

# LIFAair®

## OPERATING AND MAINTENANCE MANUAL



LIFA Special Cleaner 20  
LIFA Special Cleaner 25 Multi

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**IMPORTANT! Read these instructions carefully before operating the machine!**

These instructions should always be available for the personnel operating the machine. Please read these instructions carefully before operating the machine. Following these instructions in detail ensures many years of trouble-free use.



# LIFA Special Cleaner 20 / 25 Multi brushing machine



LIFA Special Cleaner 20



LIFA Special Cleaner 25 Multi

Congratulations on your new LIFA Special Cleaner 20 or 25 Multi brushing machine!

LIFA SC20 / SC25 Multi is an electrically operated brushing machine for ventilation ducts. These brushing machines are designed for the cleaning of small and medium sized, round and rectangular shaped air ventilation ducts. The length of the cleaning shaft is 20 meters (66 ft., SC20) or 25 meters (82 ft., SC25 Multi), so it can be used in cleaning up to 35 m (115 ft., SC20) or 46 m (151 ft., SC25 Multi) of ventilation duct when accessed in one duct access door to both directions.

The speciality of LIFA SC20 is its small size and user friendliness, especially in tight and cramped places. Due to its small size, it can also be packed and transported very easily. The speciality of LIFA SC25 Multi is its wide range of different sized nozzles which can be used to spray air, liquids and foam.

The mechanical centering device for the brush is available as accessory for the LIFA Special Cleaner brushing machine. The centering device helps to push the brush in the duct and centers the brush in the duct so that the brush can reach all parts of the duct. The use of the centering device is recommended especially in large and rectangular ducts.

Professional's first choice for small (SC20: Ø100–400 (4–16")) and medium sized (SC25 Multi: Ø250–800 mm (10–31,5")) ducts. In addition, LIFA SC25 Multi can also be used in grease duct cleaning up to 60 cm duct diameter or duct height. LIFA SC20 is not suitable for grease duct cleaning.

- Operation radius 18 meters (60 ft., SC20) or 23 meters (75 ft., SC25 Multi).
- Rotating speed can be adjusted from 225–570 rpm with a frequency converter.
- Mechanically directed rotating direction to clockwise and counter clockwise.
- The brushed off debris is removed by sucking it to a negative air vacuum, such as a LIFA HepaClean 1100, 2500, 4000 or LIFA AirClean 3500 negative air machine unit (accessory).

# Safety Precautions

The following safety directions must be carefully observed in order to avoid injury to personnel or damage to the environment or to the LIFA Special Cleaner brushing machine itself. Following these instructions will ensure the safe and uninterrupted use of the machine.

- The equipment must not be positioned or use in places where there is a risk of explosion or hazardous substances.
- The equipment must not get wet and it has to be protected from moisture, vibration and wind.
- Foreign objects must not be inserted or fitted into the equipment.
- The machine cannot be covered during the use.
- The user must ensure that the appliance is adjusted for the task and that the statutory requirements are met.

## 1. Avoid contamination of the environment

The machine must be kept as clean as possible. The shaft must be cleaned before pushing it back to the machine. The brushes and the shell of the cleaning shaft must be cleaned after the work has been completed, before transporting the machine to another location.

## 2. General safety

The power must be turned off and the power cable unplugged when the machine is not being used. It is forbidden to make any modifications to the brushing machine or the accessories (for example brushes).

## 3. Operator safety

The person/persons performing the work must use personal protective equipment: filtered mouth mask, helmet, earmuffs, goggles, overall, protection shoes and other necessary protective equipment that the task at hand requires.

LIFA Special Cleaner brushing machines have a strong rotating force. Clothes or hair can easily get caught in the brush and cause damage or accidents. **The brush must always be placed in the ventilation duct before switching on the machine.** The machine cannot be used when the brush is outside the ventilation duct. Because of the great rotating force, the LIFA Special Cleaner is recommended to be used by two persons. One person directs the shaft into the duct while the other person feeds/draws

the shaft and controls the rotating of the brush.

