 lbs) 600x400x350 mm (23.6”x15.7”x13.8”)

[1] Cooled and dried compressed air

Safety Instructions

- Read and understand this operating manual before operating the MicroFlow. Follow all safety instructions. Failure to follow the instructions may lead to damage on the machine and mild to severe personal injury.
- Make sure to disconnect the machine from the air compressor, before any kind of adjustment and maintenance takes place.
- The air pressure should never exceed the recommendations from the suppliers of microducts and fiber. The pressure may never exceed 16 bar, which is the maximum pressure for the MicroFlow blowing machine.

  WARNING: Exceeding max. pressure may lead to machine damage and mild to severe personal injury.
- Observe that the machine is placed on a stable foundation. Make sure that the fiber and duct are placed correctly in the machine.
- Make sure you do not touch the fiber too close to the machine because you risk getting your fingers injured, and make sure the fiber does not make loops that might be dangerous to persons around the machine.
- Never wear loose clothing

  WARNING: Loose clothing may become entangled in the machine.
- Use hearing protection, if the air compressor is placed nearby.
- The operator must make sure that no other persons are close to the machine and cable drums in a way that could be dangerous when the machine is started.
- It is always a clear advantage to be well prepared so that you can run the blowing without interruptions. Pausing in the middle of blowing creates a risk of being unable to start again.
- Make sure the working environment is clean and tidy to avoid injuries due to stumbling over fiber and equipment.

Maintenance

The MicroFlow does not require much maintenance if the following recommendations are followed:

Compressed air must be clean and dry. Use air filter and water separator.

NB: Humid and polluted air may influence machine life and performance and may result in increased wear.

Clean the wheels on a regular basis, at least once a day when the machine is in use.

Make sure the sensor arms are clean and can move freely.

Check gaskets and rubber belts on wheels for wear and tear on a daily basis, and replace if necessary.

NB: Failure to maintain and clean the machine may affect machine reliability.

Machine service is required annually or every 350 km depending on what comes first

NB: To maintain your 36-months warranty, you have to meet the given service requirements.

Identification

These instructions have been made to support the users of the fiber blowing machine MicroFlow TOUCH. The machine type can be identified by the type plate on the machine. The type plate provides information about serial number, year of production and name and address of the manufacturer.

It is recommended to read this instruction carefully and become familiar with the functionality and maintenance of the fiber blowing machine before use.

Application

The fiber blowing machine MicroFlow TOUCH is constructed for blowing fiber optic cables with a diameter of 0.8 to 6.5 mm into microducts with an outer diameter of 5-16 mm.

We do not recommend use for other applications.

Always use adaptor plates designed for the actual diameter of cable and duct.

It is very important to use the correct adaptor plates. If the adaptor plates do not fit the duct, dangerous situations may occur.

The machine comes in a carrying case. When the machine is not in use or during transportation, always store it in the carrying case.

Mounting and Preparations

Make sure to place the machine on a stable foundation and to fasten it to withstand the forces, which occur during use.

The adaptor plates in the machine must fit the actual size of the fiber cable and the microduct the cable is to be blown into.

The supply of fiber cable from a cable drum or similar must be set up in a way where the fiber cable is supplied to the machine evenly and with the lowest force possible.

The microduct that the cable is blown into, should be without sharp corners or bends. Before blowing it is recommended to blow a foam plug through the duct. This ensures that the fiber cable can get all the way through the duct without getting stuck.

Supply of Compressed Air and Electricity

It is very important that the quality and volume of compressed air for blowing is correct and meets specifications. If there is water in the compressed air or too low pressure and volume of compressed air, it will create insufficient results. The compressed air must be filtered, cooled and dried to avoid moisture and dirt in the microduct.

MicroFlow TOUCH uses 24V DC and can be connected to 100-240V AC, 50/60 Hz with the included transformer. The 100-240V AC power supply must be stable and at least 2A.

