



FIBER BLOWING MACHINES

welcome to
your best
fiber blowing
solution...

- BACKED BY THE B-E-S-T FACTORY WARRANTY IN THE BUSINESS!

Company Profile



Compared to the traditional pulling technique, fiber blowing is a very safe and efficient process. Fremco A/S is an innovative Danish company. Since the mid '90s Fremco has specialized in the development and production of fiber blowing machines of exquisite quality. Over the past two decades, Fremco has accumulated huge specialized knowledge of blowing techniques based on the massive development within broadband in Scandinavia. This means that Fremco today offers a range of products covering all dimensions of fiber/cables and ducts.

Fremco continues to develop the best products in close collaboration with customers, duct manufacturers and cable manufacturers worldwide.

This happens because Fremco wants to offer the best and most user-friendly solutions.

Concurrently, Fremco has developed a specified range of accessories through close cooperation with leading suppliers, meaning that Fremco can offer a total solution: "Your Best Solution".

And today Fremco is the only manufacturer of fiber blowing machines in the world, who is offering a 36-months manufacturer's warranty on all fiber blowing machines, resulting in very attractive cost-benefit.

As a Fremco customer you get:

- Proven performance in extreme harsh environments
- Machines ideal for outside and inside jobs
- Installation of fiber optic cable over long distances utilizing air or water
- Hydraulic motors produce maximum pushing force to the cable
- Fiber protection system

Ease of Use

- Easy to operate and maintain
- Minimum number of replaceable parts
- Responsive customer service for maintenance and repair
- Attention to detail design and uncomplicated construction

Competitive Design and Pricing

- 36 MONTHS WARRANTY
- Highly competitive pricing
- Worldwide sales and recognition
- On-going new product development



PRODUCT OVERVIEW

Fiber Optic Cable Installation Machines



Model	NanoFlow	MicroFlow Touch	MiniFlow Rapid	PowerFlow	MultiFlow
Typical Usage	Inside	Inside	Outside	Outside	Outside
Fiber/Cable OD	0.8-2.8 mm	0.8-5.0 mm	4-12 mm	8-25 mm	8-32 mm
Duct Size OD	3-10 mm	5-16 mm	7-20 mm	18-70 mm	18-70 mm
Part no. #	101-160601800	101-10051	101-10031	101-10001	101-10002
Install Speed up to	150 m/min. (490 ft)	90 m/min. (295 ft)	100 m/min. (325 ft)	80 m/min. (260 ft)	80 m/min. (260 ft)
Pushing force	-	-	0-40 kg	0-125 kg	0-200 kg
Blowing distance	Up to 1200 m (3940 ft)	Up to 2500 m (8200 ft).	Up to 3500 m (11485 ft)	Up to 10000 m* (32810 ft)	Up to 10000 m* (32810 ft)
Rec. Airflow	0-500 l/min. (0-17.7 cfm)	200-500 l/min. (7.1-17.7 cfm)	1000 l/min. (35.3 cfm)	8000-12000 l/min. (282.5-423.8 cfm)	8000-12000 l/min. (282.5-423.8 cfm)
Rec. Pressure	0-10 bar air (0-150 psi)	8-16 bar air (120-230 psi)	8-16 bar air (120-230 psi)	8-12 bar air (120-170 psi)	8-12 bar air (120-170 psi)
Length: Width: Height: Weight:	212 mm 104 mm 139 mm 2.8 kg (w/o battery)	Machine: Control Box: 250 mm 200 mm 150 mm 150 mm 220 mm 80 mm 9.7 kg 1.9 kg	650 mm 225 mm 210 mm 24 kg	650 mm 230 mm 350 mm 38 kg	700 mm 230 mm 350 mm 40 kg
Unique Features	Fully automatic Unique double fiber protection Battery-powered No tools needed Easy load and removal of pre-connected products Easy-to-read LED display Multiple positions Lightweight but powerful	Auto-Buckle Detection Adjustable Torque Preset Automatic Stop Adjustable Speed Control Speed, Torque & Count Display Air Pressure & Flow Regulation Easy to Operate Simple Maintenance	Use with Air or Water* Push Force Monitor Rugged Construction Flexible Adaptability Adjustable Torque Distance and Speed measurement Ease of Use Simple Maintenance	Use with Air or Water* Only for Single Cable Rugged Construction Flexible Adaptability Adjustable Torque Distance and Speed measurement Ease of Use Simple Maintenance	Use with Air or Water* Relining or Single Cable Rugged Construction Flexible Adaptability Adjustable Torque Distance and Speed measurement Ease of Use Simple Maintenance



NANOFLOW

Cable blowing machine for FTTH FIBERS (EPFU) AND CABLES



Scan the code and see the product presentation:



Provides easy, efficient, seamless and automatic FTTH installation

Fully automatic fiber blowing machine with unique double fiber protection.

Battery-powered (independent of 110V/230V)

Quick load of fiber and duct.

No tools needed = very easy to configure/operate/start up

Easy to open and close by hand.