## 4. Workplace conditions / overload

Make sure that the lightning, air conditioning, latter and trestles are sufficient. If the brush generates static electricity or sparks in the duct do not use these types of brushes in the duct if there is any flammable liquids, gases, dust or other sensitive substances nearby. Use antistatic brushes and safety ground by following the special instructions in difficult conditions.

The permitted working temperature is 5–50 °C (41–20 °F). The gearing warms up a bit when the machine is being used. If the motor overheats or free rotation of the brush has been prevented, the overheat protection of the frequency converter will be switched on automatically. When the right working temperature has been reached the motor will start working again. The current must be switched off when it is not being used.

## 5. The cleaning shaft

Check the condition of the cleaning shaft before every use. Be careful not to damage the shaft. If the shaft has been damaged take immediate contact to your local distributor. Minor scratches on the shaft surface can be fixed by coating it again with a heat shrinkable tube. During storage and transportation, the cleaned shaft must always be reeled into the drum.

## 6. Electrical connection

- Ensure that the voltage supply and the current responds to the information stated in the CE-plate and the information in the instructions.

- LIFA Special Cleaner brushing machine is connected to a single phase (1~) current, 230 VAC (or 120 VAC), 50/60 Hz.
- Protective switch for motor is equipped with a low voltage protection which prevents the switching on if the voltage is too low or if there is no voltage.
- Only authorised electrician may do the repairs or installations of the electrical components. In addition, electrician must be authorised by the manufacturer; otherwise the warranty expires.

**Ensure that the power supply is reliably earthed.  
Connect the device only to grounded socket!!**

## 7. Noise level

The noise level of LIFA Special Cleaner is low (70 dB) and it is not dependant of the operating environment.

## 8. Transportation and operating position

During the transportation, the machine must be tied firmly in order to prevent any damage to the machine or people. Before use make sure that all the components are in place and that the machine functions well. The machine must be transported, used and stored in an upright position. The machine must be positioned far enough from walls and other obstacles and placed firmly and straight. Ensure a free rotation of the brush.

# General Directions

1. LIFA Special Cleaner can only be used for the purposes that it is designed for and which are outlined in the instructions. It is forbidden to use the equipment for any other purposes without written permission from the manufacturer. If this equipment is used for a purpose other than in which it is designed for, the manufacturer does not take responsibility for any consequences.
2. Persons responsible for operating this equipment / supervising the use of this equipment must get acquainted with the structure, functions and the safe use of the equipment.
3. It is prohibited to remove or disable any technical protective / safety device while using the machine.
4. If the machine has to be installed in a way that protective / safety device is disabled or device functioning is limited, work supervisor / person in charge must immediately be notified of this.
5. Due to the nature of HVAC cleaning (done in intervals, team changing positions etc.), exposure to vibrations (hands only) is well below all defined levels.

# Construction and Control



**LIFA Special Cleaner 20**

1. Linear rotation speed control
2. Main switch (2 stepped, rotate until green light switches on)
3. Emergency stop
4. Pneumatic pedal – changing of the rotation and operation direction