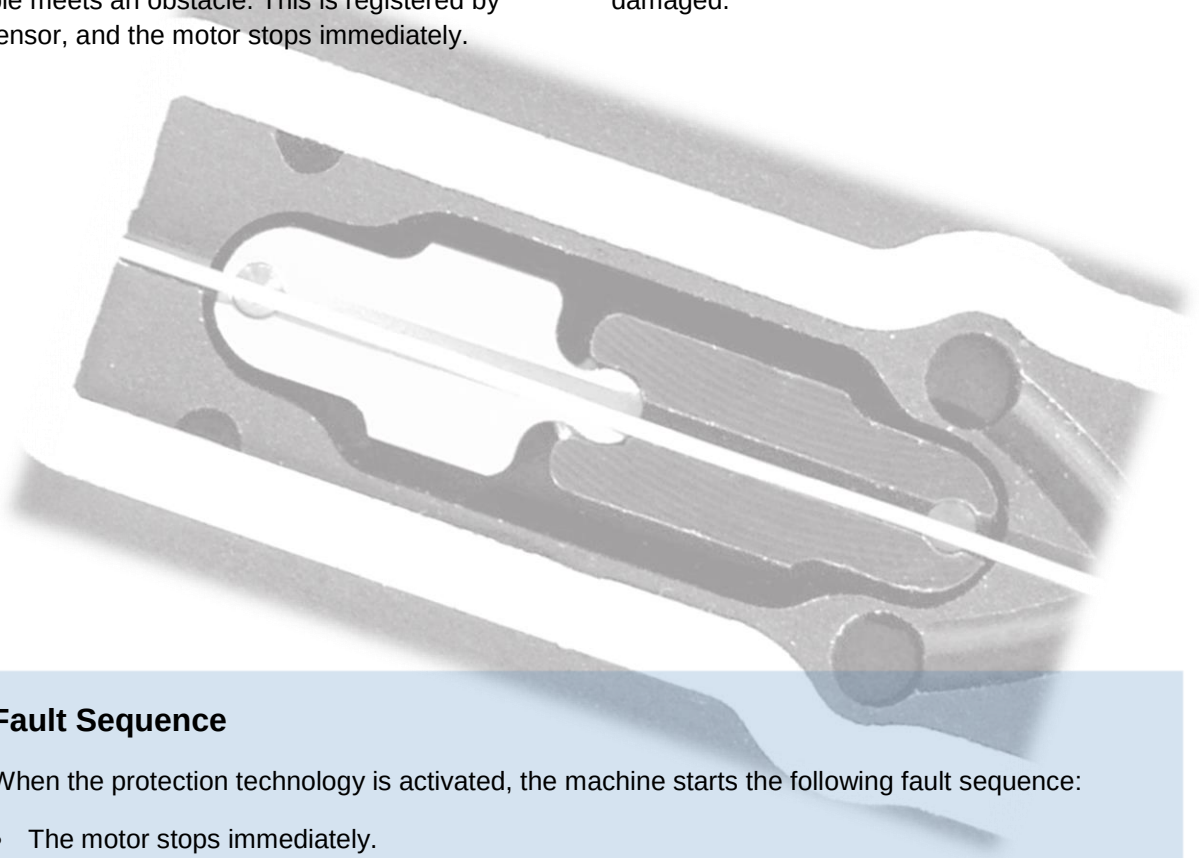
Fiber Protection Technology

MicroFlow TOUCH has a unique protection technology securing that there is no damage to the fiber cable. The protection technology stops the machine if the fiber cable meets an obstacle.

The stop occurs because the cable gets bent inside the fiber blowing machine as the fiber cable meets an obstacle. This is registered by a sensor, and the motor stops immediately.

The machine will also stop automatically if the motor exceeds the preset maximum torque level (see section about Torque Off-Set for the minimum effect needed depending on the speed).

In both cases of protection the machine stops immediately so the fiber cable does not get damaged.



Fault Sequence

When the protection technology is activated, the machine starts the following fault sequence:

- The motor stops immediately.
- Short break.
- The machine pulls the fiber slightly backwards until the fiber is straight in the blowing junction block.
- The motor starts and accelerates to the preset maximum speed.
- If the protection technology is activated 3 times, the machine will come to a full stop, and an error message is shown in the display.

