

# LAVINA®



## LAVINA® 12/12E User Manual



 **SUPERABRASIVE**

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## 1. GENERAL INFORMATION

This owner's manual is intended for the operator of the Lavina® 12 machine, the servicing technician as well as for anyone involved with operating or servicing the machine. We recommend that you read the instructions very carefully and follow them strictly. The manual includes information about assembling, using, handling, adjusting and maintaining your Lavina® 12 floor grinding and polishing machine.

### MANUFACTURER

Superabrasive was founded in 1987, as a manufacturer of high quality diamond tools for the stone and concrete industry. Today, Superabrasive is one of the world's leading companies in the production of diamond tools and floor grinding machinery. At Superabrasive, we strive to deliver the very best solutions to our customers, and enable them to work more efficiently.

### GENERAL DESCRIPTION

The Lavina® 12 machine is a 3-disc machine intended for polishing and buffing concrete, marble, granite, limestone and terrazzo surfaces with diamond tools. The Lavina® 12 is intended to work on countertops, steps of stairs treads, bathroom floors, and walls or difficult to reach surfaces. Additionally, the machine could be used for grinding wood floor surfaces.

For best results, use only tools manufactured or recommended by Superabrasive and its distributors.

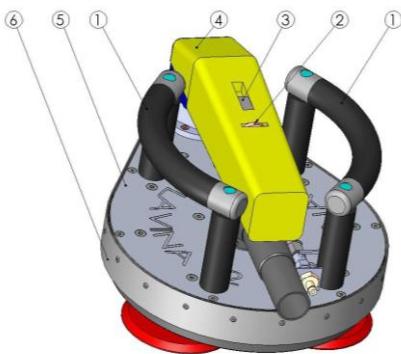
### WARNING!

The Lavina® 12 machine is manufactured and fitted for the above-mentioned applications only! Every other use may possess risks to the persons involved. **Each hour of operation, stop the machine for 15 minutes to allow the drive system to cool.**

### MACHINE CHARACTERISTICS

The Lavina® 12 is made to easily grind/polish working surfaces. It runs 3 heads to increase grinding capacity.

### LAVINA® 12 MAIN DESIGN



- **The handles** provide the operator maximum of comfort and control. They allow the operator to work safely. (Fig.1.1-1)
- **The controls** are positioned on top of the power tool. (Fig.1.1.2-3)
- **The power tool** is mounted on top of the planetary head and the gears are driving a clutch. The clutch is driving the belt of the planetary movement and the movement of the toothed gear which is driving over pignons the three grinding heads. (Fig.1.1-4)
- **The planetary head** with a lightweight aluminum top plate covers the working tools. (Fig.1.1-5)
- **The protective skirt** mounted with Velcro® protects the operator from dust and debris. (Fig.1.1-6)
- **The hour meter** shows total hours of operation. (Fig.1.1-7)

Fig.1.1

### ENVIRONMENTAL CONDITIONS

The temperature range for operating the Lavina® 12 outdoors is between 41°F and 86°F or 5°C and 30°C. Never use the Lavina® 12 during rain or snow when working outdoors. When working indoors, always operate the machine in well-ventilated areas.

### ELECTRICAL CONNECTION

The voltage (Volt) and power (Ampere) are displayed on a label on the of the power tools to avoid any incorrect connection. Refer to these before connecting the power. To avoid electrical shocks, make sure the ground power supply is functioning properly.

### VACUUM CONNECTION

A connection for a vacuum dust extractor is located on the power tool. The Lavina® 12 does not include a vacuum dust extractor. The customer must purchase the vacuum dust extractor separately. The hose of the vacuum extractor must be Ø 1"1/2 or 38 mm and can be fitted over the pipe. The vacuum dust extractor must be adapted for grinders and have a minimum air displacement of 220m<sup>3</sup>/h or 130 CFM with a negative vacuum of 21 kPa.

### WATER CONNECTION

A quick connection for a water tube of diameter ¼" with ball valve is placed under the power tool.

	Lavina® 12 110 Volt		Lavina® 12E 220 Volt	
Angle grinder	FEIN WPO 14-25E		FEIN WPO 14-25E	
Voltage/Hz	1 ph x 110 V 50/60Hz		1 ph x 220 V 50/60Hz	
Amperage	Max 10.9 Amps		Max 6 Amps	
Breaker requirement	15 Amps		15 Amps	
Power	1.2 kW		1.2 kW	
Driver Speed	900-2500 rpm		900-2500 rpm	
Platen Speed	820-2240		820-2240	
Platform Speed	160-440		160-440	
Platen Driving Direction	counterclockwise		counterclockwise	
Platform Driving Direction	clockwise		clockwise	
Working width	307 mm	12"	307 mm	12"
Tool holder diameter	3x 127 mm	3x 5"	3x 127 mm	3x 5"
Tool diameter	3x 127 mm	3x 5"	3x 127 mm	3x 5"
Weight	15 kg	33 lbs	15 kg	33 lbs
Application	Dry/wet		Dry/wet	
Vacuum connection	38 mm	1"1/2	38 mm	1"1/2
Water Feeding	Central		Central	
Water connection	Hose 1/4"		Hose 1/4"	
Cable length	4 m	12.8 ft	4 m	12.8 ft
Machine LxWxH	430x315x216 mm	16.9"x12.4"x8.5"	430x315x216 mm	16.9"x12.4"x8.5"
Packing LxWxH	450x351x249 mm	17.7"x13.8"x9.8"	450x351x249 mm	17.7"x13.8"x9.8"

**LABEL DATA**

The data on the label provides the correct voltage and kW (needed for operational purposes); Weight (needed for transportation purposes); production year and serial number (needed for maintenance purposes).

