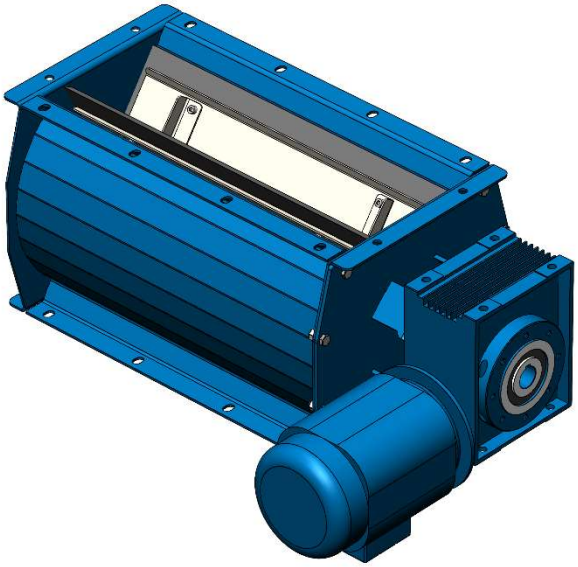


user manual

RVL – Rotary valve

Table of Contents

1. Introduction

Thank you for choosing our RVL range rotary valve. The RVL rotary valve range has been developed by LALAC AB with great care taking in account the needs and requirements of the installation purposes of our customers.

The RVL rotary valves are designed to be used for material transfer between two separate systems in a dust extraction or transport installation. With very low leakage levels, they offer an effective separation in pressureless components such as filters, cyclones or silos towards silos or transport funnels towards containers or presses.

Read the user manual attentively before placing and commissioning the RVL rotary valve. The user manual needs to be kept during the whole life cycle of the RVL rotary valve.

WARNING : The RVL rotary valve range uses electric components and mobile parts which need to be handled with great care. Ignoring these cautions can lead to misfunctioning and bodily damages for which Lajac cannot be taken accountable for.

The warranty period of the rotary valve is in accordance with EU and local legislation. Please refer to the General sales conditions available at Lajac.

Improper installation, use or and storage will result in cancelling of the warranty.

Damaged or worn components may only be replaced with original Lajac spare parts. Please contact your local dealer or Lajac representative for an extensive list of availabilities.

NOTE : The manual, content, and images cannot be used or copied without prior consent from Lajac and its subsidiaries. All content, pictures, and references are for