Easy load and removal of pre-connected products from the machine without cutting.

Easy-to-read LED display (also at daylight), showing speed, distance, fiber protection and low battery information.

Can be placed in multiple positions for fiber blowing.

Lightweight but powerful.

Anodised aluminium construction.

Easy setting with 6 steps for adjustment of speed and 6 steps for adjustment of torque.

If the maximum recommended load on the fiber exceeds the pre-set torque, the machine stops the blowing process immediately without damage to the fiber.

If the machine setting is wrong with too high torque, a unique synchronous system will also interrupt the process immediately. Obviously also without fiber damage.

The operator can use these safety systems as an indication that the fiber has reached the customer, thus a one-man job.

Delivered in practical carrying case with quick guide.

Can be used with or without air.

36 months warranty.

Included:

2 x 24V 2.0 Ah powerful Lithium-ion battery with quick charger.

2 sets of adaptor plates for 1.1-1.2 mm and 1.4-1.6 mm EPFU fiber (2f-12f). Duct adaptors for duct sizes 3-5-7-8-10 mm.



Accessories (not included): Tripod with quick adaptor. Shoulder strap. Reel holder arm for pre-connected fiber. Steel drive wheel for +2 mm special cables. Not illustrated: 24V 4.0 Ah Lithium-ion battery. A wide selection of adaptor plates for any fiber/duct sizes on request.

SPECIFICATIONS

Fiber/cable diameter:	0.8 - 2.8 mm
Microduct diameter:	3 - 10 mm
Blowing distance ¹ :	Up to 1200 m
Blowing speed ¹ :	Up to 150 m/min.
Recommended pressure and airflow ² :	0-10 bar (200-500 l/pr. min.)
Weight (without battery):	2.8 kg
Length:	212 mm
Width:	104 mm
Height:	139 mm

¹ Depending on type of microduct and cable.

² Cooled and dried air.

MICROFLOW TOUCH

Cable blowing machine for FTTH FIBERS (EPFU) AND CABLES



110/230 V

Protection technology



Microflow Touch has a unique protection technology that stops the machine if the fiber cable meets an obstacle.

The stop occurs because the cable gets bent inside the blowing machine, this is registered by a sensor and the motor stops. The machine will also stop automatically if the motor exceeds the preset maximum torque level.

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

After the protection technology has stopped the machine, it will automatically start up again. It will try three times total to get through the obstacle, if it still has not succeeded it will come to a full stop.

Control unit

Microflow's control unit has a user friendly touch display, which can be used to make a number of different adjustments:

- Adjustment of maximum motor torque
- Adjustment of maximum speed
- Presetting of counter with automatic stop after a certain blowing distance



- Acceleration - from start to maximum speed
- Deceleration - from maximum speed to stop
- The display shows different information during blowing, for instance: Meter count, Actual speed and Actual torque

The blowing process

With Microflow a typical blowing process will be as follows: The machine is placed on a stable surface and the fiber cable is placed in the machine. The duct, in which the fiber cable is to be blown, is placed in the machine as well. Then the pulling wheels are adjusted. With the control unit the torque level, speed and blowing distance can be adjusted.

Press the start button to start the machine, and after 10-20 m the air is turned on.

The cable blowing is now automatic and can be stopped either manually by pressing the stop button or automatically when the preset blowing distance has been reached.

SPECIFICATIONS

Fiber/cable diameter:	0.8 - 5.0 mm
Microduct diameter:	5 - 16 mm
Blowing distance ¹ :	Up to 2500 m
Blowing speed ¹ :	Up to 90 m/min.
Recommended pressure and airflow ² :	8-16 bar (200-500 l/pr. min.)
Weight (including control unit):	11.6 kg
Length (blowing head/control unit):	250 mm/200 mm
Width (blowing head/control unit):	150 mm/150 mm
Height (blowing head/control unit):	220 mm/80 mm

Powered by 24V DC electric motor

Electronic control unit and electronic meter speed/counter with presetting of blowing distance.

Adjustable motor torque load of fiber cable. Electronic protection technology to prevent damage to fiber cable.

¹ Depending on type of microduct and cable.

² Cooled and dried air.

MINIFLOW RAPID

Cable blowing machine for ACCESS NETWORK AND BACKBONE

MINIFLOW RAPID has many advantages

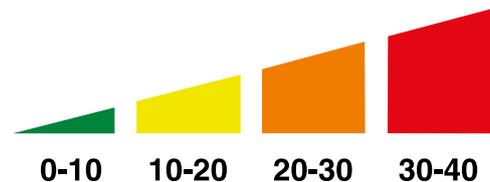
- User friendly design**
 MINIFLOW RAPID has a user friendly design that makes for easy operation. The machine is designed with main focus on functionality that includes:
 - Rugged stainless construction
 - Safety chain guard
 - Large easy to use adjustable knobs
 - Push force indicator
- Efficient cable blowing**
 MINIFLOW RAPID is a compact and efficient cable blowing machine. The machine is capable of installing fiber cable at a speed up to 100 m/min. and up to a distance of 3.5 km.
- Built-in electronic counter and tachometer**
 MINIFLOW RAPID has a built-in electronic counter and tachometer. The counter is easy to read and is robust and simple to operate.
- Robust and compact**
 MINIFLOW RAPID is very robust and compact. The machine is constructed in stainless steel and anodized aluminium that makes it suited for use under rugged conditions at cable blowing locations.
- Flexible**
 MINIFLOW RAPID is very flexible, the machine can quickly be adapted to accommodate different cable and duct sizes.