**CUSTOMER SERVICE**

For customer assistance and technical support call your local distributor or call Superabrasive Inc. at 1-800-987-8403 or visit us at: [www.superabrasive.com](http://www.superabrasive.com) , where you can download a copy of this manual.

**2. SAFETY INSTRUCTIONS**

**RECOMMENDED USE**  **WARNING**

The Lavina® 12 machine is designed and manufactured to grind and polish concrete, terrazzo, natural stone and hardwoods. It can be used for renovations as well as for polishing. The machine is also designed for dry use. Use a vacuum of appropriate size. For more information, please refer to the chapter on handling the vacuum connection.

**PROHIBITED USE**  **WARNING**

The machine **MUST NOT** be used:

- For applications different from the ones stated in the General Description chapter.
- For not-suitable materials.
- In environments which: Possess risks of explosion
- Possess high concentration of powders or oil substances in the air
- Possess risks of fire
- Feature inclement conditions.

**PREPARATION FOR WORK**  **WARNING**

Make sure that:

- You have closed the work area, so that no person unfamiliar with operating the machine can enter the area.
- The tool plate and tools are adjusted to the machine properly
- There are no missing parts of the machine

- The protection devices are working properly.
- The electrical cable is free to move and follow the machine easily.

**PROTECTION DEVICES**  **WARNING**

- The machine is equipped with several protection devices including the following:
- A protection skirt and a hood for protecting the tool plates.
- These devices protect the operator and/or others persons from potential injuries. Do not remove them. On contrary, before using the machine, please ensure that all protection devices are mounted and function properly.

**ARREST FUNCTIONS**  **WARNING**

Functions of arresting of the machine are following:

- Button to stop the motor (category 1)

**SAFE USE**  **WARNING**

- The Lavina® 12 is designed to eliminate all risks correlated with its use. However, it is not possible to eliminate the risks of an eventual accident with the machine. Unskilled or un instructed operator may cause correlated residual risks. Such risks are:
  - Position Risks due to operator's incorrect working position
  - Entanglement Risks due to wearing inappropriate working clothes
  - Training Risks due to lack of operational training

**NOTE:** In order to reduce all consequences of the above-mentioned risks, we advise that machine operators will follow the instructions in the manual at all time.

### RESIDUAL RISKS



## WARNING

- During the normal operating and maintenance cycles, the operator is exposed to few residual risks, which cannot be eliminated due to the nature of the operations.

### BEFORE YOU BEGIN



## WARNING

- Working area must be clear from any debris or objects.
- A first-time operator must always read the manual and pay attention to all safety instructions.
- All electric connections and cables must be inspected for potential damages.
- Ground wire system of the power supply must be also inspected.
- Perform general daily inspections of the machine and inspect the machine before each use.
- Always inspect the safety devices:
- The tool protector must be working
- The machine must be clean
- Confirm that there are no missing parts especially after transportation, repair or maintenance.

### OPERATING MACHINE



## WARNING

- When operating the Lavina® 12, make certain that there is no one, but you around the machine.
- Never leave the machine unattended while working.
- The electrical cable must move freely and must be damage-free.
- Check if the surface, you work on, is not too uneven. If this is the case, it may damage the machine.

### AFTER WORK IS COMPLETED



## WARNING

- Clean the machine and its surroundings properly
- Unplug the machine and wind up the electrical cable
- Store the machine in a safe place

## 3. OPERATION

### BEFORE START OPERATION CUT THE WIRE OF THE HOUR METER

IF the wire is not cut the hour meter will not start to work. The wires are not connected to the power supply, they are connected only to the battery of the hour meter.

### PRELIMINARY CONTROLS

Inspect the working area as explained in the safety instructions. For dry use connect the vacuum extractor and ensure that the vacuum hose is clear and it will follow the machine easily. Plug in the machine and make sure that the power cord is free to follow the working direction of the Lavina® 12. **Each hour of operation, stop the machine to make a break of 15 minutes for cooling the drive.**

### MOUNTING TOOLS

Mount the tools only after ensuring that there is enough diamond bond material left. Be sure that the tool holders are always clean before mounting. Unplug the machine before dismounting or mounting the tools. The maximum diameter of the tools is 5" or 127 mm, with thread 5/8"-11-LH UNC. Pay attention the thread is left hand turning or counter-clockwise turning also turn opposite as normal. Always use the right wrench to tie the tools. Diamond tools with Velcro are attached on the tool holders with Velcro. Use only Superabrasive recommended tools see [www.superabrasive.com](http://www.superabrasive.com)

### THE WORK AREA



## WARNING

- Make certain that people do not enter the work area.
- Avoid cables and hoses being in the way.
- Always check the surface for debris

### PERSONAL PROTECTIVE EQUIPMENT (PPE)



## WARNING

- Always wear safety shoes when working with the machine.
- Always wear ear protectors when working with the machine.
- All personnel in the immediate work area must wear goggles eye protectors with side shields.
- Always wear safety gloves when changing the tools.
- Always wear clothes suitable for the work environment.

### OPERATOR



## WARNING

- The operator must know the machine's work environment.
- Only one operator at a time can work with the machine.
- The operator must be properly trained and well instructed prior operating the machine.
- The operator must understand all the instructions in this manual.
- The operator must understand and interpret all the drawings and designs in manual.
- The operator must know all sanitation and safety regulations pertaining to the operation of the machine.
- The operator must have grinding experience.
- The operator must know what to do in case of emergency.
- The operator must have an adequate technical knowledge and preparation.