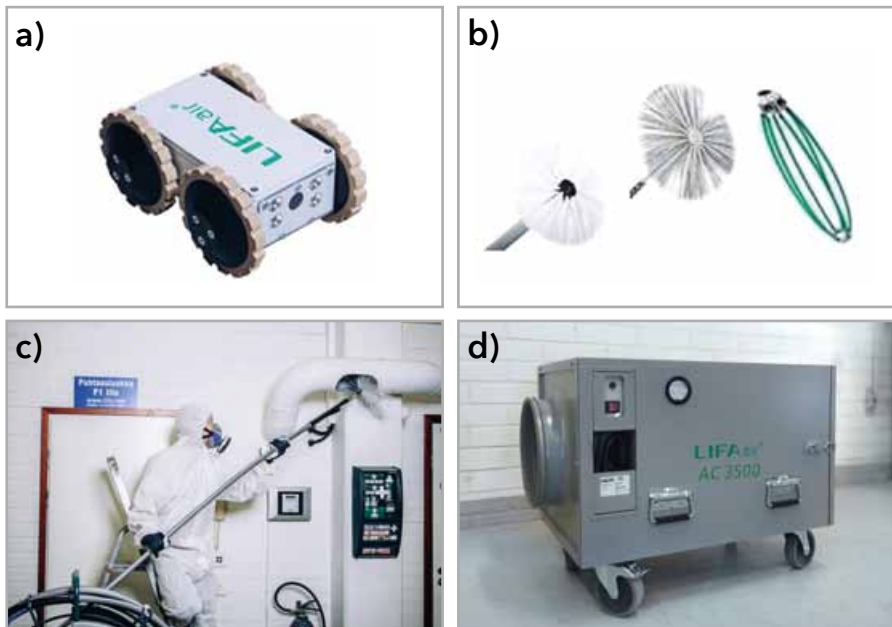


**LIFA Special Cleaner 25 Multi**

1. Nozzle for liquids and compressed air
2. Linear rotation speed control
3. Protective switch for motor
4. The main valve for the liquid and the compressed air connection (situated behind in the picture)
5. Pneumatic pedal – changing of the rotation and operation direction



# Operating Principles



Before beginning the work, check the ductwork with **a)** LIFA Duct Control (accessory) equipment and choose the suitable **b)** brushes and nozzles based on the size and construction of the duct as well as the composition of the removable dirt.

- Before beginning the work, check the ductwork channel network with LIFA Duct Control (accessory) camera inspection equipment. There may be air volume controllers, noise silencers, fire dampers etc. that can be damaged during the work.
- In large rectangular ducts, there might be supporter poles inside the duct. Use extra care, when dealing with

ducts equipped with supporters. When cleaning large rectangular or round ducts the use of LIFA centering device (accessory) is highly recommended.

- Place the machine in a firm position.
  - Choose a right sized brush (depending on the size of the duct). Make sure that the brush isn't too small or big for the duct that is going to be cleaned.
- LIFA SC25 Multi: Nylon grease / Tynex

brushes are meant for cleaning the grease ducts. The combination brushes are meant to use only in grease duct cleaning.

- LIFA SC25 Multi: If the purpose is to spray coating or disinfectant into the duct at same time, place an air hose with compressed air or low-pressure air sprayer into the machine depending on the purpose of use. Choose a correct nozzle (check the accessory list).
- Make sure that the working area is cleared and there are no extra personnel.
- Ensure that all the employees performing the work have adequate protective equipment.
- Make sure that there is enough low negative pressure in the channel network and that LIFA HepaClean or LIFA AirClean negative pressure unit (NPU) is installed correctly. The brushed off debris is removed by sucking it to the NPU.
- Connect the machine into an electrical network.
- It is recommended to connect an additional grounding wire between the brushing machine and air duct.
- Place the brush inside the ventilation duct that is going to be cleaned.

- When the operator who is feeding the shaft into the duct gives a permission to start the machine, the machine can be started.
- When the shaft is being fed to the duct sharp angles and screws etc. that can damage the shaft must be beware of.
- Adjust the rotating speed of the brush. Note that when cleaning "soft" ducts (with insulation inside) the rotating speed should be much lower than in normal ducts. Too high a rotation speed may damage the ductboard surface.
- The brush must be rotated to clockwise and counter clockwise evenly (50/50). Use both rotating directions to achieve the best cleaning result. In rectangular ducts, it may be required to clean one side first (with rotating the brush in one direction only) and after that another side.
- Feed the shaft evenly into the duct without excessive force. The use of excessive force may harm the duct, machine or brush and influence on the cleaning result. Always insert the shaft gently and smoothly into the ductwork, to prevent the brush from 'jumping' and leaving unclean spots into the duct.
- It is also advised to use the-one-and-only specially designed centering device and/or shaft holder by LIFA in big ducts and/or when full rotation speed is being used.

**GREASE DUCTS: LIFA Special Cleaner 25 Multi may be used for grease duct cleanings. Please ask us more about our grease removal concept!**

# Service and Maintenance

When the machine is in daily professional use it should be delivered to its first regular maintenance to the manufacturer or to repair shop that has been authorized by the manufacturer after six months from the first commissioning date (approximately 100 hours). The warranty expires if the machine has not been delivered to its first maintenance on time.