Cable damage safety

MINIFLOW RAPID has a unique monitoring system, which continuously monitors the pushing force, applied on the fiber cable. This makes it easy to stop the process before any damage to the cable.

Pushing force in kilogram



SPECIFICATIONS

Micro cable diameter ¹ :	3 - 12 mm
Microduct diameter:	7 - 20 mm
Blowing distance ² :	Up to 3500 m
Blowing speed ² :	Up to 100 m/min.
Recommended pressure and airflow ³ :	8-16 bar (1,000 l/pr. min.)
Weight:	24 kg
Length:	650 mm
Width:	225 mm
Height:	210 mm

¹ Two sets of chains needed (3-8 mm / 4-12 mm).

² Depending on type of microduct and cable.

³ Cooled and dried air.

ATTENTION!

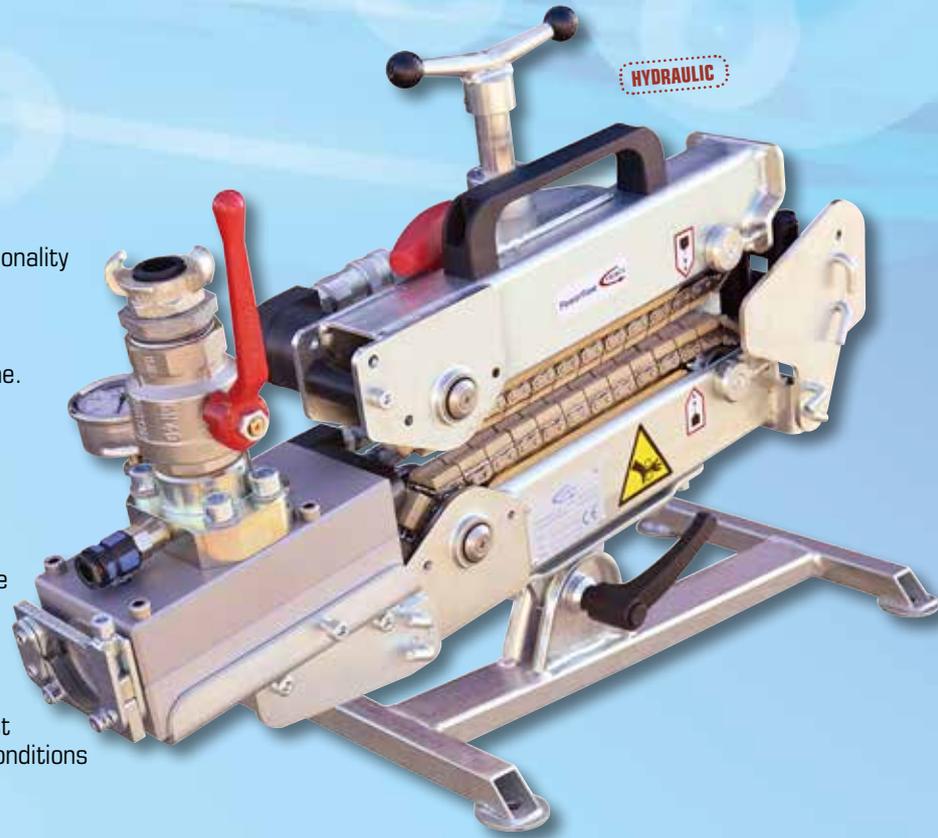
The following equipment is needed to run: Hydraulic Power Pack/Control valve and high pressure compressor. We offer all accessories on request.

POWERFLOW

Cable blowing machine for BACKBONE AND ACCESS NETWORK

PowerFlow has many advantages

- User friendly design**
 PowerFlow has a user friendly design, which makes the machine easy to operate. The machine is designed with main focus on functionality that makes cable blowing easy.
- Efficient blowing**
 PowerFlow is a very efficient cable blowing machine. It can blow cables with a speed up to 80 m/min. It is possible to blow distances up to 10 km.
- Cable blowing using either air or water**
 With PowerFlow it is possible to install fiber optic cables using either air or water. With water assisted cable blowing you can achieve optimal results, especially when installing large cables or blowing long distances.
- Robust**
 PowerFlow is constructed in a way that it is robust and can withstand being used under the special conditions that sometimes occur on cable blowing locations.
- Flexible**
 Powerflow is very flexible as the machine can quickly be changed to blow different sizes and numbers of micro ducts. There are many different sizes and combinations available to fit the different dimensions needed in a specific situation.



