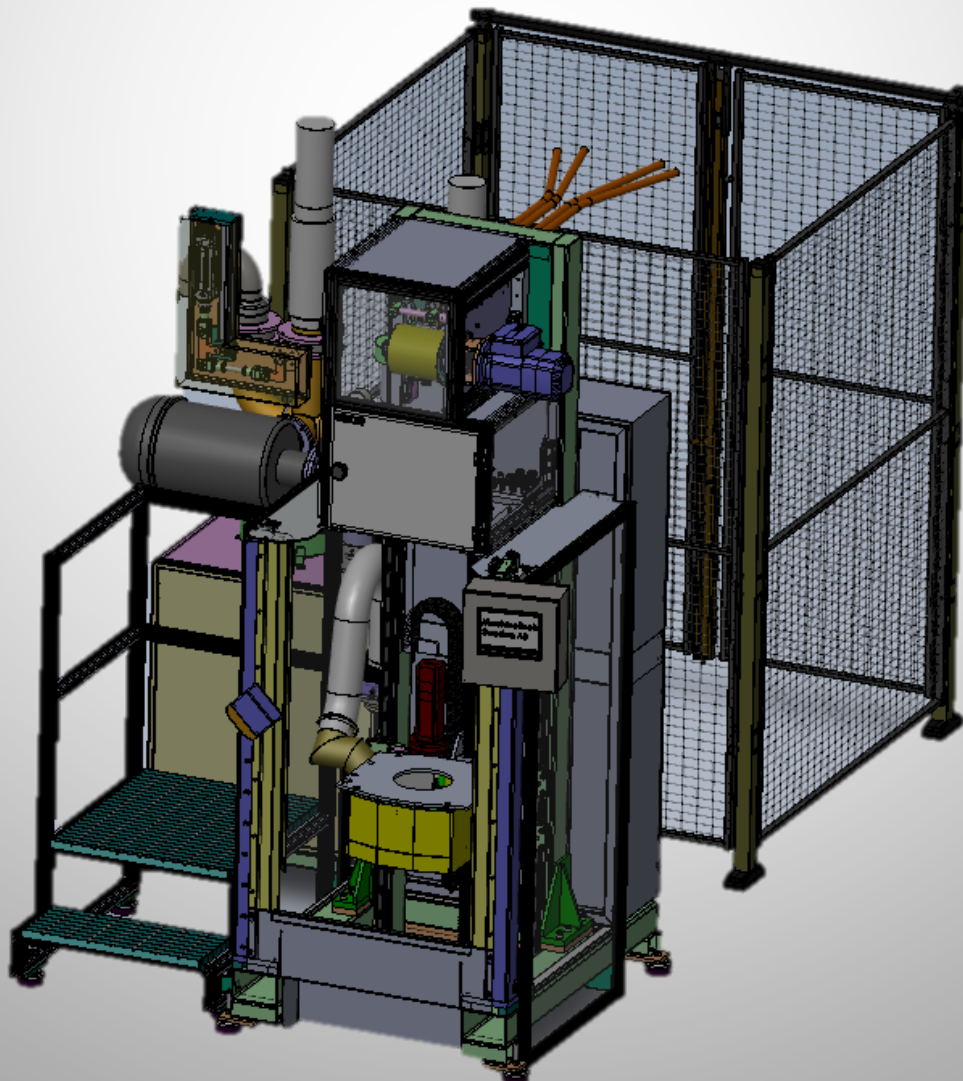




Glass-Fiber Texturizing & Filling Equipment

For Mufflers and Sound Dampening Applications



Fillex – Vertical Filling Center - Single Station



Fillex – VFC - Single Station

Machine Description

Fillex – Vertical Filling Center – Single Station is designed to texturize glass fibre roving and inject directly into vertically positioned mufflers (silencers) through our custom designed glass-fiber texturizing nozzle. The term “texturizing” is associated with the modification of the physical arrangement of glass fiber roving filaments, so they offer optimized sound absorbing performance. The machine requires an operator to run it. Operations are semi-automatic with automatic processing.