**Before any maintenance work the machine has to be plugged off from the mains!**

The following maintenance and upkeep work must be done in regular basis depending on the purpose of which the machine is being used. This enables a trouble-free use.

## General Cleanliness

Keep the machine as free from dirt and dust as possible. Dirt and grease may cause a failure in the electrical equipments. The use of running water is forbidden.

## Cleaning of the frequency converter

Unplug the machine from the electrical network. The frequency converter maintains its voltage for a long time after it has been unplugged from the electrical network. When the voltage has permanently dropped the protective casing can be removed safely. Blow compressed air gently into the frequency converter between the slots that enables the accumulated dust to come out. If there is dirt accumulated on the surface of the frequency changer it can be wiped off with a damp cloth. When the protective casing is open it is recommended to check the tightness of the binding screws. After that the protective casing can be closed.

## Electric motor

The outside of the electric motor can be cleaned with a damp cloth. The inside of the motor is recommended to be cleaned with compressed air. This is done by blowing the compressed air to the air inlet of the motor.

## Electrical connections

ONLY an authorized electrician can do the electrical connections and other electrical installations. However, it is good to visually ensure that the connections are tight and the wirings are in order.

## Cleaning shaft

The cleaning shaft must be cleaned every time after use. The dirt and grease that has collected to the plastic surface can be removed with a mild grease removal detergent that is meant for plastic surfaces. Some lubricant (synthetic Vaseline, lubricating oil etc.) must be put between the turnbuckle and the outer bearing in the brush adapter regularly.

Liquid nozzles (only LIFA SC25 Multi): After use, the nozzles and the hoses should be rinsed with water so they will not get blocked and there will be no residues of old detergents. Corrosive detergents and solvent substances may eat into the hose. After rinsing the hose should be run clean with compressed air.

## NOTE!

**Possible repairs must be carried out by the manufacturer or a servicer authorized by Lifa Air Oy Ltd. Third party repairs will void the warranty.**

# Technical Data


## LIFA Special Cleaner 20 and 25 Multi brushing machines

	LIFA Special Cleaner 20	LIFA Special Cleaner 25 Multi
Operating power:	Electricity	Electricity
Operating voltage:	240 VAC (120 VAC also available), 1~	240 VAC (120 VAC also available), 1~
Frequency:	50/60 Hz	50/60 Hz
Motor:	0,37 kW / 10 A	0,75 kW / 10 A
Electric cable:	3G1.5 mm <sup>2</sup> , 7 meters	3G1.5 mm <sup>2</sup> , 7 meters
Motor rotation speed N1:	2780 rpm	2780 rpm
Brush rotation speed N2:	Linearly adjustable: 225–570 rpm	Linearly adjustable: 225–570 rpm
Pneumatic control:	Pneumatically operated electronically direction change switch	Pneumatically operated electronically direction change switch
Main switch/ direction changing switch:	Pneumatically operating and direction change switches	Pneumatically operating and direction change switches
Brush connection:	M12	M12
Duct size:	Ø 100–315mm	Ø 250–700 mm
Recommended soft brush size:	100–400 mm	250–800 mm
Nozzle connection	-	Quick coupling
Dimensions:		
Height:	970 mm (35.8")	1290 mm (50.8")
Length	640 mm (25.2")	1100 mm (43.3")
Width	480 mm (18.9")	570 mm (22.4")
Weight:	38 kg (84 lbs)	75 kg (165 lbs)
Length of the cleaning shaft:	20 m (65.6 ft.)	25 m (82 ft.)
Shaft:	10 M PEX, 10 mm flexible steel wire	10 M PEX, 11 mm glass fibre shaft, 12 mm flexible steel wire


CE-plate is situated behind the protective switch for motor above the motor. Plugging in, maintenance and spare part supply must be done in accordance with the information given in this plate.