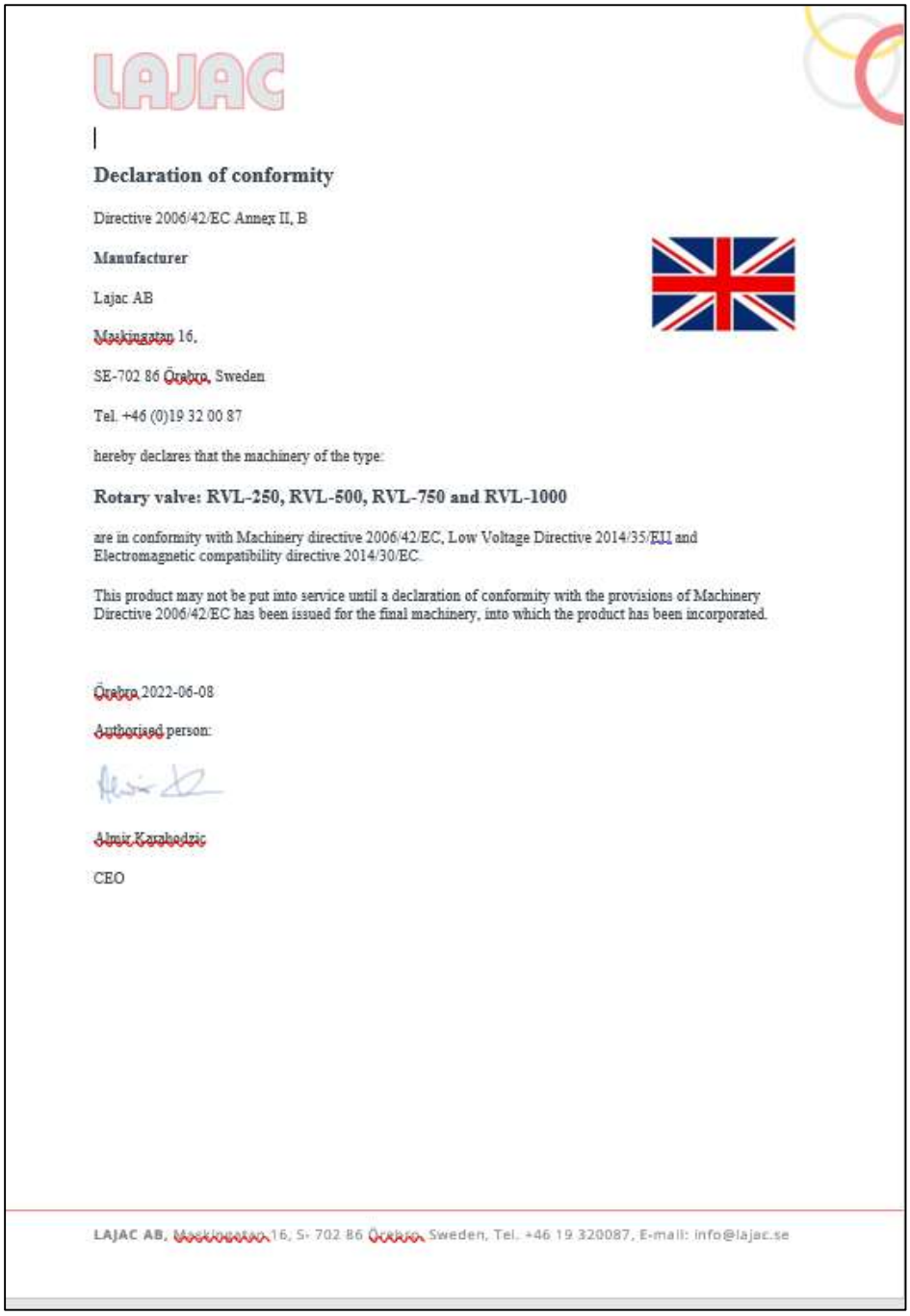
informational purposes only and can be changed at any time at the convenience of Lajac and its subsidiaries.

2. Compliance

The RVL Rotary valve range has been developed according to the following EU Directives and regulations :

- 2006/42/EC – Machine Directive
- 2014/30/EC – Electromagnetic compatibility Directive
- 2014/35/EC – Low voltage Directive

The RVL rotary valves are delivered with a certificate according to the EU regulations :



LAJAC

Declaration of conformity

Directive 2006/42/EC Annex II, B

Manufacturer

Lajac AB

Maskingatan 16,

SE-702 86 Örebro, Sweden

Tel. +46 (0)19 32 00 87

hereby declares that the machinery of the type:

Rotary valve: RVL-250, RVL-500, RVL-750 and RVL-1000

are in conformity with Machinery directive 2006/42/EC, Low Voltage Directive 2014/35/EU and Electromagnetic compatibility directive 2014/30/EC.

This product may not be put into service until a declaration of conformity with the provisions of Machinery Directive 2006/42/EC has been issued for the final machinery, into which the product has been incorporated.

Örebro 2022-06-08

Authorised person:

Alnoir Karakodzic

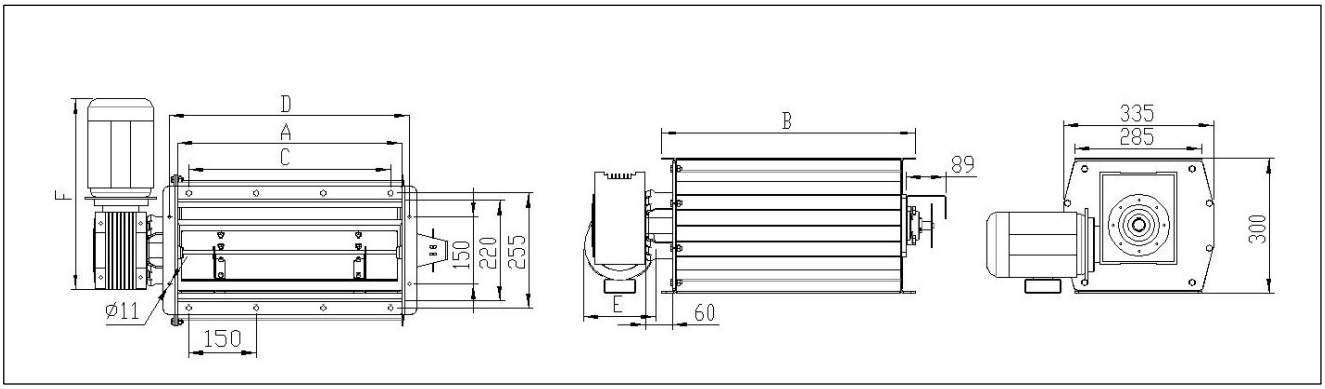
CEO

LAJAC AB, Maskingatan 16, S- 702 86 Örebro, Sweden, Tel. +46 19 320087, E-mail: info@lajac.se

3. RVL Range and designation

The RVL range consists of 4 sizes with the following characteristics :

- Robust 3 mm sheet metal housing powder coated in RAL 5010
- 2 mm rotor with 6 neoprene rubber blades
- Geared motor drive
- Rotation disk indicator & rotation detector support
- **Seal along shaft to housing? Material?**



Model	Volume (m^3)h)	Installed power (kW)	Rotor speed (rpm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)
RVL-250	7,4	0,75	17	250	316	150	285	158	457	51
RVL-500	13,7	0,75	17	500	566	450	535	158	457	77
RVL-750	21,1	0,75	17	750	816	600	785	158	457	94
RVL-1000	29,1	0,75	17	1000	1066	900	1035	158	457	110

The operating temperature should never exceed the recommended range of -20ºC up to +80ºC.

Not respecting the recommended temperature range could result in rubber blade deterioration, premature aging of the grease in the bearing and gear, and electric motor overheating

4. Storage and handling

The RVL rotary are delivered pre-assembled a pallet. Take care when removing the rotary valve from the pallet not to damage the flange connections, the mobile parts and protruding elements such as the geared motor or the rotation disk indicator.

The rotary valve should stay covered during prolonged storage in a dust-free and dry place. Make sure that no moisture build-up is possible, and the unit must be kept dust free until installation.

5. Installing the RVL rotary valve

The RVL rotary valves are designed to be installed as a discharge equipment of powder, granular or bulk material under filters, cyclones or silos. They may not be used for long fibrous materials or endless materials which would cause damage to the rubber blades or jam the rotor.

In doubt, contact LAJAC AB, or the local representative, for any inquiries.

NOTE : The RVL rotary valves may only be installed in a closed systems according to the EU Directive 2006/42/EC (Machine Directive). If the system requires for a part thereof to be open, the access to the moving parts must be protected with the appropriate protective measures (for example a grill).

Attach the upper flange to the discharge side of the container, and the lower flange to the storage container or discharge chute. Make sure that all the bolts are placed and tightened. A seal should be applied between the rotary valve flange and other component to insure maximum airtightness.

NOTE : make sure that the rotary valve is level otherwise excess material build-up can happen causing irregular material discharge or premature wear of the rubber blades and rotor.

Only use torque wrench with correct calibration to tighten the bolts. Recommended torque moment is in function of bolt set size :

- M8 bolts average 10 Nm.
- M10 bolts average 20 Nm.

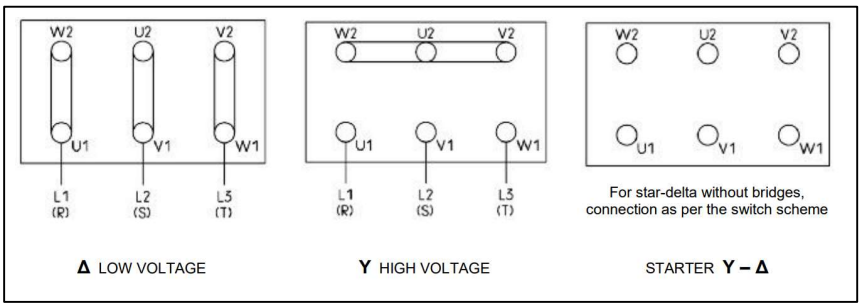
It is recommended to tighten the bolts with the temperature range of -5ºC to +50ºC.

