

Atlas Copco

Oil-sealed rotary
vane vacuum pumps

GVS 16A, GVS 25A, GVS 40A,
GVS 60A, GVS 100A, GVS 200A,
GVS 300A, GVS 470A, GVS 630A



Instruction Book

6996 0224 30

Issue A

Atlas Copco

Atlas Copco

Oil-sealed rotary vane vacuum pumps

GVS 16A, GVS 25A, GVS 40A, GVS 60A, GVS 100A,
GVS 200A, GVS 300A, GVS 470A, GVS 630A

Instruction book

Original instructions

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This instruction book is valid for CE as well as non-CE labelled machines. It meets the requirements for instructions specified by the applicable European directives as identified in the Declaration of Conformity.

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1. Safety precautions


1.1 Safety icons

Explanation

	Danger for life
	Warning
	Important note


1.2 General precautions

1. The operator must employ safe working practices and observe all related work safety requirements and regulations.
2. If any of the following statements does not comply with the applicable legislation, the stricter of the two shall apply.
3. Installation, operation, maintenance and repair work must only be performed by authorized, trained, specialized personnel.
4. The vacuum pump is designed for handling atmospheric air only. No other gases, vapours or fumes should be exposed to the vacuum pump intake or processed by the vacuum pump.
5. Before any maintenance, repair work, adjustment or any other non-routine checks, stop the vacuum pump, press the emergency stop button, switch off the voltage and make sure that the pump system is at atmospheric pressure level. In addition, the power isolating switch must be opened and locked.

	If the machine is equipped with an automatic restart after voltage failure function and if this function is active, be aware that the machine will restart automatically when the power is restored if it was running when the power was interrupted!
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6. Avoid contact with pump intake during operation.
7. The owner is responsible for maintaining the unit in safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.
8. It is not allowed to walk or stand on the unit or on its components.

1.3 Safety precautions during installation


	All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.
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Precautions during installation

1. The machine must only be lifted using suitable equipment in accordance with the applicable safety regulations. Loose or pivoting parts must be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and deceleration must be kept within safe limits. Wear a safety helmet when working in the area of overhead or lifting equipment.
2. The unit is designed for indoor use. If the unit is installed outdoors, special precautions must be taken; consult your supplier.
3. Place the machine where the ambient air is as cool and clean as possible. If necessary, install a suction duct. Never obstruct the air inlet. Water handling capacity is limited.
4. Any blanking flanges, plugs, caps and desiccant bags must be removed before connecting the pipes.
5. Air hoses must be of correct size and suitable for the working pressure. Never use frayed, damaged or worn hoses. Distribution pipes and connections must be of the correct size and suitable for the working pressure.
6. The aspirated air must be free of flammable fumes, vapours and particles, e.g. paint solvents that can lead to internal fire or explosion.
7. Arrange the air intake so that loose clothing worn by people cannot be sucked in.
8. No external force may be exerted on the inlet and outlet connections; the connected pipes must be free of strain.
9. If remote control is installed, the machine must bear a clear sign stating: DANGER: This machine is remotely controlled and may start without warning.
The operator has to make sure that the machine is stopped, depressurized and that the electrical isolating switch is open, locked and labelled with a temporary warning before any maintenance or repair. As a further safeguard, persons switching remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the start equipment.
10. Air-cooled machines must be installed in such a way that an adequate flow of cooling air is available and that the exhausted air does not recirculate to the inlet.
11. The electrical connections must correspond to the applicable codes. The machines must be earthed and protected against short circuits by fuses in all phases. A lockable power isolating switch must be installed near the pump.
12. On machines with automatic start/stop system or if the automatic restart function after voltage failure is activated, a sign stating "This machine may start without warning" must be affixed near the instrument panel.
13. In multiple vacuum pump systems, manual valves must be installed to isolate each pump. Non-return valves (check valves) must not be relied upon for isolating multiple systems.
14. Never remove or tamper with the safety devices, guards or insulation fitted on the machine.
15. Piping or other parts with a temperature in excess of 70 °C (158 °F) and which may be accidentally touched by personnel in normal operation must be guarded or insulated. Other high temperature piping must be clearly marked.
16. For water-cooled machines, the cooling water system installed outside the machine has to be protected by a safety device with set pressure according to the maximum cooling water inlet pressure.
17. If the ground is not level or can be subject to variable inclination, consult the manufacturer.
18. Pump outlet air contains traces of oil mist. Ensure compatibility with the working environment.
19. Whenever air containing hazardous substances is sucked in (i.e. biological or microbiological agents), use abatement systems placed upstream of the vacuum pump.
20. Any vacuum pump placed in an application with inlet gas stream temperatures above the published maximum temperature should be approved by Atlas Copco prior to start-up.

	<p>Also consult sections Safety precautions during operation and Safety precautions during maintenance or repair.</p> <p>These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.</p> <p>Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.</p>
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1.4 Safety precautions during operation

	<p>All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.</p> <p>Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.</p>
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Precautions during operation

1. Never touch any piping or components of the vacuum pump during operation.
2. Use only the correct type and size of hose end fittings and connections. Make sure that a hose is fully depressurized before disconnecting it.
3. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
4. Never operate the machine when there is a possibility of taking in flammable or toxic fumes, vapours or particles.
5. Never operate the machine below or in excess of its limit ratings.
6. Keep all bodywork doors shut during operation. The doors may be opened for short periods only, e.g. to carry out routine checks. Wear ear protectors when opening a door.
On vacuum pumps without bodywork, wear ear protection in the vicinity of the machine.
7. People staying in environments or rooms where the sound pressure level reaches or exceeds 80 dB(A) shall wear ear protectors.
8. Periodically check that:
 - All guards are in place and securely fastened
 - All hoses and/or pipes inside the machine are in good condition, secure and not rubbing
 - There are no leaks
 - All fasteners are tight
 - All electrical leads are secure and in good order
 - Safety valves and other pressure relief devices are not obstructed by dirt or paint
 - Air outlet valve and air net, i.e. pipes, couplings, manifolds, valves, hoses, etc. are in good repair, free of wear or abuse
 - Electrical cabinet air cooling filters are not clogged
9. If warm cooling air from vacuum pumps is used in air heating systems, e.g. to warm up a workroom, take precautions against air pollution and possible contamination of the breathing air.
10. On water-cooled vacuum pumps using open circuit cooling towers, protective measures must be taken to avoid the growth of harmful bacteria such as Legionella pneumophila bacteria.

11. Do not remove any of, or tamper with, the sound-damping material.
12. Never remove or tamper with the safety devices, guards or insulations fitted on the machine.
13. The oil separator tank can be slightly pressurised. Do not open and do not leave oil filler or drain plugs open during operation.
14. Do not use the pump as a compressor.
15. Never run the pump without the air intake filter mounted.



Also consult sections [Safety precautions during installation](#) and [Safety precautions during maintenance or repair](#). These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

1.5 Safety precautions during maintenance or repair



All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

Precautions during maintenance or repair

1. Always use the correct safety equipment (such as safety glasses, gloves, safety shoes, etc.).
2. Use only the correct tools for maintenance and repair work.
3. Use only genuine spare parts.
4. All maintenance work shall only be undertaken when the machine has cooled down.
5. A warning sign bearing a legend such as "Work in progress; do not start" shall be attached to the starting equipment.
6. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
7. Before removing any component, effectively isolate the machine from all sources of under- and/or overpressure and make sure that the pump system is at atmospheric pressure level.
8. Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours of cleaning liquids.
9. Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
10. Never weld or perform any operation involving heat near the oil system. Oil tanks must be completely purged, e.g. by steam cleaning, before carrying out such operations. Never weld on, or in any way modify, pressure vessels.
11. Whenever there is an indication or any suspicion that an internal part of a machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed; this to avoid the risk of spontaneous ignition of the oil vapour when air is admitted.
12. Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
13. Make sure that no tools, loose parts or rags are left in or on the machine.
14. All regulating and safety devices shall be maintained with due care to ensure that they function properly. They may not be put out of action.
15. Before clearing the machine for use after maintenance or overhaul, check that operating pressures,

- temperatures and time settings are correct. Check that all control and shut-down devices are fitted and that they function correctly. If removed, check that the coupling guard of the vacuum pump drive shaft has been reinstalled.
16. Every time the separator element is renewed, examine the discharge and the inside of the oil separator vessel for carbon deposits; if excessive, the deposits should be removed.
 17. Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam cleaning.
 18. Make sure that all sound damping material and vibration dampers, e.g. damping material on the bodywork and in the air inlet and outlet systems of the vacuum pump are in good condition. If damaged, replace it by genuine material from the manufacturer to prevent the sound pressure level from increasing.
 19. Never use caustic solvents which can damage materials of the air net, e.g. polycarbonate bowls.
 20. Faults or wearing of seals may cause oil lubricant leaks. Avoid dispersion in soil and pollution of other materials.



Also consult sections [Safety precautions during installation](#) and [Safety precautions during operation](#).

These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

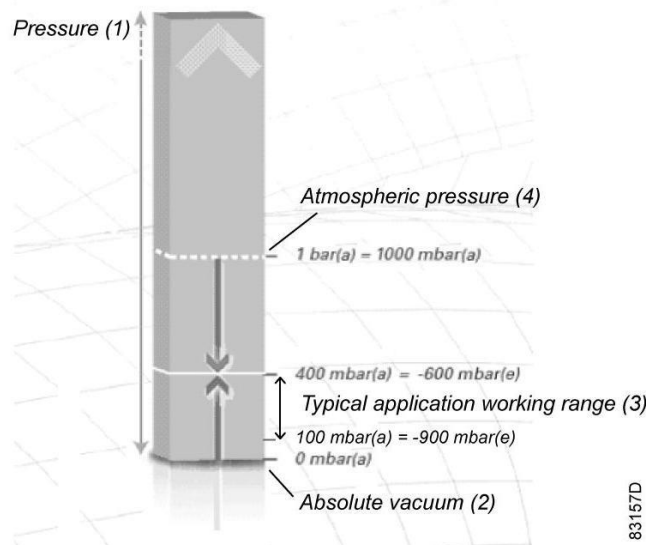
2. General description

2.1 What is vacuum and how is flow rate understood

What is vacuum and how to denote

A vacuum is any pressure in a system that is below the ambient atmospheric pressure. It can be denoted in absolute terms or in effective (gauge) terms:

- mbar(a) – absolute pressure – denotes how much the pressure is above absolute zero vacuum.
- (minus) mbar(e) – the effective or gauge pressure – denotes how much the pressure is below the local atmospheric pressure.



Reference	Designation
1	Pressure
2	Absolute vacuum
3	Typical application working range
4	Atmospheric pressure

- Atmospheric pressure at sea level is roughly 1 bar(a) or 1000 mbar(a) or 0 bar(e). The typical working range for pump applications is 400 mbar(a) to 100 mbar(a), i.e. -600 mbar(e) to -900 mbar(e). This operating pressure range is just indicative. The GVS A vacuum pumps are designed for continuous operation between atmospheric pressure and their ultimate pressure.
- It is important to understand which type of reference is required before selecting a pressure instrument for measuring the vacuum.
- It must be noted that the distinction doesn't matter for a pressure difference (e.g. pressure loss), since it is always the result of subtracting 2 pressures (whether stated as absolute or as effective pressures).

Flow rate definitions

There are 2 common but different ways to denote flow rate in vacuum. The first one is based on the displacement or volumetric flow rate and the second one is based on the throughput or mass flow rate. Atlas Copco vacuum pumps use volumetric flow rate to denote performance, the unit being actual m³/h.

Displacement/volumetric flow rate

Over the relevant pressure range, a GVS A pump operates at constant motor speed (rotations per minute) and since the compression chambers have fixed dimensions, the same volume of air is pumped from inlet to outlet with falling pressure level. Over the relevant pressure range, this makes the volumetric flow rate practically independent of the vacuum level. It is the expression of the flow rate inside the piping at the governing vacuum level (in actual m³/h) and is always higher than the standard flow rate (in Nm³/h).

Standard flow rate

Although the volumetric flow rate remains practically constant with decreasing (absolute) pressure, the number of molecules in that pumped volume is not. By definition: the deeper the vacuum, the lower the amount of molecules in the same volume. This means that the mass flow will decrease with decreasing (absolute) pressure. It is clear that a flow rate must be stated at a certain vacuum level when using this denotation.

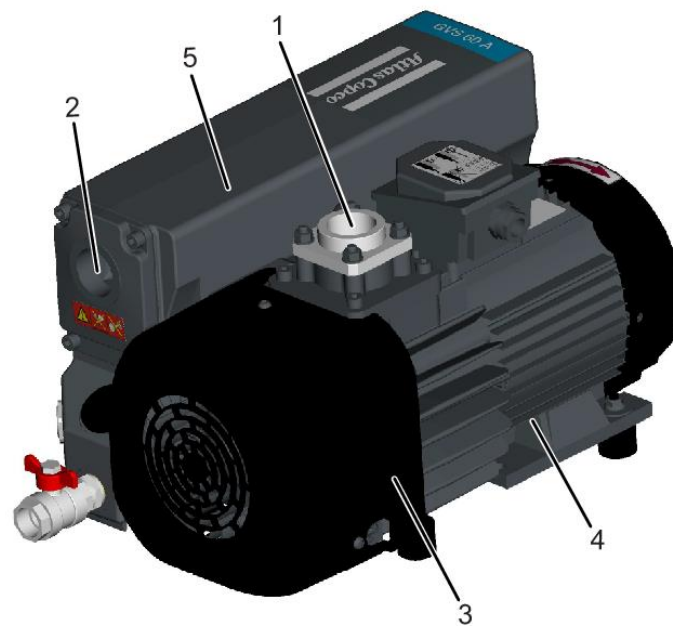
2.2 General description

The GVS 16A up to GVS 630A are single-stage, oil-sealed and air-cooled rotary vane vacuum pumps driven by an electric motor. GVS 100A up to GVS 300A are also available without electric motor. GVS 470A and GVS 630A are belt driven.

The pumps have been specifically designed to work with clean air, inert gas or small amounts of water vapour. The ambient temperature shall be between 12 °C and 40 °C.

For applications with high oxygen concentration, O₂ - versions are available (GVS 60A up to GVS 630A)

Note: lower temperatures are possible with reduced viscosity oil. This temperature range is defined by Pneurop for performance conformity testing, but 8 °C is the critical point from the motor starting view point.

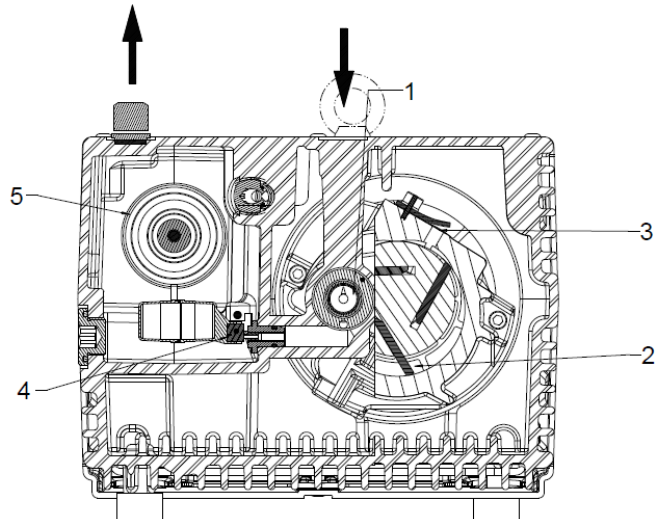


GVS 60A

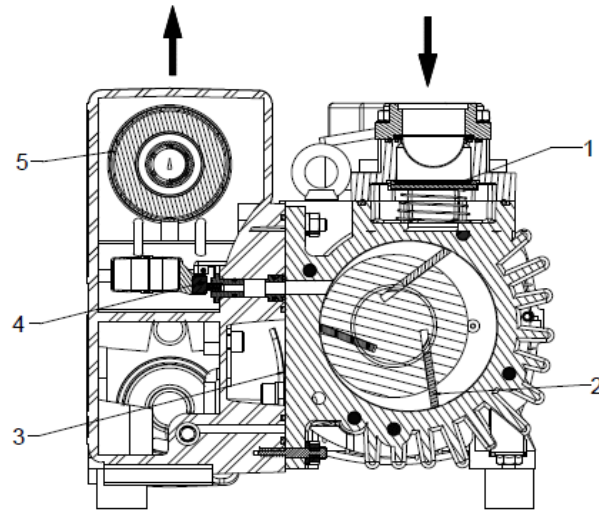
1	Air intake
2	Air outlet
3	Rotary vane element housing
4	Motor
5	Exhaust filter element housing

2.3 Air flow

- Air drawn through the air intake filter (optional), the inlet protection screen and the inlet non-return valve is displaced by the vacuum pump element towards the air end exhaust valve. This valve ejects a mixture of air and oil into the exhaust filter element. After passing the exhaust filter element, clean air - conditioned to a few parts per million - is discharged through the outlet.
- The vacuum pump is driven by an electric motor.