SPECIFICATIONS

Cable diameter ¹ :	5.5 - 25 mm
Duct diameter:	18 - 70 mm
Blowing distance ² :	Up to 10000 m
Blowing speed ³ :	Up to 80 m/min.
Recommended pressure and airflow :	8-12 bar (8,000-12,000 l/pr. min.)
Weight:	38 kg
Length:	650 mm
Width:	230 mm
Height:	350 mm

¹ Two sets of chains needed (5.5-8 mm / 8-25 mm).

² Depending on type of microduct and cable.

³ Cooled and dried air.

ATTENTION!

The following equipment is needed to run: Hydraulic Power Pack/Control valve and high pressure compressor. We offer all accessories on request.

MULTIFLOW

Cable blowing machine for BACKBONE AND ACCESS NETWORK

MultiFlow has many advantages

- **User friendly design**

MultiFlow has a user friendly design, which makes the machine very easy to operate. The machine is designed with main focus on functionality that makes cable blowing easy.

- **Efficient blowing**

- of microducts into ducts - relining.
MultiFlow is a very efficient cable blowing machine for blowing microducts into ducts as it is able to blow multiple microducts in one go. The machine is able to blow many different combinations of duct and microducts.

- **Cable blowing using either air or water**

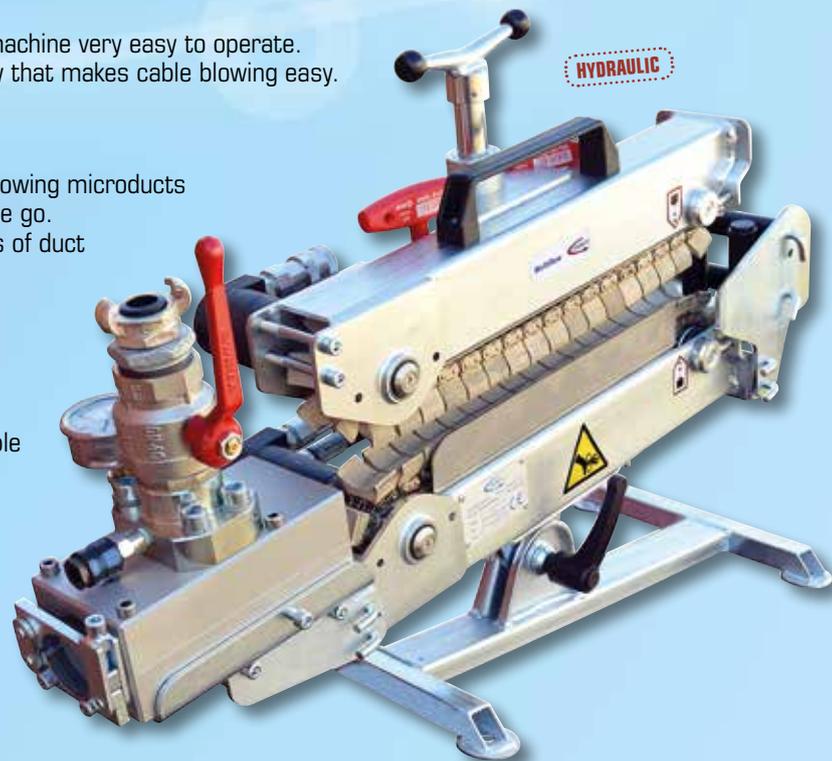
With MultiFlow it is possible to install microducts and fiber cables using either air or water. With water assisted cable blowing you can achieve higher pressure, which is particularly advantageous when installing multiple microducts in one go or large cables.

- **Robust**

MultiFlow is constructed in a way that it is robust and can withstand being used under the special conditions that sometimes occur on cable blowing locations.

- **Flexible**

MultiFlow is very flexible as it is both suited for blowing microducts as well as large fiber cables. Furthermore the machine can quickly be changed to blow different sizes and numbers of microducts. There are many different sizes and combinations available to fit the different dimensions needed in a specific situation. Possible to stop before cable damage.



SPECIFICATIONS

Cable diameter ¹ :	5.5 - 32 mm
Duct diameter:	18 - 70 mm
Blowing distance ² :	Up to 10000 m
Blowing speed ³ :	Up to 80 m/min.
Recommended pressure and airflow :	8-12 bar (8,000-12,000 l/pr. min.)
Weight:	40 kg
Length:	700 mm
Width:	230 mm
Height:	350 mm

¹) Two sets of chains needed (5.5-8 mm / 8-32 mm).

²) Depending on type of microduct and cable.