Fillex – Vertical Filling Center is a Semi-automatic machine and has capacity to drive up to 4 glass fibre strands (with option of 4 press roll feeding unit), and blow simultaneously with up to 4 nozzles, to increase productivity. Machine requires an operator to load and unload the muffler in vertical position on the suction table, whereas the filling operation is fully automatic. The suction table is connected with linear unit that lifts up the muffler to the filling position, and also adjust the height of the suction table according to the muffler length from 180 – 900 mm. The nozzle house is equipped with nozzles and the feeding unit. Our custom designed nozzles texturize and fill the glass fiber roving directly into the muffler cavities; whereas, the feeding unit measures and feed the roving directly from the pallets. Nozzle house and the suction table are also equipped with the function to quickly changeable tooling for different shapes and dimensions of muffler. Each silencer requires an individual set of tooling to setup the machine for direct filling. A Poka Yoke system can be integrated as an option for wrong tooling and/or wrong part detection against the recipe entered into system through HMI.

The vacuum unit for Fillex – Vertical Filling Center is equipped different with suction control valves to control the vacuum during the filling process. The suction system is also equipped with three different filter barriers including cyclone filter to avoid the release of dust particles into the plant.

Fillex – Vertical Filling Center is based on Control panel (HMI) & PLC system that allows the recipe management and has ability to save up to 100 recipes in the integrated memory. Recipes can be saved as production part number, and it is possible to have one recipe with 1 or 2 filling cycles, which means one side filling or both side filing of the silencer.

Fillex – Glass fiber filling machines are being engineered with sole purpose to provide best to our customers. Fillex – Vertical Filling Center is CE marked product according to CE Machinery Directive 2006/42/EC. Fillex – Vertical Filling Center can also be customized with additional accessories according to the specific requirements, choice of Components, or application area.

Fillex – VFC - Single Station

Features & Applications:

Key Features:

- Up to 4 nozzle operation.
- 2 independent controlled filling amounts.
- Dust proof electrostatic sensors.
- Programmable filling speed.
- Touch screen control panel.
- Self-diagnostics (alarms).
- Automatic & Manual operating mode.
- Recipe management.
- Parts counter.
- CE mark.
- Intelligent safety.
- Password protection for different user levels.
- Safety fence for glass-fiber pallets.
- Wifi connection for remote assistance.
- Quick change tooling function

Muffler dimensions:

- Length: 180 – 900mm
- Diameter (width): 90 – 305mm
- Oval case: 300 x 300mm
- Minimal filling chamber depth: 70 mm (depends on the muffler design and filling density)
- Inner tube extension (suction side): 0 – 90mm
- Inner tube extension (filling side): 0 – 150mm

Options:

- 4 press roll feeding unit for separate filling amounts on each nozzle.
- Siemens or Allen Bradley PLC.
- Filling weight check according to tolerance on drawing.
- Poka yoke for tooling and Part: mechanical, sensors or vision system.
- Temperature and humidity controlled climate chamber for glass fiber conditioning.
- Bar code reader.
- Multiple tooling options: rotation tool, intermediate chamber filling, twin filling tools, two side filling tools.
- Multiple options & accessories

Application Areas:

- Automotive industry
- Medium to high volume production
- Passenger vehicles
- Commercial vehicles
- Other exhaust silencers.
- Aftermarket





Fillex – VFC - Single Station

Machine Operation:

The fiber glass roving is fed to the feeding unit of machine directly from the pallet(s) and it is operated by a motor drive and controlled by a PLC system along with a programmable frequency convertor. The required amount of the texturized fiber glass (in grams) is entered in the recipe system through the touch panel (HMI). It is required to start the cycle by the operator, but cycle will stop automatically.