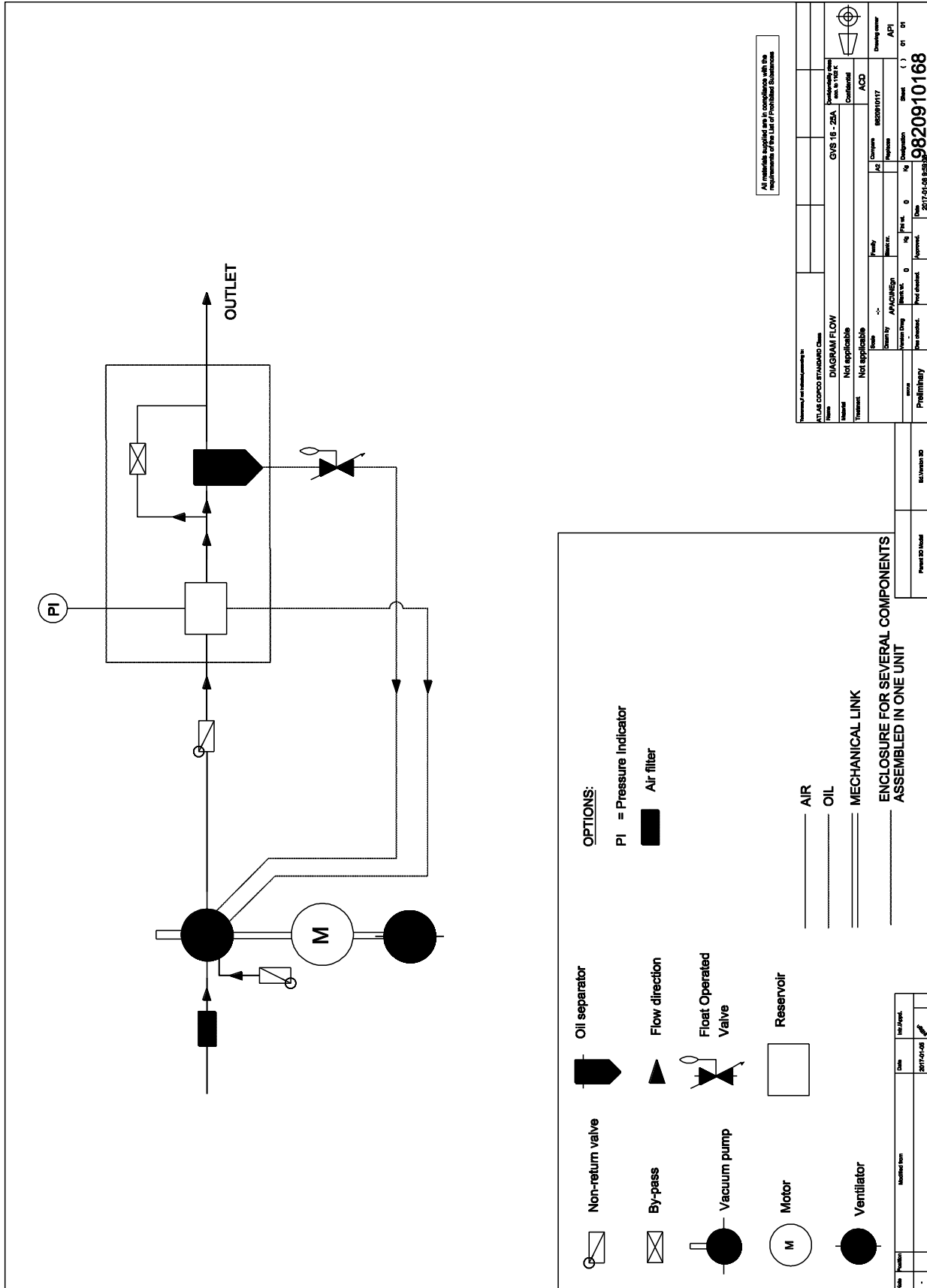
GVS 16 – 25A



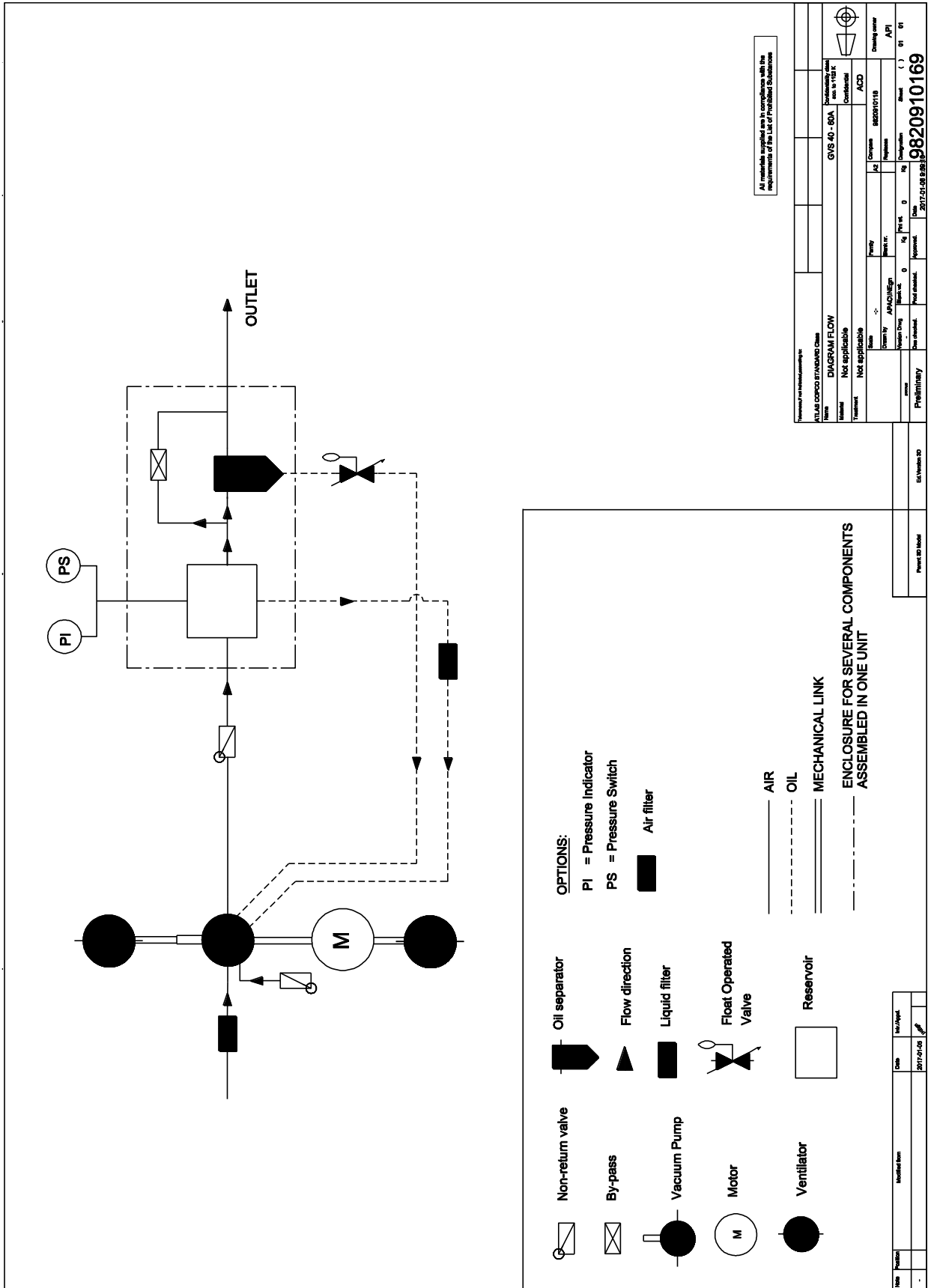
GVS 40-300A

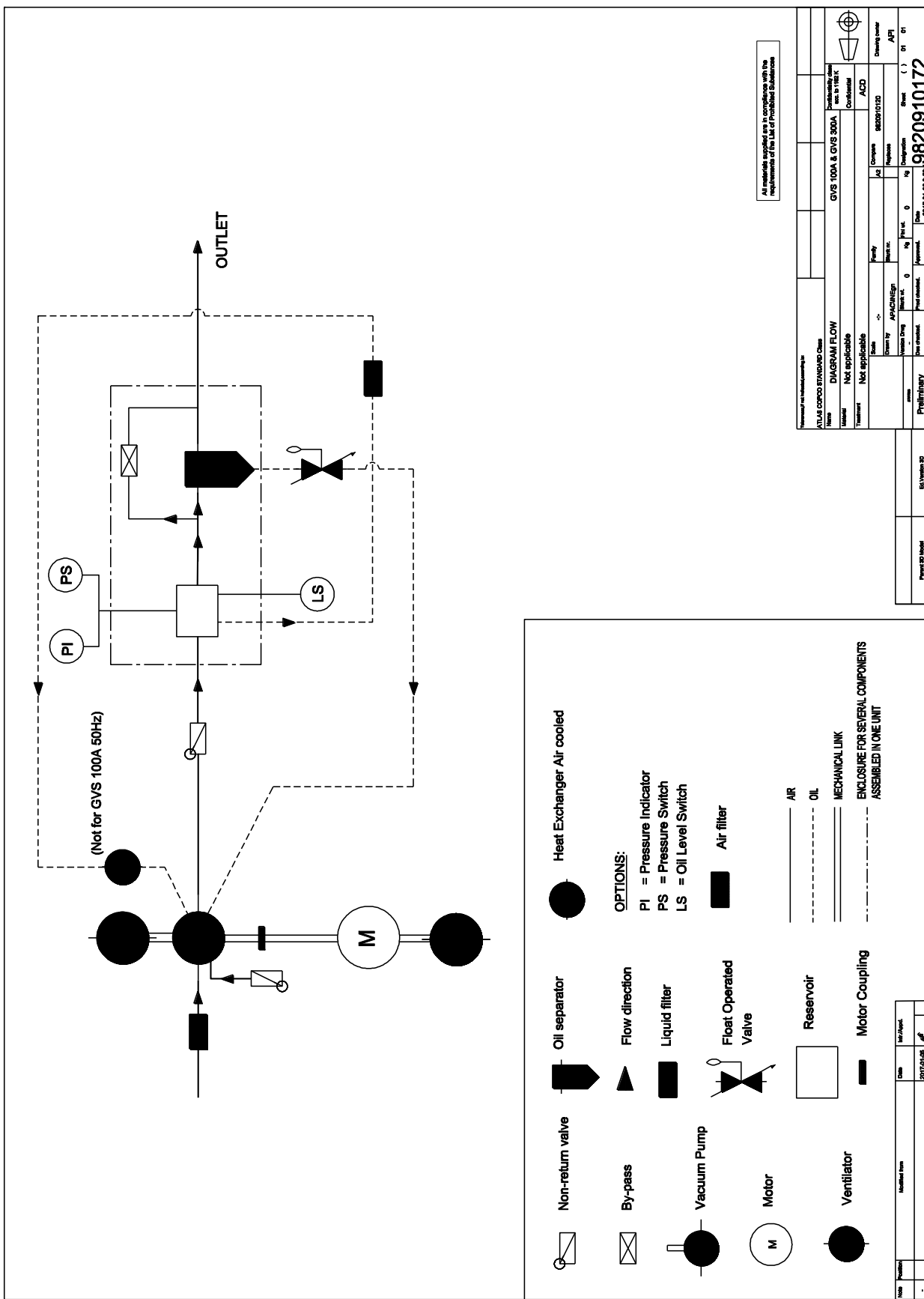
Reference	Designation
1	Inlet non-return valve
2	Vane (vacuum pump element)
3	Exhaust valve
4	Oil recovery valve
5	Exhaust filter element