Always check that all bolts are placed and tightened accordingly and make sure that the airtightness is achieved which would otherwise be a source of dust leakage and loss in dust extraction effectiveness.

6. Electric connection

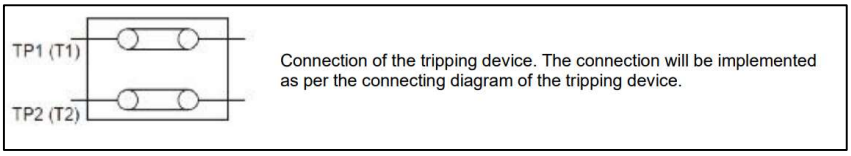
Before making any electric connections, please refer to the electric motor plate and make sure that it is compatible with the installation on site.

In function of the installation, two possible electric connections are possible :



PTC's:

If PTC's are included, or added to the electric motor, these need to be connected to the main switch board before commissioning.



NOTE : the RVL rotary valve rubber blade resistance main affect the Amp consumption upon start-up which may affect the PTC functioning. This is normal and a new consumption reading should be done after a while of functioning. If the readings are still too high ; stop the installation and review the electrical requirements or contact your local dealer.

NOTE : electric connection and maintenance may only be done by qualified personnel with appropriate tools and equipment.

WARNING : all electric work may only be done once the installation is stopped, electric feed shutdown, and security systems in place to make sure that it cannot be spontaneously be started up before the work is done.

In function of the material being discharge, electrostatic build-up may occur which requires an equipotential connection to be made.

A earthing line or strap can be installed between the different elements of the installation by connecting these to the bolts which hold the different installation elements together. This requires to connect the end of the installation to an earthing line to discharge properly.

7. Start-up of RVL rotary valve

Once the RVL rotary valve has been properly connected and that the electrical connection has been verified, the RVL rotary valve may be started.

Before starting, do the following final checks :

- that not tools have been left inside the rotary valve,
- that all components and bolts are tightened,
- that there is no access to moving parts,
- that the bearings are properly greased and that the gear contains grease,
- that the geared motor rotation turns in the correct direction (see rotation disk).

Is there an arrow indicating the rotation?

NOTE : the rotation disk indicator should turn in the direction indicated by the arrow sticker on the front cover of the RVL rotary valve.

8. Bearings and greasing

The RVL rotary valves have bearings :

- On the front cover of the rotary valve equipped with a greasing nipple.
- In the electric motor which are lifelong pre-greased.

Please refer to the manufacturer user guide of these elements to be sure to use the correct grease type.

The gear contains grease which can age or seep out in case of overheating. If grease needs to be added or replaced, refer to the manufacturer user guide of these elements to be sure to use the correct grease type.

9. Noise level

The RVL rotary valve operating noise level should not exceed 70 dB(A). These measurements are taken at a distance of 2 meter in an open range without material flow in the rotary valve.

NOTE : the noise level may vary in function of the area, surrounding conditions, and material type flowing through the valve.

Excessive noise levels for prolonged periods may indicate a problem with the valve, the rubber blades, the material flow or the electrical connections. In this case ; stop the valve and refer to the normal period checklist to solve the issue.

WARNING : all electric work may only be done once the installation is stopped, electric feed shutdown, and security systems in place to make sure that it cannot be spontaneously be started up before the work is done.

10. Scheduled maintenance

Scheduled maintenance is the key to a worry-free functioning and prolonged life of the RVL rotary valve.

Lack of maintenance can be a source of premature wear or breakdown of mobile parts. In some cases, this may affect the warranty of the RVL rotary valve.

Never block the inlet or outlet of the RVL rotary valve, and do not cover the gear-motor which may cause overheating or start a fire.

Below is an overview of the regular maintenance that needs to be performed although the regularity of the maintenance must be defined according to the material being transported, discharge volumes, and frequency of use of the RVL rotary valve.

In general, the following maintenance intervals can be observed :

- Daily visual control that the RVL rotary valve is turning upon installation start-up,
- Weekly visual control that all parts are in place, no parts are loosened,
- Monthly verification that there is no overheating or particular unwanted noise. Visual control of the rubber blade wear for the first few months to verify the abrasion of the discharged material on the airtightness of the RVL rotary valve.
- Yearly complete maintenance of all mobile parts, grease levels and quality, and wear of mobile parts.