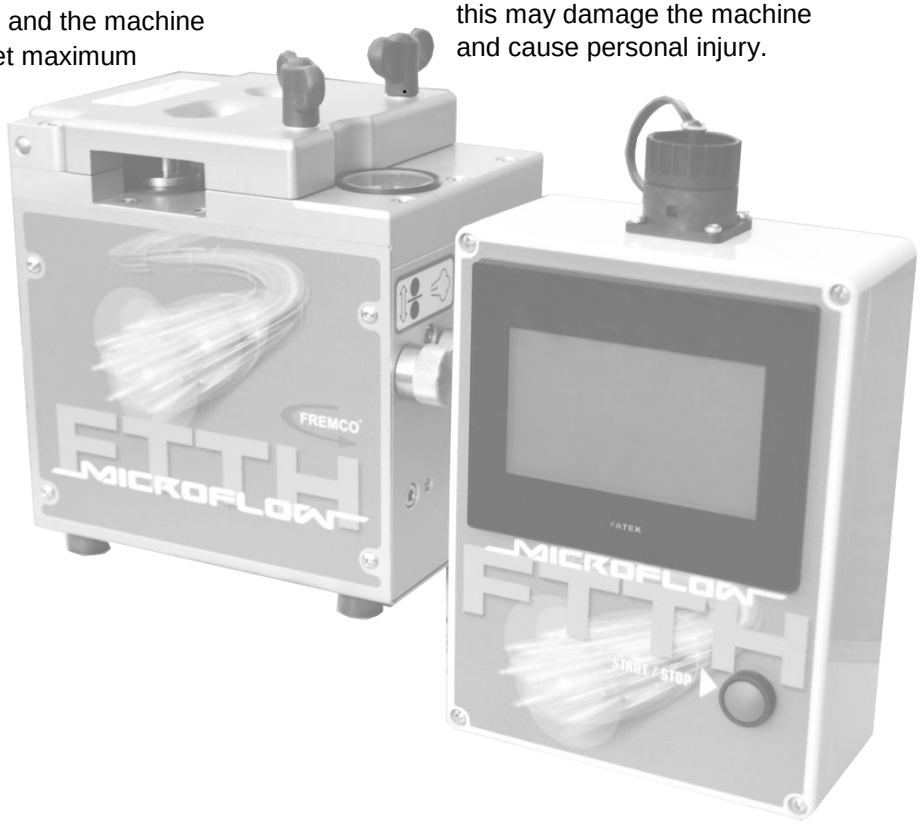
Display Symbols

	*Start*	Indicates machine is running		*Book-service*	Info: it is time to book an authorized service check
	*Forward*	Motor direction, press to toggle between forward and reverse		*Set*	Press to go to setup page
	*Reverse*	Motor direction, press to toggle between forward and reverse		*Setup*	Press to set stop length. Not active if value is “0”
	*Speedometer*	Motor speed		*Confirm*	Press to confirm info and return to main page
	*Torque*	Motor torque		*Torque overload*	Info when machine is stopped by the torque overload system
	*Meters*	Actual values for length, speed and torque		*Fiber protection*	Info when machine is stopped by the fiber protection system
	*Preset*	Preset values for length, speed and torque		*Stop*	Info when machine is stopped, e.g. fiber or torque stop
	*Ramps*	Motor acceleration/ deceleration ramp functions		*Reset*	Resets meter counter
	*Home*	Press to return to main window		*Login*	Log in to a service info page (login is required, and only for service personnel)
	*Maintenance*	Info: it is time for maintenance		*Close page*	Press close service info and return to main window

