

INSTRUCTION MANUAL

Industrial series



GAMMA UNITS

INSTRUCTION MANUAL FOR SAMSON GAMMA UNITS, TYPES:
G3400, G2500, G1600, G700, G600, G350

- Technical data
- Installation and start-up
- Service
- Spare parts

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1 INTRODUCTION

1.1 Declaration of conformity

SAMSON PUMPS

Declaration of Conformity

Annex IIA

Samson Pumps A/S

Petersmindevej 21

DK-8800 Viborg

Hereby declares that the following products:

**Vacuum Gamma units
G3400, G2500, G1600, G700, G600, G350**

Conforms to the following directives:

**Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU**

I hereby declare, that the machine are in conformity with the following harmonized standards:

DS/EN ISO 12100:2011	Safety of machinery - General principles for design - Risk assessment and risk reduction
DS/EN 1012-2 + A1:2009	Compressors and Pumps - Safety requirements - Part 2: Vacuum pumps

The standard above only applies to the extent that it is relevant for the purpose of the unit. The unit must not be used before the complete system, which it must be incorporated in, has been conformity assessed and found to comply with all relevant health and safety requirements of 2006/42/EC and other relevant directives. The product must be included in the overall risk assessment.

Viborg, 25.04.2019



Jan S. Christiansen – Manager, Technical dept.

DOC4048

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1.2 Explanation of warning symbols

Important technical and safety instructions is showed by symbols. If instructions are not performed correctly, it may lead to personnel injury or incorrect function of the Gamma unit.



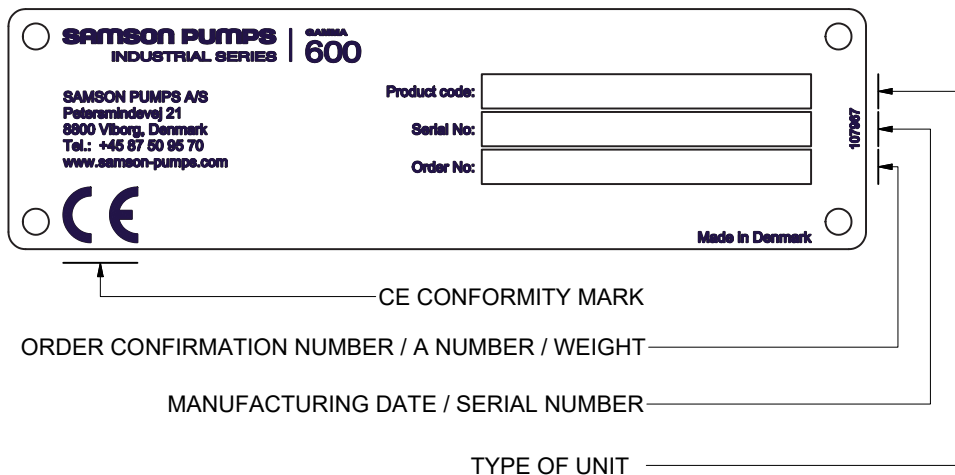
To be used with all safety instructions that must be followed. A failure to follow the instructions may result in injury and/or incorrect machine operation.



This symbol refers to hazardous situations involving electricity. A failure to observe the safety warnings may result in injury or death. The work may only be carried out by trained professionals who are familiar with the equipment.

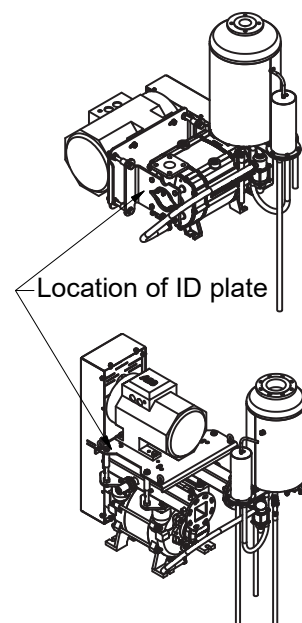
1.3 Marking and identification

The unit is equipped with an identification plate that is shown below. It contains important information, which can be useful in case of troubleshooting, service, weight etc.



Configuration example:

		G 600 A1 G Y N N N S A
Type:	GAMMA	←
Model:	600	←
Transmission:	A1	←
Liquid separator:	G	←
Vacuum limiter:	Y	←
Temp. control:	N	←
4-way valve:	N	←
Actuator:	N	←
Pipe connection:	N	←
Unit type:	S	←
Pump type:	A	←



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1.4 Purpose of use

GAMMA series are built with V-belt transmission. It provides a simple and economical possibility of adjusting the pump speed/ number of rotations, so that the air flow and power consumption will be optimized.

