Installation and use of Strong Central Vacuum Cleaning System

System type 7,5kW  |  7,5kW-FC  |  11kW

www.strong.fi
System units and parts **

- Pre-separator
- Main Filter
- Motor
- Extra pre-separator *** (Only for some installations)

- 76/60mm branch pipe with leaf valve and switch
- 76mm pipe coupling
- 76mm hose connector
- 50mm pipe coupling

- 76mm main line hose
- 76mm main line steel pipe, length 2m
- Wago - electric joiner
- Electric cable for 24V installation

- 50mm hose/leaf valve connector
- 50mm cleaning system

** The specific model type, outlook or/and color of an unit or part may differ from those presented on this page.

*** Extra pre-separator is needed in only specific cases. Read this manual first.
Technical advantages

- High performance suction power
  - A central vacuum cleaner’s suction power is remarkably higher when compared to conventional vacuum cleaners on building sites.
  - Strong 7.5kW-FC motor represents the next generation modern engine technique.
  - Optimized pre-separation and main filtering allows longer continuous working times and less filter wearing.
  - Due to high suction power work duties are able to be made faster and more efficiently.

- Easy installation
  - Main components of the system, pre-separator, main filter and motor unit are separated as three separate lightweight units, all included with rubber wheels for easy moving. This way it has been possible to produce units small sized and easy to handle even by one person.
  - Easy and fast to install for example in a stairway, under a stairs, in basement or for example in an outdoor installation in to a small sea container.
  - Easy to find power. Especially the Strong 7.5kW-FC system type gives a high performance still with a 16A power connection.

- Low operating costs
  - The Strong 7.5kW-FC motor gives high performance energy efficiently.
  - Low filter wearing due to optimized pre-separation and main filtering.
  - Only 1 filters to maintain instead of several filters when common vacuum cleaners would be used.
  - Cost effective, quick and dust free Longopac dust bag system.

- Improves building site work environment and work efficiency
  - High performance suction power helps a building site cleaning and improves dust suction from dust creating machines, such as grinding machines, hammer drills, breakers, etc. The kind of work phases can be done easier and quicker improving work efficiency and dust controlling
  - As central vacuum system main units are mostly located in a different space than the actual work area, the systems strong suction power forms negative pressure to work area helping avoiding dust to spread to unwanted areas.
  - Less noise pollution in working spaces when central vacuum units are located in different space.

- Dust controlling benefits overall
  - High suction power improves dust suction from dust creating machines and therefore lowers the amount of dust released to indoor air.
  - Building site cleaning can be done more efficiently and faster, and getting dust away from different structure surfaces is easier.
  - Negative pressure is formed when system is used improving dust controlling in work space.
  - Dust and suction waste gathering is easier and more efficient with centralized Longopac dust bag system. Longopac also gives the benefit of making dust-free bag changes.

- Especially developed and built for European building and renovation site use.
INSTALLATION PRINCIPLE

= Pre-separator, main filter and motor units
A = Indoor installation   B = Outdoor installation (sea container etc.)

= D. 76mm main suction line   = Leaf valve with switch

= 24V electric cable   = End plate in main suction line
INSTALLATION OF SYSTEM MAIN UNITS – Motor, main filter and pre-separator

- The units are installed to a desired place for example, in a stairway, under stairs, in a basement or in an outdoor installation for example in a small sea container.

- Make sure the floor level is stable/even and allows a steady installation for main units.

- IMPORTANT! In a sea container installation make sure the container is ventilated well enough for cooling the motor unit. Also install a diameter 80mm hose to motor units air outlet located in the silencer, and with the hose guide out the process air from the sea container helping the system cooling. Tighten the air hose connections with hose connectors.

- Install a diameter 76mm hose between motor and main filter, as well as main filter and pre-separator. Tighten with hose connectors.
- System noise level can be adjusted also in indoor installations by installing a diameter 80mm air hose to motor units air removal (silencer), and guiding the air (noise) outdoors or to other more suitable space.

**MAIN SUCTION LINE INSTALLATION**

- The vertical suction main line can be created with a suitable D. 76mm hose (recommended by the system manufacturer) or a hard metal pipe line, or with a combination of these two. Plastic pipe, such as drain pipe or other, is not suggested due to problems with static electricity. Metallic pipe line parts are installed mainly to a concrete wall or a temporary built wooden frame, and attached with suitable anchors or screws.
- Start the D. 76mm main line installation by attaching a metallic 76/50mm branch-pipe with a leaf valve and switch, to the pre-separators suction connection. Instead of the branch pipe a 76mm hose can also be installed to pre-separators suction connection if the leaf valve with switch needs to be placed further away from the main units themselves (See pictures below). Tighten all hose and pipe connection with suitable pipe couplings or hose connectors.

- Temporary light telescopic support fittings (telescopic poles) can be in many cases the fastest and most cost effective way of creating a suction main line support.

- As the first 76/50mm branch pipe was fitted near the main units, continue installing the main suction line forward. Continue with a D. 76mm metal pipe or hose upwards to next floor level.