Flow diagram

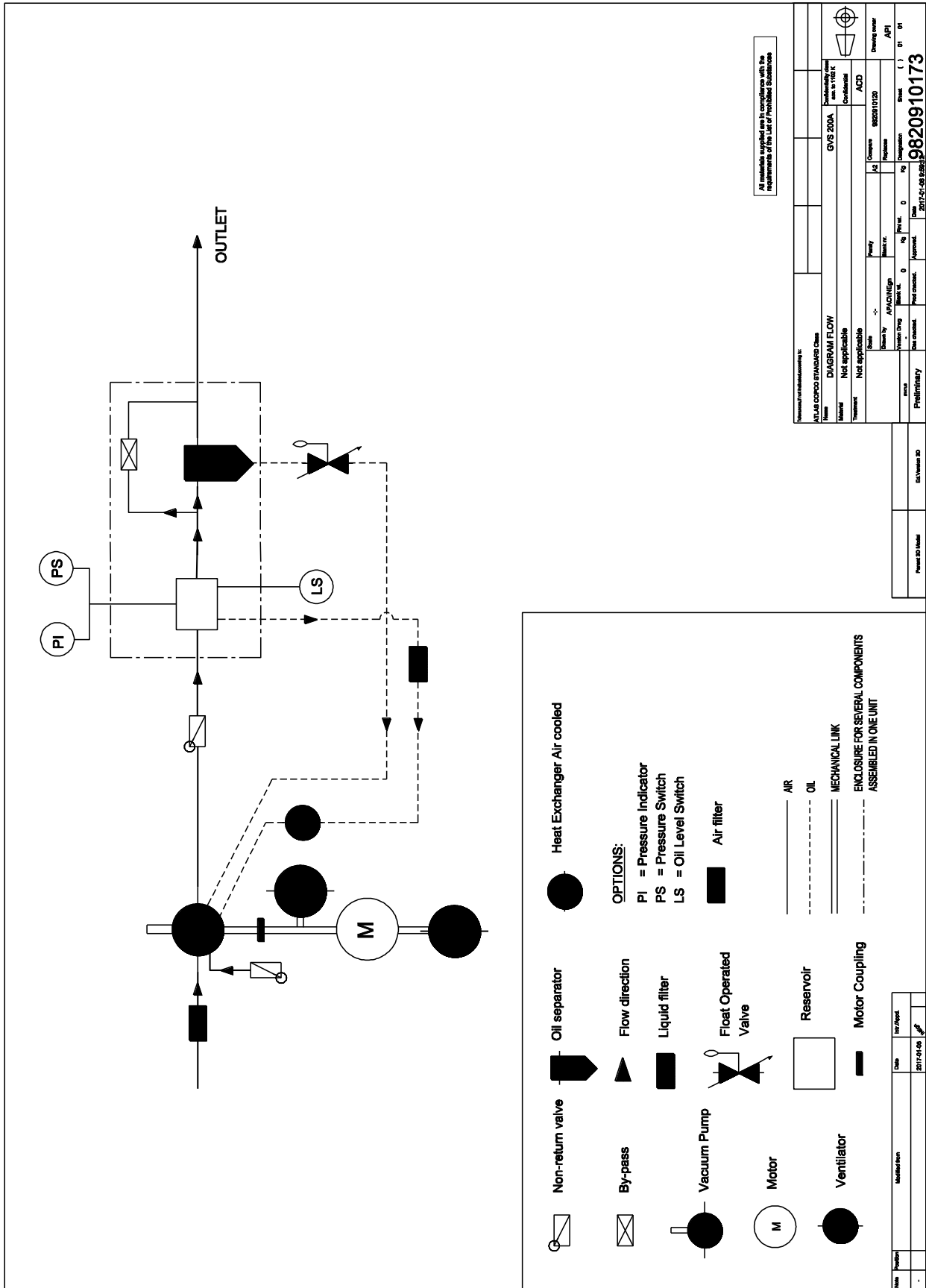


Flow diagram, GVS 16A and GVS 25A

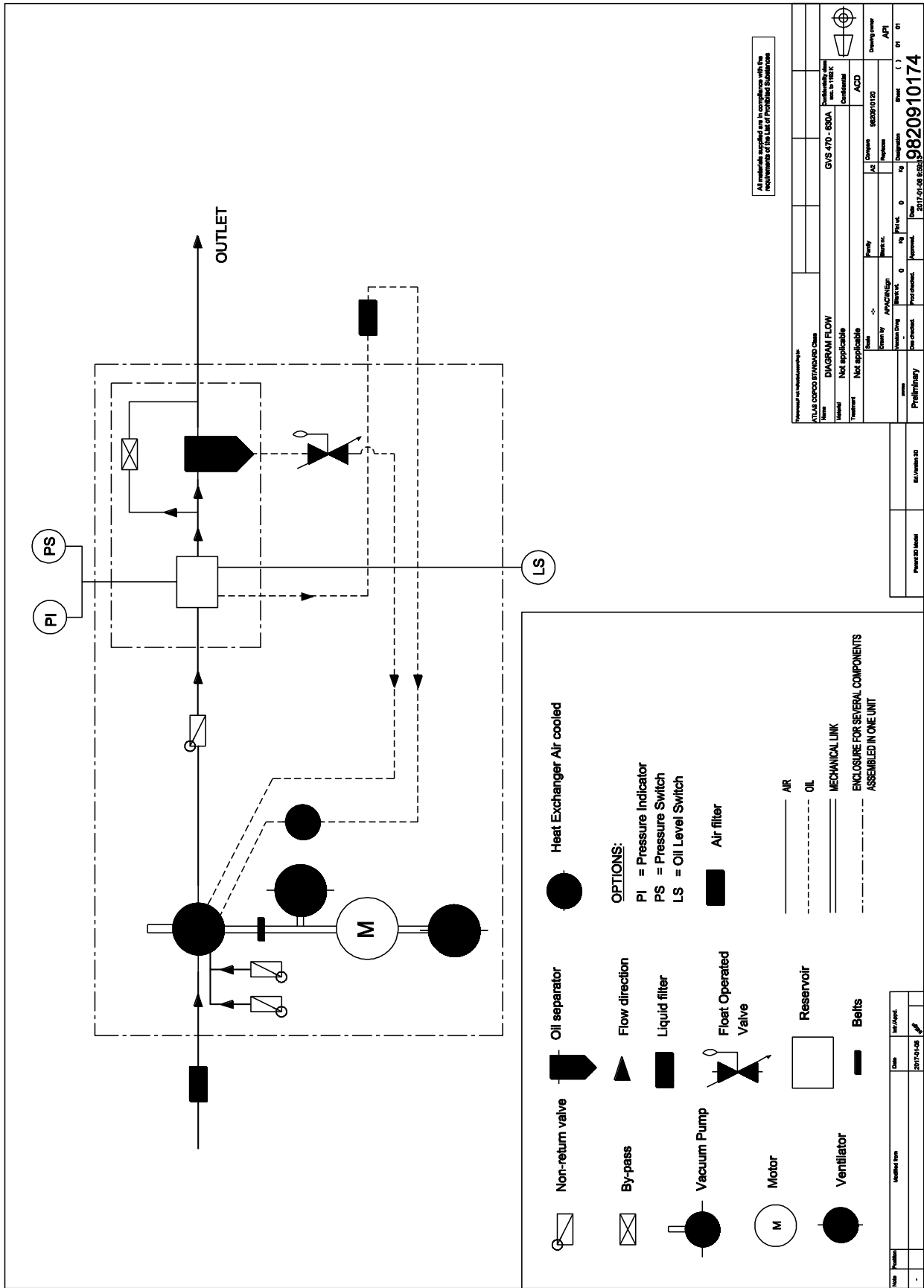




Flow diagram, GVS 100A and GVS 300A



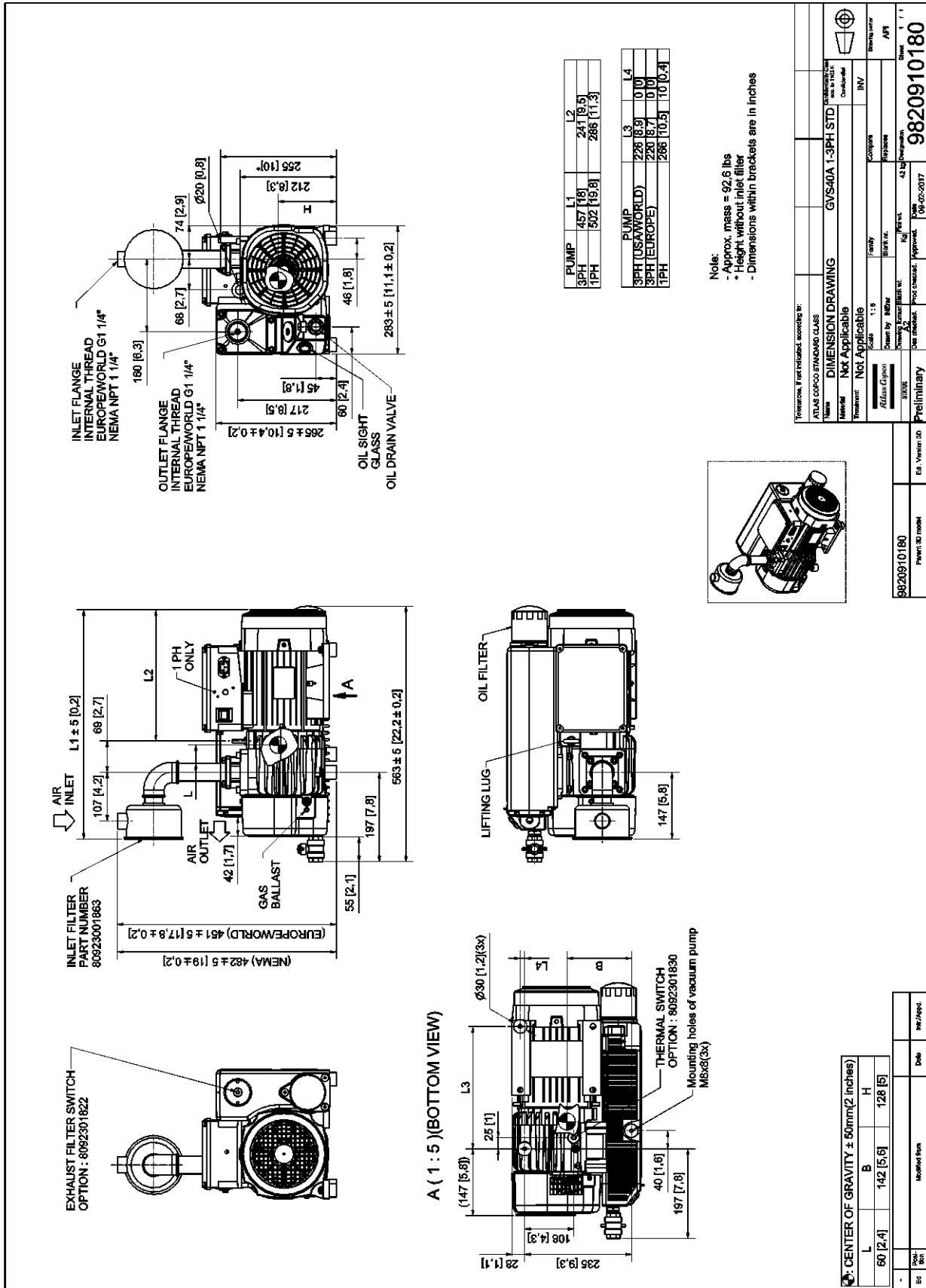
Flow diagram, GVS 200A



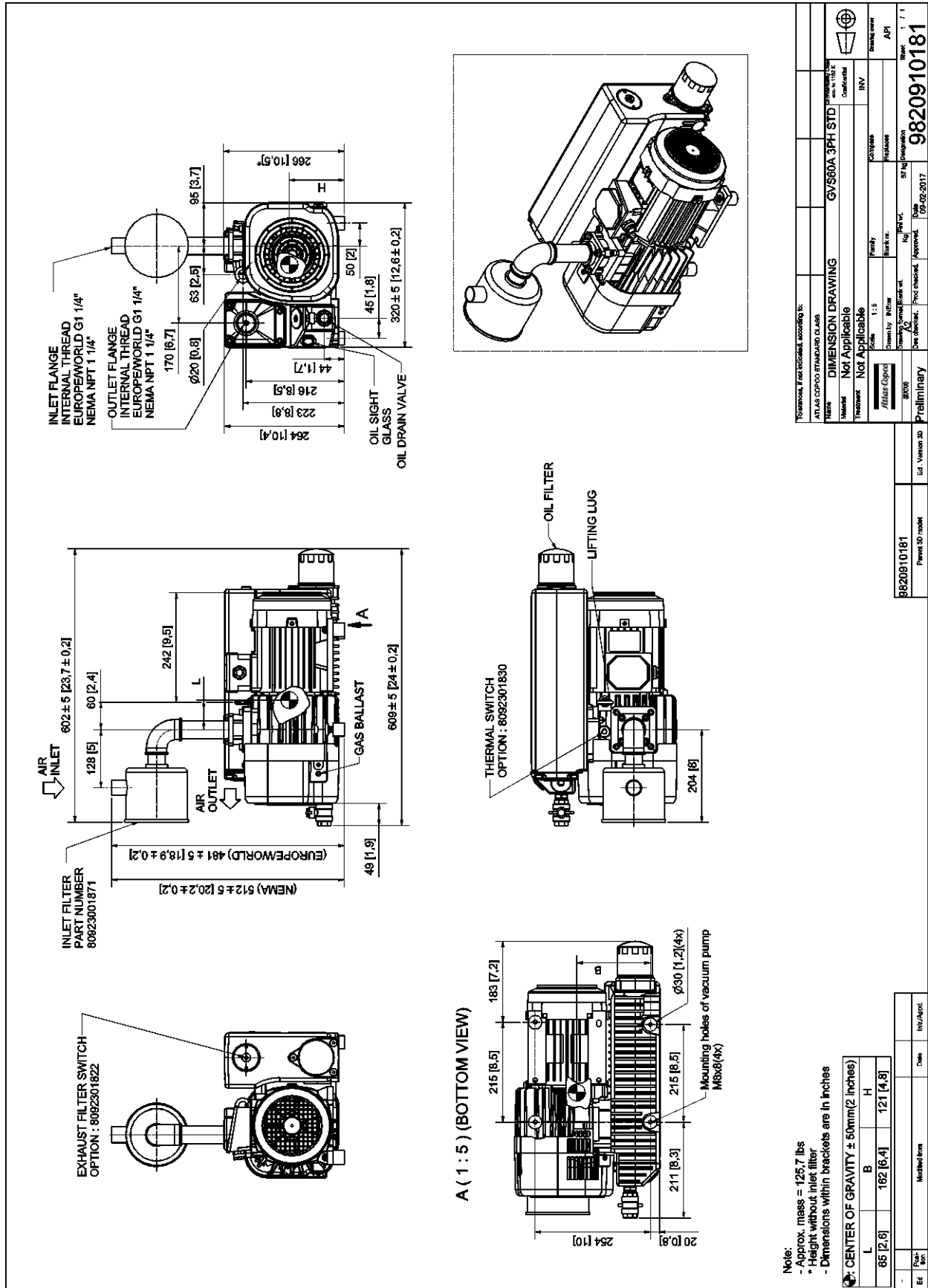
Flow diagram, GVS 470A and GVS 630A

2.4 Oil flow

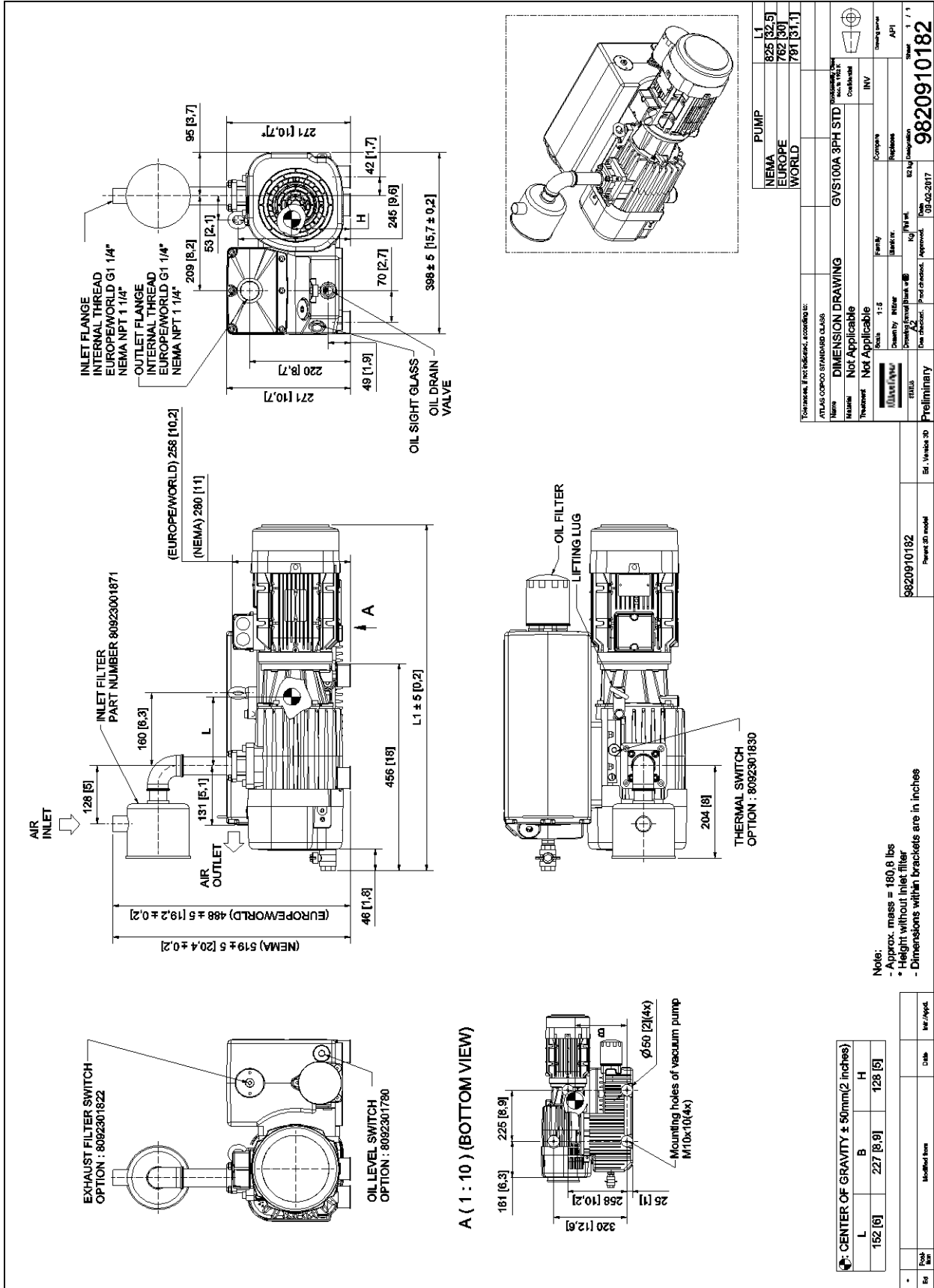
Oil injected into the pump chamber serves to seal, lubricate and cool the pump. The oil entrained with the compressed gas is coarsely trapped in the bottom part of the oil casing. Then fine filtering occurs in the integrated exhaust filter elements. The proportion of oil in the exhaust gas is thus reduced below the visibility threshold (over 99 % entrapment rate). The oil trapped in the exhaust filters is returned to the generator via an oil return line. To prevent gas flowing at atmospheric pressure from the oil reservoir into the intake port, the oil return line is controlled by a float valve. The oil cycle is maintained by the pressure difference existing between the oil casing (pressure above atmospheric pressure) and the intake port (pressure below atmospheric pressure).



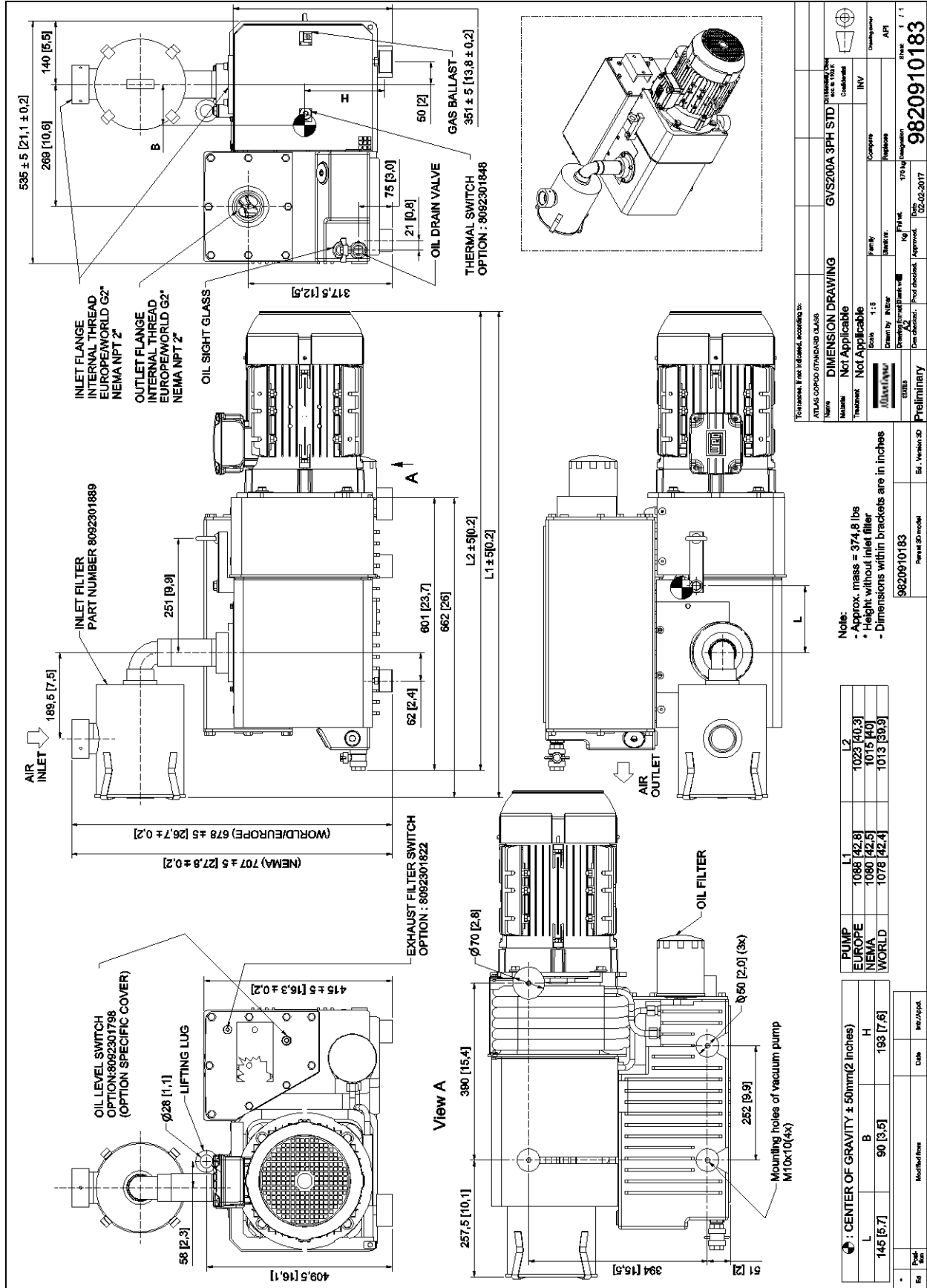
Dimension drawing GVS 40A



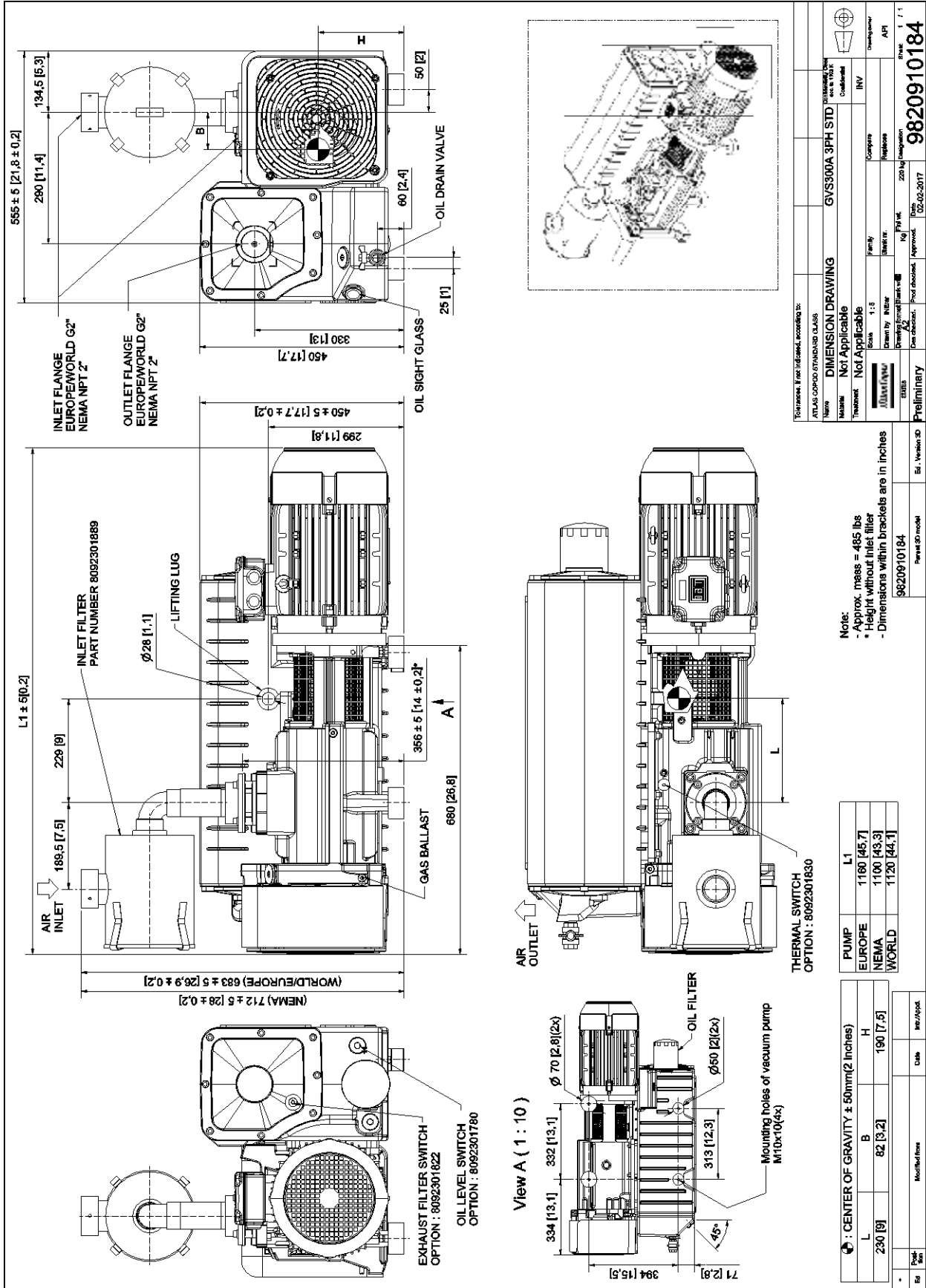
Dimension drawing GVS 60A



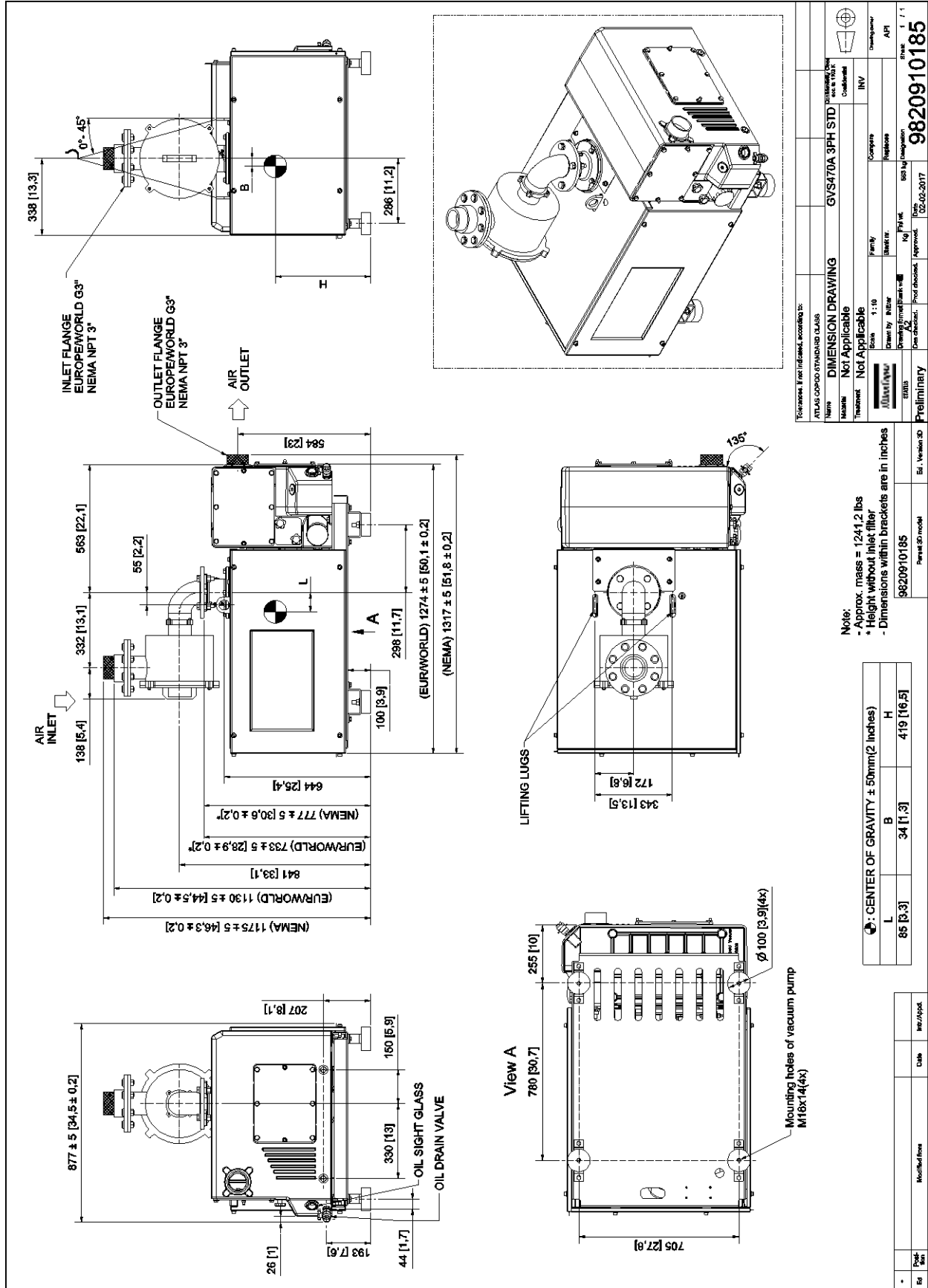
Dimension drawing GVS 100A



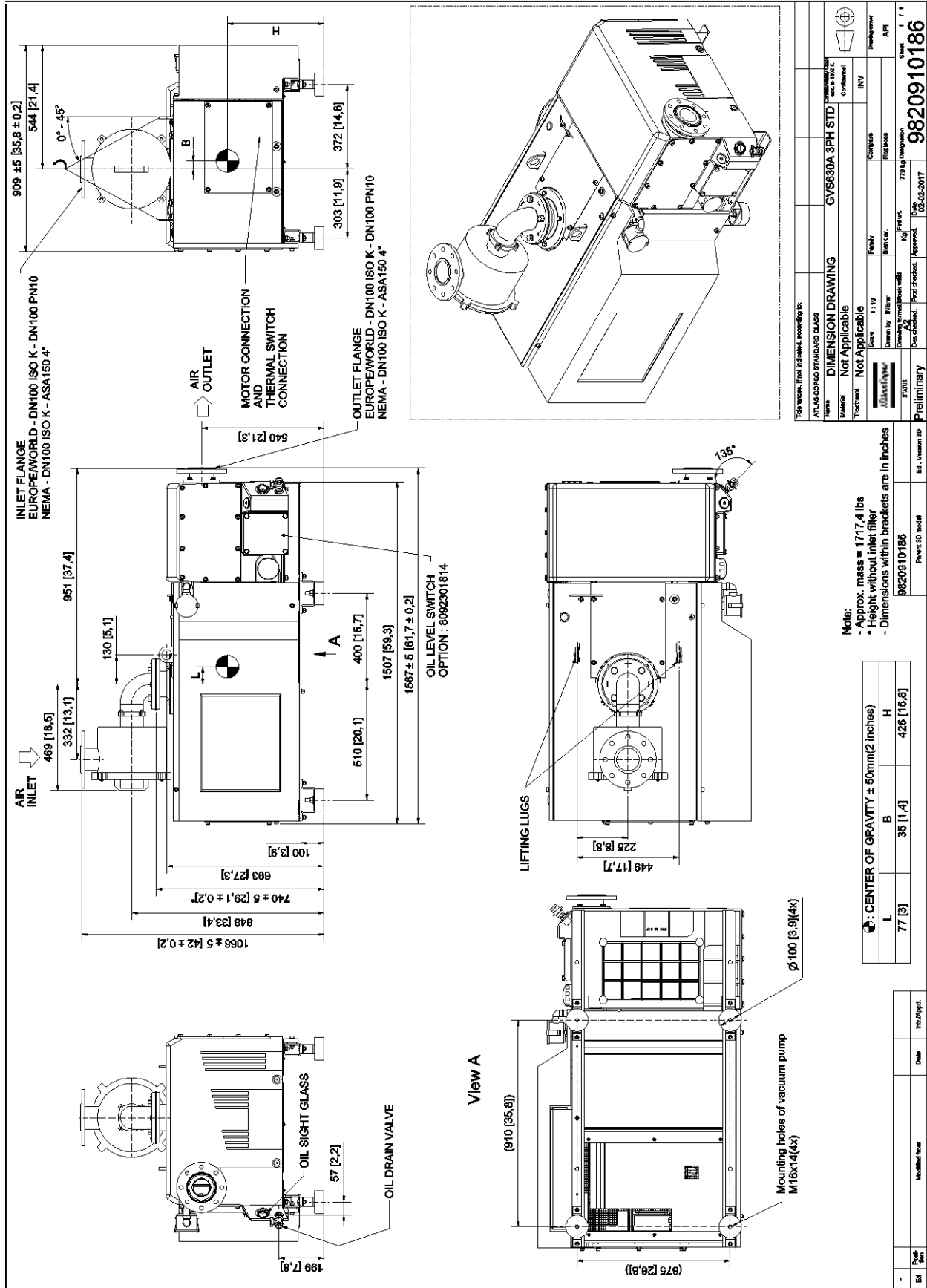
Dimension drawing GVS 200A



Dimension drawing GVS 300A



Dimension drawing GVS 470A



Dimension drawing GVS 630A

3.2 Installation proposal

OUTLET FLANGE EUROPEWORLD G 1/2" NEMA NPT 1/2"

INLET FLANGE EUROPEWORLD G 1/2" NEMA NPT 1/2"

LIFTING LUG (TO DISASSEMBLE FOR FILTER ASSEMBLY)

MOUNTING HOLES OF VACUUM PUMP

Dimensions: 267 ± 2 [10.5 ± 0.08], 56 [2.2], 218 [8.6], 128 [5], 198 [7.8], 34 [1.3], 347 ± 5 [13.7 ± 0.2], 440 ± 5 [17.3 ± 0.2], $B > 260$ [9.8], $A < 100$ [3.9]

A - SPACE FOR MOTOR VENTILATION
B - SPACE FOR EXHAUST FILTER EXCHANGE

Notes:
 - Standard version is shown.
 - The vacuum pump has to be installed on a level horizontal floor.
 - Correct process lines sizes have to be used to prevent restrictions and resulting pressure drops.
 - Ambient and inlet temperature may never exceed the limits of the pump's working range.
 - Dimensions within brackets are in inches
 - Approx. mass = 68,3 lbs

Reference: First indicator, according to:		ATLAS COPCO STANDARD CLASS		Title: INSTALLATION DRAWING GVS16-25A 1-3PH STD		Revision: 1/1		
Material:	Not Applicable	Scale:	1:1	Family:	Compress	Country/area:	API	
Treatment:	Not Applicable	Drawing Status:	Initial	Subst. no.:	31	Applications:		
Author:		Drawn by:		Checked by:		31 kg/operation		
Design:		Drawn by:		Checked by:		05-05-2017		
Date:		Drawn by:		Checked by:				
Preliminary							9820910187	

Installation proposal GVS 16A and 25A

OUTLET FLANGE
INTERNAL THREAD
EUROPEWORLD G1 1/4"
NEMA NPT 1 1/4"