Replace all worn parts for a worry-free operation and insure the warranty period.

NOTE : maintenance may only be done by qualified personnel with appropriate tools and equipment.

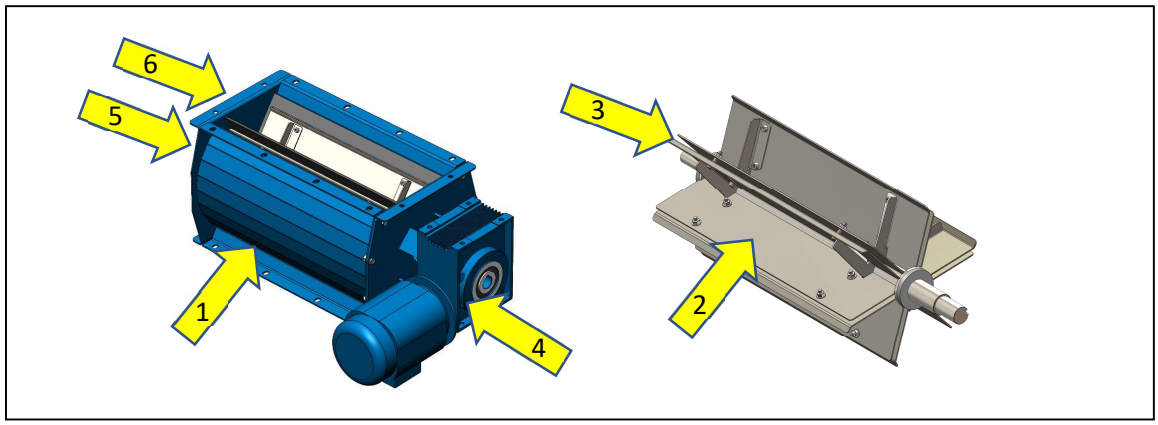
WARNING : all electric work may only be done once the installation is stopped, electric feed shutdown, and security systems in place to make sure that it cannot be spontaneously be started up before the work is done.

11. Spare parts

The replacement of RVL rotary valve components may only be done using original parts.

Standard replacement parts consist of :

1. Rotary valve housing,
2. Rotary valve rotor and axle,
3. Set of 6 neoprene rubber blades,
4. Geared motor,
5. Rotor flanged bearing,
6. Rotation disk indicator and rotation sensor.



Please contact LAJAC AB, or the local representative, for any inquiries.

NOTE : the use of unofficial parts, or transforming any elements of the RVL rotary valves without prior consent form LAJAC AB or its representatives will automatically cancel the warranty of the product.

11.1 Replacing the rubber blades

Before replacing the rubber blades, the complete rotor needs to be taken out of the RVL rotary valve housing. To do this, unscrew the bolts holding the back cover to the main housing and extract the complete rotor from the housing.

1. Using the appropriate tools, unscrew the nuts and bolts along the rubber blade vanes,
2. Take out the rubber blades.
3. Place the new rubber blades in the metal vane and align the predrilled holes from the rubber blades to the metal vane. Make sure that the rubber blades are inserted in the same position as the original ones. The beveled edges should all be aligned in the same direction.
4. Put back the nus and bolts along the rubber blades

11.2 Replacing the rotation disk indicator and/or holder

For the rotation disk indicator :

1. Remove the bolt on the front side of the disk indicator,
2. The metal plate is easily removed, and replaced with the new one,
3. Tighten the bolt to hold the disk in place.

For the sensor holder :

1. Untighten the upper bolts of the flanged bearing,
2. Slide out the sensor holder and put the new one in place taking care to align the holes,
3. Retighten the upper bolts to the flanged bearing.

11.3 Replacing the gear-motor

The gear-motor is held in place by 4 bolts to the RVL rotary valve housing.

1. Untighten the 4 bolts holding the gear to the housing,
2. Slide out the gear from the rotor shaft,
3. Slide the new gear over the rotor shaft,
4. Tighten the bolts back in place.

NOTE : It is recommended to use copper grease or another lubricant before placing the gear over the rotor shaft to avoid blocking.

NOTE : Always make sure that the motor terminal box cable glands are pointing to the side or downwards to avoid water infiltration when installed outside.