The equipment requires an operator and the following is the sequence in Auto mode:

- Operator loads an empty muffler on the suction table.
- Press the start button.
- The silencer is lifted up to the filling position, glass-fiber thread is pulled by the feed roller in feeding unit directly from the pallet(s), the nozzle(s) with attached tooling accessories converts the roving to wool shape material and fills directly in the silencer cavities.
- The feeding unit automatically measures amount of feed compared to the desired amount entered through the HMI.
- Once the amount is reached the equipment stops and the thread is cut automatically in the cutting device attached to the nozzle.
- Suction table moves down to loading position.
- Operator unloads the muffler from suction table.
- The sequence is finished and the equipment is ready for the next muffler (alternatively the filled muffler is turned for filling the B side).

Specifications (standard version):

Filling Specifications:

Glass-fiber 4800 G/km Tex @ 50Hz

~ **30.4 g/sec/nozzle**

Glass-fiber 7000 G/km Tex @ 50Hz

~ **50.2 g/sec/nozzle**

Glass-fibre rovings:

All models fabricated by MachineTech Sweden have the capability to drive different Tex. values of glass-fibre roving i.e. 2400 Tex., 4800 Tex., 7000 Tex.

Operational Specification:

Number of filling nozzles: 1 – 2

Nozzles per muffler: 1 – 2

Cycle time without filling: ~ 5 sec

Noise level: ≤ 85dB

Change over with 1 operator:

Tool change over: ≤ 5 min

Material feeding change over: ≤ 10 min

Height adjustment: Automatic & manual function.

Energies connection:

Electrical connection: 400V, 50/60 Hz (for EU)

Pneumatic connection: 1.5 inches

Air supply: 6,5 – 7 bar

Fillex – VFC - Single Station

Vacuum unit:

A separate suction fan with a side channel vacuum pump can be connected to Fillex – Manual Filling Machine. The location of this unit is optional. The out-flow from the fan and its blow off silencer can have free outflow into the premises or be connected to a duct that goes out through the ceiling of the building.

This suction fan unit is connected with separate feeder cable to the electric mains. In addition, there is a connection to the compressed air supply or to quick coupling on the machine.

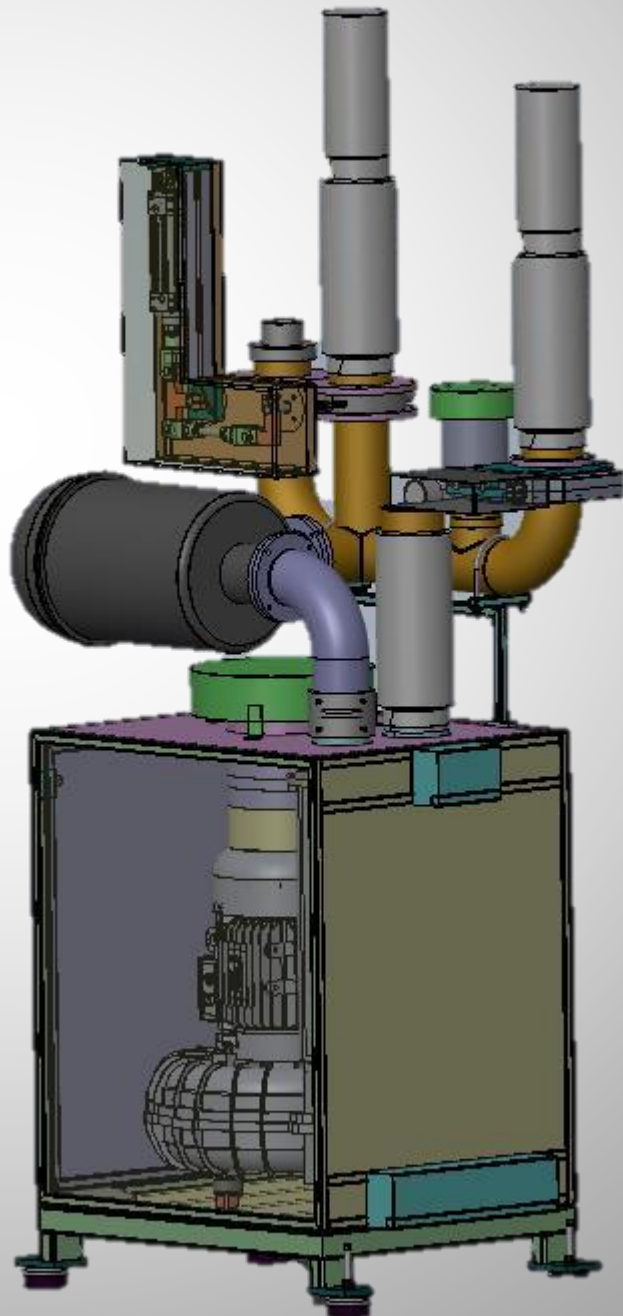
The suction fan works in automatic mode in conjunction with Fillex – Vertical Filling Center – Single Station. The fan is operated from the control panel. Fan suction works in two ways.