The basic module consists of pump, electric motor and transmission, ready for operation.

Additionally, the unit can be configured with the following additional modules:

- Liquid separator (See liquid separator manual)
- Cooling module based on partial recirculation of service liquid (See liquid separator manual)
- Cooling module based on a heat exchanger (See liquid separator manual)
- Cooling unit with air cooler (See liquid separator manual)
- 4-way valve for vacuum- and pressure operation (See 4-way valve manual)

For further information regarding the additional modules, please study our website www.samson-pumps.com or contact our sales department.

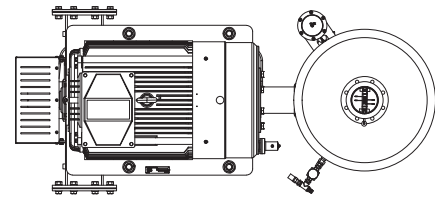
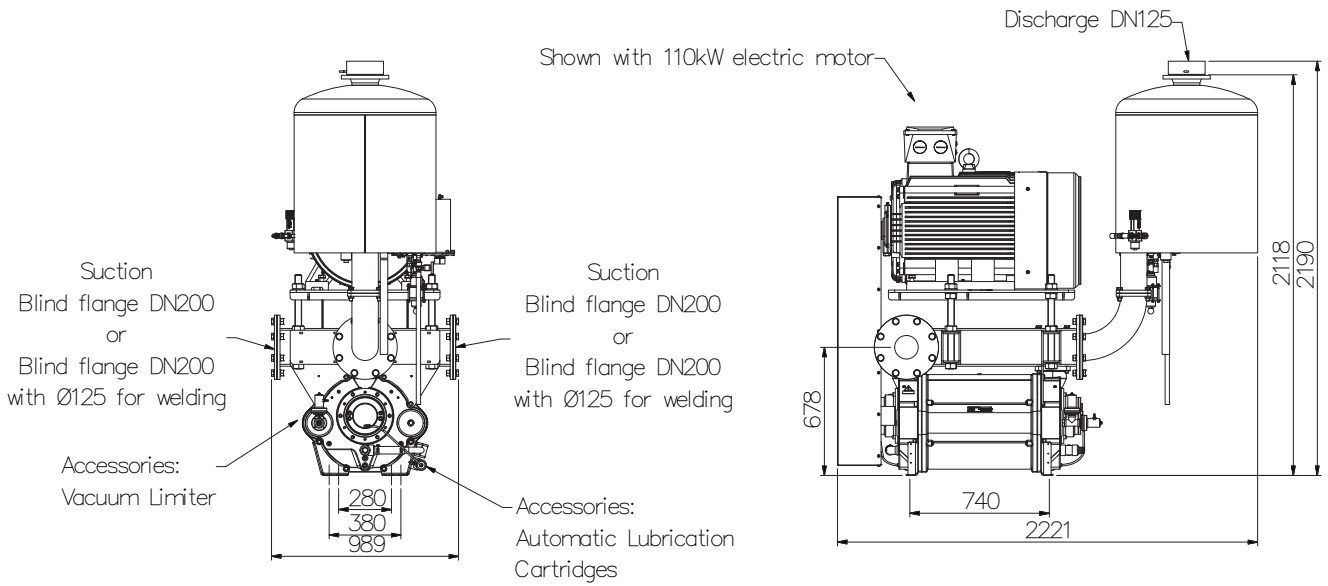
2 TECHNICAL DATA

2.1 Available models

GAMMA unit models	Applicable with pump types	Weight [kg]	Weight based on motor [kW]:
G3400	Truck Master 3400	2013	110
G2500	Truck Master 2500	1347	75
G1600	Truck Master 1600	991	55
G700	Ocean Master 700	569	22
G600	Truck Master 600	372	15
G350	Truck Master 350	320	11