**TOOL PROTECTING GUARD**

Adjust the height the tool protecting guard according the height of the tool while mounting the “Velcro” strip.

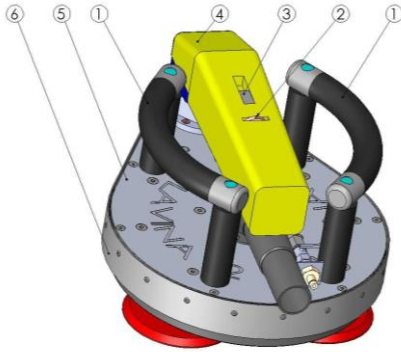


Figure 3.1

**SETTING THE SPEED**

The speed can be variably adjusted by turning the knob from “1” (slowest) to “6” (fastest). (Fig. 3.1.2)

**SWITCHING ON AND OFF**

Follow the directions in “Safety Devices and Safety Instructions.” Secure the working surface. A surface that is not properly secured can cause the accessory to jam and kick back, or can lead to several hazards. Check the knob (Fig. 3.1.2) and ensure that it is set to the working speed. Switch on the vacuum unit or start the flow of water. Hold the machine firmly and push the switch (Fig. 3.1.3).

**OPERATING THE MACHINE**

Guide the machine in straight lines across the surface, slightly overlapping the previous iteration on each line. Work at a constant speed, allowing the tools time to work at a speed appropriate for the tools' grit size. Avoid vibrations. Do not stop the Lavina® 12 machine in one spot while the tools are still running as they will mark the surface. Check the surface periodically to ensure that dust is not accumulating; also check that the vacuum works properly.

**STOPPING THE MACHINE**

The stopping of the machine must be done gradually until the motor stops. Do not stop moving the machine before the motor comes to rest as the tools could damage the surface. To stop, push the switch (Fig. 3.1.3).

**4. ACCESSORIES****WRENCHES**

All wrenches come with the machine can be replaced if needed:

- Spindle Wrench: item number LA12B-K24-28,5
- Backer Back Wrench (22-24 mm): item number 350-22x24

**TOOL HOLDERS**

5AL-5/8-11-L ALUMINUM RIGID BACKER PADS Ø121mm with left thread (5/8” -11)

**5. POPULAR TOOLS****TOOLS**

Use only Superabrasive recommended tools.

See [www.superabrasive.com](http://www.superabrasive.com)