INLET FLANGE
INTERNAL THREAD
EUROPEWORLD G1 1/4"
NEMA NPT 1 1/4"

Mounting holes of vacuum pump
M6x8(3x)

$\phi 50 [1.2](3x)$

L3

28 [1.1]

235 [9.3]

40 [1.6]

197 [7.8]

266 ± 5 [11.2 ± 0.2]

L4

(NEMA) 482 ± 5 [19 ± 0.2]

(EUROPEWORLD) 451 ± 5 [17.8 ± 0.2]

B > 360 [13.8]

563 ± 5 [22.2 ± 0.2]

A > 150 [5.9]

PUMP	L3	L4
1PH (USA/WORLD)	228 [8.9]	0 [0]
1PH (EUROPE)	220 [8.7]	0 [0]
3PH	288 [10.4]	10 [0.4]

A - SPACE FOR MOTOR VENTILATION
B - SPACE FOR EXHAUST FILTER EXCHANGE AND COOLING
AIR FLOW

Notes:

- Standard version is shown.
- The vacuum pump has to be installed on a level horizontal floor.
- Correct process lines have to be used to prevent restrictions and resulting pressure drops.
- Ambient and inlet temperature may never exceed the limits of the pump's working range.
- Dimensions within brackets are in inches.
- Approx. mass = 92.6 lbs

For services, please indicate, according to:

ATLAS COPCO STANDARD CLASS	GVS40A 1-3PH STD	Installation/Service
Name	INSTALLATION DRAWING	Orderbook
Material	Not Applicable	Orderbook
Treatment	Not Applicable	RVV
Scale	1:5	Compare
Drawn by	RTSR	Replicate
Checked by	RTSR	Check P.C.
Drawn by	RTSR	kg [lb wt]
Checked by	RTSR	kg [lb wt]
Drawn by	RTSR	Date
Checked by	RTSR	Date

Part No.	9820910180	Part No. model	9820910180
Rev.	01	Rev.	01
Date	03-02-2017	Date	03-02-2017
Sheet	1 / 1	Sheet	1 / 1

9820910188

Installation proposal GVS 40A

A - SPACE FOR MOTOR VENTILATION
B - SPACE FOR EXHAUST FILTER EXCHANGE AND COOLING AIR FLOW

Notes:
 - Standard version is shown.
 - The vacuum pump has to be installed on a level horizontal floor.
 - Correct process lines sizes have to be used to prevent restrictions and resulting pressure drops.
 - Ambient and inlet temperature may never exceed the limits of the pump's working ranges.
 - Dimensions within brackets are in inches.
 - Approx. mass = 125,7 lbs

Title block		Revision	
Name: INSTALLATION DRAWING			
Material: Not Applicable			
Treatment: Not Applicable			
Scale: 1:5		Drawing format: A2	
Drawn by: MSR		Checked by: MSR	
Date: 03-02-2017		Project: 9820910189	
Sheet: 1 / 1		Drawing code: 9820910189	

ATLAS COPCO STANDARD CLASS
 GVS60A 3PH STD
 125,7 lbs

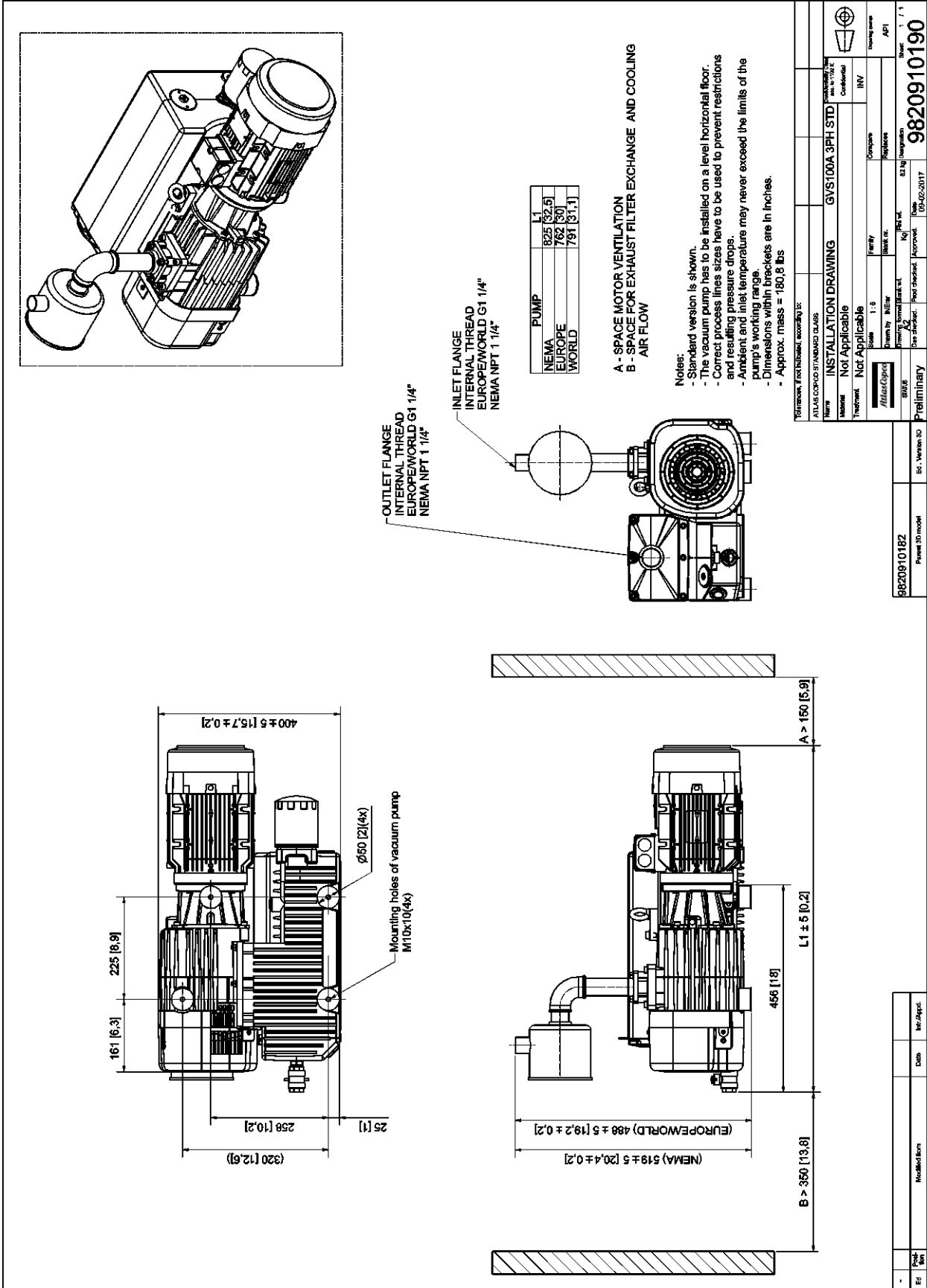
9820910181
 Final model

9820910189
 Preliminary

9820910189
 Final model

9820910189
 Preliminary

Installation proposal GVS 60A

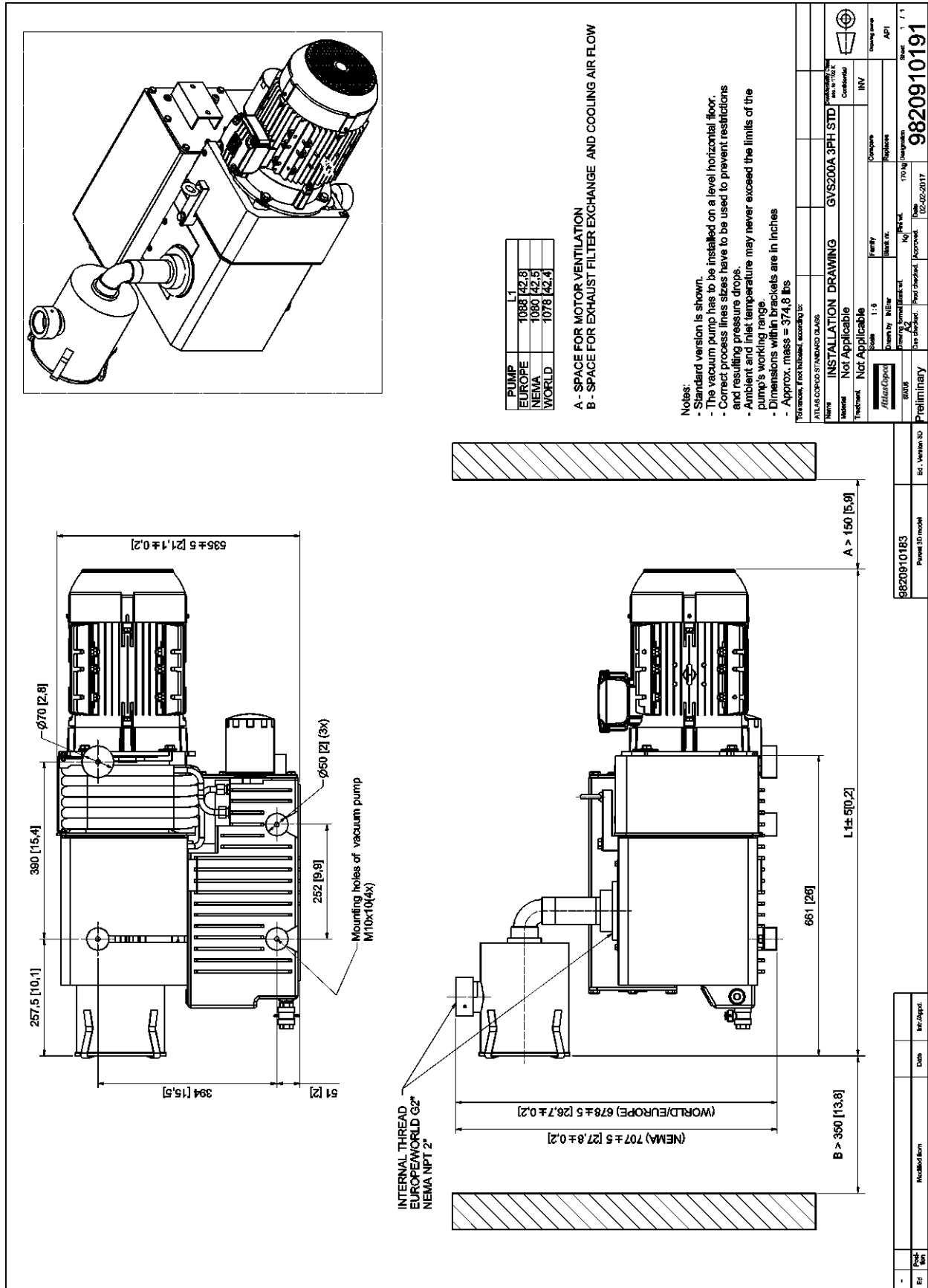


Installation proposal GVS 100A

Title block		Title block	
ATLAS COPCO STANDARD CLASS		ATLAS COPCO STANDARD CLASS	
Name	INSTALLATION DRAWING	Part number	GVS100A 3PH STD
Material	Not Applicable	Part name	Outlets
Treatment	Not Applicable	Quantity	INV
Scale	1:0	Complete	
Drawn by	NEE	Checked by	
Priority	Normal	Part no.	8112
Drawn date	09-02-2017	Part name	9820910190
Drawn by		Part no.	
Drawn date		Part name	
Drawn by		Part no.	
Drawn date		Part name	

9820910182	Part no.
9820910190	Part no.
9820910190	Part no.

Er.	Checked by	Date	Iss./Appr.



PUMP	L1
EUROPE	1088 42.8
NEMA	1080 42.5
WORLD	1078 42.4

A - SPACE FOR MOTOR VENTILATION
 B - SPACE FOR EXHAUST FILTER EXCHANGE AND COOLING AIR FLOW

- Notes:
- Standard version is shown.
 - The vacuum pump has to be installed on a level horizontal floor.
 - Correct process lines sizes have to be used to prevent restrictions and resulting pressure drops.
 - Ambient and inlet temperature may never exceed the limits of the pump's working range.
 - Dimensions within brackets are in inches
 - Approx. mass = 374,8 lbs

Technical drawing header information:

ATLAS COPCO STANDARD CLASS: GVS200A 3PH STD

Material: Not Applicable

Treatment: Not Applicable

Scale: 1:0

Drawn by: N.E.W.

Checked by: [Blank]

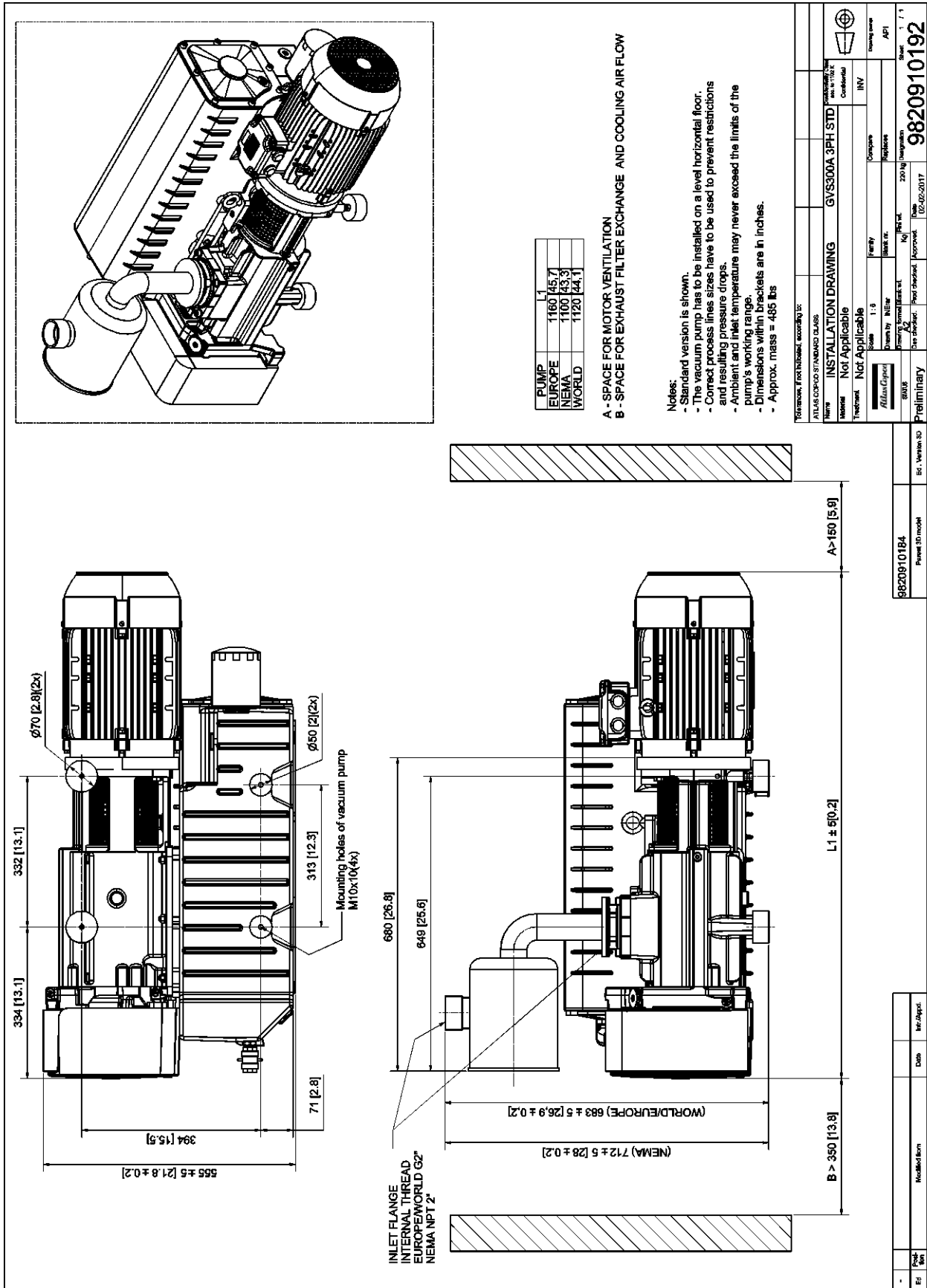
Approved by: [Blank]

Date: 02-02-2017

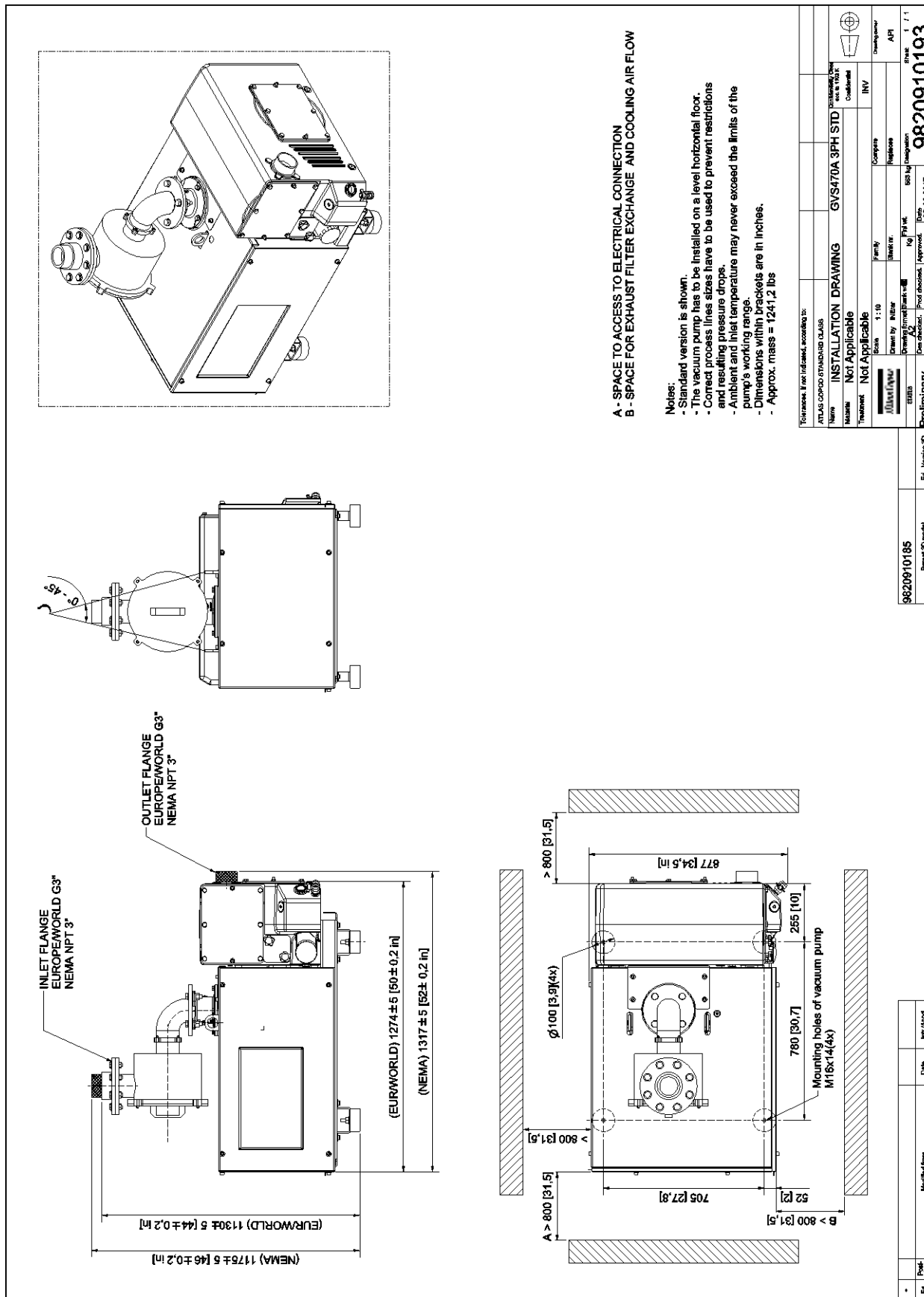
Sheet: 1 / 1

9820910191

Installation proposal GVS 200A



Installation proposal GVS 300A



A - SPACE TO ACCESS TO ELECTRICAL CONNECTION
B - SPACE FOR EXHAUST FILTER EXCHANGE AND COOLING AIR FLOW

- Notes:**
- Standard version is shown.
 - The vacuum pump has to be installed on a level horizontal floor.
 - Correct process lines sizes have to be used to prevent restrictions and resulting pressure drops.
 - Ambient and inlet temperature may never exceed the limits of the pump's working range.
 - Dimensions within brackets are in inches.
 - Approx. mass = 1241,2 lbs

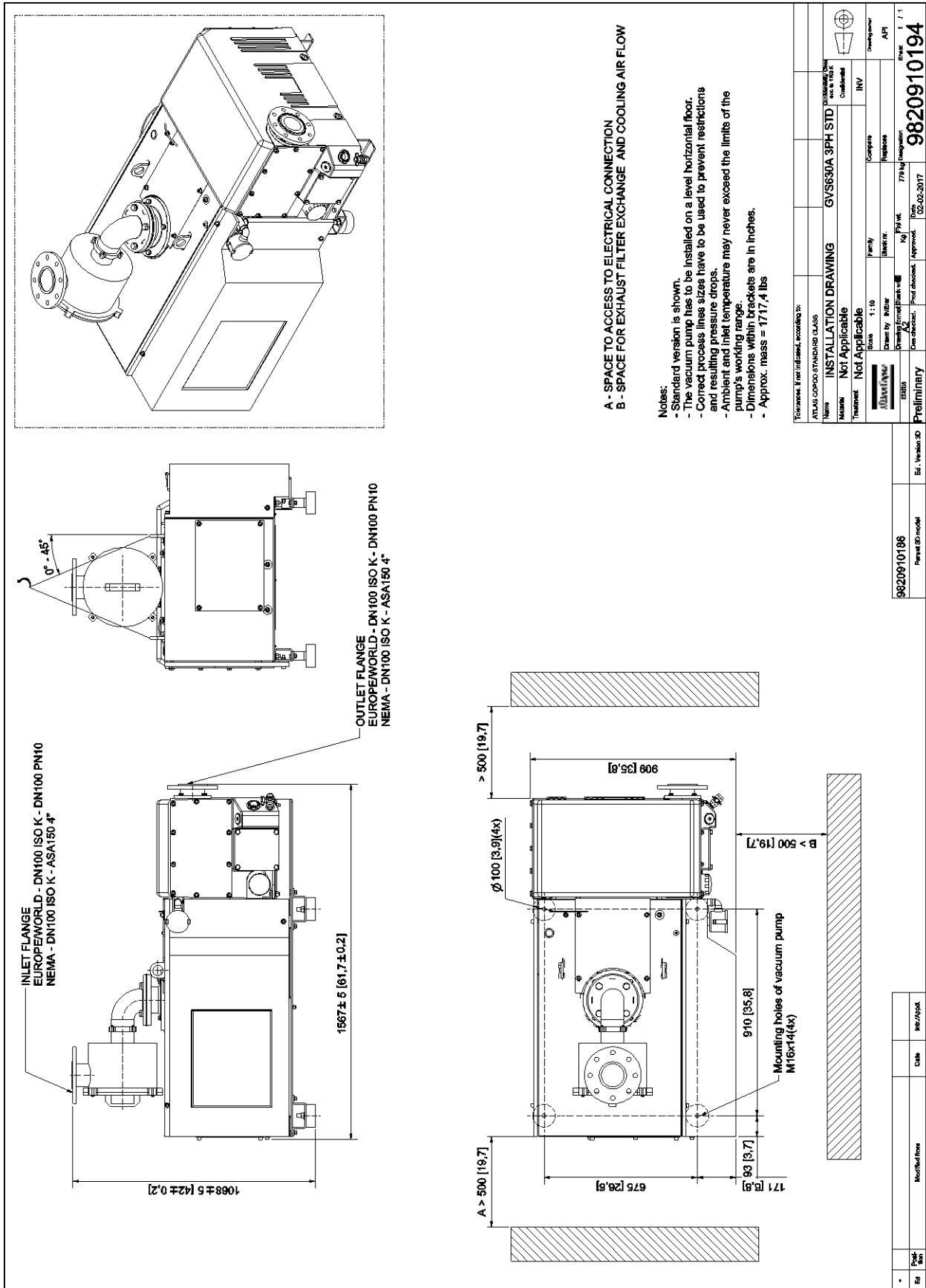
Reference: If not indicated, according to:		ATLAS COPCO STANDARD CLASS	
Name	INSTALLATION DRAWING	GV5470A 3PH STD	Drawing Code
Material	Not Applicable	Castaluminum	INVT
Treatment	Not Applicable	Compare	Compare
Scale	1 : 10	Partic.	Partic.
Drawn by	INVT	APR	APR
Checked by	INVT	APR	APR
Design Code	GV5470A	853 kg	853 kg
Part checked	Approved	Date	02-02-2017
Part approved	Approved	Date	02-02-2017
Part 1 of 1	Part 1 of 1	Part 1 of 1	Part 1 of 1

9820910193

9820910185

Rev.	Part 1 of 1	Modified from	Date	Rev/Approx.