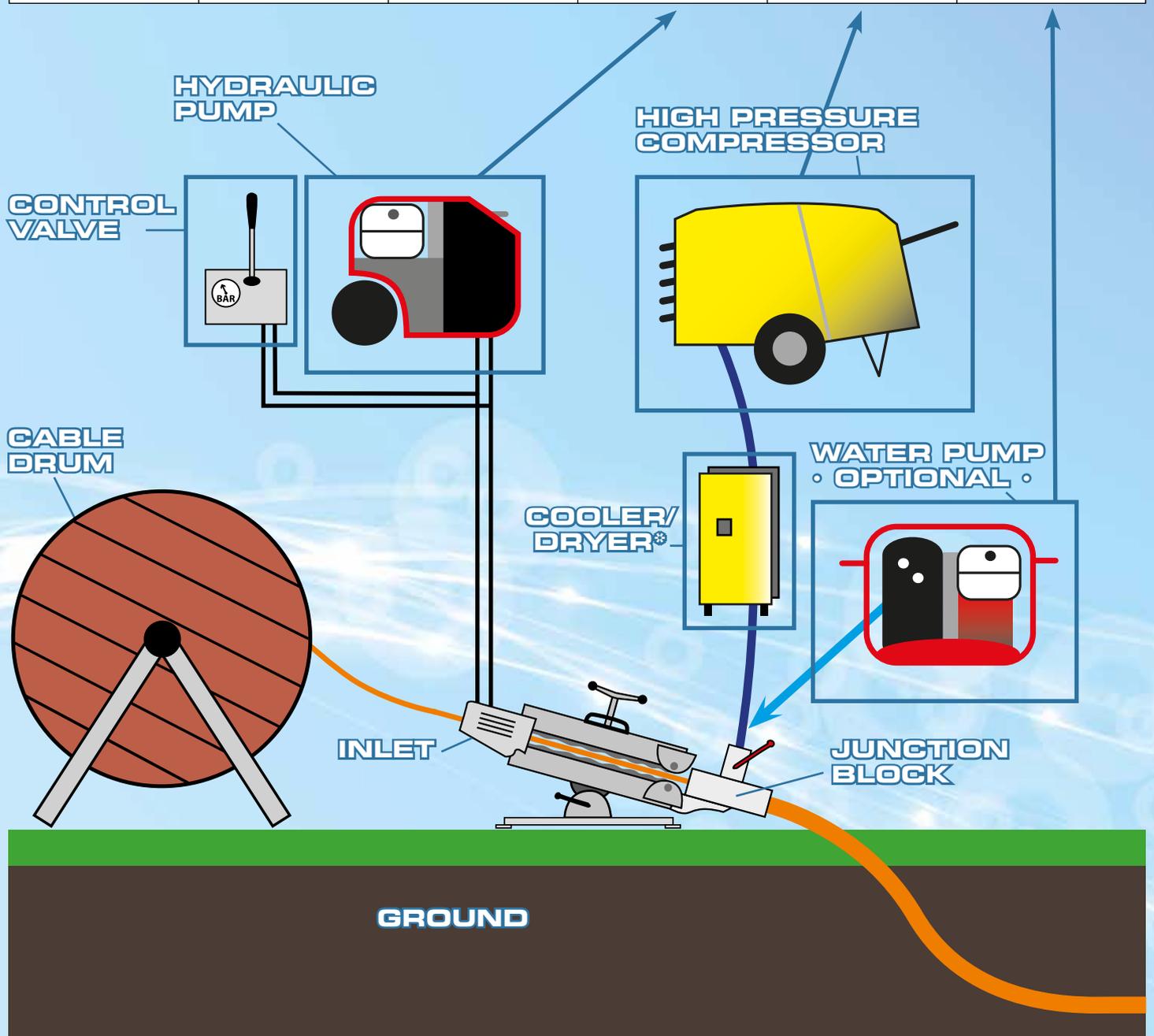
³) Cooled and dried air.

ATTENTION!

The following equipment is needed to run: Hydraulic Power Pack/Control valve and high pressure compressor. We offer all accessories on request.

POWER SOURCE OVERVIEW

Model	24V Battery	110-220V AC Drive	Hydraulic drive	Compressed air	Water flush (Optional)
NanoFlow	X			X → 0-500 l/min. 0-10 bar	
MicroFlow		X		X → 200-500 l/min. 8-16 bar	
MiniFlow			X	X → 1000 l/min. 8-16 bar	X
MultiFlow			X	X → 12000 l/min. 8-12 bar	X
PowerFlow			X	X → 12000 l/min. 8-12 bar	X



*1) We always recommend using a cooler/dryer between the compressor and the blowing machine. High pressure air can achieve very high temperatures that can inflict cables and ducts melt damage. Cold and dry air will also improve the blowing length.

BENEFITS...

- with hydraulic driven machines

Rugged & Dependable

Proven performance in extreme harsh environments (cold, hot, wet or dry)

Ideal for ANY outside plant installation

Installs fiber optic cable over long distances utilizing air or water

Hydraulic motors produce maximum pushing force to the cable

Our Hydraulic MultiPower Pack is the optimal power source for MiniFlow Rapid, MultiFlow and PowerFlow machines...

- MultiPower Pack fits all!

SPECIFICATIONS:

Oil flow 18 l.p.m at 3300 r.p.m.

Working pressure nominal 100 bar.

Pressure relief valve set at 110 bar.

Oil temperature max. 70° C.