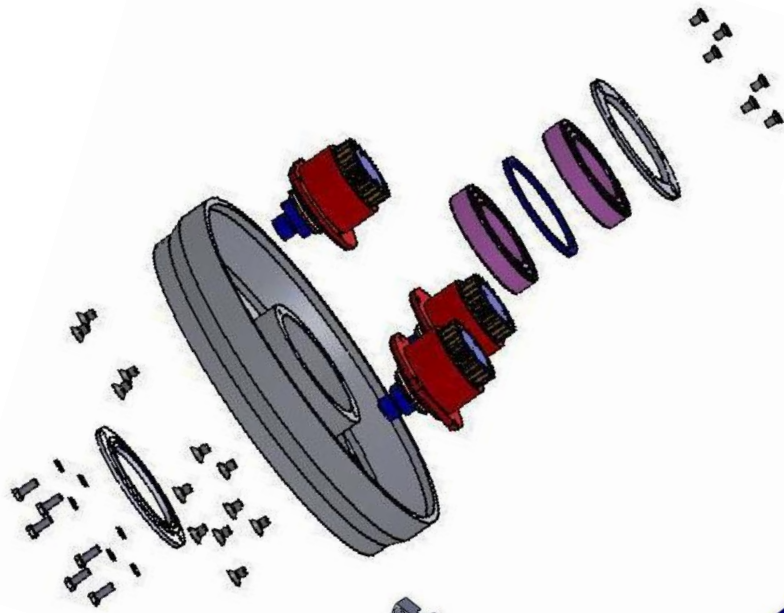


Figure 6.3

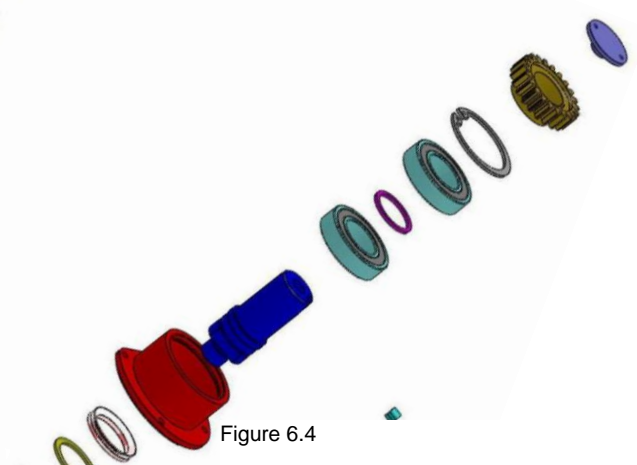


Figure 6.4

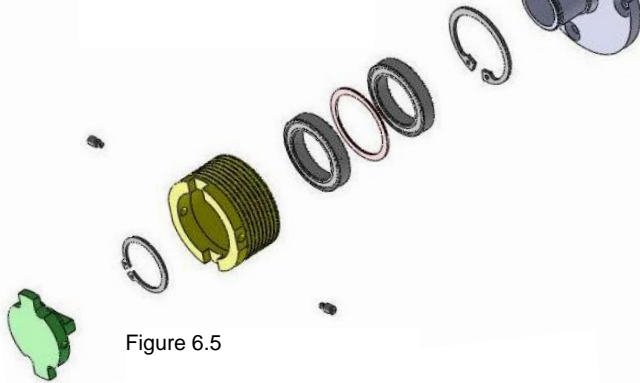


Figure 6.5

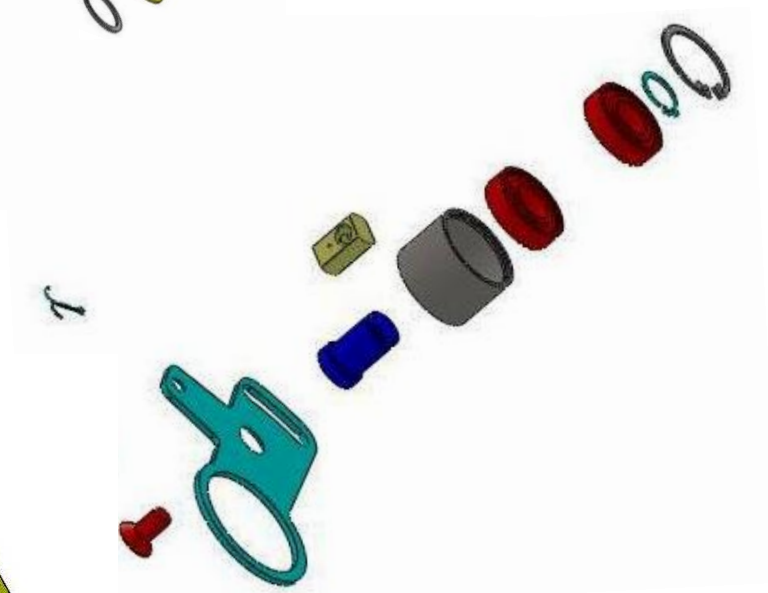


Figure 6.6

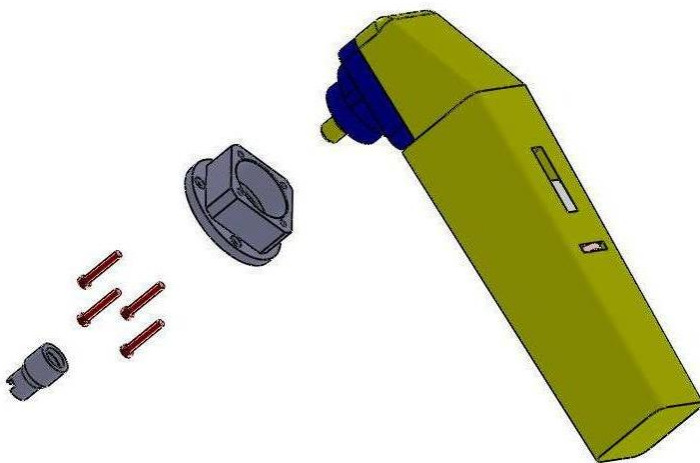


Figure 6.7



## 7. MAINTENANCE AND INSPECTION

### CLEANING

Keep your machine clean. Cleaning the machine on a regular basis will help detect and solve potential problems before they cause damage to the machine. Most importantly, check and clean the tool plate connections, power cord and plugs, vacuum hoses and sealers on the turning parts. Do not use cleaning agents and solvents that can cause damage to plastic parts. These include Gasoline, carbon tetrachloride, chlorated solvents, ammonia and domestic cleaning agents that contain ammonia.

### CHECK DAILY

After operating the Lavina® 12, the operator should conduct a visual inspection of the machine. Any defect should be solved immediately. Pay attention to power cords, plugs and vacuum hoses.

Blow out the interior of the power tool from outside via the ventilation opening with dry, oil-free compressed air. Always wear eye protection when doing this. Do not attempt to clean clogged or dirty ventilation openings of the power tool with pointed metal objects; use non-metal objects.

### CHECK EVERY 200 WORKING HOURS

Every 200 working hours, the operator should inspect all parts of the machine carefully. Most importantly, inspect and clean the tool plate connections, power cord and plugs, vacuum. Check the guard assembly. Make certain the wheels are clean and rotate properly. Inspect the control buttons. If there are defective control parts, they should be replaced immediately. Replace worn vacuum- and water hoses. Open the machine and carefully inspect the seal rings and bearings of the grinding units, and replace any showing signs of excessive wear. Check the belt tension. For more information, refer to chapter TROUBLESHOOTING below.

### CHECK EVERY 500 WORKING HOURS

In addition to checks made every 200 working hours, open up the bottom cover as described in "TROUBLESHOOTING - REPLACING BELT." Check that sealers, belt and bearings are in good condition, and change if needed. Be wary when tensioning the belt to not "over tension"; the belt will never regain its original tension.

### VACUUM

As stated previously, frequently check hoses and other parts for clogging.

### MECHANICAL PARTS

Parts such as the belt, seal rings, cap rings and guard assembly are subject to wear and should be replaced as needed.