Running the Fiber Blowing Machine

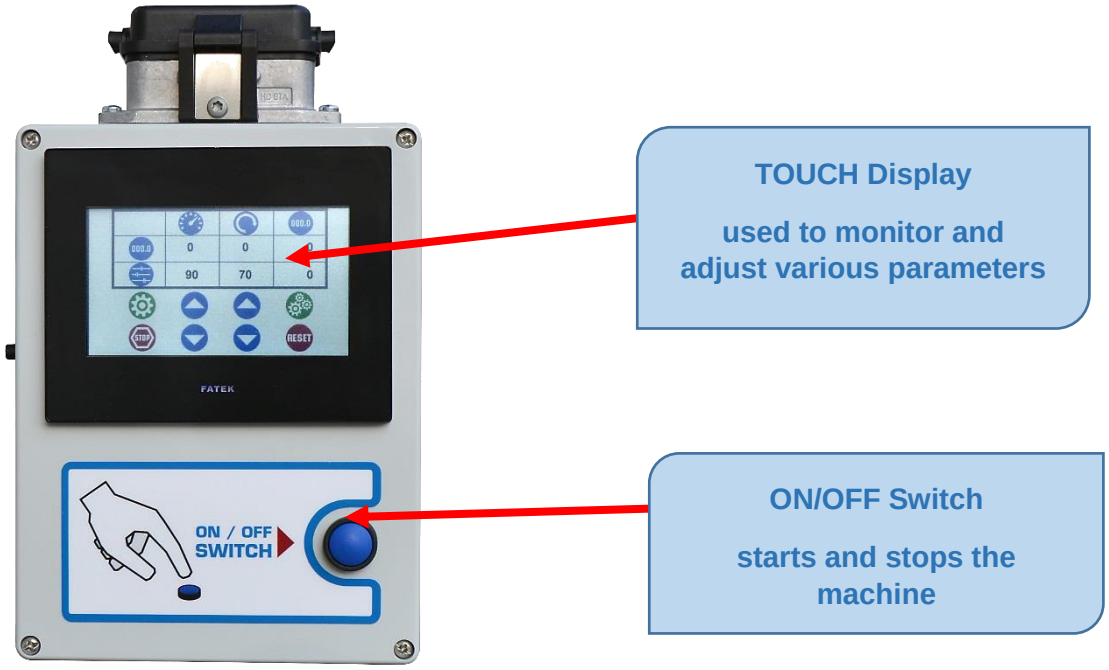
- Prepare the fiber cable and place it inside the fiber blowing machine. Adjust the drive wheels until they are tight around the fiber cable
- Place the microduct, which the fiber cable is to be blown into, in the blowing junction block
- Close the lid and tighten the screws on top
- On the TOUCH screen:
  - Set the desired speed (m/min)
  - Set the torque level to the desired maximum
  - OPTIONAL: The preset meter counter can be used to stop the machine after a given distance (set to “0” and the machine will continue indefinitely)
- Press the ON/OFF button, and the machine will accelerate to the preset maximum speed
- After 10-20 meters, turn on air. Gradually increase air supply as the blowing is proceeding.
- The blowing is now running automatically
- If the machine stops unintentionally, there are two adjustable parameters:
  - increase air supply
  - or reduce speed if there is no more air pressure
- Stop the machine, either manually or when reaching the preset distance
- Turn off air
- The lid can be opened when the air pressure gauge is at “0” bar/psi

WARNING: Do not open the machine while under pressure, as this may damage the machine and cause personal injury.



Use of Control Unit

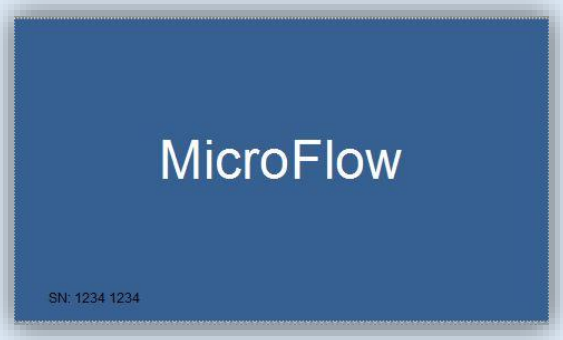
The control unit is used for operating the fiber blowing machine as well as adjusting the different parameters, for instance speed and torque level.



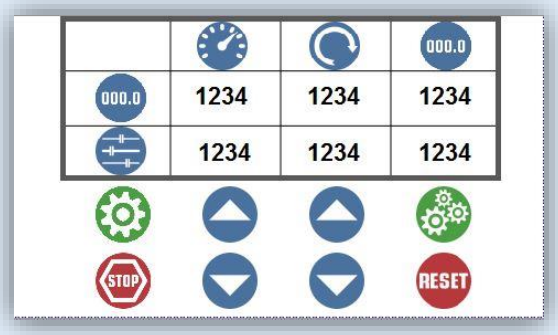
Adjustable Parameters

ADJUST Torque Level	To avoid overload of the fiber cable, it is possible to adjust the maximum torque level. If this maximum torque level is exceeded during blowing, the protection technology stops the machine so that the fiber cable does not get damaged. The torque level can be adjusted from 10 to 100% of the motor's maximum effect.
ADJUST Counter	Here you can choose a distance that the cable should be blown. When the pre-set distance has been reached, the machine will stop automatically. If the counter is set at "0", the machine will continue indefinitely.
ADJUST Speed	Here the speed of the machine can be adjusted in meter per minute.
ADJUST Acceleration Ramp	Adjusts the acceleration when the machine starts. It can be adjusted between 5 and 100, with 100 being the fastest acceleration. Recommend value: 5
ADJUST Deceleration Ramp	Adjusts the deceleration when the machine stops. It can be adjusted between 5 and 100, with 100 being the fastest deceleration. Recommend value: 100