- The main suction line can also be built from up to downwards. This way especially the D. 76mm hose main line installation can be easier. BUT ALWAYS MAKE SURE that all hose, pipe and branch pipe joints are tightened fully tight and secure that there is not a possibility of main line parts to get loose and drop. This could cause a severe danger in certain type of installations where there is free air space beneath or parts can drop and hit people.
- When the main suction line has reached next floor level, install the next 76/50mm branch pipe with leaf valve and switch, and tighten with pipe coupling or hose connector. From the branch pipe continue once again to next floor level with D. 76mm hose or metal pipe, install next branch pipe with leaf valve and switch and continue building the whole main line with the same system until to the top floor.

- When the last 76/50mm branch pipe with leaf valve and switch is installed in top floor, place an end-plate to the 76mm piping and tighten with pipe coupling.

- Now the D. 76mm main suction line is built.

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**CABLES AND ELECTROFYING**

- Before starting any cable work, make sure that the motor unit 16A or 32A main power cord is plugged off from power socket, and that the motor main switch is put on "OFF" position.

- Start wiring the 24 Volt leaf valve switch cables. First string the 24V cable inside the motor electricity box from a cable inlet in the bottom of the box. Inside the motor electric box connect the 24V cable in the cable terminal marked with text “läppäventtiilit” or “Leaf Valves”.
- Close the motor electric box door and continue connecting the 24 V cable to the nearest 76/50 mm branch pipe with leaf valve and switch. Connect the 24V cable to the leaf valve switch by using Wago-electric joiners. Use 2 Wago-joiners, 1 being + connector and 1 being – connector. Connect – cable coming from the motor, from the switch and from the up-going cable to 1 Wago joiner. Then connect + cable just the same to the other Wago-joiner. Build the same type cable system through every leaf valve and switch to top floor. Try to use cable coloring in connections/joiners, and avoid mixing the coloring. When all leaf valve switches are connected, the engine automatic start system is installed. In normal use when any of the leaf valves are installed with a D. 50mm suction hose, the electric loop in the leaf valve switch opens starting the system motor. Use cable ties or such to tighten the 24V cable for example around the suction main line pipe. This way the wiring does not hang loose and you can avoid problems in the future.

- NOTE! The 24V cable wiring can also be started from top floor. This way the cable installation and possible stringing work is much easier.

- Connect the 220V cable coming from the main filter unit lid to the 220V cable coming from the motor unit (grey cables with sockets). This is the cable for filter automatic cleaning.
- Connect motor units main power cable, 16A or 32A 3-phase, to a suitable power outlet.

- Turn “On” the red colored main switch on the left side of the electric box.

- Turn the black colored usage type selection switch to position “A” (automatic use), located on the motor electric box door. If continuous manual use mode is needed at some point, the same switch can be turned in manual use position “M”. In normal automatic use keep the switch always placed on “A” position.

- The Central vacuum system cable work is now done and the system ready for use.
OPERATION TESTING

- Check that the main filter lid as well as the HEPA filter box lid are closed and locked.

- Start checking the system operation by going through every single leaf valve switch installed. One by one open a leaf valve suction lid, and wait the motor unit to start to operate. Especially with an FC-motor (frequency changing) it takes a bit more time the system so start. When you can feel an air suction forming in the leaf valve, by feel of hand etc., the valve lid can be closed and you can move to the next leaf valve installed.

- Test each leaf valve by using the same method.
- When all leaf valves with switch have been tested, go once again to the leaf valve located closest of the main system units (motor, main filter, pre-separator). Open the leaf valve lid and keep it open until the motor has reached full power.

- Close the lid and check that the main filter automatic cleaning system has started. Normally you can hear the vibrating cleaning being On as a low vibrating noise. In cases where there is a lot of background noise the cleaning mechanism test can be done also by placing a hand on the top of the main filter lid. The vibrating motor being on can be felt clearly with a hand as a gentle vibration.

- The automatic filter cleaning mechanism starts every single time after all system leaf valves are shut off. The automatic cleaning mechanism is on as a factory setting for five (5) minutes after each suction work. A professional person can adjust the cleaning timing from the motor electric box by turning the timer gently with screwdriver. NOTE! Turn the timer very gently and DO NOT turn the timer adjuster too much breaking it.
- The central vacuum system is now fully installed and ready to operate.

- Make sure the Longopac dust bags are placed on the main filter and pre-separator before allowing the system being used.

GOOD TO KNOW!

- When extra light dust is only vacuumed, from a dust creating machine or other, even a 30-40m long D. 50mm suction hose can be used in the system. In a common building site cleaning work, and when heavier particles are cleaned the recommended maximum length for D. 50mm suction hose is 20m.

- Temporarily the D. 50mm suction hose length can be increased by 10-30m by adding an extra pre-separator between the original suction hose coming from leaf valve, adding the pre-separator and continuing with a D. 50mm hose from the pre-separator to the work space. The temporary pre-separator should be sized big enough working operating well together with the system high suction performance, but need not to be as heavy duty manufactured than the systems own pre-separator. The extra pre-separator is suggested also to be equipped with Longopac dust bag system. This type of extra pre-separator installation is normally used only temporarily, and basically only on locations that are very complex. In common building site installations there is normally no need for extra pre-separator installations.