### DUST

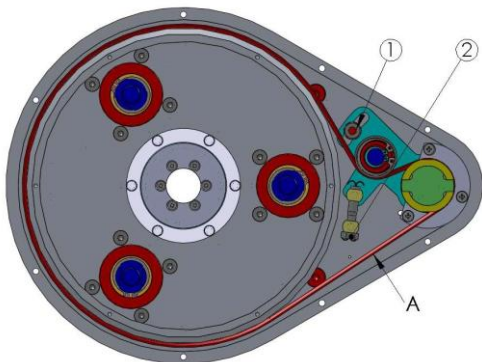
Dust should not enter the machine, as it will damage mechanical parts. Remove (blow out) any dust present.

## 8. TROUBLESHOOTING

### INDEX OF PROBLEMS AND SOLUTIONS

#### REPLACING POWER CORD AND PLUGS

When replacing the power cord or plugs always use cords and plugs with specifications as the original ones. Never use lower quality or different type cord and plugs.



#### TENSIONING THE BELT

If the operator notices the grinding spindle turning irregularly/noisily or - at worst – not spinning as the motor turns, the belt should be checked.

Dismount the machine, to check the belt tension use an OPTIKRIK 1 Tension Gauge in position A (Fig. 8.1).

The Static Belt Tension should be 310 N with a new belt, or 250 N with a used belt. The deflection of the belt in position A is with a new belt with a force of 40N (9 pounds) 5,5 mm and a used belt 6,3 mm.

Before tensioning with nut (Fig. 8.1), loose the tension device with bolt (Fig. 8.1). After tensioning, do not forget to tighten the bolt back again!

**ATTENTION: NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

## 9. WARRANTY AND RETURNS

### Warranty Policy for Lavina® 12

If your warranty card is missing, call your local distributor and request a warranty card or visit us at [www.superabrasive.com](http://www.superabrasive.com) to download one.

The customer is responsible for filling out the card and mailing it to the manufacturer's address indicated on the card. To ensure registration and activation of the warranty coverage, the warranty card must be mailed to the manufacturer within 30 days from date of purchase. Failure to mail the warranty card within 30 days from date of purchase may void the warranty. Make sure you provide the manufacturer with all the information requested, and most importantly with the distributor's name, machine serial number and purchase date

Superabrasive Inc. guarantees that the original purchaser of the Lavina® 12 machine will be covered against defects in material and workmanship for a period of 2 years from the date of delivery or 500 hours of use whichever comes first.

The following conditions pertain to this warranty:

- Applies only to the original owner and it is not transferable.
- Machine must not be dismantled and tampered with in any way.
- Covered components proven defective will be repaired or replaced at no charge. Covered components include motors, bearings and switches.
- This warranty does not apply to any repair arising from misuse, neglect or abuse, or to repair of proprietary parts.
- This warranty does not apply to products with aftermarket alterations, changes, or modifications.
- This warranty is in lieu of and excludes every condition of warranty not herein expressly set out and all liability for any form of consequential loss or damage is hereby expressly excluded.
- This warranty is limited to repair or replacement of covered components and reasonable labor expenses.
- All warranty returns must be shipped freight prepaid.

The above warranty conditions may be changed only by Superabrasive. Superabrasive reserves the right to inspect and make a final decision on any machine returned under this warranty. This warranty applies to new, used and demo machines.

Superabrasive does not authorize any person or representative to make any other warranty or to assume for us any liability in connection with the sale and operation of our products.

### RETURN POLICY FOR LAVINA® 12

Lavina® 12 machines may be returned, subject to the following terms:

In no case, a machine is to be returned to Superabrasive Inc. for credit or repair without prior authorization. Please contact Superabrasive Inc. or your local distributor for an authorization and issuance of a return authorization number. This number along with the serial number of the machine must be included on all packages and correspondence. Machines returned without prior authorization will remain property of the sender and Superabrasive Inc. will not be responsible for these.

No machines will be credited after 90 days from the date of invoice.

All returns must be shipped freight prepaid. All returns may be exchanged for other equipment or parts of equal dollar value. If machines are not exchanged, they are subject to a fifteen percent (15%) restocking fee.

## 10. DISPOSAL

If your machine after time is not usable or needs to be replaced, send the machine back to Superabrasive or a local distributor, where a professional disposal complying with the environment laws and directives is guaranteed.

## 11. MANUFACTURER'S CONTACTS

If you need to contact Superabrasive Inc. with technical support questions, below is the contact information.

Address: 9411 Jackson Trail Road, Hoshton GA 30548, USA

Email: [info@superabrasive.us](mailto:info@superabrasive.us)

Tel.: 706 658 1122

Fax: 706 658 0357

Website: [www.superabrasive.com](http://www.superabrasive.com)