Hydraulic oil tank capacity min. 5 litres/max. 7 litres

Petrol tank capacity 3.1 litres

Hydraulic system compl. max. 8 litres

Filter system (filter element) 25 Micron with by-pass

Engine Honda GX200QX7 6.5 HP (gross power)

4-stroke petrol with oil alert system.

Petrol - normal or unleaded.

Engine oil 1.1 litres.

Guaranteed sound power level LWA 100 dB

Sound pressure level 1 m LPA 88 dB

Dimensions (LxWxH) 630x530x510 mm

Weight (w/o hydraulic oil) 54 kg.



UNIQUE COOLING SYSTEM

The RING COOLER is the answer to all demands on a perfect cooling system:

- High efficiency (no down time)
- Enough cooling capacity
- Lowest service cost
- Easy access
- Unaffected by dirt, dust, etc.

In front of the cooler is the fan, which is blowing air round the cooler
- NOT through the cooler.

OUR FLEXIBLE CONTROL UNIT

- Stepless speed control
- Stepless oil flow control
- Instant forward and backward movement via the joystick
- Gauge for monitoring oil pressure
- Used with MiniFlow Rapid, PowerFlow and MultiFlow

SPECIFICATIONS:

Hydraulic connection: $O > 125$ bar, 17 l/min

Gauge: 160 bar

Hose to fiber blowing machine: 1500 mm

Hose to hydraulic pump: 1500 mm

Dimensions (LxWxH): 250x250x310 mm

Weight: 5 kg

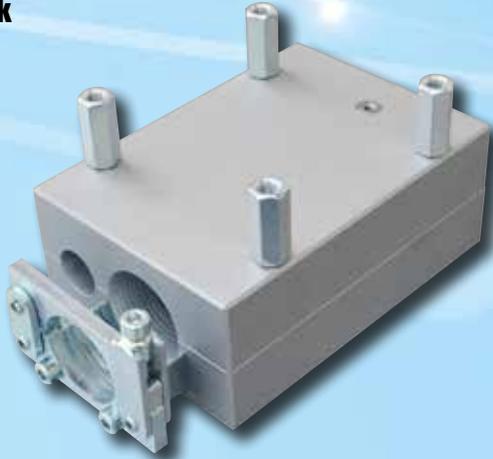


10 m extension hoses available.

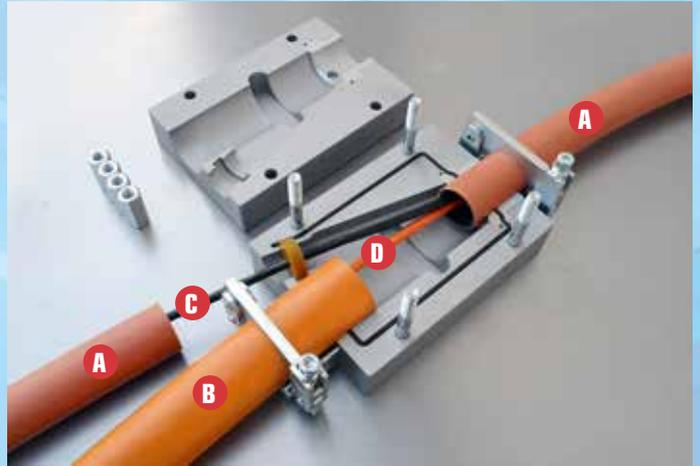
ACCESSORIES

We offer a wide palette of useful accessories:

Y-Block



The Y-block is used for adding one cable to an existing duct with one cable inside. It's made from surface treated aluminium and can easily withstand a pressure of 25 bar from air/water. At the supply end, the Y-block is always 50 mm. A piece of 50 mm duct must therefore be placed between the junction block on the machine and the Y-block. At the end of the connection, almost all ducts can be connected via various inserts. The Y-block uses the same type of cable seals, inserts and duct



collets as the junction block. This means that they can be mixed in all kind of combinations.

The Y-Block can also be serial connected to multiple cables.

- A = 40 mm existing duct
- B = 50 mm supply duct from PowerFlow or MultiFlow
- C = Existing cable
- D = New cable

X-Block



The X-block is used for adding one cable to an existing duct with two cables inside. It's made from surface treated aluminium and can easily withstand a pressure of 25 bar from air/water. The X-block is made with a fixed 40 mm connection at one end and a fixed 50 mm connection at the opposite end. This means that the block can be freely reversed and connected to 40 mm and 50 mm existing ducts in the ground and connected to PowerFlow or MultiFlow with either a 40 mm or 50 mm supply



duct (depending on availability).

The X-block uses the same type of cable seals as the junction block.