Installation proposal GVS 470A



Installation proposal GVS 630A

Note 1	Dimensions I and F depend on the motor selected.
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Installation guidelines

- The following list must be used as a guide for the installation of GVS vacuum pumps. The list is not exhaustive. Every vacuum pump installation is unique and care must be exercised in the placement of each pump. If you are unsure of any installation variable, please consult Atlas Copco.
- Install the pump on a solid, level surface, suitable for taking its weight. Respect the minimal distance between the pump and the walls (see drawing).
- Correct process lines sizes have to be used to prevent restrictions and resulting pressure drops. As a rule of thumb, the inlet diameter of the pump should be maintained as far into the process as possible. Consult Atlas Copco for piping recommendations.
- The required ventilation capacity to limit the vacuum pump room temperature can be calculated from $Q_v = 0.2 N/\Delta t$, with
 - Q_v = required ventilation capacity in m^3/s
 - N = shaft input of the vacuum pump in kW.
 - Δt = temperature increase of the incoming ventilation air in the vacuum pump room in $^{\circ}C$
- Make sure all piping connections from the pump to the point of use are leak tight and secure. Leaks add load to the vacuum pump. They decrease the available pump capacity and spoil the attainable ultimate pressure. All welds must be vacuum compatible.
- Vacuum rated isolation valves must be used. Compressed air valves and vacuum valves differ in their sealing characteristics and compressed air valves may leak in vacuum applications.
- All piping should be as straight as possible with non-restrictive diameters. Elbows, bends, tees and tapers should be used only when absolutely necessary.
- Keep plumbing and system free of fluids, water, dirt, and debris that are not part of the process. These can cause obstructions in the vacuum flow through the piping and can reduce available pumping capacity.
- Exhaust piping should be installed in such a manner that it does not create additional back pressure on the vacuum pump. Also, the exhaust piping should be installed sloping away from the vacuum pump.
- A recommended alternative is the use of a drip leg with drain point provision, to prevent condensate from running back into the fluid reservoir.
- Take extreme care in selecting the proper inlet filtration system for the vacuum pump. Liquids, solids and abrasive powders must be prevented from entering the vacuum pump to prevent mechanical failure or reduced lifetime. Inlet filtration must be installed on every pump. The potential for particulate contamination in rough vacuum applications is significant. The particle micron retention of the filter element must be smaller than the smallest possible particle load. Also, the inlet filter should be mounted in such a way to prevent particles from falling into the inlet of the vacuum pump during cleaning or changing of the filter element.
- If there is a risk for liquids to be drawn into the vacuum system, a liquid separator should be used to separate these liquids from the incoming air. In applications where there is significant amount of liquid, consult Atlas Copco.
- Keep the vacuum pump room dry and free from contamination.
- Follow recommended lubricant change schedules in normal applications (air) and watch closely the condition and appearance of the fluid in chemical or harsh applications. Check the leak rate of the system by pumping down to the ultimate pressure and then valve off the vacuum pump. Monitor the pressure rise over a period of five or ten minutes and record this rate of rise for future reference. This value is a good tool to have if you believe there are pump or system problems. Compare new value with the original.
- When pumping condensable vapours and particulates, more frequent fluid changes are required to maintain pump life. Consult Atlas Copco about types and styles of filtration units.

- Be sure there is no back pressure on the exhaust line of the vacuum pump. Vacuum pumps are not specifically designed to compress exhaust gas above atmospheric pressure. Significant back pressure can overheat the pump and cause motor overloading. Back pressure on the pump should not exceed 0.15 bar(e) under normal operating conditions.
- Maintain system seals on a regular basis. Damaged O-rings and gaskets must be replaced immediately. All flange faces must be free of dirt, lubricant and scratches.
- Do not use collapsible tubing to plumb the vacuum system. Any restrictions in line diameter caused by tube collapse will reduce available pumping capacity.
- In multiple pump installations, check valves should be installed in the inlet piping. This will prevent fluid from being drawn from an 'off' unit into an operating unit. Check valves should be properly sized so as not to "chatter" during operation. Spring loaded, elastomer seated check valves are recommended. These should be mounted in a horizontal flow orientation. Using properly sized actuated valves is even a better solution. This generally results in a lower pressure drop when open and in a better sealing when closed.
- Vacuum gauge ports and gauges should be installed in each leg of central vacuum piping. This provides a diagnostic tool for troubleshooting both the application and any pump related problems.
- Make sure that no temperature sensitive parts (plastic, wood, cardboard, paper, electronics) will touch the surface of the vacuum pumps.
- Ambient and inlet temperature may never exceed the limits of the pump's working range. Make sure the installation location is vented such that a sufficient cooling of the vacuum pump(s) is available.

Special recommendations for using oxygen prepared pumps, filled with PFPE fluid

At the customer's site, it must be taken care of the following points:

- Pump exhaust must be collected & gases handled according applicable regulations.
- Use of only genuine spares & consumables. Use only dedicated PFPE Service kits for oxygen pumps.
- Accessories retrofitted on oxygen pumps must be hydrocarbon degreased using an adapted solvent. Take all required precautions.
- Use of PFPE fluid provided by Atlas Copco only.
- Making sure that PFPE fluid level in the pump is correct before switching on.
- When changing the exhaust filters, the pump must be operated for half an hour with closed intake but open GB sucking ambient air or inert gas for wetting the exhaust filters with PFPE. In case no gas ballast is provided, let the pump run for 5 minutes at atmospheric pressure on ambient air or inert gas.



For the pumps using perfluoropolyether (PFPE) as lubricant and when handling PFPE observe the following:

During thermal decomposition at temperatures over 290 °c toxic and corrosive gases are released. This is not likely to happen in a GVS A pump. When handling PFPE keep it way from open fires. Do not smoke with PFPE on your fingers.

Touch the inner sections of the pumps only while wearing clean gloves, and use clean tools; do the necessary work in clean and dry rooms.

The grease of the bearings has to be changed once a year for an operating time higher than 5000 h per year or every 5000 hours for an operating time lower than 5000 h/year.

Clean the bearings before regreasing.

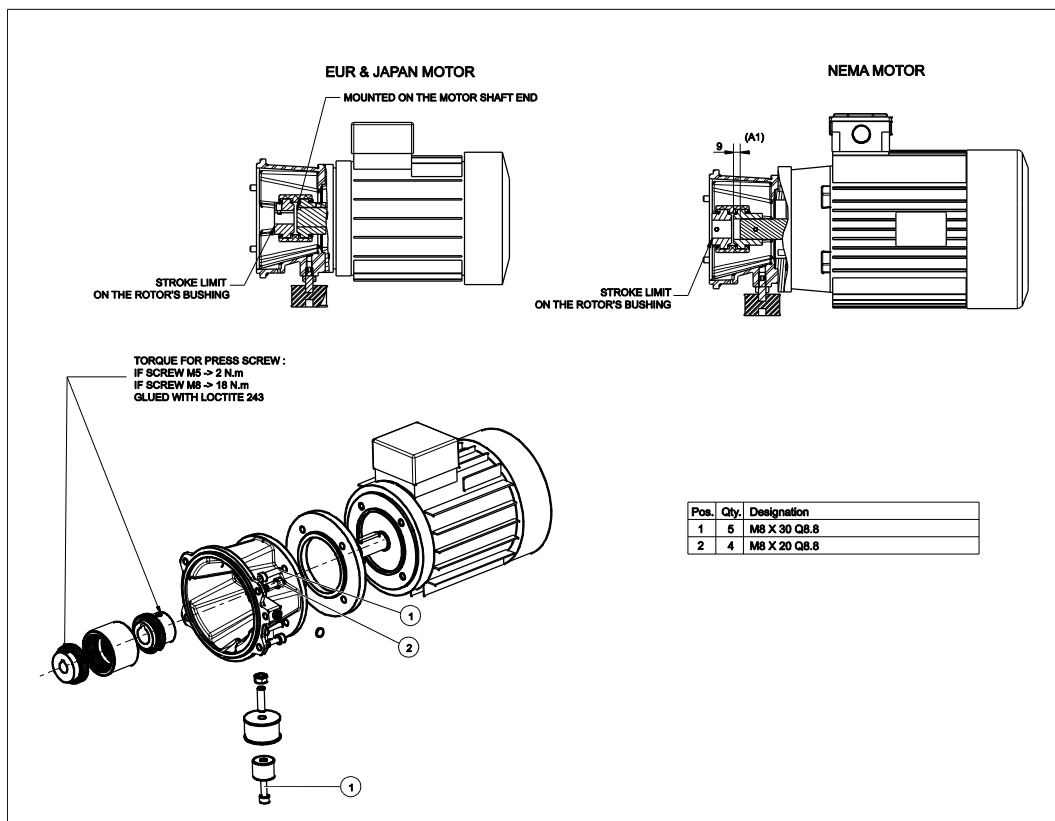
3.3 Motor installation (if applicable)

It is possible to install any type of electric or hydraulic motor of which the specifications comply to the technical data, with flange and shaft corresponding to:

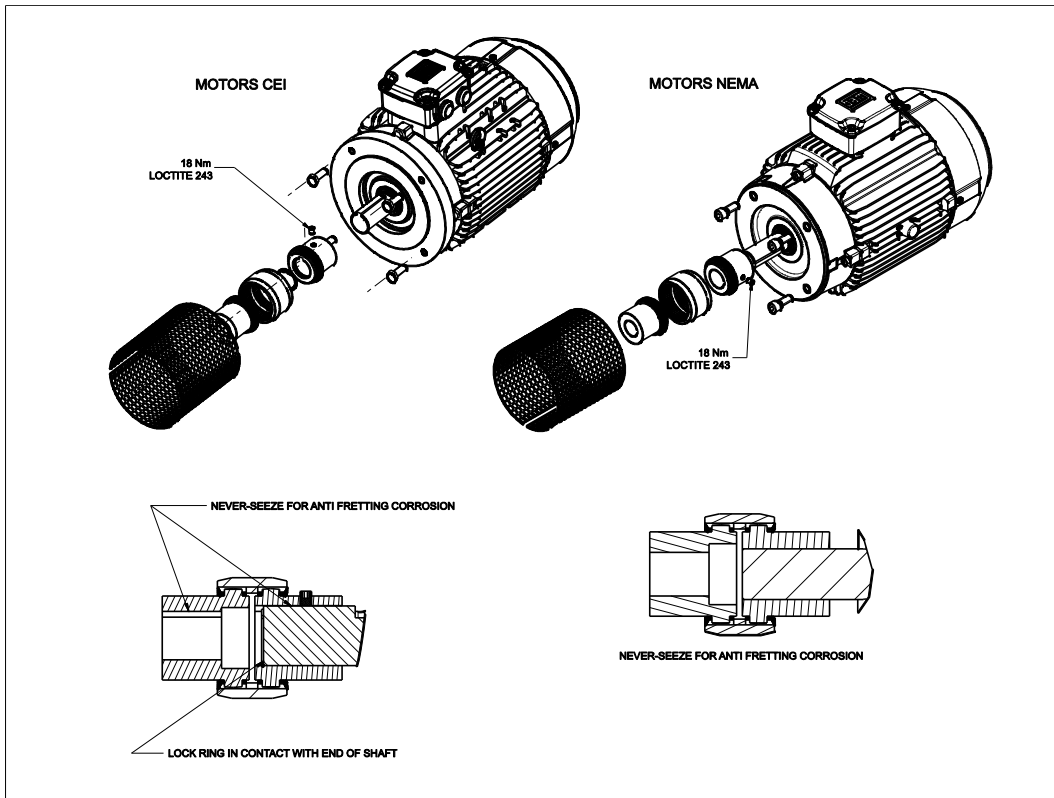
- M112 – B14 (FT130) size as per standard IEC60072-1 (for Europe and Wide motor versions) and motor frame size 213 with 184 TCH flange for Nema motor version for GVS 100A
- M112 – B5 (FF215) size as per standard IEC60072-1 (for Europe and Wide motor versions) and motor frame size 213 TC for Nema motor version for GVS 200A
- M132 – B14 (FT215) size as per standard IEC60072-1 (for Europe and Wide motor versions) and motor frame size 256 TC with 215 TC flange for Nema motor version for GVS 300A

Motor installation instructions

- Remove the fixing clamp from the connecting joint on the pump.
- Fit the assembly on the motor shaft taking into account the stated measure.
- Tighten screw to firmly fix the assembly to the shaft.



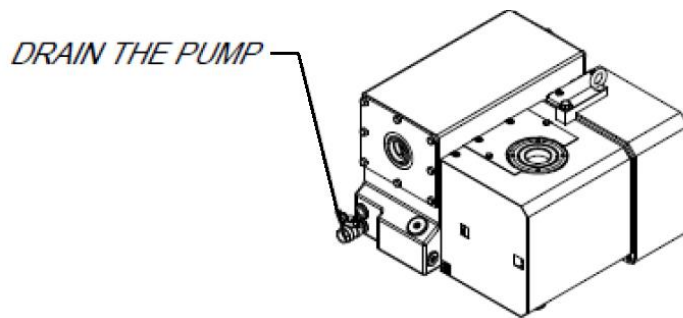
GVS 100A Motor coupling half position



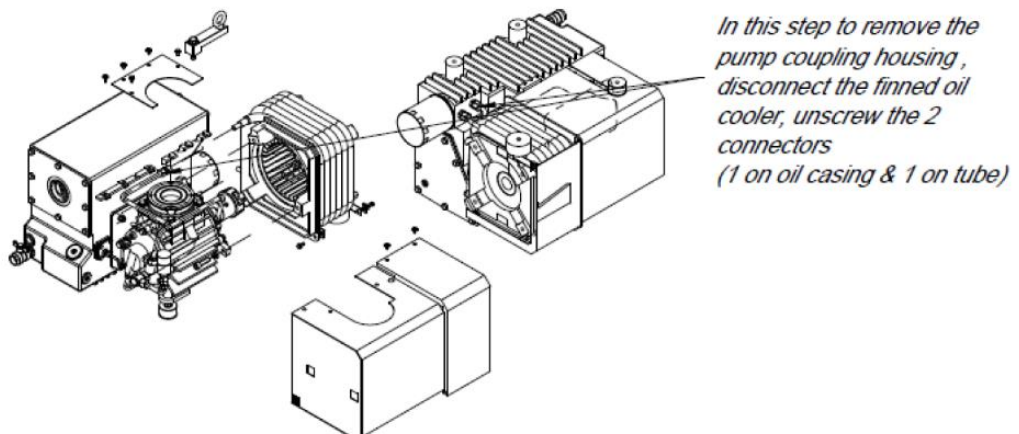
GVS 300A Motor coupling half position

Motor installation instructions for GVS200A

1. Place a suitable container underneath the pump to catch the oil spillage. Remove the drain plug. Drain the pump.



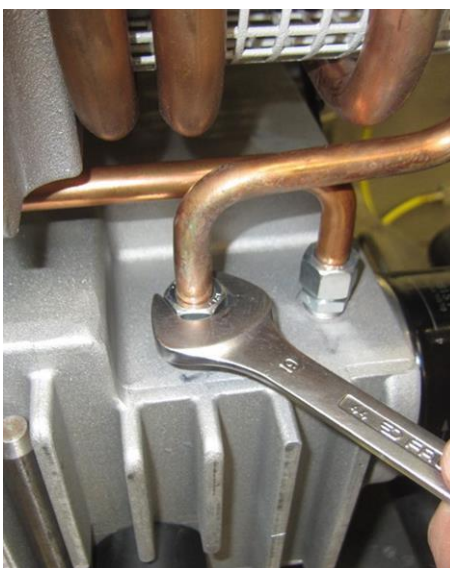
2. Remove the pump coupling housing, disconnect the finned oil cooler and unscrew the two connectors (1 on oil casing and 1 on tube) as explained in following steps:



- a. Remove three screws securing coupling housing. Remove coupling housing.



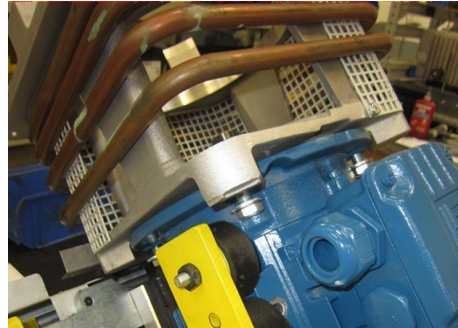
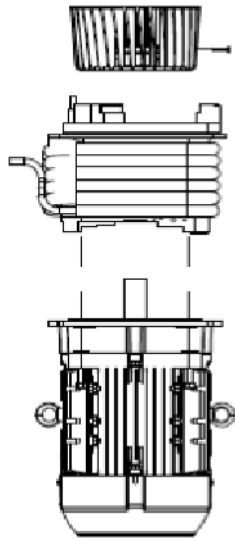
- b. Unscrew the oil cooler connector on casing.



- c. Unscrew the oil cooler connector on tube.

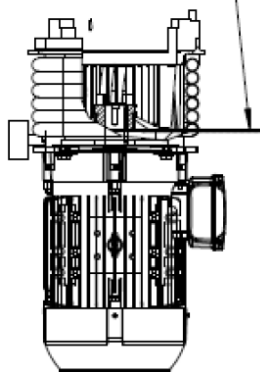


- Place motor in vertical orientation so that motor shaft facing upwards.



- Ensure the turbine support on a 3mm thickness spacer.