## 12. SPARE PARTS

### LAVINA® 12 ASSEMBLY AND PARTS SPECIFICATION GENERAL (FIG. 12.1)

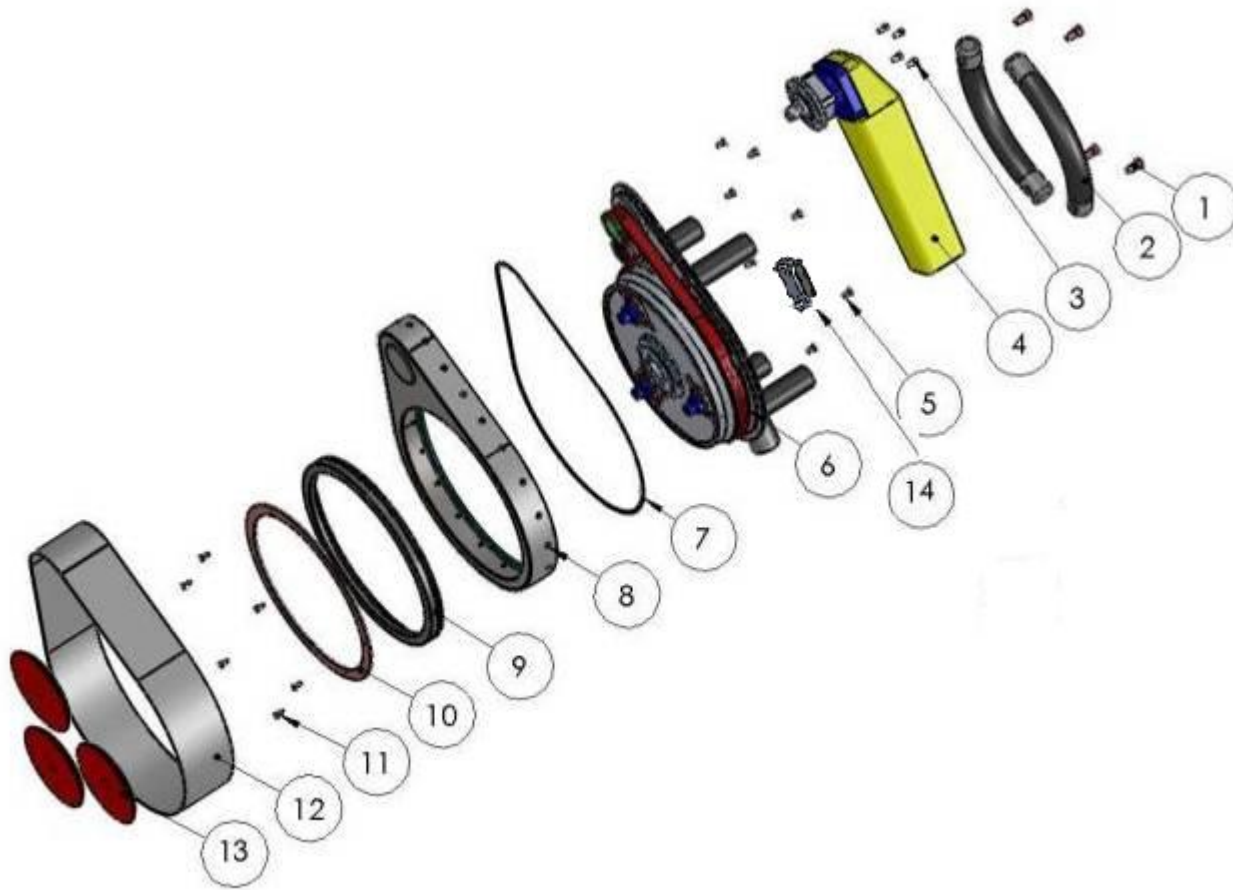


Figure 12.1

No	Item Number	Description	Qty.
1	M8x16DIN912	Screw	4
2	LA12-40.00.00.00	Handle	2
3	M5x30DIN6912	Screw	4
4	LA12B-50.00.00.00FN	FEIN WPO 14-25E	1
5	M5x12DIN7991	Screw	8
6	LA12B-10.00.00.00FN	Housing Assembly	1
7	D3X1L1200	Sealer	1
8	LA12B-30.00.00.00FN	Housing	1
9	TWVA02750-N6T50	V Sealer	1
10	LA12B-00.00.00.08FN	Support Ring	1
11	M4x8DIN933	Bolt	6
12	LA12B-00.00.00.07FN	Guard	1
13	5AL-5/8-11-L	Aluminum Rigid Backer Pad-Left Thread	3
14	LA12-90.00.00.00	Tachometer T56F1	1

To order any parts, customer has to provide the machine model and serial number. Without this information, customer is responsible for ordering the correct part, and no shipping charges will be refunded if the part ordered is wrong.

LAVINA® 12 ASSEMBLY AND PARTS SPECIFICATION HOUSING (FIG. 12.2)