TOUCH Display Screen Overview

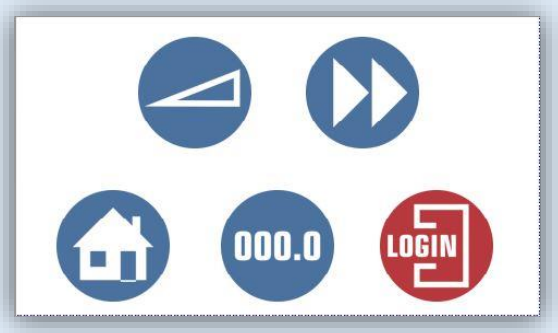


Startup/Pause Window
Shown during startup, or when machine has been inactive for some time.
Tab to activate main screen.



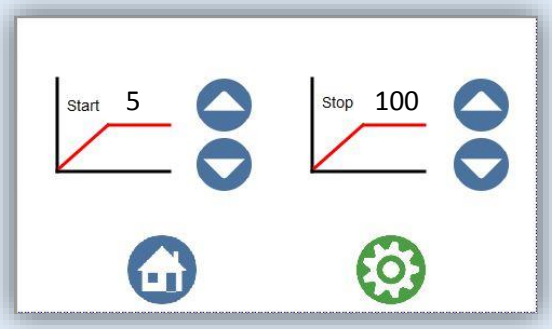
Main Window
This window is shown during machine operation.
On this screen it is possible to:

- Set and reset stop length, by pressing to set length, and to reset (set to 0 disables the length stop function)
- Increase/decrease both speed and torque, by pressing .
- Access setup window,
- See machine status, running or stopped
- Actual speed, torque and length
- Preset speed, torque and length

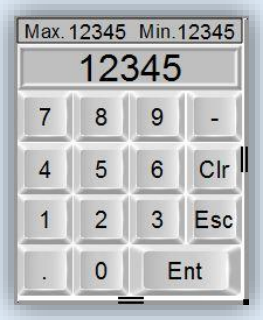


Setup Window
From this window it is possible to:

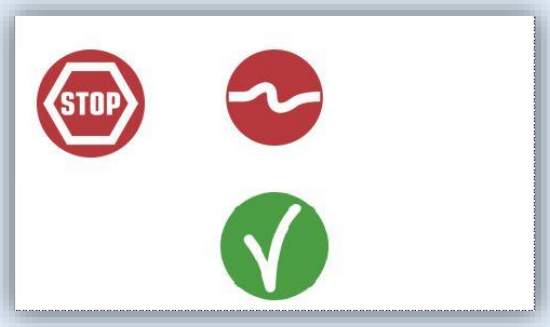
- Access motor ramp window
- Log in to a service info page (login is required, and only for service personnel)
- Toggle motor direction
- Press to go back to main window



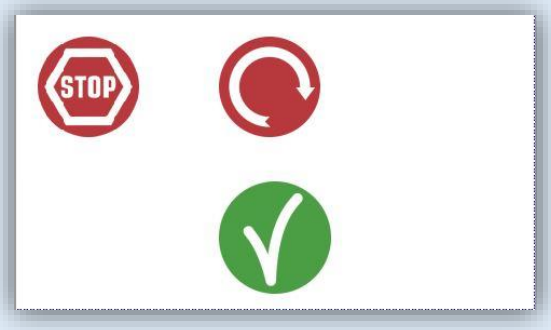
Motor Ramp Setup
In this window the acceleration/deceleration ramps during motor start/stop, can be increased/decreased by pressing .
Press to go back to setup window
Press to go back to main window