3 ± 0.5 mm THICKNESS SPACER

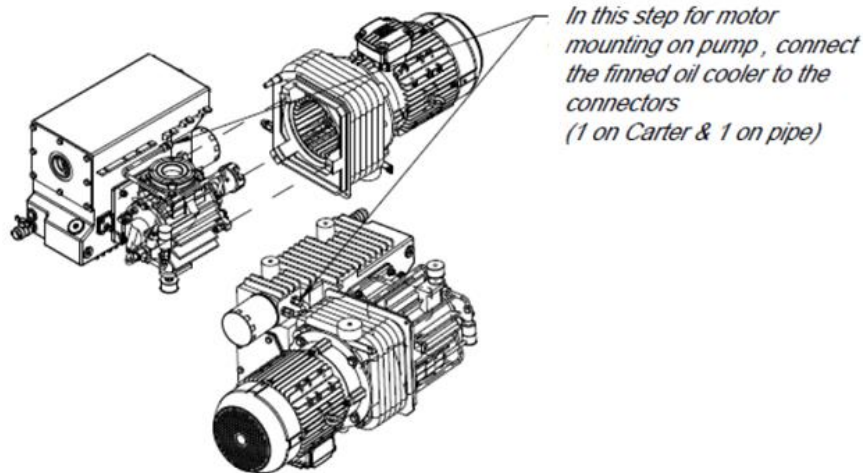


B-B

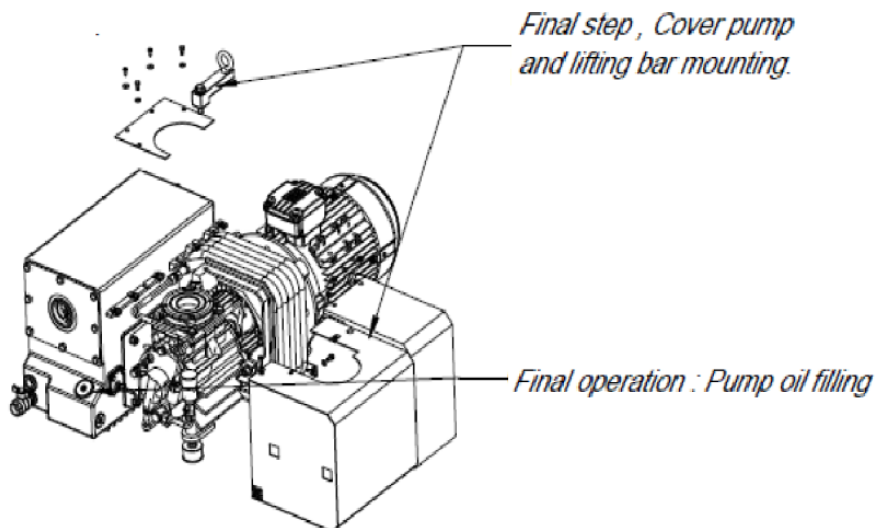
- Tighten the screw to 2 N.M torque. Apply LOCTITE 243.



6. In order to assemble motor and coupling housing on pump, follow step 2 in reverse order.



7. Cover the pump. Mount lifting bar on the pump.

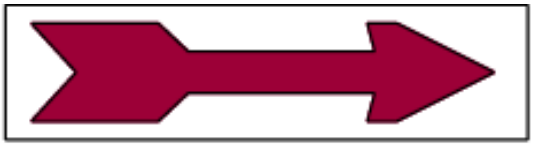


8. Refit the drain plug. Pour recommended quantity of oil in the pump.

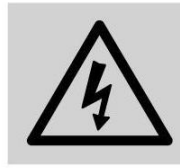
3.4 Electrical connections

- Always use a protection system, including an overcurrent protection and an electrical disconnecting device, between the pump and the electric power supply. Motor currents can be found on the motor data plate. The pump is normally delivered without electrical cable and without switch. For the electrical connection, check the diagram inside the terminal box or on the motor data plate.
- Additional safety devices are available as options including an oil pump temperature switch.

3.5 Pictographs



1



2



3

83173D

Reference	Designation
1	Rotation direction of fan
2	Warning: voltage
3	Hot surface warning

4. Operating instructions

4.1 Initial start-up

Safety



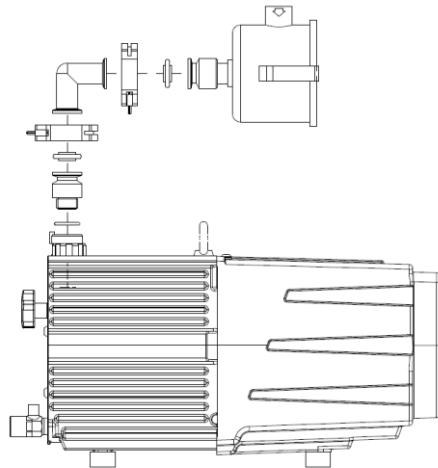
The operator must apply all relevant safety precautions. See section [Safety precautions during operation](#).

Procedure

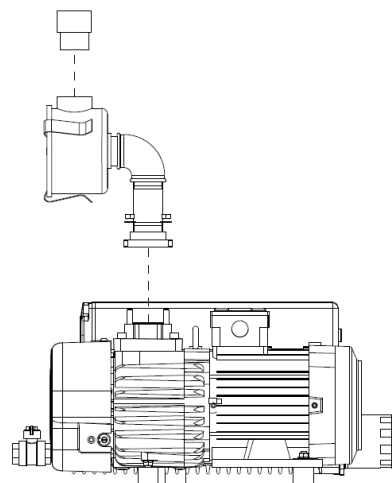


The pump is supplied with oil inside (except for O₂ - versions).

If the air intake filter (optional) is delivered loose, mount it in a leak-tight manner according to the following instructions:



GVS 16A and GVS 25A



GVS 40A up to GVS 300A

The air intake filter (optional) should be installed in a horizontal position to prevent filtered dust falling into the pump inlet when replacing the air intake filter element and resulting damage to the pump.

Initial start-up instructions:

- Check the process lines for the correct size to prevent high pressure drop and for cleanliness to protect the vacuum pump.
- Make sure the pump outlet is not obstructed.
- Check that the electrical connections correspond to the applicable codes and that all wires are clamped tight to their terminals. The installation must be earthed and protected against short circuits by fuses of the inert type in all phases. An isolating switch must be installed near the vacuum pump.
- Switch on the voltage and switch it off immediately. Check the rotation direction of drive motor while the motor is coasting to a stop. The correct rotation direction of the drive motor is indicated by an arrow shown on the motor fan cowl. If the rotation direction of the drive motor is incorrect, open the isolating switch and reverse two incoming electric lines. Incorrect rotation direction of the drive motor may cause damage to the vacuum pump.
- Start and run the vacuum pump for a few minutes. Check that the vacuum pump operates normally.



If you intend to apply the vacuum pump on humid applications, it is recommended that the unit is allowed to achieve optimal running temperature before it's effectively put in operation. This can be done by running the unit against a closed suction line for 30 minutes with open gas ballast.

Gas ballast location and use is indicated on the pump dataplate.

4.2 Starting

Procedure:

- Check oil level and oil condition.
- Switch on the voltage.



To avoid excessive energy consumption and damage to the vacuum pump the maximum allowed starting frequency is 6 starts per hour.
For more frequent operation, let the pump run continuously and control the vacuum demand by a pitot valve on the pump inlet.

4.3 During operation



The operator must apply all relevant safety precautions. See section [Safety precautions during operation](#).
Also consult section [Problem solving](#).

Regularly check the oil level and the oil condition. The oil level should be in the middle of the oil sight glass. See instructions in sections [Preventive maintenance schedule](#) and [Oil and oil filter change](#).

4.4 Stopping

We recommend running the unit off-line for typically 30 minutes with closed inlet valve but open gas ballast prior to switching off. This will condition the oil ready for the next start-up. If the gas stream was heavily contaminated with water vapour, a longer period of running the unit off-line can only extend oil lifetime.

If the pump is stopped before all the condensed vapour has been disposed off, it will be deposited by gravity separation from the oil on the bottom of the oil after about 8 to 10 hours.

Before restarting, check for any water in the oil tank-leads to an increase of the oil level-through the oil viewer (high water handling capability versions only). If there is water, follow the instructions from paragraph 5.1.

In case of long machine downtime, check section [Taking out of operation](#).

4.5 Taking out of operation



The operator must apply all relevant safety precautions. See section [Safety precautions during operation](#).
Also consult section [Problem solving](#).


Procedure

- Switch off the voltage and disconnect the vacuum pump from the mains.
- Drain the oil.
- Recycle the oil, oil filter and exhaust filter(s) in accordance with local environmental regulations for waste disposable and recycling.

5. Maintenance

5.1 Preventive maintenance schedule

Warning

	<p>Before carrying out any maintenance, repair work or adjustments, proceed as follows:</p> <ul style="list-style-type: none"> • Stop the vacuum pump. • Switch off the voltage. • Effectively isolate the machine from all sources of under- and/or overpressure and make sure that the pump system is at atmospheric pressure level. <p>For detailed instructions, see section Problem solving.</p> <p>The operator must apply all relevant safety precautions. See section Safety precautions during maintenance or repair</p>
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Warranty - Product Liability

Use only authorised parts. Any damage or malfunction caused by the use of unauthorised parts is not covered by Warranty or Product Liability.

Service kits

For overhauling or carrying out preventive maintenance, service kits are available (see section [Service kits](#)).

Service contracts

Atlas Copco offers several types of service contracts, relieving you of all preventive maintenance work. Consult your Atlas Copco Customer Centre.

General

When servicing, replace all removed O-rings and washers.

Intervals

The local Atlas Copco Customer Centre may overrule the maintenance schedule, especially the service intervals, depending on the environmental and working conditions of the vacuum pump.


The longer interval checks must also include the shorter interval checks.

Preventive maintenance schedule

Operation	Duty**		
	Normal	Medium	Harsh
Check oil level & condition.(See note below)	24 h	24 h	24 h
Clean dirt trap at pump inlet	Monthly	Monthly	Monthly
Clean anti suck back valve at pump inlet.	Yearly	Yearly	Yearly
Change oil*, oil filter (if installed) & exhaust filter			
Mineral oil	4000 h	2000 h	1000 h
Synthetic oil	8000 h	4000 h	1000 h
PFPE oil	8000 h	4000 h	4000 h
Clean the pump, the radiator and the motor fan guard	2000 h	1000 h	500 h
Replace the air exhaust filter	3000 h	2000 h	500 h
Check the vanes. Replace them, if needed	15000 h	10000 h	5000 h
Check belt condition (GVS 470– 630A)	Every 2000 h or 6 months	Every 2000 h or 6 months	Every 2000 h or 6 months


* : Just oil filtration in case of PFPE oil.

** : 4000 running hours or 1 year or whatever comes first.

	<p>Important note:</p> <p>We recommend to monitor the oil condition through the sight glass and to change the oil when it becomes discolored or milky. Not changing oil in time can lead to premature blocking of the air exhaust filter and even failure of the vacuum pump.</p> <p>Also check for condensed water vapour on the bottom of the oil tank through the oil viewer (high water handling capability versions only). If there is condensed water vapour, open the oil discharge valve slightly, let the condensed water vapour flow out and close it again as soon as oil starts to come out. Check the oil level and top up if necessary.</p>
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5.2 Oil specifications

It is strongly recommended to use only the genuine recommended lubricants. They are the result of years of field experience and research. See section Preventive maintenance schedule for the advised replacement intervals and consult your spare parts list for part number information.

	<p>Avoid mixing lubricants of different brands or types as they may not be compatible and the oil mix will have inferior properties.</p> <p>Always drain the pump as good as possible. Used oil left in the pump shortens the lifetime of the new oil.</p>
--	--

GVS A pumps are delivered with either synthetic or PFPE vacuum pump oil.

Recommended viscosity:

- GVS 16 – 25A : ISO VG 32
- GVS 40 – 630A :
 - Mineral oil : ISO VG 68
 - Synthetic / PFPE oil : ISO VG 100

5.3 Storage after installation

Procedure

In order to keep rubber parts and lip seals efficient and properly working, we recommend to operate the pump for at least 30 minutes every 6 months with the intake closed.

Store the pump in its packing in a covered, dry place at a temperature between -20°C (-4 °F) and 50°C (122 °F).

If the vacuum pump is going to be stored without running from time to time, protective measures must be taken. Consult Atlas Copco.

5.4 Service kits

Service kits

For overhauling and for preventive maintenance, a wide range of service kits is available. Service kits comprise all parts required for servicing the component and offer the benefits of genuine Atlas Copco parts while keeping the maintenance budget low.

Also a full range of extensively tested lubricants, suitable for your specific needs is available to keep the vacuum pump in excellent condition.

Consult the Spare Parts List for part numbers.

5.5 Disposal of used material

Used filters or any other used material (e.g. lubricants, cleaning rags, machine parts, etc.) must be disposed of in an environmentally friendly and safe manner, and in line with the local recommendations and environmental legislation.

6. Adjustments and servicing procedures

6.1 Drive motor

Instructions

On GVS 100 – 630 A (GVS 16 – 60A don't have motor bearings) the motor bearings must be changed every 20000h. Check recommendations on the motor supplier's website. If installed remove the motor condensate drain plug yearly. Keep the motor free from dust for optimal cooling.

6.2 Exhaust filter replacement

GVS 16A and GVS 25A

- Remove the filter cover, by unscrewing the knob, together with the O-ring and the spring.
- Remove the filter with the O-ring.
- Clean the contact surface of the filter cover O-ring before reassembling the new parts.
- Fit the new O-ring in the new exhaust filter and insert them in their lodge.
- Fit the new O-ring in the filter cover and mount the spring on the filter end.
- Reassemble the parts, pushing on the filter cover while screwing by hand.

GVS 40A, GVS 60A and GVS 100A

- Unscrew the 4 or 6 screws of the filter cover and remove the filter cover together with the O-ring.
- Remove the exhaust filter(s) from the filter cover.
- Clean the exhaust filter O-ring lodge and the filter cover O-ring before reassembling the new parts.
- Install the new exhaust filter(s) following the instructions delivered with them.
- Reassemble the filter cover.

GVS 200A

- When the exhaust filter elements are clogged, the valves open and the filters are bypassed. Oil mist at the exhaust, and/or high oil consumption are signs that the exhaust filters are clogged.
- The exhaust filters must be replaced more frequently if subject to increased oil cracking products at high operating temperatures and/or aggressive media.
- Remove the exhaust flange with gasket. Unscrew the lock nut and remove spring between its both washers: take out the exhaust filter element(s).
- Take out the pressure relief valves and check that they move freely, and seal properly.
- Reassemble in the reverse sequence. Ensure that the exhaust filter elements are properly centered and positioned. Install spring between its both washers, and tighten stop nut, fully home with the 10 mm box wrench.

GVS 300A

- Remove the screws of the exhaust plate using a 8 mm Allen key.
- Lift the 3 exhaust filters from the W shaped metal sheet holder and remove them from the oil casing.
- Make sure that the new exhaust filters have the O-ring (opposite side of overpressure valve) and grease them using Atlas Copco vacuum grease.

- Replace the O-ring of the exhaust plate.
- Insert new exhaust filters. They are guided in the oil casing correct position. Make sure the compression springs are behind the W shaped metal sheet holder.
- Plug the exhaust plate on the W shaped metal sheet holder with the 2 location pins and screw the exhaust plate on the oil casing using a 8 mm Allen key.

GVS 470A

Tools required: Tubular box wrench 16 mm.

- When the exhaust filter elements are clogged, the integrated by-pass opens and the filters are bypassed. Oil mist at the exhaust, and/or high oil consumption are signs that the exhaust filters are clogged.
- The exhaust filters must be replaced more often if subjected to increased oil cracking products at high operating temperatures and/or aggressive media.
- Remove the cover with gasket. Remove the exhaust deflector by unscrewing the bolt.
- Remove both demister support units by unscrewing the nuts.
- The exhaust filters can be removed individually.
- Check also the float valve.
- Plug new exhaust filters into the oil casing.
- Insert carefully the demister support units over the new exhaust filters threaded bars (M6) and compress slightly the demister springs.
- Tighten the demister support units with the 4 nuts and the exhaust deflector. If necessary mount a new seal and mount the exhaust plate.

GVS 630A

Tools required: tubular box wrench 16 mm

- When the exhaust filter elements are clogged, the integrated by-pass opens and the filters are bypassed.
- Oil mist at the exhaust, and/or high oil consumption are signs that the exhaust filters are clogged.
- The exhaust filters must be replaced more often if subjected to increased oil cracking products at high operating temperatures and/or aggressive media.
- Remove the cover with gasket. Remove the exhaust deflector by unscrewing the bolt. Remove both demister support units by unscrewing the nuts.
- The exhaust filters can be removed individually. Check also the float valve.
- Plug new exhaust filters into the oil casing. Insert carefully the demister support units over the new exhaust filters threaded bars (M6) and compress slightly the demister springs.
- Tighten the demister support units and the exhaust deflector. If necessary mount a new seal and mount the cover.

6.3 Oil and oil filter change

Warning



Always apply all relevant safety precautions. See section [Safety precautions during maintenance or repair](#).

Always drain the oil at all drain points. Used oil left in the pump can contaminate the oil system and can shorten the lifetime of the new oil.

Never mix lubricants of different brands or types as they may not be compatible and the oil mix will have inferior properties.

If the oil is replaced, replace the oil filter (if applicable) and exhaust filter(s) too.

Oil change procedure

- If the pump is cold run the pump with closed suction intake during about 10 minutes to warm up the oil.
- Stop the pump and disconnect it from the mains.
- Remove the oil filler plug.
- Open the oil drain valve and drain the oil completely into a container large enough to hold all oil and tilt the pump slightly (if possible).
- Close the oil drain valve and fill with new oil via the filler plug up to the middle of the oil sight glass. The oil level may not exceed the allowed maximum level!
- Close the oil filler plug.
- Wipe off eventual oil spills from the pump and/or the floor.
- Connect to mains again and verify correct rotation direction of the pump.
- Let the pump run with closed intake for a few minutes, stop the pump and check the oil level. Top up if necessary.

Oil filter change (not applicable to GVS 16A and GVS 25A)

- Drain the used oil completely following above instructions.
- Remove the oil filter.
- Apply a thin film of oil on the gasket of the new oil filter.
- Clean carefully the contact surface of the gasket on the tank and fit the new oil filter.
- Fill with new oil following above mentioned instructions.

Oil type change

- To prevent the oil dissolving residual oil sludge (and hence blocking channels), strictly follow the following procedure:
- Drain the used oil completely (tilt the pump slightly if possible).
- Clean the exhaust filter housing inside manually as good as possible (e.g. with clean dry cloth).
- Change the oil filter, but leave the existing exhaust filters inside the housing.
- Fill the pump with the correct amount of new synthetic oil.
- Run the pump for about 2 hours, then stop it. Drain the oil, clean inside as before and change the oil filter again.
- Refill with new oil and change the exhaust filters. Repeat this procedure until the oil remains clean (sight glass).

6.4 Cleaning radiator, motor fan guard and pump

Radiator, motor fan guard and pump must be kept clean. This can be done using compressed air and a dry cloth. Be careful not to damage the oil cooler (if applicable) by cleaning with compressed air or by exerting excessive pressure with the cloth.

Do not use fluids or substances other than those indicated.

6.5 Cleaning the intake filter (optional) element

1. Remove the intake filter element from the housing.
2. Clean the intake filter element in one of the following ways:
 - Hand washing:
Soak and agitate element in a warm water and mild detergent solution. Allow adequate time for the element to air dry (24 hours minimum). Do not install a damp element. This will cause higher initial pressure loss and rapid dirt loading.
 - Compressed air cleaning:
Using approximately 7 bar(e) (100 psi(g)), direct air flow at inside of element towards pleats. Blow off the outside of the element directing the air flow down to avoid embedding dirt in the media. Blow off the inside again to remove any dirt that might be on the clean side of the element.
 - Vacuum cleaning:
Point the vacuum cleaner to the dirty side (outside of element) only, using a vacuum of approximately 100 mbar(a) (75 torr). A crevice tool is recommended.
 - Hand cleaning:
Hold element down with one hand and move other hand across the fins in a strumming motion. This action will dislodge most of the dirt.
3. The element is ready to be reused.

6.6 Replacing V - belts

GVS 470A

Tools required: Key 19 and 24.

- In normal operating conditions, the belt has a lifetime of 30,000 hours. Wear characterizes by slip, abnormal wear or cracks. In case of wear, the correct alignment of the pulleys has to be checked. Tolerance ± 1.3 mm.
- A dismantled belt has to be replaced with a new one.
- Take off the hood.
- Loosen the applicable nuts.
- Remove the belt.
- Reassemble in reverse sequence

See [section 6.7](#) for V-belt tensioning.

GVS 630A

Tools required: Key 19 and 24.

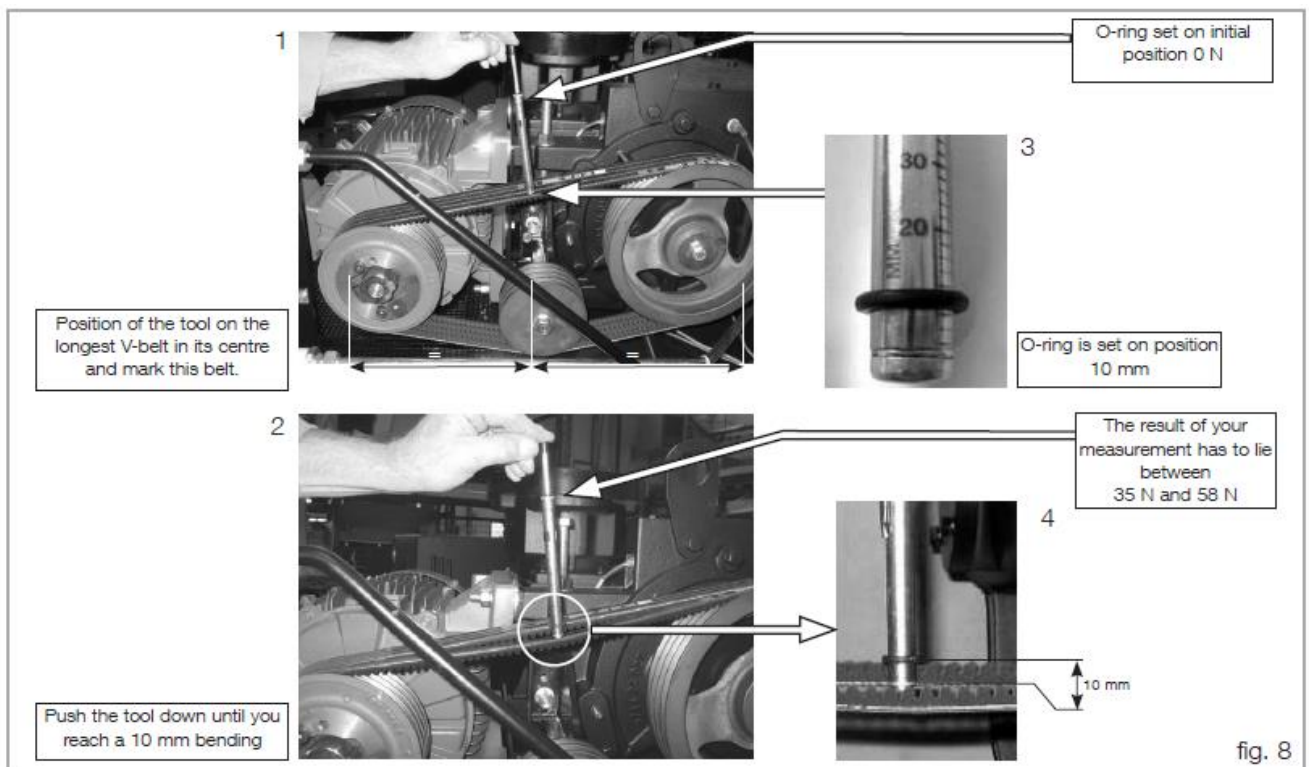
- Take off the hood. Loosen the applicable nuts.
- Loosen the push rod.
- Remove the V belts.
- Reassemble in reverse sequence.
- Stretch the V-Belts with the V-belt tension meter.