- A = 40 mm existing duct
- B = 50 mm supply duct from PowerFlow or MultiFlow
- C = Existing cable
- D = New cable

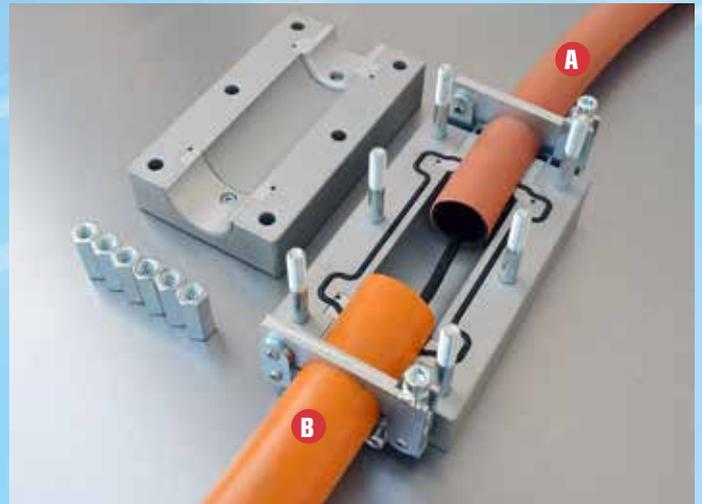
ACCESSORIES

We offer a wide palette of useful accessories:

Duct Joining Block



The duct joining block is used for joining ducts in almost all combinations between 14 and 50 mm. Unlike a plastic connector, the joining block can be split into two halves and used again and again. At the same time it can withstand much greater pressure. It's made from surface treated aluminium and can easily withstand a pressure of 25 bar from air/water.



The duct joining block uses the same type of inserts and duct collets as the junction block. This means that they can be mixed in all kinds of combinations.

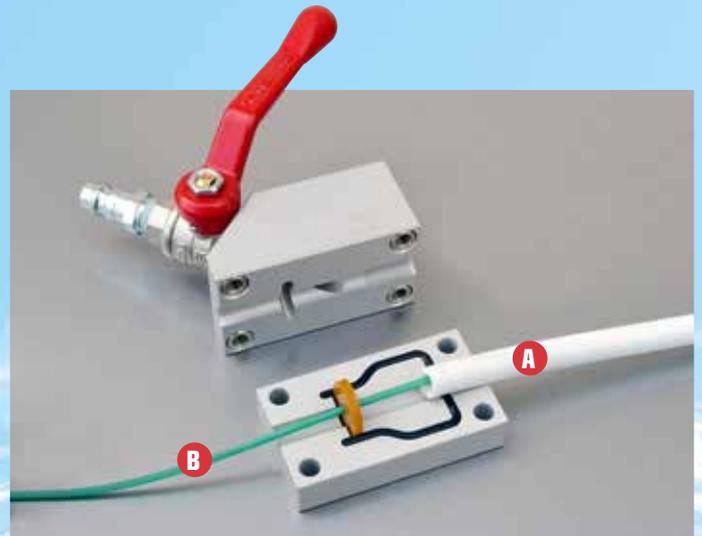
A = Any 14, 16, 20, 25, 32, 40 or 50 mm duct
B = Any 14, 16, 20, 25, 32, 40 or 50 mm duct

Mini Blowing Junction Block



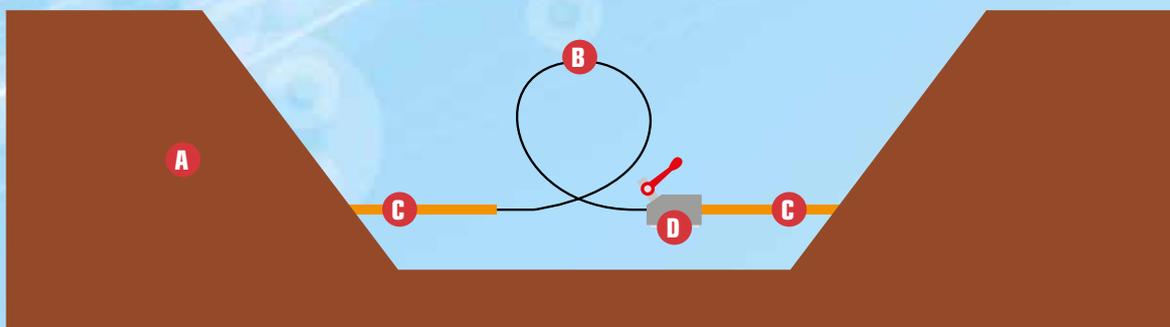
The mini blowing junction block is used for straightening a cable when blowing in two directions, and there is a loop left because the regular blowing machine does not fit into the manhole/excavation (see illustration below). The mini blowing junction block is the perfect accessory for a MiniFlow Rapid.

The mini blowing junction block can also be used to blow a cable (by hand in short distances) from a narrow spot where there is



no room for a regular blowing machine. It's made from surface treated aluminium and can withstand the same air pressure as the MiniFlow Rapid. The mini blowing junction block uses the same type of cable seals as the MiniFlow Rapid.

A = Microduct
B = Cable



A = Ground
B = Cable with loop after blown in both directions
C = Microduct
D = Mini blowing junction block

ACCESSORIES

We offer a wide palette of useful accessories:

Fiberstop

Our fiberstop is intended for use with MicroFlow Touch and NanoFlow. The machine's safety systems can be reused to stop the fiber when it arrives at the customer. Meaning that only one technician can perform the installations alone. Fiberstop is available for the following microduct sizes: 5, 8, 10 and 12 mm.