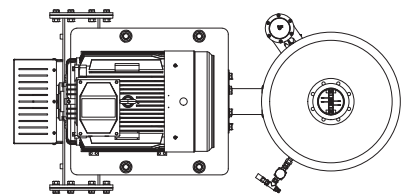
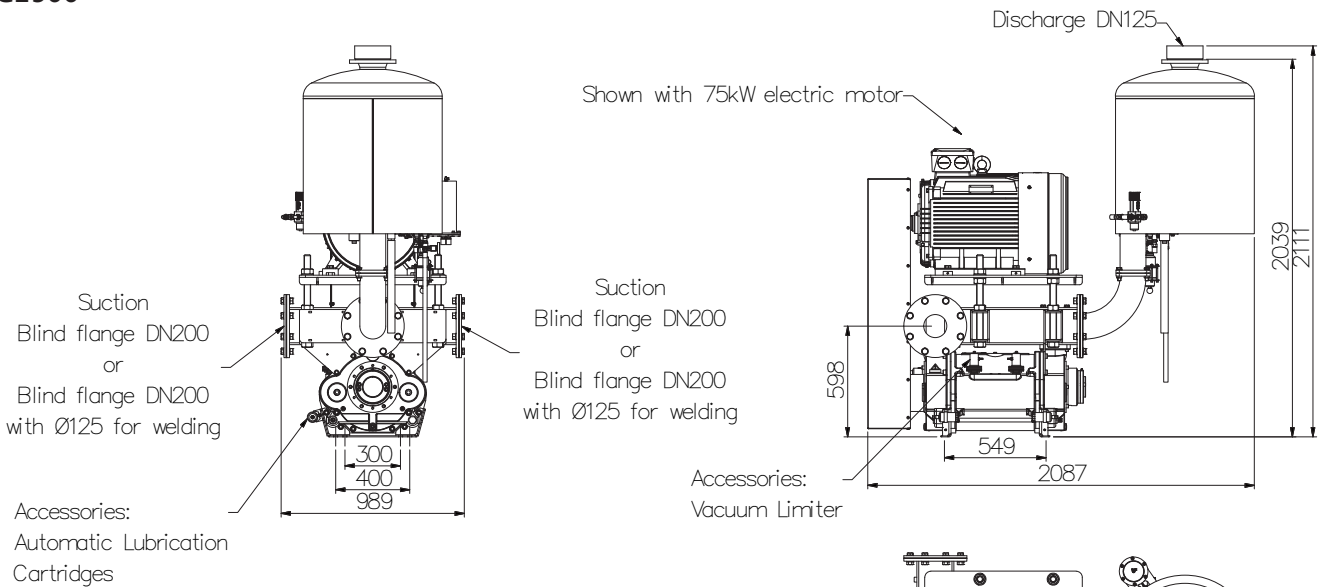
2.2 Dimensions [mm]

G3400



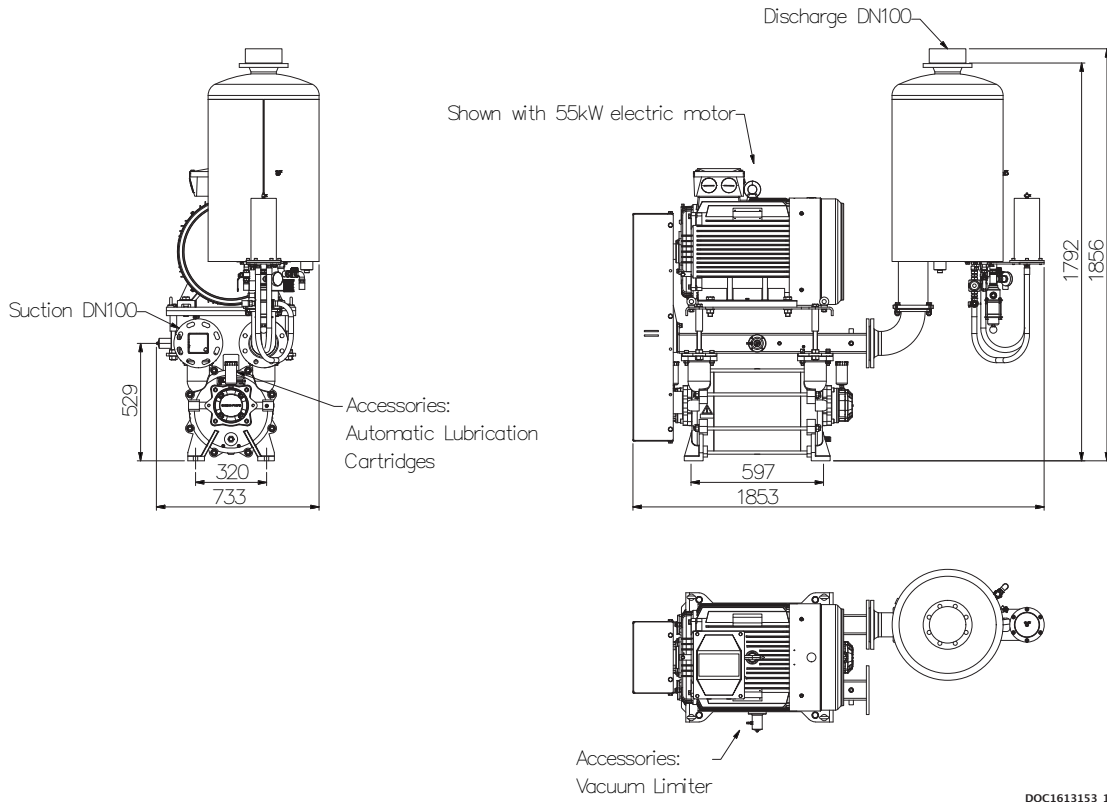
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G2500