See [section 6.7](#) for V-belt tensioning.

6.7 V-belt tensioning

How to use the v-belt tension meter

- The tension meter is a tool designed to check and re-tighten the v-belts. It is made of two sliding pipes with a graded spring inside.
- Set the first o-ring at 10 mm (PIX) on the millimeter scale or 25 Inches of Span, as shown figure 8, picture 3, and the other o-ring on position 0 on the Newton scale.
- Install the tension meter as shown on picture 1 – figure 8, in the middle, half-way between the v-belt contacts point of the v-belts and the two pulleys.
- Push the Newton scale's black rubber down in order to reach a 10 mm bending of the v-belt (pictures 2 and 4).



Check the result of your measurement. Tighten the belt tightener to reach the value given in table below

Belt tension	Before run-in	Re-tightening (after 10 to 24 h)	Regular check (≈6 months or 3000 h.) Value under which a re-tension is necessary
	F (kg)	F (kg)	F (kg)
All pumps	5,0	4,5	3,5

Measure always on the same belt.



Do not untighten a belt if the measurement is over the value in column (1). Do not change the V-belt tension.

7. Problem solving

Problem	Cause	Remedy
The pump does not run (A)	No voltage	Provide power supply
	Thermal switch has tripped	Identify cause and reset switch
	Room temperature too low	Restore temperature to allowed value
	Motor damaged	Contact Service Department
The pump cannot reach stated vacuum (B)	Low oil level	To up oil
	Oil contaminated	Replace oil
	Pump gaskets damaged	Contact service department
	Discharge clogged	Check couplings and outlet
Pump is noisy (C)	Exhaust filter element clogged	Replace
	Bearings damaged	Contact Service Department
	Motor coupling damaged (if applicable)	Contact Service Department
	Vanes worn out	Contact Service Department
	Solid particles in the oil	Change oil
Pump runs hot (D)	Wrong oil type	Replace oil
	Poor room ventilation	Install an auxiliary fan
	Fan defect	Contact Service Department
	Wrong power supply to motor	Check
	Discharge clogged	Check couplings at outlet
High oil consumption (E)	High working pressure (close to atmospheric pressure)	Check oil level frequently
	Pump runs hot	See (D)
	Exhaust filter element clogged	Replace
Pump does not maintain vacuum after power-off (F)	Check valve damage	Contact Service Department
Pump leaks oil (G)	Tank screws or plugs loose	Tighten
	Tank gaskets damaged	Contact Service Department
	Oil sight glass loose	Tighten
The expected process vacuum level is not reached (H)	Too high pressure drop between process and pump inlet	Check the process lines for the correct size and leaks and correct if necessary.
	Clogged air intake filter element.	Replace the filter
	The pump cannot reach stated vacuum	See (B)

8. Technical data

8.1 Reference conditions and limitations

Reference conditions

		GVS 16A	GVS 25A	GVS 40A	GVS 60A	GVS 100A	GVS 200A	GVS 300A	GVS 470A	GVS 630A
Ambient barometric pressure	mbar(a)	1013	1013	1013	1013	1013	1013	1013	1013	1013
Ambient barometric pressure	Torr (mmHg)	760	760	760	760	760	760	760	760	760
Relative air humidity	%	0	0	0	0	0	0	0	0	0
Air inlet temperature	°C	20	20	20	20	20	20	20	20	20
Air inlet temperature	°F	68	68	68	68	68	68	68	68	68
Exhaust back pressure	mbar(e)	0	0	0	0	0	0	0	0	0
Exhaust back pressure	psi(g)	0	0	0	0	0	0	0	0	0
Ambient temperature	°C	20	20	20	20	20	20	20	20	20
Ambient temperature	°F	68	68	68	68	68	68	68	68	68
Motor speed 50 Hz	rpm	1500	1500	1500	1500	1500	1500	1500	1500	1500
Motor speed 60 Hz	rpm	1800	1800	1800	1800	1800	1800	1800	1800	1800
Mineral oil viscosity 1ph	ISO	VG32	VG32	VG32	-	-	-	-	-	-
Mineral oil viscosity 3ph	ISO	VG32	VG32	VG68	VG68	VG68	VG68	VG68	VG68	VG68
Synthetic / PFPE oil viscosity 1ph	ISO	VG32	VG32	VG32	-	-	-	-	-	-
Synthetic / PFPE oil viscosity 3ph	ISO	VG32	VG32	VG100	VG100	VG100	VG100	VG100	VG100	VG100

Limitations

		GVS 16A	GVS 25A	GVS 40A	GVS 60A	GVS 100A	GVS 200A	GVS 300A	GVS 470A	GVS 630A
Maximum inlet pressure for continuous operation	mbar (a)	1013	1013	1013	1013	1013	1013	1013	1013	1013
Maximum inlet pressure for continuous operation	torr (mm Hg)	760	760	760	760	760	760	760	760	760
Maximum ambient temperature	°C	40	40	40	40	40	40	40	40	40
Maximum ambient temperature	°F	104	104	104	104	104	104	104	104	104
Minimum ambient temperature (see note)	°C	12	12	12	12	12	12	12	12	12
Minimum ambient temperature (see note)	°F	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6
Maximum gas inlet temperature	°C	40	40	40	40	40	40	40	40	40
Maximum gas inlet temperature	°F	104	104	104	104	104	104	104	104	104
Minimum gas inlet temperature	°C	12	12	12	12	12	12	12	12	12
Minimum gas inlet temperature	°F	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6
Maximum exhaust back pressure	mbar (e)	150	150	150	150	150	150	150	150	150
Maximum exhaust back pressure	psi(g)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Minimum exhaust back pressure	mbar (e)	-15	-15	-15	-15	-15	-15	-15	-15	-15
Minimum exhaust back pressure	psi(g)	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22
Maximum inlet pressure for water vapour with standard gas ballast	mbar (a)	15	15	30	30	30	30	10	15	40
Maximum inlet pressure for water vapour with standard gas ballast	torr (mm Hg)	11.2	11.2	22.5	22.5	22.5	22.5	7.5	11	30

		GVS 16A	GVS 25A	GVS 40A	GVS 60A	GVS 100A	GVS 200A	GVS 300A	GVS 470A	GVS 630A
Maximum inlet pressure for water vapour with big gas ballast (or 2 GB)	mbar (a)	N/A	N/A	N/A	60	60	50	70	40	60
Maximum inlet pressure for water vapour with big gas ballast (or 2 GB)	torr (mm Hg)	N/A	N/A	N/A	45	45	37.5	52.5	30	45
Maximum water vapour pumping rate vapour with standard gas ballast	kg/h	0.05	0.08	0.76	1	1.6	3.4	1.3	5	17

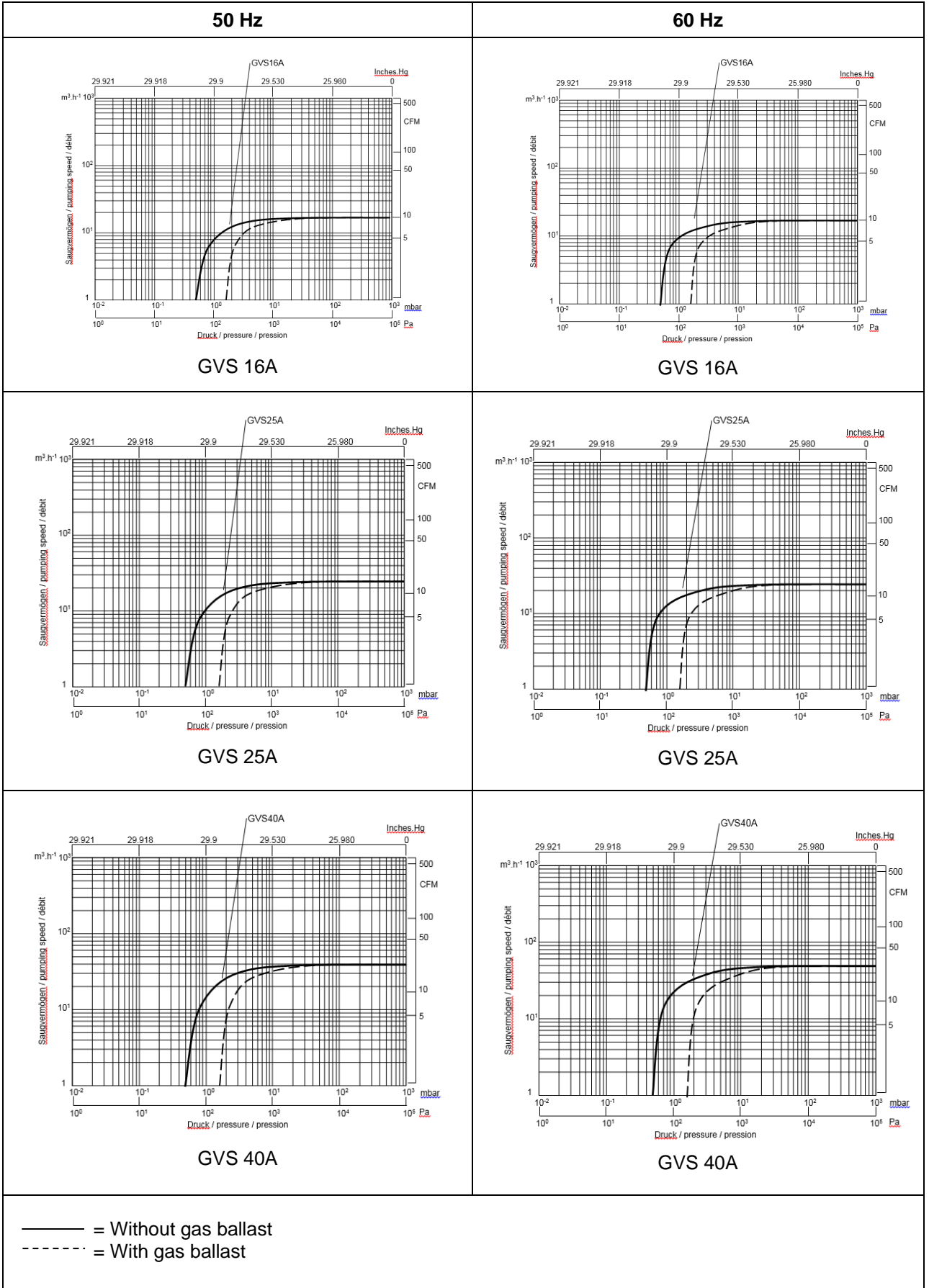
Note: Lower temperatures are possible with reduced viscosity oil. This temperature range is defined by Pneurop for performance conformity testing, but 8°C is the critical point from the motor starting view point.

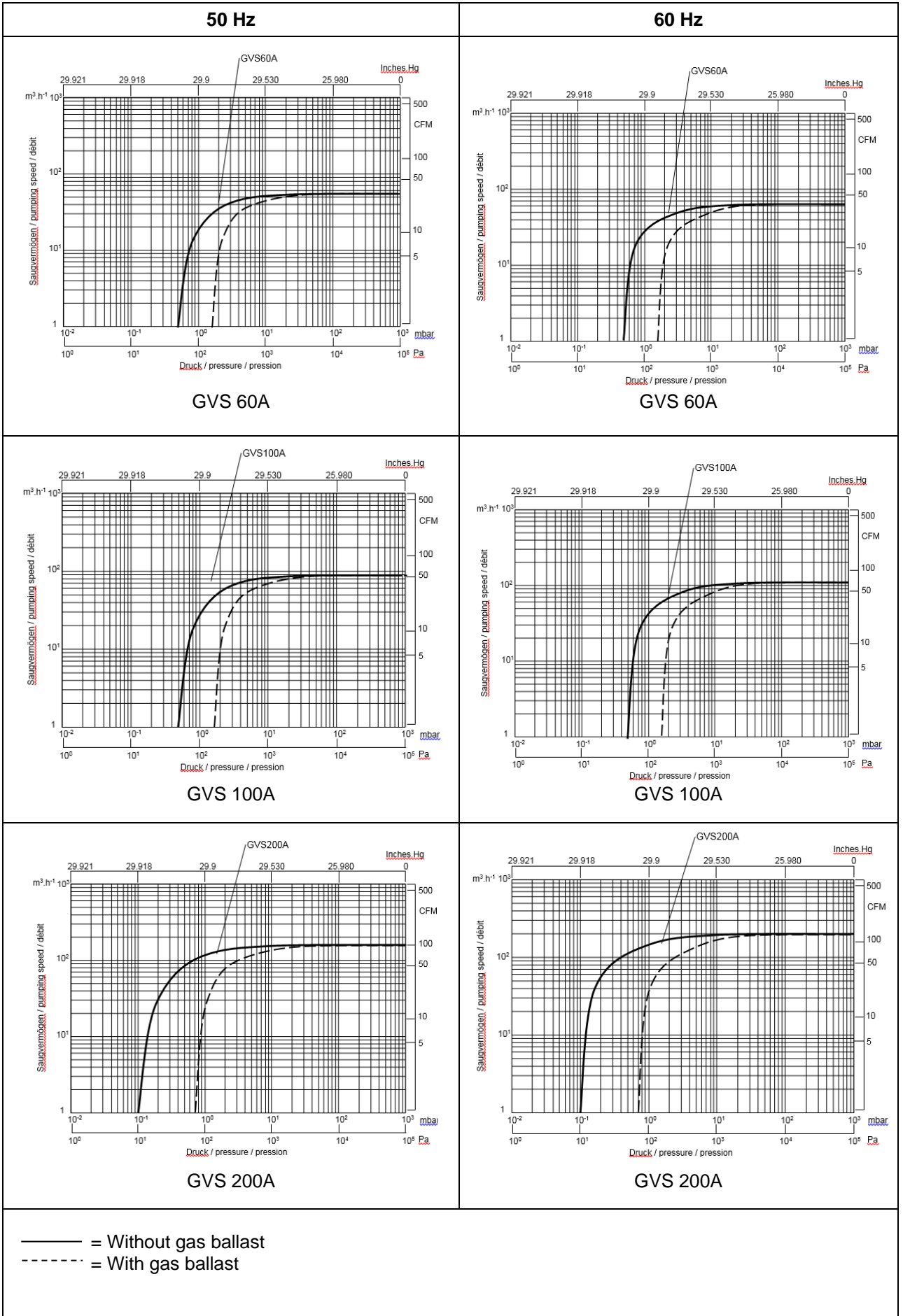
8.2 Pump data

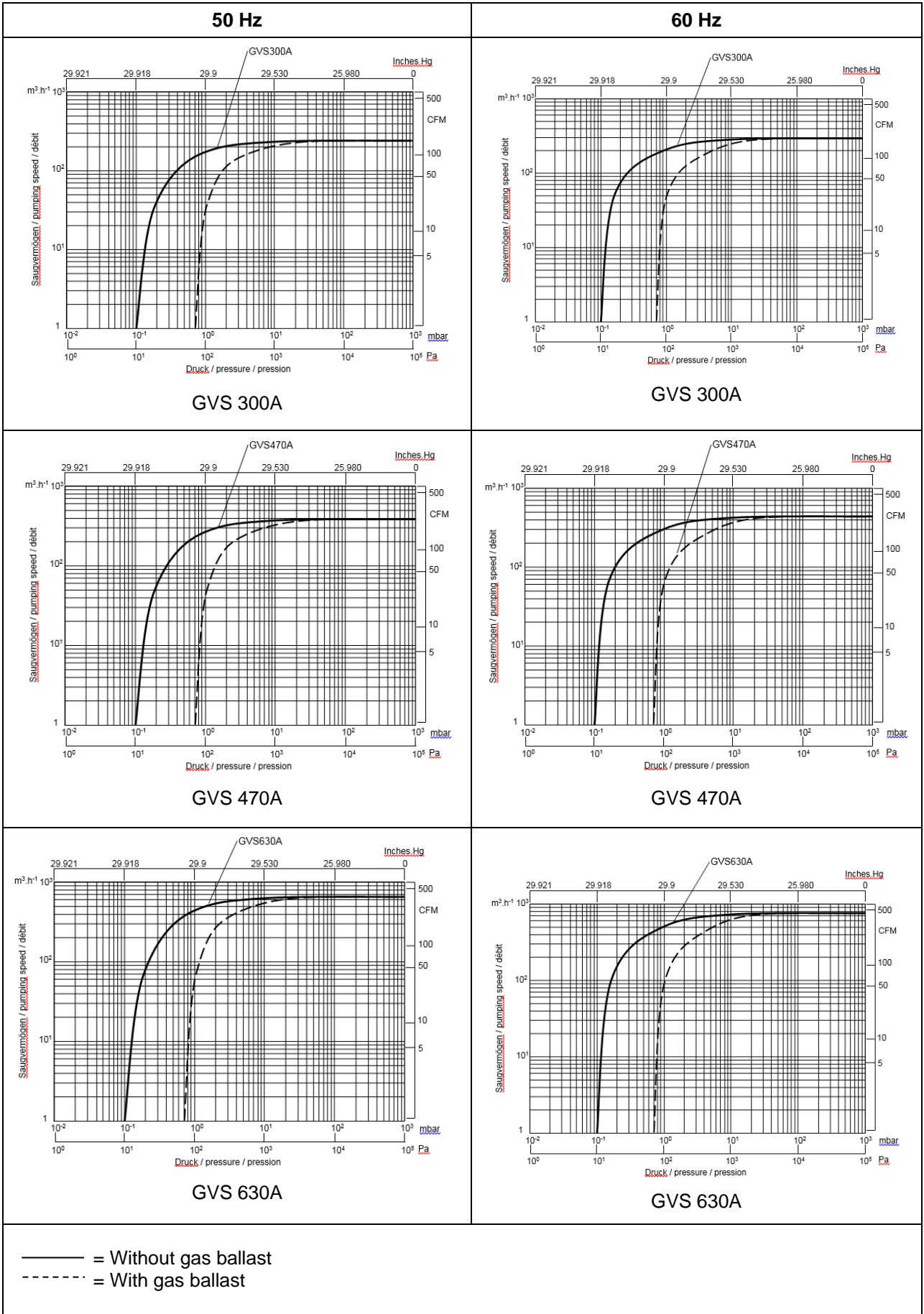
All data are mentioned at reference conditions.