Return valve

When a fiber cable must be removed from a microduct because of a fault/damage, a return valve is very useful. It is mounted at the far end of the micro duct. Compressed air is connected and the fiber comes out by itself. Return valves are available for the following microduct sizes: 5, 8, 10 and 12 mm.

Filter and water separator

Dirt and water from a compressor is bad for all fiber blowing, especially with NanoFlow and MicroFlow Touch. A filter and water separator is available for both MicroFlow Touch and NanoFlow.



Storage boxes

Storage boxes are available for all machines. If you accidentally destroy a box, these can be purchased separately. MiniFlow Rapid, PowerFlow and MultiFlow are delivered in wooden shipping boxes. Please contact us if you want a special storage box.

Quality hoses

Do not be afraid of compressed air - but treat it with respect! Our hoses are fitted with safety clamps and approved for any compressor. Available in several lengths.



Relining

Relining of microducts in burial sub ducts is successfully used in many markets. Besides, of course, the MultiFlow (designed for the purpose) we have a comprehensive accessory program for the whole process. The picture shows, as an example, the components that allow the microducts to be set under air pressure. This makes them both stiff and resistant to the surrounding pressure.

Sealing

Especially the MiniFlow, PowerFlow and MultiFlow have a big cable diameter and duct diameter range.

To make the blowing chamber as tight as possible, we have developed special seals. They are available in assortments that suit the total capacity of the machines. Single sizes supplement can be ordered in bulk.

The assortments are delivered in boxes where there is also room for e.g. adaptor plates and nylon inserts.



FlowLub

FlowLUB 2000 is a special lubricant for fiber cable and microduct installation recommended for use with the Fremco PowerFlow and MultiFlow. With FlowLUB 2000, you can lubricate the duct before and during fiber optic installation.

FlowLUB 5000 is a special lubricant for mini fiber cable and micro cable recommended for use with MicroFlow Touch and MiniFlow Rapid. With FlowLUB 5000, you can lubricate the duct before and during fiber optic installation.

Both FlowLUB 2000 and FlowLUB 5000 are water based lubricants for all ducts and cables. The lubricant greatly reduces friction and static electricity. It spreads evenly on the cable surface / inner wall of the duct, leaves a very thin film of lubricant and does not make a glue effect.

ACCESSORIES

We offer a wide palette of useful accessories:

Cable mouse

Our "mouse" is intended for use with PowerFlow and MultiFlow to improve blowing of single cable in 32, 40 and 50 mm buried sub ducts.

It will build up the air or water pressure at the tip of the cable and improve the blowing lengths. This requires nicely round and pretty straight ducts.

The mouse can be used with/mounted on max. 14 mm cables. Silicone gaskets (4 pcs needed) are available in the following sizes: 28, 32, 36 and 42 mm. The correct size to apply will depend on the material thickness in the duct.



Calibration probe

Our probe is intended for use with PowerFlow and MultiFlow to check / calibrate 32, 40 and 50 mm buried sub ducts.

The idea is that the probe is sent (with air pressure) through a duct prior to the installation of a cable. The length and size of the probe reveals whether there are sharp curves, fractures or impurities in the duct (it is important to mount a catch at the opposite end of the duct). If the probe gets stuck, it can be tracked at 33 KHz. The probe can also be mounted on a cable rod so that it can be retracted manually or with a PowerFlow/MultiFlow.

Trolley

Spare your back!

Our trolley improves transport and working height for the user. The trolley can carry all the hydraulic machines (MiniFlow Rapid, PowerFlow and MultiFlow).

It is also prepared for mounting the hydraulic control valve as illustrated. The trolley is of the same sturdy quality as all the fiber blowing machines. Telescopic handle and air-filled rubber wheels make transportation fast and easy.



Cable drum rack

All details count for a good result!

Often we see cable drums hung on random devices.

It causes the drum to become heavy to pull around and change the center of gravity.

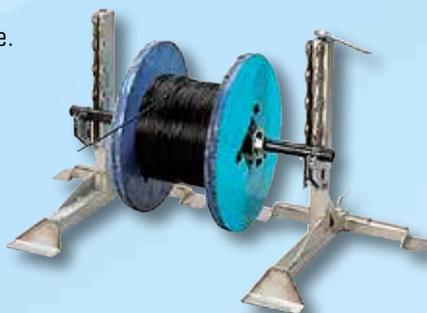
Via cone and ball bearings, our cable drum rack ensures smooth and easy feed of the cable from the drum, which will improve the blowing length.

Our cable drum rack (lifting jacks) is made of galvanized steel, with a robust hand operated mechanical lifting system.

Lifting arms with five positions adjustable shaft supports with 100 mm steps; detachable frame type.

Complete drum carrying steel shaft with on pair of drum centring cones.

Drum diameter up to 1800 mm and max 1600 kg.





- want more:

www.fremco.dk
www.youtube.com/user/FremcoTV

Scan the code and see
the product presentation:



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