# Spare parts and accessories


## BASIC BRUSHES

				SC20	SC25 Multi
6420281010361	100 mm	M12		x	–
6420281010378	125 mm	M12		x	–
6420281010392	200 mm	M12		x	–
6420281010415	300 mm	M12		x	x
6420281010439	400 mm	M12		x	x
6420281010446	500 mm	M12		x	x
6420281010453	600 mm	M12		–	x


## SOFT M12 CONNECTION ARROW POINT BRUSH

				SC20	SC25 Multi
6420281012280	125 mm	M12		x	–
6420281012297	200 mm	M12		x	–
6420281012303	340 mm	M12		x	–

## COMBINATION BRUSHES FOR RECTANGULAT DUCTS (SOFT AND HARD BRISTLE)

				SC20	SC25 Multi
6420281010668	150/350 mm	M12		x	x
6420281010675	200/400 mm	M12		x	x
6420281010699	300/500 mm	M12		x	x
6420281010712	400/600 mm	M12		x	x
6420281010729	500/700 mm	M12		–	x

## SOFT BRUSH WITH NYLON CENTER AND DISK


				SC20	SC25 Multi
6420281010507	200/400 mm			x	x
6420281010514	300/500 mm			x	x
6420281012624	400/600 mm			x	x
6420281010736	500/700 mm			–	x
6420281013027	600/800 mm			–	x
6420281010743	700/900 mm (28/35 inch)				x

## OTHER ACCESSORIES

			SC20	SC25 Multi
6420281010309	Brush Adapter for LIFA Brushes with Nylon Center		x	x
6420281010316	Brush Adapter Flexible M12 Connection for small, round ducts		x	x
6420281021992	2-way rotation adapter kit for lifting shaft in vertical ducts		x	x
6420281012839	Remote Hand Control, pneumatic		x	x
6420281012341	Shaft Holder a tool to prevent shaft from scratching to access opening / sharp edges		x	x
6420281021824	Centralizer Device, mechanical (SC20)		x	-
6420281010095	Centralizer Device, mechanical (SC25)		-	x
6420281021268	Liquid Spray Kit for SC20, incl. 5 liters PLASTIC spray bottle, app. 10 m hose on reel, mounting pieces to the frame + shaft		x	-
7720281060038	Low Pressure Spraying Unit (stainless steel), 5 liters vessel with quick coupling to SC25 Multi		-	x
EAN	Cleaning hatches, ie. service hatches, round and rectangular ducts. Ask more!		x	x
EAN	Duct inspection cameras, for example DuctTruck, LIFA Drop camera. Ask more!		x	x
6420281010293	Ready to install shaft for SC20, grey		x	-
6420281010323	Repair kit for SC20 shaft brush end		x	-
6420281011894	Repair kit for SC20 shaft motor end		x	-
6420281020704	Ready to install shaft for SC25 Multi		-	x
H1025	Pneumatic footcontrol		x	x
H1026	Pneumatically controlled contactor		x	x
H1077	Heat shrinkable plastic hose		x	x

## LIFA SC25 MULTI ACCESSORIES

### Nozzles

642028102006	Foam Nozzle	
6420281024566	High Volume Air Jetting Nozzle	
6420281020513	Basic Liquid Nozzle with Backpressure Valve	

### Grease duct cleaning- accessories and brushes

28	Grease comb (W.F.T.T. gauge), for measuring the thickness of the grease layer accuracy 25 microns	
6420281020728	Telescopic rod, stiff, for moving grease or brushes, 5-part (length min.-max 0,85-2,9 m)	
6420281020551	Scrapers for rectangular ducts 5 pcs with screw fastening; Attach the plates to 11 mm fiberglass ROD or single telescopic rod with M 12 fastening	
6420281022319	Scrapers for round ducts with 2 pcs screw fastening; Attach the plates to 11 mm fiberglass – or single telescopic rod with M12 fastening	
6420281021091	Granule Spraying Machine for Grease Removal Concept	
6420281021428	Super Oil Adsorbent Granule 20 kg sack (fine/small granule size, 0,8-1 mm)	
6420281021053	Gravitational / Cyclone Filter Unit 120 l for Grease Removal Concept (incl. T-joint + 2 x 5 m flex ducts with 305 mm attachments)	
6420281021220	Adhesive protective tape, improves vacuum, covers grills and ventilation shafts, width 16 cm, length 50 m	
6420281020209	Grease duct chopper, small, adjustable 250-300 mm	
H1122	Blades for grease chopper, small, 350 mm	
6420281023439	Tynex abrasive brush 200/400 mm, nylon center	
6420281021213	Tynex abrasive brush 400/600 mm, nylon center	
6420281023484	Tynex-brush 600/800 mm, M12, nylon-center	
64202810107-	Aggressive grease brush with nylon center; size of the brush (EAN-code): 200 mm (6420281010750), 300 mm (6420281010767), 400 mm (6420281010774), 500 mm (6420281010781), 600 mm (6420281010798)	
64202810201-	Grease brush M12 with 2,5 mm bristle M12; size of the brush (EAN-code): 350 mm (6420281020117), 450 mm (6420281020124), 550 mm (6420281020131), 700 mm (6420281020162)	