Keypad
For entering length stop

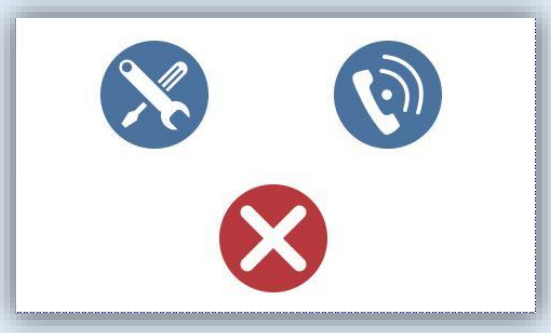


Fiber Protection Warning
Popup window when fiber protection monitor is activated.
Press to confirm and go to main window



Motor Torque Warning
Popup window when motor torque exceeds torque setting.
Press to confirm and go to main window

Fiber Protection and Motor Torque Warning
Popup window when a combination of fiber protection and motor torque occur during automatic restart cycle.
Press ✓ to confirm and go to main window



Service Reminder
Info window shows during startup when it is time for a service check of the machine.
Press ✗ to confirm and go to main window

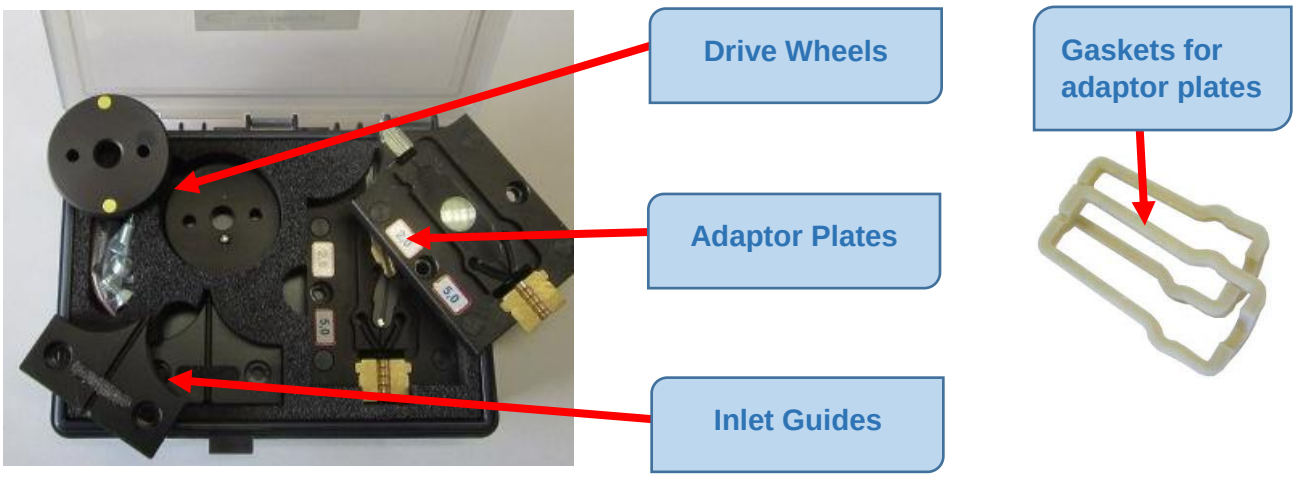
Torque Off-Set

The minimum power needed to run the machine varies with the running speed of the machine. For instance, the torque off-set at 70 m/min. is minimum 20.

Speed m/min	Torque Off-Set
10	5
20	5
30	10
40	10
50	15
60	15
70	20
80	20
90	25

Adaptor Plates

It is important that the adaptor plates fit the actual size of the fiber cable and the microduct. Below is an overview of the different adaptor plate components for MicroFlow TOUCH.



There are many different sizes of adaptor plates, suitable for many different combinations of fiber and duct.

EC Declaration of Conformity

Manufacturer:

Fremco A/S
Ellehammervej 14
DK-9900 Frederikshavn
Denmark

We hereby declare that

101-10051 MicroFlow TOUCH for microfiber cables 0.8-6.5 mm
from Serial No. 9328.1382

is manufactured in conformity with the EC Directives 2006/42/EC

Technical file responsible:

Niels Soegaard Hansen
Director Research & Development
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Attested by:

Kim Lindblad Carlsen
Managing Director

Frederikshavn, 25.01.2017