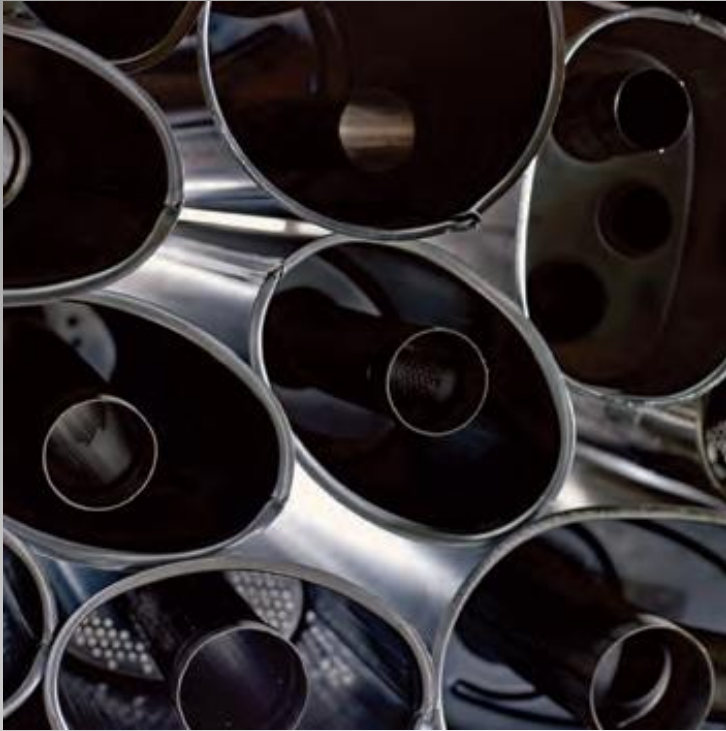
1. During filling and cutting the air is sucked in through the blowing tool - through the silencer to be filled - through the fixture's suction box - through the cyclone filter - through the suction fan and out through the pressure side of the fan.
2. Before and after the filling phase, the fan sucks in free air through the cyclone filter - through the suction fan and out through the pressure side of the fan (this function cools the inside of the fan). If, for some reason, the negative pressure drops down to -0.23 bar, an under pressure relief valve opens and allows air into the system. This air also goes through the cyclone filter.

An automatic suction regulating valve makes it possible to reduce the suction fan's negative pressure by admitting air in from the premises before the cyclone filter. This setting is done by means of a scale on the valve operated through control panel of the machine.

The box around the fan is ventilated by the fan's motor. On the top of the box there is a round inlet suction cover, and the air is blown out on the rear side through two oblong columns. This function cools the motor and the outside of the fan.

On the inlet connection of the vacuum pump with the suction box, there is a fine-mesh net, which protects the fan to get the fiber particles more than 3 mm long. The cyclone filter has an accumulation container that removes the thick dust.





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