Grease duct cleaning: Ask more for our effective grease removal concept!



# Warranty

The warranty period is one (1) year starting from the date of purchase and is valid according to the regular terms of delivery, provided that these operational and maintenance instructions have been carefully followed. Using anything other than original LIFA accessories (brushes, filters etc.) in the equipment will void the warranty.

Repair is free of charge within the warranty period (proof of purchase / receipt must be presented) under the following conditions:

- The defect is caused by defects in materials or defective components.
- Defects caused by normal wear and tear, misuse or insufficient maintenance are NOT covered by the warranty.
- The machine has been delivered to the first compulsory maintenance check within 6 months and/or 100 hours of use.
- Any maintenance and repairs must be carried out by the manufacturer or by an authorized representative of the manufacturer. Manufacturer does not take responsibility for maintenance carried out by a third party.

- A written reclamation form has to be filled out and sent with descriptive photos to the manufacturer.

The appliance shall be delivered to the authorized Lifa Air Oy Ltd representative from whom the buyer has bought the machine from OR when agreed mutually in writing beforehand to the factory postage paid to:

**Lifa Air Oy Ltd**  
**Vellamonkatu 30 B**  
**FI-00550 Helsinki**  
**FINLAND**

**Tel. +358 9 3948 58**  
**Email: sales@lifa.net**

Please note that the machine must be **cleaned of hazardous materials before** sending it to the manufacturer or a servicer authorized by manufacturer for maintenance. In case the machine has not been cleaned appropriately, Lifa Air Oy Ltd will charge the customer for the cleaning of the machine.

Lifa Air Oy Ltd reserves the right to introduce changes without a further notice.

# Recycling

The machine can always be returned to the LIFA Air authorized representative from which the buyer has bought the machine from, or to the address above postage paid in case there is no recycling facility where the owner lives.

- Metal parts (frame, reel, motor) can be recycled as metal scrap.
- Electrical parts (frequency converter, main switch) should be returned to an authorized recycling depot.
- Other parts can be recycled as mixed normal waste.

# Declaration of Conformity

**Manufacturer's name:** Lifa Air Oy Ltd  
**Manufacturer's address:** Vellamonkatu 30 B,  
 FI-00550 Helsinki, Finland  
**Manufacturer's telephone:** +358 9 3948 58  
**Manufacturer's website:** www.lifa.net, www.lifa-air.com  
**Model:** LIFA Special Cleaner 20  
 LIFA Special Cleaner 25 Multi

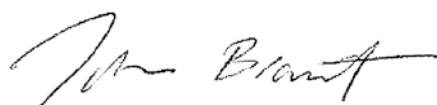
Lifa Air Oy Ltd is ISO 9001 and ISO 14001 Certified.

Lifa Air Oy Ltd, hereby states, with sole responsibility, that the machine models covered by this announcement comply with the requirements of the following EC directives and standards:

- EU Low Voltage Directive LVD 2014/35/EY
- EU Electromagnetic Compatibility Directive EMC 2014/30/EY
- EU Directive of the restriction of the use of certain hazardous substances in electrical and electronic equipment RoHS 2011/65/EC
- EN ISO 12100:2010 Safety of machinery
- EN 60204-1:2007 Safety of machinery. Electrical equipment of machines. General Requirements.