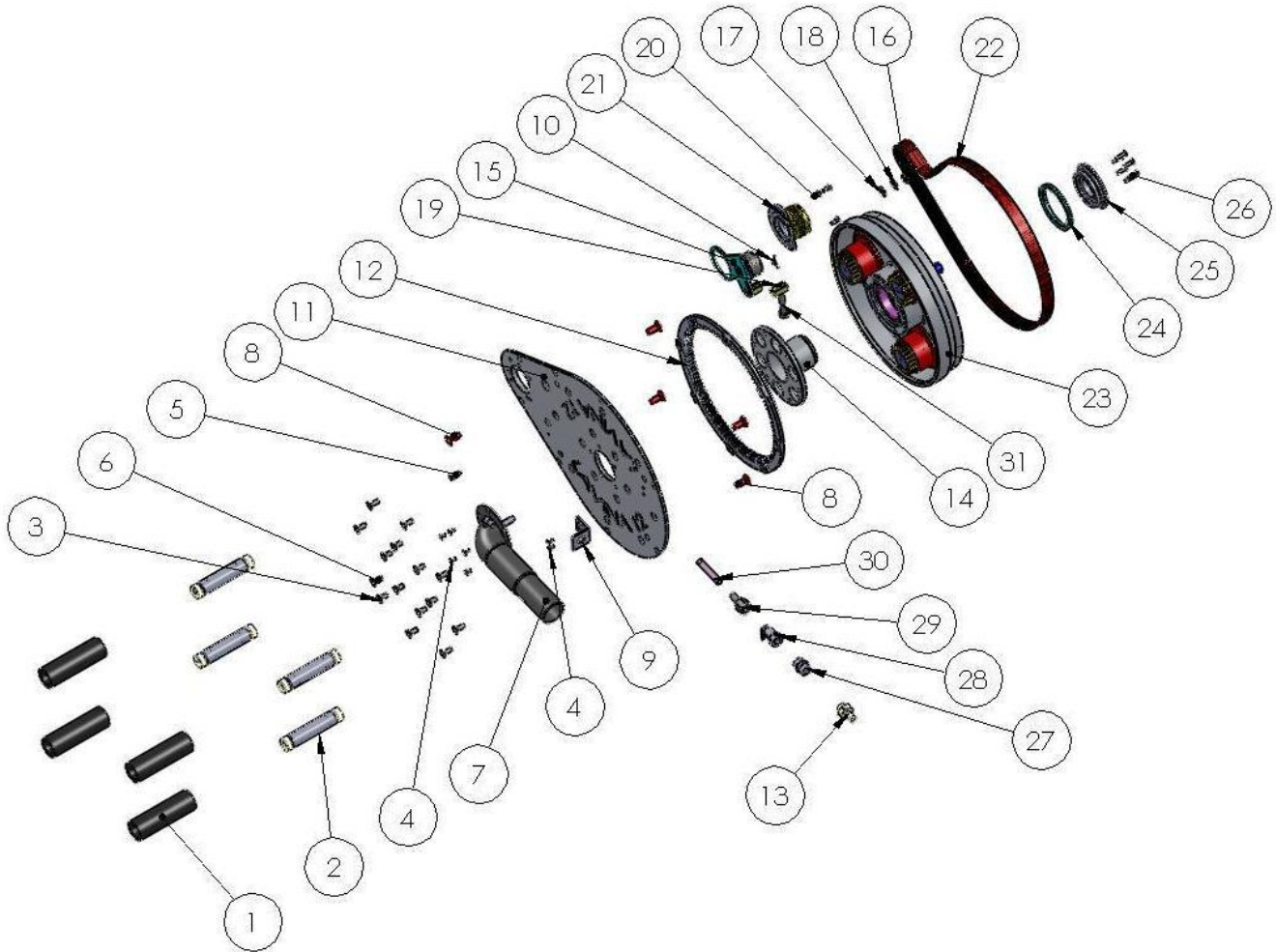


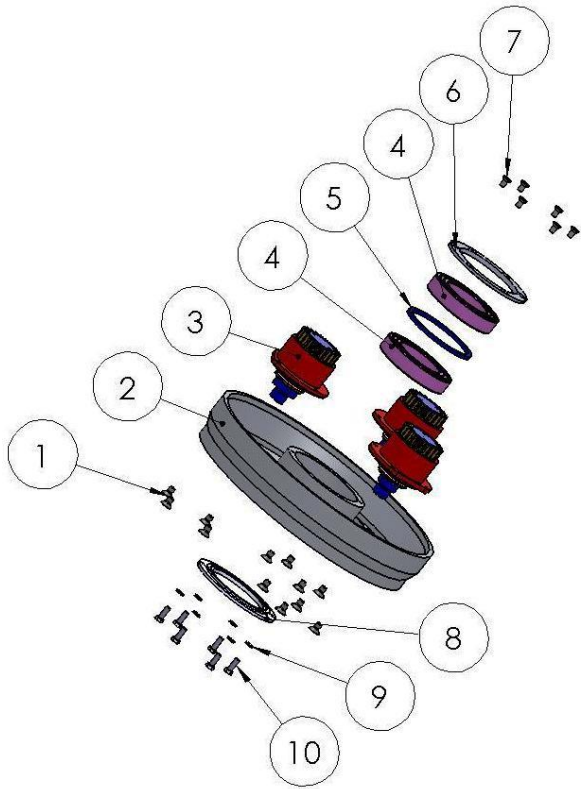
Figure 12.2

No	Item Number	Description	Qty.
1	32x5	Wrap for Grip	4
2	LA12B-10.10.00.00FN	Support	4
3	M6x20DIN7991	Screw	7
4	M4x8DIN7991	Screw	7
5	B6x16ISO2341	Pin	1
6	M6x16DIN7991	Screw	8
7	LA12G-10.30.00.00FN	Vacuum Port	1
8	M8x20DIN7991	Screw	5
9	LA12-10.00.00.05FN	Support	1
10	1x14DIN94	Key	1
11	LA12B-10.00.00.01FN	Top Cover	1
12	LA12G-10.00.00.03FN	Gear	1
13	CH1/4	Connector 1/4"	1
14	LA12B-10.00.00.02FN	Central Housing	1
15	LA12B-10.20.00.00FN	Tensioning Device	1
16	M8DIN934	Nut	1

No	Item Number	Description	Qty.
17	M8DIN125A	Washer	1
18	M8DIN127B	Washer	1
19	LA12B-10.00.00.06FN	Tensioner	1
20	M5x12DIN7991	Screw	3
21	LA12B-10.50.00.00FN	Washer	1
22	8PJ1016LB	V-Belt	1
23	LA12B-10.60.00.00FN	Housing	1
24	TWVA00650	V-Sealer	1
25	LA12-00.00.00.12FN	Cap	1
26	M4x12DIN7991	Screw	6
27	F1/4-F1/4	Fitting	1
28	BV1/4	Ball Valve	1
29	F1/4	Fitting	1
30	10x1L35	Hose	1
31	M8X40DIN933	Bolt	1