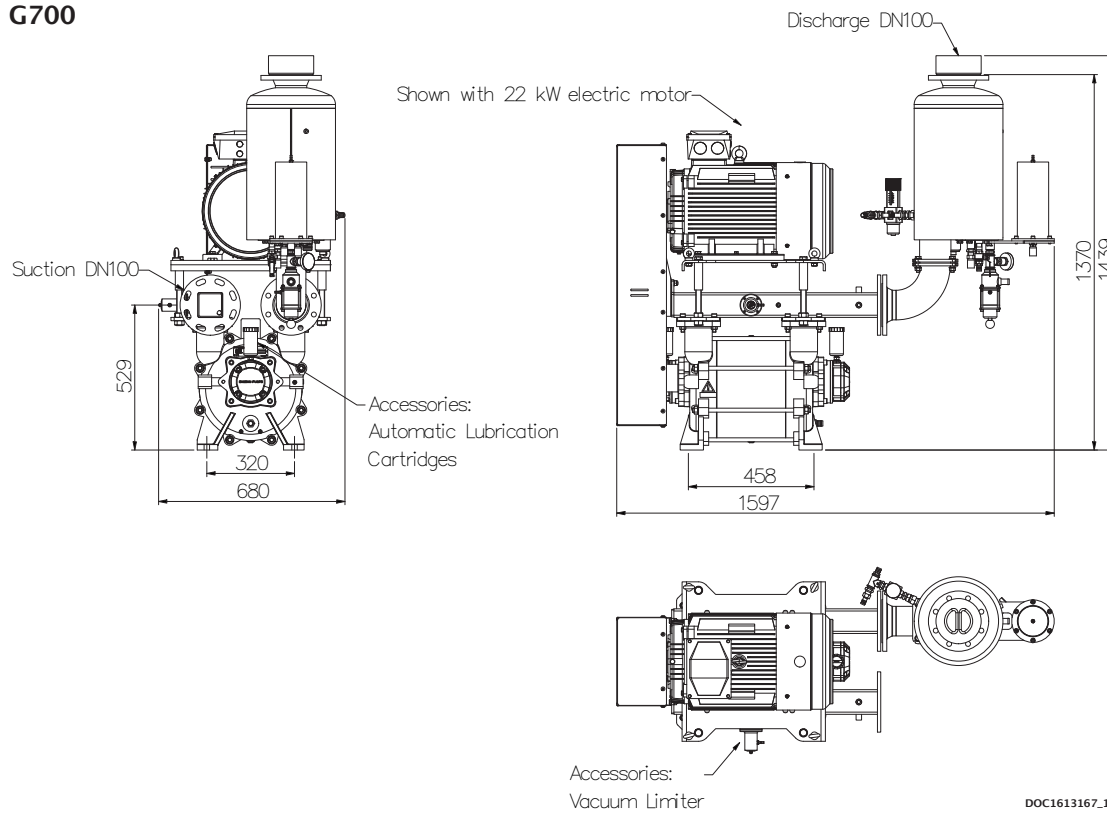


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G1600



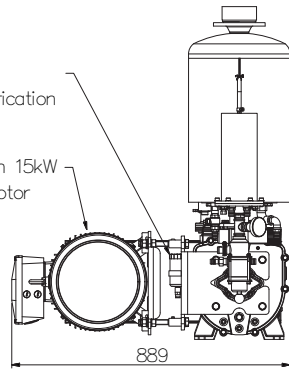
G700



G600

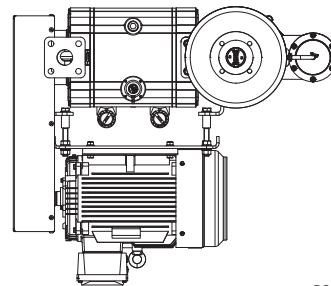
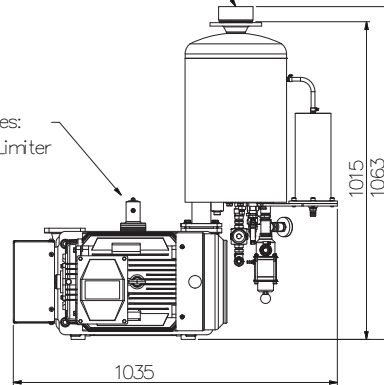
Accessories:
Automatic Lubrication
Cartridges

Shown with 15kW
electric motor



Discharge DN50

Accessories:
Vacuum Limiter



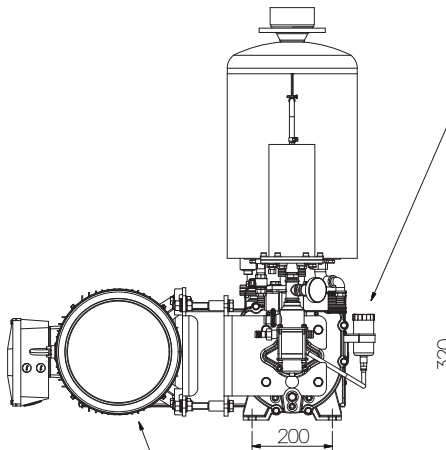
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G350

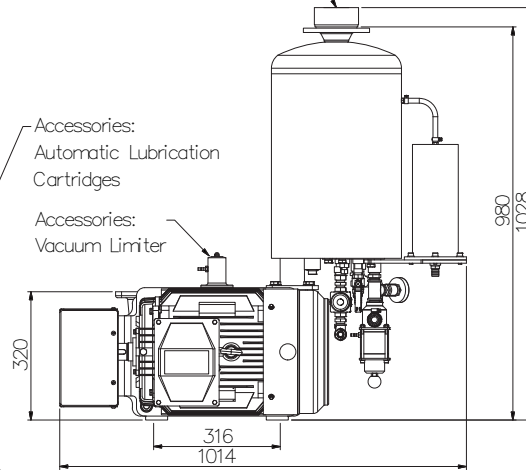
Accessories:
Automatic Lubrication
Cartridges

Accessories:
Vacuum Limiter

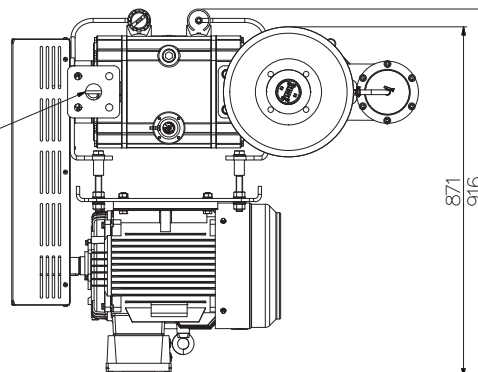
Shown with 11kW electric motor



Discharge DN50



Suction DN40



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2.3 Storage conditions



If the temperature is below freezing point of the service liquid it may damage the pump. Under these conditions the pump must be drained completely or filled with anti freeze liquid.

At storage for more than 30 days, see manual for:

- Electrical motor
- Liquid ring pump
- Liquid separator
- 4-way valve

2.4 Handling and transport

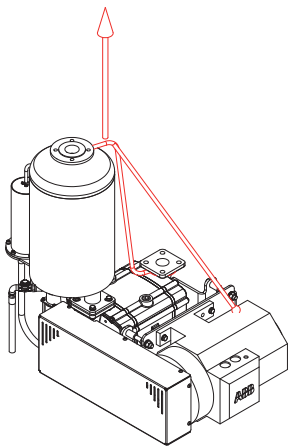


The unit may not be used if it is damaged or the identification plate is missing!

By fork-lift truck handling the unit can be transported in the original container or onto an approved EUR pallet. Handling with crane must only be made by hooking the unit's lifting eye loops.