WARNING : all electric work may only be done once the installation is stopped, electric feed shutdown, and security systems in place to make sure that it cannot be spontaneously be started up before the work is done.

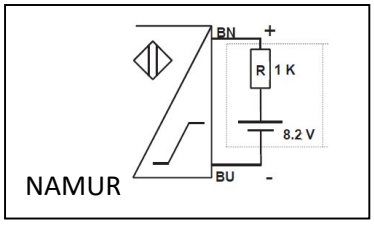
12. Rotation sensors (optional)

There are two types of rotation sensors optionally available for the RVL rotary valves :

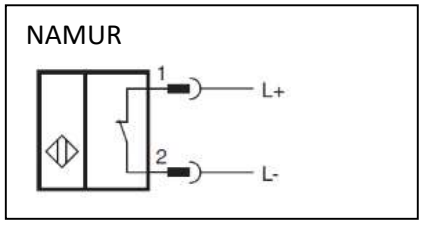
1. DU Proximity switch sensor (horseshoe shaped),
2. M18 Optical proximity sensor

These are to be mounted on the rotation sensor support preinstalled on the flanged bearing of the front cover of the RVL rotary valve housing.

DU connection :



M18 optical connection :



WARNING : all electric work may only be done once the installation is stopped, electric feed shutdown, and security systems in place to make sure that it cannot be spontaneously be started up before the work is done.

13. Troubleshooting

Below is a list of common troubleshooting and possible resolutions. But keep in mond that some troubleshooting may be linked to the material handling and regional atmospheric conditions.

Troubleshooting	Possible cause	Possible solution
The RVL rotary valve isn't working	Working switch is off, PTC's area active, Operating conditions are not conform to the control system, Defective fuse, Electric motor is broken.	Switch on the system, See "Rotary valve overheats or shuts down", Review the operating condition requirements, Verify nothing is blocked between rotor & housing, Verify that no components are broken.
The RVL rotary valve overheats or shuts down	A foreign object is stuck between rotor & housing, The rotor is frozen in place, The gear motor is defective, The rotor shaft is defective, The motor protection is set incorrectly, The fuse on the switchboard is defective, Instability in the power supply.	Remove the foreign object Thaw and make sure components are free before restarting, Replace the motor, or the gearbox, Replace rotor, Review the motor protection, Replace defective fuse, Insure voltage stability.
RVL rotary valve rotor isn't turning	Something is stuck between the rotor and housing, The gear is broken, The shaft key between motor-gear-rotor is broken.	Remove foreign object, Replace the gear, Replace the shaft key.
RVL rotor "screams" when turning	A foreign object is stuck, The rotor or housing is defective, The rotor turns the wrong way, The discharge material dries the rubber.	Remove the foreign object, Replace the defective element, Rewire the motor correctly, See to grease the rubber blades.
Accumulation of discharge material in the rotary valve	The discharge volume is greater than the rotary valve can handle, The material is settling to slow in the discharge chute of the vessel, The material agglutinates in the discharge chute of the vessel, The discharged material accumulates under the rotary valve, The discharged material is too big to fit in the rotary valve vanes, There is an upward draft through the rotary valve.	Reduce the material volume, or select a bigger rotary valve, Adjust the airspeed in the vessel, Review the amount of discharge material, make sure that it doesn't stick together, Check that the discharged material is removed properly under the rotary valve, Review the rotary valve model, or reduce the size of discharged material, Make sure that there is no air leakage between the upper and lower sides of the rotary valve.
The Rotation disk is blocked but rotor is turning	The Rotation disk indicator bolt is loose.	Tighten the bolt of the rotation disk indicator.
The Rotation sensor doesn't react	The wiring is not done, The cables are Improperly connected, The detection distance is not respected.	Connect the cables, Rewire the cables, Review the installation distance between sensor and disk.

14. Decommissioning of the RVL rotary valve

The RVL rotary valve consist of metal, rubber, grease and other elements which can be recycled.

Make sure to separate these or send the rotary valve to a qualified company to take it apart.

All components should be disposed of according to local and national legislation.

15. Contacts

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Tel: +46 (0) 19 32 00 87

General mail: info@lajac.se

Order and quotation: order@lajac.se

Other addresses?