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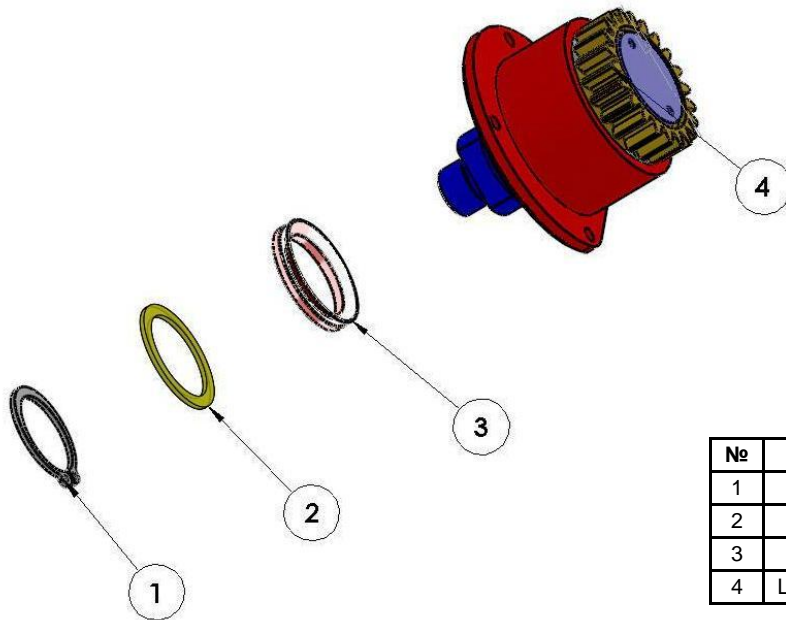
LAVINA® 12 ASSEMBLY AND PARTS SPECIFICATION PLANETARY HEAD (FIG. 12.3)



Nº	Item Number	Description	Qty.
	M6x14DIN7991	Screw	12
2	LA12B-10.60.00.01FN	Housing	1
3	LA12-10.60.10.00FN	Pulley	3
4	FAG6010ZZ	Roller Assembly	2
5	LA12B-10.70.00.03FN	Insert Ring	1
6	LA12G-20.00.05FN	Cap	1
7	M5x12DIN7991	Screw	6
8	LA12G-10.60.00.02FN	Cap	1
9	M5DIN127B	Washer	6
10	M5X4DIN933	Bolt	6

Figure 12.3

LAVINA® 12 ASSEMBLY AND PARTS SPECIFICATION PULLEY (FIG. 12.4)



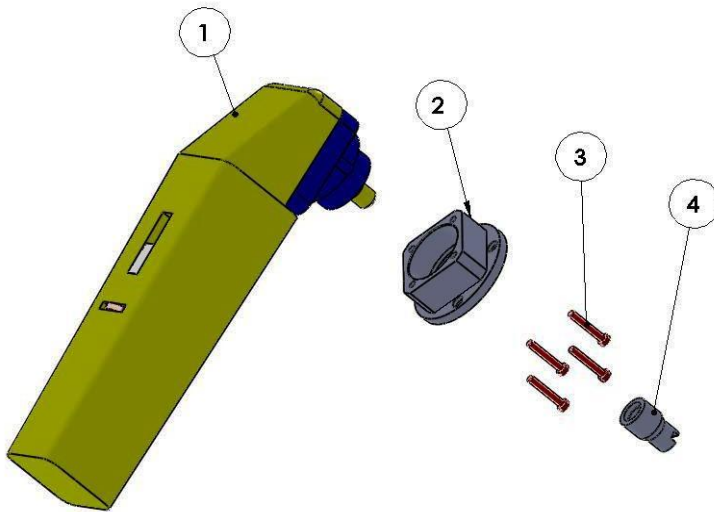
Nº	Item Number	Description	Qty.
1	A28x1.5DIN471	Retaining Ring	1
2	LA12G-10.20.10.05	Ring	1
3	TWVA00280	V-Sealer	1
4	LA12B-10.60.10.00FN	Pulley	1

Figure 12.4

To order any parts, customer has to provide the machine model and serial number. Without this information, customer is responsible for ordering the correct part, and no shipping charges will be refunded if the part ordered is wrong.

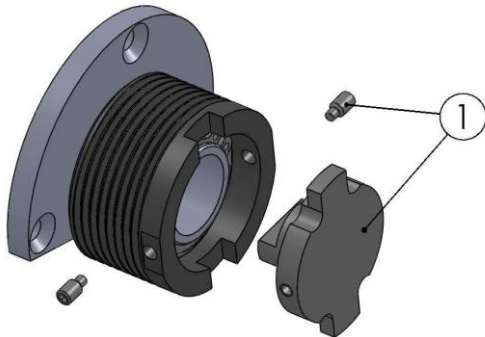


LAVINA® 12 ASSEMBLY AND PARTS SPECIFICATION MOTOR CONNECTION (FIG. 12.5)



Nº	Item Number	Description	Qty.
1	FEINWPO14-25E	Angle Polisher	1
2	LA12B-50.00.00.02FN	Flange	1
3	M5X35DIN6912	Screw	4
4	LA12B-50.00.00.03FN	Driving Shaft	1

Figure 12.5



Nº	Item Number	Description	Qty.
1	LA12B-10.50.00.04FN	Cap and screws for L12	1

Figure 12.6

**\* To order any parts, the customer has to provide the machine model and serial number. Without this information, the customer is responsible for ordering the correct part, and no shipping charges will be refunded if the part ordered is wrong.**