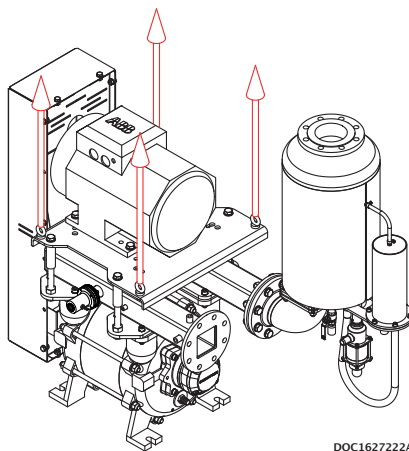
The weight of the respective GAMMA unit can be found on the nameplate. See Chapter 1.3

G350 - G600



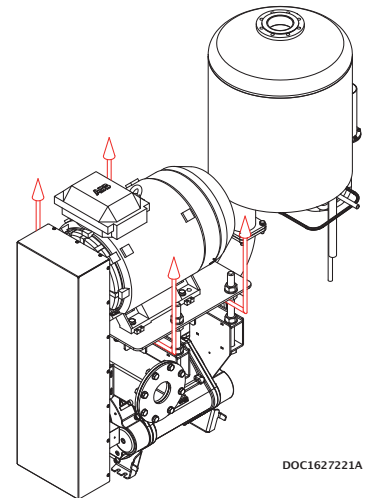
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G700 - G1600



DOC1627222A

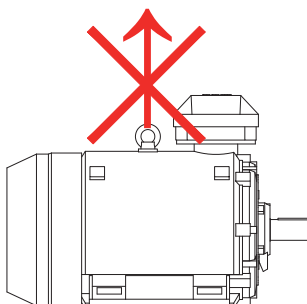
G2500 - G3400



DOC1627221A



The loop eye of the electrical motor may not be used for gripping by lifting the entire unit.



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The pump can be transported in the following ways:



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2.5 Removal and disposal

The most parts of the Samson GAMMA units can be recycled.

Samson Pumps therefore offers the user of Samson GAMMA units the opportunity to return worn units for renovation or scrapping. For those who do not wish to make use of the offer of the factory, the GAMMA units after separation have to be separated into components.

Worn GAMMA units can be separated into following components:

- Service liquid
- Gaskets
- Hoses
- Plastic Parts

These parts are to be disposed according to national rules.

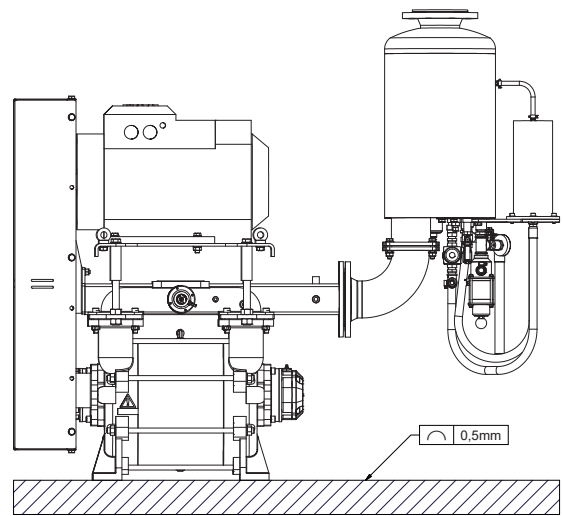
The residue, consisting of metal components can be sent for re-melting.

3 INSTALLATION AND START-UP

3.1 Installation requirements

3.1.1 Anchoring

The unit must be mounted onto a stable foundation, which has to be right and torsion stable, so that the pump/unit is not exposed to torsion. The pump/unit must be anchored with foundation bolts in all four legs.



3.1.2 Electrical installation



- Make sure power supply is disconnected before installing cables on motor!
- Electrical connections are made only by authorized personnel!

Reference is made to the manual of the actual electrical motor.

3.1.3 Service liquid supply

For units without liquid separator – see actual liquid ring pump manual.
For units with liquid separator mounted – see liquid separator manual.

3.2 Prior to start-up



- Do not start the unit without service liquid, as this will damage the mechanical shaft seals.
- Do not start the unit if it is completely filled with service liquid.
- Do not start the unit before the grease cartridges have been activated, as this can damage the pump.
- Stop the unit immediately if the rotational direction does not correspond to the directional arrow.
- A failure to follow the above guidelines may result in damage to the unit.

3.2.1 Activating the grease cartridges

Turn the knob on both grease cartridges clockwise to position 12.