The product fulfils requirements for CE-marking.

Lifa Air Oy Ltd 10.01.2018



Johan Brandt, CEO

# LIFA Air Product Family

	SC 20	SC 25 Multi	Hydmaster 40	CC 15	CC 40	AirJet Combi 20	DC Robo
Operating power	Electricity	Electricity	Hydraulics	Compressed Air	Compressed Air	Compressed Air	Compressed air (brush) + electricity (driving)
Operating voltage and frequency	240 VAC (or 110-120 VAC), 1~, 50/60 Hz	240 VAC (or 110-120 VAC), 1~, 50/60 Hz	240 VAC (or 110-120 VAC), 1~, 50/60 Hz	--	--	--	12 VDC
Motor	0,37 kW (0.5 hp)	0,75 kW (1.0 hp)	1,1 kW (1.5 hp)	0,11 kW (0.15 hp)	0,4 kW (0.6 hp)	--	0,11 kW (0,15 hp)
Fuse	10 A	10 A	16 A	--	--	--	5 A
Max torque	5 Nm (3.7 ft•lb)	5 Nm (3.7 ft•lb)	10 Nm (7.4 ft•lb)	3 Nm (2.2 ft•lb)	6,5 Nm (4.8 ft•lb)	--	3 Nm (2.2 ft•lb)
Brush connection	M12	M12	M12	M12	M12	-	M12
Duct size recommendation	100–400 mm (3,9–15,7")	250–800 mm (9,8–31,5")	400–1200 mm (15,7–47,2")	160–600 mm (6,3–23,6")	400–1200 mm (15,7–47,2")	--	200–700 mm (7,9–23,6")
Brush rotation speed	Continuous adjustment, 225–580 rpm	Continuous adjustment, 225–580 rpm	Continuous adjustment, 225–880 rpm	Continuous adjustment max. 1000 rpm	Continuous adjustment, max. 670 rpm	--	Continuous adjustment, max. 1000 rpm
Rotation controls	Foot pedal, remote hand control (accessory)	Foot pedal, remote hand control (accessory)	Foot pedal, remote hand control (accessory)	Manual / Air valve	Manual / Air valve	--	Manual / Air valve
Nozzle connection	-	Quick coupling	-	Quick coupling	Quick coupling	Quick coupling	Quick coupling
Air volume consumption	-	Nozzle type dependant	-	340 l/min (12 CFM), 7 bar	400 l/min (14 CFM), 7 bar	100–600 l/min (3,5–21 CFM), 7 bar	340 l/min (12 CFM), 7 bar
Measurements [mm]	H910 (35.8") L640 (25.2") W480 (18.9")	H1290 (50.8") L1100 (43.3") W570 (22.4")	H1290 (50.8") L1100 (43.3") W570 (22.4")	H910 (35.8") L640 (25.2") W480 (18.9")	H1290 (50.8") L1100 (43.3") W570 (22.4")	H910 (35.8") L640 (25.2") W480 (18.9")	H190 (7.5") L410 (16.1") W280 (11")
Weight	38 kg (84 lbs)	71 kg (157 lbs)	93 kg (205 lbs)	17 kg (37 lbs)	45 kg (99 lbs)	15 kg (33 lbs)	8 kg (18 lbs)
Cleaning shaft	20 m (65.6 ft.)	25 m (82 ft.)	40 m (131 ft.)	15 m (49.2 ft.)	40 m (131 ft.)	20 m (65.6 ft.)	25 m (82 ft.) (driving cable)
Accessories	Mechanical centering device, hand controller	Y-gear, mechanical centering device, hand controller, spray bottle, nozzles	Y-gear, 3-brush-gear, mechanical centering device, hand controller	Y-gear, 3-brush-gear, mechanical centering device, spray bottle, nozzles	Y-gear, 3-brush-gear, pneumatic centering device, hand controller	Mechanical centering device, spray bottle, nozzles	Y-gear, 3-brush-gear, spray bottle, nozzles



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Please read these instructions carefully before operating the machine.  
Following these instructions in detail ensures many years of trouble-free use.