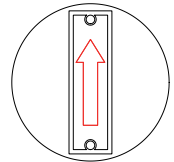


DOC3707

3.2.2 Direction of rotation

Check the direction of rotation by briefly starting the pump. The direction of rotation of the rotor must correspond to the direction arrow!

If the direction of rotation is incorrect – the cause is an improper electrical connection. Please call authorized personnel for corrective action.



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3.2.3 Vacuum limiter

If the unit is equipped with a vacuum limiter, make sure it is adjusted in accordance with the vacuum limiter manual.



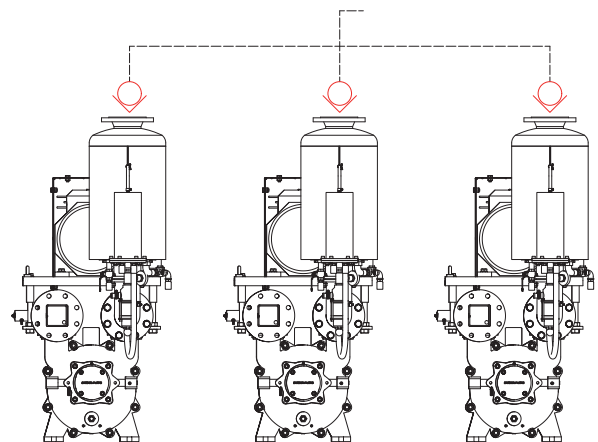
DOC3705

3.2.4 Serial connection

If the unit is included in an installation with multiple units in serial connection or connected to a vacuum tank.

It is important that the outlet side of the unit is equipped with a Non-Return Valve.

Without the Non-Return Valve, the other units might draw intake of false air through the actual unit when this is not in operation.



DOC1611200_1

3.3 Start-Up

Start the unit. Perform a visual inspection of unit for leakages, noise and vibrations.

If any of those symptoms are present, STOP the unit immediately! Start troubleshooting.

4 SERVICE, MAINTENANCE AND INSPECTION INTERVALS

4.1 Maintenance



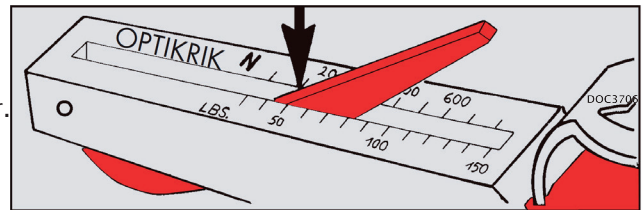
Do not perform any maintenance work on unit, while in use!

4.1.1 Transmission

Check the pulley tension for every 5.000 hours of operation.

The belt tension is controlled with the attached Belt Tester.

Please read the manual carefully for the “Belt Tester” before the test is carried out.



Diameter of the smallest pulley, mm	Setting of the Belt Tester, when installing new belts	Setting of the Belt Tester adjusted after an hour of operation
Less than 160	650 N	500 N
Between 160 and 224	700 N	550 N
Between 224 and 355	900 N	700 N
More than 355	Contact SAMSON PUMPS	Contact SAMSON PUMPS

4.1.2 Lubrication of pump bearings

- Check the automatic lubrication cartridges every 3 months.
- If level of grease reaches zero, the cartridge must be replaced.
- When replaced, activator must be turned on position 12.
- Detailed instructions about pump, see manual for the actual liquid ring pump.



4.1.3 Lubrication of motor bearings

- See manual for the actual motor.

4.1.4 4-way valve (if equipped)

- Each grease nipple must be greased every 3 months, with 6–8 g of LGWA2 grease.
- GAMMA unit out of use for 30 days or more, must be greased before start.
- Detailed instructions about 4-way valve, see 4-way valve manual.

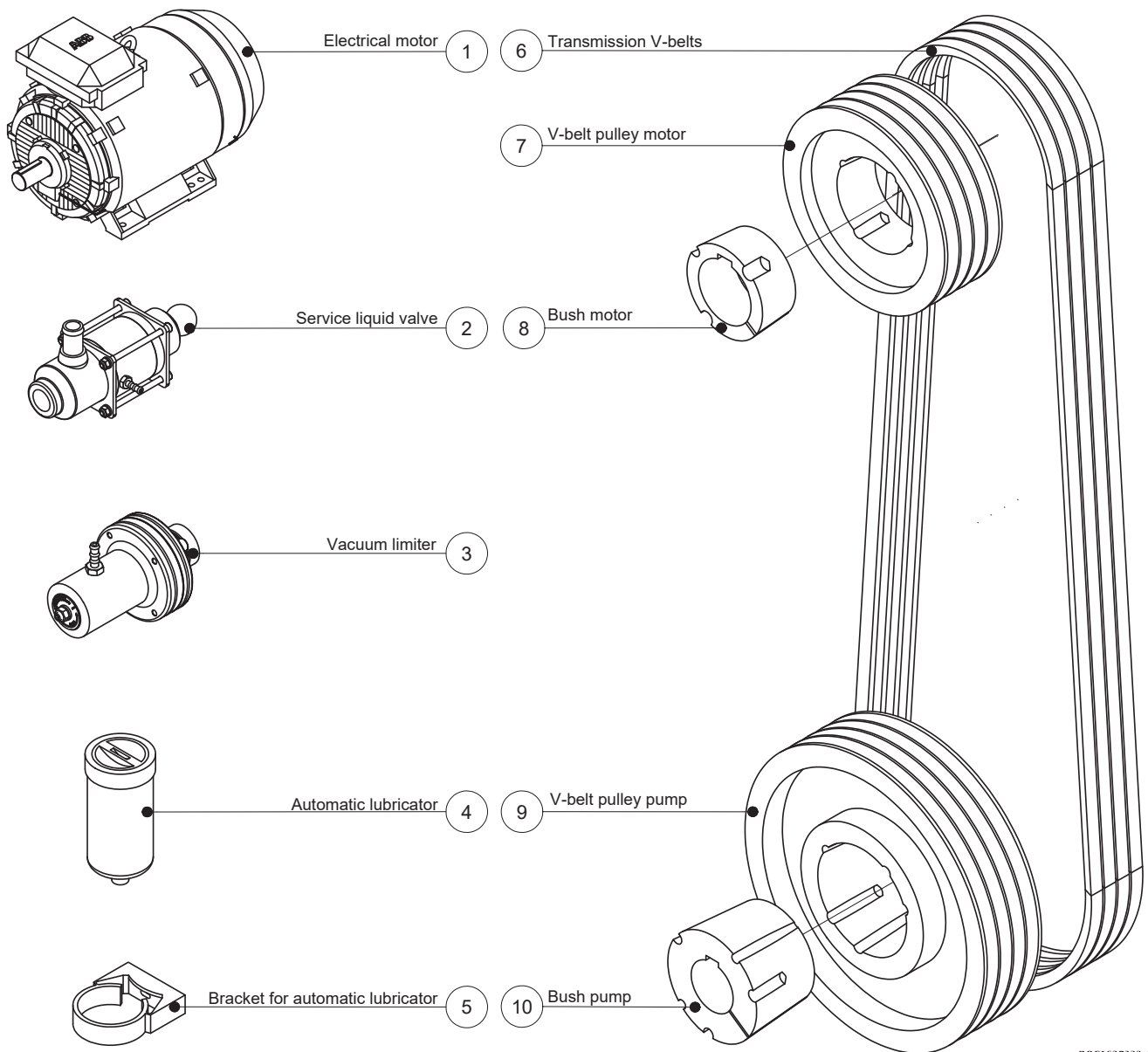
4.1.5 Liquid separator (if equipped)

- It is recommended that the liquid separator is emptied manually once a day by opening the drain valve.
- GAMMA unit out of use for 30 days or more, it is recommended to close the external water supply and to empty the liquid separator.
- Detailed instructions about liquid separator, see liquid separator manual.

5 SPARE PARTS

5.1 How to order

When ordering spare parts, please indicate the desired position, as well as the type and number, which are indicated on the nameplate of the unit. See below.



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SAMSON PUMPS

Samson Pumps is the only company in the world to specialise exclusively in liquid ring vacuum pumps. Samson pumps are made in Denmark and used around the globe. We offer worldwide delivery, and we export to more than 80 countries around the world.

For over 40 years, our name has been synonymous with the strongest pumps for vacuum trucks and tankers. We constantly adapt our products to meet the changing needs of our customers. Today, it is not enough to simply produce a pump. Products must be refined so the customer can concentrate on what they do best. We therefore offer a wide range of standardised components that allow our customers to build vacuum systems without the need for specialist in-house expertise.

Strength and durability are our hallmarks! We have often heard from customers that our pumps are working in many years, and in most cases without the need for maintenance or repair. This emboldens us to say that we have the strongest program of pumps on the market.