Description	Unit	GVS 16A	GVS 25A	GVS 40A	GVS 60A	GVS 100A	GVS 200A	GVS 300A	GVS 470A	GVS 630A
Volumetric flow rate 50 Hz	m ³ /h	16	25	44	59	97.5	180	280	470	700
Volumetric flow rate 50 Hz	cfm	9.4	14.5	25.9	34.8	57.4	106	165	277	412
Volumetric flow rate 60 Hz	m ³ /h	18.7	29	53	71	117	220	340	570	840
Volumetric flow rate 60 Hz	cfm	11	17.1	31.2	41.8	68.9	130	200	366	494
Pumping speed versus pressure	See graphs below									
Ultimate pressure without gas ballast	mbar(a)	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1
Ultimate pressure without gas ballast	torr (mmHg)	0.4	0.4	0.4	0.4	0.4	0.08	0.08	0.08	0.08
Ultimate pressure with open gas ballast	mbar(a)	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
Ultimate pressure with open gas ballast	torr (mmHg)	1.1	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
Ultimate pressure without gas ballast for oxygen versions	mbar (a)	N/A	N/A	N/A	1	1	1	1	1	1
Ultimate pressure without gas ballast for oxygen versions	torr (mmHg)	N/A	N/A	N/A	0.75	0.75	0.75	0.75	0.75	0.75
Ultimate pressure with open gas ballast for oxygen versions	mbar(a)	N/A	N/A	N/A	2.5	2.5	1.5	1.5	1.5	1.5
Ultimate pressure with open gas ballast for oxygen versions	torr (mmHg)	N/A	N/A	N/A	1.9	1.9	1.2	1.2	1.2	1.2
Nominal motor power 50 Hz	kW	0.75	0.75	1.1	1.5	2.2	4	5.5	9.2	15
Nominal motor power 50 Hz	hp	1	1	1.5	2.2	3	6	7.5	12	20
Nominal motor power 60 Hz	kW	0.9	0.9	1.5	1.8	3.5	5.5	6.3	11	18.5
Nominal motor power 60 Hz	hp	1.2	1.2	2	3	5	7.5	8.6	15	25

Description	Unit	GVS 16A	GVS 25A	GVS 40A	GVS 60A	GVS 100A	GVS 200A	GVS 300A	GVS 470A	GVS 630A
Mean sound pressure level at 1 m distance 50 Hz	dB(A)	59	59	58	60	61	69	72	72	72
Mean sound pressure level at 1 m distance 60 Hz	dB(A)	59	59	60	64	64	73	76	75	75
Rotor speed 50 Hz	rpm	1500	1500	1500	1500	1500	1500	1500	820	820
Rotor speed 60 Hz	rpm	1800	1800	1800	1800	1800	1800	1800	1000	1000
Oil capacity	l	2	2	1	2	2	5,0-9,0	8,5-11,5	20	20-23
Oil capacity	US quart	2.1	2.1	1.05	2.1	2.1	5,3-9,5	9,0-12,2	21	21-25
Weight Net mass	kg	25	25	45	52	93	160	224	480	760
Weight Net mass	lb	55	55	99.3	115	205	353	495	1100	1678
Weight Total shipping mass units	kg	37	37	55	61	105	190	260	550	820
Weight Total shipping mass	lb	78	78	115	128	220	400	546	1155	1722







8.3 Motor data

Model	Type	Motor voltage supply range (V)		Nominal current (A)		Service factor
		50 Hz	60 Hz	50 Hz	60 Hz	
GVS 16A	1ph Wide	200-240 1 ph	200-240 1 ph	5.4	3.6	1
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-240 (Δ) 380-460 (Y)	5,0 (Δ) / 2,2 (Y)	4,3 (Δ) / 2,2 (Y)	1
GVS 25A	1ph Wide	220-230 1 ph	220-230 1 ph	5.2	5.3	1
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-240 (Δ) 380-460 (Y)	5,0 (Δ) / 2,2 (Y)	4,3 (Δ) / 2,2 (Y)	1
GVS 40A	1ph Wide	200-240 1 ph	200-240 1 ph	8.5	10.5	1
	3ph Europe	230 (Δ) 400 (Y)	460 (Y)	4,7 (Δ) / 2,7 (Y)	2,7 (Y)	1
	3ph NEMA	400 (Y)	230 (YY) 460 (Y)	3,7 (Y)	6,4 (YY) / 3,2 (Y)	1
	3ph Wide	190-230 (Δ) 380-440 (Y)	190-240 (Δ) 380-480 (Y)	5,2 (Δ) / 3,0 (Y)	5,2 (Δ) / 3,0 (Y)	1
GVS 60A	3ph Europe	230 (Δ) 400 (Y)	460 (Y)	6,6 (Δ) / 3,8 (Y)	3,6 (Y)	1
	3ph NEMA	400 (Y)	230 (YY) 460 (Y)	5,0 (Y)	9,0 (YY) / 4,5 (Y)	1
	3ph Wide	220-230 (Δ) 380-400 (Y)	220-230 (Δ) 380-460 (Y)	7,5 (Δ) / 4,3 (Y)	6,9 (Δ) / 4,0 (Y)	1
GVS 100A	3ph Europe	230 (Δ) 400 (Y)	460 (Y)	7,8 (Δ) / 4,5 (Y) IE2	5,3 (Y) IE2	1
	3ph NEMA		230 (YY) 460 (Y)		14,0 (YY) / 7,0 (Y)	1.15
	3ph Wide	220-240 (Δ) 380-415 (Y)	220-230 (Δ) 380-460 (Y)	9,7 (Δ) / 5,6 (Y)	12,0 (Δ) / 6,9 (Y)	1
GVS 200A	3ph Europe	220-240 (Δ) 380-415 (Y)	440-460 (Y)	13,9 (Δ) / 8,1 (Y)	8,3 (Y)	1
	3ph NEMA	400 (Y)	208-230 (YY) 460 (Y)	10,6 (Y)	20,5 (YY) / 9,3 (Y)	1.25
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-230 (Δ) 380-460 (Y)	20,7 (Δ) / 10,6 (Y)	21,4 (Δ) / 11,0 (Y)	1
GVS 300A	3ph Europe	220-240 (Δ) 380-415 (Y)	440-460 (Y)	19,6 (Δ) / 11,3 (Y)	12,4 (Y)	1
	3ph NEMA	400 (Y)	208-230 (YY) 460 (Y)	14,6 (Y)	27,8 (YY) / 12,7 (Y)	1.25
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-265 (Δ) 380-460 (Y)	24,2 (Δ) / 12,1 (Y)	25,0 (Δ) / 13,0 (Y)	1
GVS 470A	3ph NEMA	400 (Y)	230 (YY) 440-480 (Y)	20,4 (Y)	36,0 (YY) / 18,6 (Y)	1.25
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-230 (Δ) 380-460 (Y)	46,2 (Δ) / 23,4 (Y)	49,4 (Δ) / 25,7 (Y)	1

Model	Type	Motor voltage supply range (V)		Nominal current (A)		Service factor
		50 Hz	60 Hz	50 Hz	60 Hz	
GVS 630A	3ph NEMA	400 (Y)	230 (Δ) 440-480 (Y)	33,9 (Y)	59,1 (Δ) / 30,2 (Y)	1.25
	3ph Wide	200-240 (Δ) 380-415 (Y)	200-230 (Δ) 380-460 (Y)	76,8 (Δ) / 38,8 (Y)	69,6 (Δ) / 36,2 (Y)	1

9. Declaration of conformity

EU DECLARATION OF CONFORMITY

- 1
- 2 We, Atlas Copco Airpower n.v., declare under our sole responsibility, that the product
- 3 Machine name VACUUM PUMP
- 4 Machine type *GVS 16A, GVS 25A, GVS 40A, GVS 60A, GVS 100A, GVS 200A, GVS 300A, GVS 470A, GVS 630A*
- 5 Serial number *This declaration covers all product serial numbers from the date this Declaration was signed onwards.*
- 6 Which falls under the provisions of article 12.2 of the EC Directive 2006/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with the relevant Essential Health and Safety Requirements of this directive.

The machinery complies also with the requirements of the following directives and their amendments as indicated.

	Directive on the approximation of laws of the Member States relating to	Harmonized and/or Technical Standards used		Att' mnt
a.	Machinery safety	2006/42/EC	EN 1012 – 2 : 1996/A1:2009	
b.	Electromagnetic compatibility	2014/30/EU	EN 61000-6-2 : 2005 EN 61000-6-4 : 2007/A1:2011	
c.	Low voltage equipment	2014/35/EU	EN 60204-1 : 2006/A1:2009	
d.	RoHS	2011/65/EU 2015/863/EU	EN 50581 : 2012	

- 7
- 8.a The harmonized and the technical standards used are identified in the attachments hereafter
- 8.b Atlas Copco Airpower n.v. is authorized to compile the technical file.

Conformity of the product to the specification and by implication to the directives

- 9
- 10 Issued by Engineering
- 11 Name Andries Desiron
- 12 Signature 
- 13
- 14 Date 30-02-2017
- 15 Place Valence

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1 **ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ НА ЕС** 2 Ние, Atlas Copco Airpower n.v., декларираме на наша собствена отговорност, че продуктът 3 Име на машината 4 Тип на машината 5 Сериен номер 6 Който попада под разпоредбите на член 12.2. на Директивата на ЕО 2006/42/ЕС за сближаването на законодателствата на Страните-членки по отношение на машините, отговаря на съответните Съществени изисквания за здравеопазване и безопасност на тази директива. Машините съответстват и на изискванията на следните директиви и техните изменения и допълнения, както е посочено. 7 Директива за сближаването на законодателствата на Страните-членки по отношение на Съответстващо приложение № а Безопасност на машините -2006/42/ЕС б Електромагнитна съвместимост - 2014/30/ЕС г Оборудване за ниско напрежение - 2014/35/ЕС д RoHS - 2011/65/ЕС 2015/863/ЕС 8.а Използваните хармонизирани и техническите стандарти са посочени в приложенията тук по-долу 8.б Atlas Copco Airpower NV. е получило разрешение за съставяне на техническо досие. 9 Съответствие на продукта със спецификацията и по подразбиране с директивите 10.а Издадено от 11 Инженеринг 12 Име 13 Подпис 14 Дата 15 място

cs

1. **PROHLÁŠENÍ O SHODĚ EU** 2. My, společnost Atlas Copco Airpower n.v., prohlašujeme na naší výhradní odpovědnost, že tento produkt 3. Název stroje 4. Typ stroje 5. Výrobní číslo 6. který spadá pod ustanovení článku 12.2 Směrnice Evropského společenství 2006/42/ES je v souladu s příslušnými základními bezpečnostními a zdravotními požadavky výše uvedené Směrnici Rady o přiblížení práva členských států v souvislosti se strojním zařízením. Toto zařízení vyhovuje také požadavkům následujících směrnic a jejich dodatků.. 7. Směrnice o přiblížení práva členských států a. Bezpečnost strojních zařízení - 2006/42/ES b. Elektromagnetická kompatibilita - 2014/30/EU c. Nízkonapět'ové zařízení - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. Použité harmonizované a technické normy jsou určeny v níže uvedených přílohách 8.b. Atlas Copco Airpower NV. je oprávněn sestavit technickou dokumentaci. 9. Shoda produktu se specifikací a tím také s uvedenými směrnici 10. Vydavatelé 11. Inženýrství 12. Název 13. Podpis 14. Datum 15. Místo

da

1. **EU-OVERENSSTEMMELSESERKLÆRING** 2. Vi, Atlas Copco Airpower n.v., erklærer, under eget ansvar, at produktet 3. Maskinens navn 4. Maskinens type 5. Serienummer 6. som falder ind under bestemmelserne i artikel 12.2 i EF-direktivet 2006/42/EF om indbyrdes tilnærmelse af medlemsstaternes lovgivning vedrørende maskiner, er i overensstemmelse med de relevante væsentlige sikkerheds- og sundhedskrav i ovennævnte direktiv. Maskinen opfylder ligeledes kravene i direktiverne: 7. Direktiv om indbyrdes tilnærmelse af medlemsstaternes lovgivning vedrørende maskiner Hvis anvendes Bilag # a. Maskindirektivet - 2006/42/EF b. Elektromagnetisk kompatibilitet - 2014/30/EU c. Lavspændingsdirektivet - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. De anvendte harmoniserede og tekniske standarder angives i bilagene 8.b. Atlas Copco Airpower NV. bemyndiges til at udarbejde det tekniske dossier. 9. Maskinens overensstemmelse med specifikationen og følgende direktiver 10. Udstedere 11. Produktkonstruktion 12. Navn 13. Underskrift 14. Dato 15. Placere

de

1. **EU-KONFORMITÄT SERKLÄRUNG** 2. Wir, Atlas Copco Airpower n. v., erklären hiermit in alleiniger Verantwortung, dass das Produkt 3. Maschinenbezeichnung 4. Maschinentyp 5. Seriennummer 6. den Gesundheits- und Sicherheitsanforderungen gemäß den Bestimmungen des Artikels 12.2 der EU-Richtlinie 2006/42/EG des Europäischen Parlaments und des Rates zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten für Maschinen entspricht. Die Maschinen entsprechen ebenfalls den folgenden Richtlinien und deren Änderungen (falls zutreffend). 7. Richtlinie zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten Zutreffend Anhang Nr. a. Maschinenrichtlinie - 2006/42/EG b. Elektromagnetische Verträglichkeit - 2014/30/EU c. Niederspannung - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. Die verwendeten harmonisierten und technischen Normen werden untenstehend im Anhang aufgeführt 8.b. Atlas Copco Airpower NV. ist berechtigt, die technischen Unterlagen zusammenzustellen. 9. Konformität des Produkts mit der Spezifikation und als Folgerung mit den Richtlinien 10. Erstellt von 11. Fertigungstechnik 12. Name 13. Unterschrift 14. Datum 15. Ort

el

1. ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΓΙΑ ΤΗΝ Ε.Ε. 2. Εμείς, η Atlas Copco Airpower n.v., δηλώνουμε υπεύθυνα ότι το προϊόν 3. Ονομασία μηχανήματος 4. Τύπος μηχανήματος 5. Σειριακός αριθμός 6. το οποίο εμπίπτει στις διατάξεις του Άρθρου 12.2 της Οδηγίας 2006/42/ΕΚ του Ευρωπαϊκού Συμβουλίου περί σύγκλισης των νομοθεσιών των κρατών-μελών που σχετίζονται με μηχανήματα, συμμορφούται με τις σχετικές Ουσιώδεις απαιτήσεις της εν λόγω Οδηγίας για την υγεία και ασφάλεια. Το μηχανήμα συμμορφούται επίσης με τις απαιτήσεις των παρακάτω Οδηγιών και των τυχόν τροποποιήσεών τους, όπως αναφέρεται κατωτέρω. 7. Οδηγία περί σύγκλισης των νομοθεσιών των κρατών-μελών περί σύγκλισης των νομοθεσιών των κρατών-μελών που σχετίζονται με Εφαρμόζεται Αρ. προσαρτήματος α Ασφάλεια μηχανημάτων - 2006/42/ΕΚ β. Ηλεκτρομαγνητική συμβατότητα - 2014/30/ΕΕ γ. Εξοπλισμός χαμηλής τάσης - 2014/35/ΕΕ δ. RoHS - 2011/65/ΕΕ 2015/863/ΕΕ 8.α..Τα εναρμονισμένα και τα τεχνικά πρότυπα που εφαρμόζονται αναφέρονται στα προσαρτήματα του παρόντος 8.β. Atlas Copco Airpower NV. είναι εξουσιοδοτημένο να καταρτίσει τον τεχνικό φάκελο. 9. Συμμόρφωση του προϊόντος προς την προδιαγραφή και κατ' επέκταση προς τις Οδηγίες 10. Εκδόθηκε από 11. Τεχνικός σχεδιασμός προϊόντος 12. Όνομα 13. Υπογραφή 14. Ημερομηνία 15. Θέση

es

1. **DECLARACIÓN DE CONFORMIDAD UE** 2. Atlas Copco Airpower n.v. declara bajo su exclusiva responsabilidad que el producto 3. Nombre de máquina 4. Tipo de máquina 5. Número de serie 6. sujeto a las disposiciones del artículo 12.2 de la Directiva 2006/42/CE de la CE relativa a la aproximación de legislaciones de los Estados miembros sobre máquinas, cumple los requisitos de salud y seguridad esenciales de esta directiva. La maquinaria cumple también los requisitos de las siguientes directivas y sus enmiendas, como se indica. 7. Directiva relativa a la aproximación de legislaciones de los Estados miembros sobre Aplicable Nº de anexo a. Seguridad de máquinas - 2006/42/CE b. Compatibilidad electromagnética - 2014/30/UE c. Equipo de baja tensión - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. Las normas técnicas y armonizadas utilizadas se identifican en los anexos que siguen 8.b. Atlas Copco Airpower NV. está autorizado para elaborar el expediente técnico 9. Conformidad del producto con la especificación y por implicación con las directivas 10. Elaborado por 11. Ingeniería del producto 12. Designación 13. Firma 14. Fecha 15. Lugar

et

1. **EL VASTAVUSAVALDUS** 2. Meie, Atlas Copco Airpower n.v., teatame oma täielikul vastutusel, et toode 3. Masina nimetus 4. Masina tüüp 5. Seerianumber 6. mis langeb Nõukogu liikmesriikide masinate kohta kehtivate seaduste ühtlustamise direktiivi 2006/42/EÜ artikli 12.2 määruste alla, vastab asjakohastele ülalmainitud direktiivi Oluliste tervise- ja ohutusnõuetele. Seade vastab ka järgnevate direktiivide ning nende paranduste nõuetele nagu näidatud. 7. Liikmesriikide rakendatava lisa kohta kehtivate seaduste ühtlustamise direktiiv # a. Masinaohutus - 2006/42/EÜ b. Elektromagnetiline ühilduvus - 2014/30/EL c. Madalpingearustus - 2014/35/EL d. RoHS - 2011/65/EL 2015/863/EL 8.a. Kasutatud harmoniseeritud ja tehnilised standardid on toodud järgnevas lisades 8.b. Atlas Copco Airpower NV. on õigus koostada tehniline toimik 9. Toote vastavus spetsifikatsioonidele ning kaudselt direktiividele 10. Välja andnud 11. Toote tehnika 12. Nimi 13. Allkiri 14. Kuupäev 15. Koht

fi

1. **EU-VAATIMUSTENMUKAISUUSVAKUUTUS** 2. Me, Atlas Copco Airpower n.v., vakuutamme omalla vastuullamme, että tuote 3. koneen nimi 4. koneityyppi 5. valmistenumero 6. joka kuuluu jäsenvaltioiden koneita koskevan lainsäädännön lähentämisestä annetun EY-direktiivin 2006/42/EY 12 artiklan 2 kohdan a alakohdan alaisuuteen, täyttää direktiivin terveys- ja työturvallisuusmääräykset. Kone vastaa myös seuraavien direktiivien ja niiden muutosten vaatimuksia osoitetulla tavalla. 7. Direktiivi jäsenvaltioiden lainsäädännön lähentämisestä alalta Sovellettavuus Liite nro a. Koneiden turvallisuus - 2006/42/EY b. Sähkömagneettinen yhteensopivuus - 2014/30/EU c. Tietyllä jännitealueella toimivat laitteet - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. Käytetyt yhdenmukaistetut ja tekniset standardit on lueteltu liitteissä jäljempänä 8.b. Atlas Copco Airpower NV. on valtuutettu kokoamaan teknisen tiedoston. 9. Tuotteen spesifikaation ja direktiivien mukaisuus 10. Laatiija 11. Tuotteen suunnittelu 12. Nimi 13. Allekirjoitus 14. Päivämäärä 15. Paikka

fr

1. **DECLARATION DE CONFORMITE UE** 2. Nous, Atlas Copco Airpower n.v., déclarons sous notre seule responsabilité, que le produit 3. Nom de la machine 4. Type de machine 5. Numéro de série 6. conformément aux dispositions prévues par l'article 12.2 de la directive CE 2006/42/CE concernant le rapprochement des législations des Etats membres relatives aux machines, est conforme aux exigences essentielles en matière de santé et de sécurité de cette directive. Cette machine est également conforme aux directives suivantes et à leurs modifications. 7. Directive concernant le rapprochement des législations des Etats membres relatives aux Aplicable Attachment # a. Sécurité des machines - 2006/42/CE b. Compatibilité électromagnétique - 2014/30/UE c. Appareillage à basse tension - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. Les normes harmonisées et normes techniques utilisées sont identifiées dans les pièces jointes ci-après 8.b. Atlas Copco Airpower NV. est autorisé à constituer le dossier technique. 9. Conformité du produit aux spécifications et, par extension, aux directives 10. Emis par 11. Ingénierie du produit 12. Désignation 13. Signature 14. Date 15. Endroit

hu

1. **EU MEGFELELŐSÉGI NYILATKOZAT** 2. Az alulírott Atlas Copco Airpower n.v. vállalat kizárólagos felelősége tudatában kijelenti, hogy az alábbi termék 3. Készülék neve 4. Készülék típusa 5. Gyári szám 6. amely a 2006/42/EK irányelv 12.2 bekezdése hatálya alá tartozik, megfelel a fenti, a gépekről szóló tagállami jogszabályok közelítéséről szóló irányelv vonatkozó alapvető egészségügyi és biztonsági követelményeinek. A készülék ezen kívül megfelel az alábbi irányelveknek és azok módosításainak is. 7. Irányelv a tagállami jogszabályok közelítéséről a következőkkel kapcsolatban: Alkalmazható Melléklet # a. Gépek - 2006/42/EK b. Elektromágneses összeférhetőség - 2014/30/EU c. Kisfeszültségű berendezések - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. A használt összehangolt és technikai szabványok meghatározásai a következő mellékletekben szerepelnek 8.b. Atlas Copco Airpower NV. felhatalmazást kap, hogy a műszaki dokumentáció összeállítására. 9. A termék megfelelősége a specifikációnak és következésképpen az irányelveknek is 10. Kiadta 11. Terméktervezés 12. Név 13. Aláírás 14. Dátum 15. Hely

it

1. **DICHIARAZIONE DI CONFORMITÀ UE** 2. Noi, Atlas Copco Airpower n.v., dichiariamo sotto la nostra esclusiva responsabilità che il prodotto 3. Denominazione della macchina 4. Tipo della macchina 5. Numero di serie 6. che è soggetto alle disposizioni dell'articolo 12.2 della Direttiva 2006/42/CE, è conforme ai relativi Requisiti Essenziali ai fini della Sicurezza e della tutela salute della suddetta Direttiva del Consiglio sul riavvicinamento delle legislazioni degli stati membri relativa alle macchine. Inoltre la macchina è conforme ai requisiti delle direttive indicate di seguito e dei relativi emendamenti. 7. Direttiva sul riavvicinamento delle legislazioni degli stati membri relativa all' allegato applicabile n. a. Sicurezza delle macchine - 2006/42/CE b. Compatibilità elettromagnetica - 2014/30/UE c. Apparecchiatura a bassa tensione - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. Gli standard armonizzati e tecnici utilizzati sono identificati negli allegati che seguono 8.b. Atlas Copco Airpower NV. è autorizzato a costituire il fascicolo tecnico. 9. Conformità del prodotto alla specifica ed implicitamente alle direttive 10. Compilato da 11. Progettazione del prodotto 12. Nome 13. Firma 14. Data 15. Luogo

lt

1. **ES ATITIKTIES DEKLARACIJA** 2. Mes, Atlas Copco Airpower n.v., prisiimdami visą atsakomybę, pareiškiame, jog gaminys 3. Mašinos pavadinimas 4. Mašinos tipas 5. Serijos numeris 6. Kuriam taikomos EB Direktyvos 2006/42/EB dėl valstybių narių įstatymų, susijusių su mašinomis, suderinimo 12.2 straipsnio nuostatos, atitinka svarbiausius šios direktyvos reikalavimus dėl sveikatos ir saugos. Jis taip pat atitinka toliau nurodytų direktyvų ir jų pakeitimų reikalavimus. 7. Direktyva dėl valstybių narių įstatymų, susijusių su ..., suderinimo Taikoma Priedas# a. Mašinų sauga - 2006/42/EB b. Elektromagnetiniu suderinamumu - 2014/30/ES c. Žemos įtampos įranga - 2014/35/ES d. RoHS - 2011/65/ES 2015/863/ES 8.a. Naudojami suderinti ir techniniai standartai nurodyti šio dokumento prieduose 8.b. Atlas Copco Airpower NV. yra įgaliotas sudaryti atitinkamą techninę bylą 9. Gaminio atitikimas specifikacijai ir, tuo pačiu, direktyvoms 10. Išdavė 11. Gaminį konstravimas 12. Pavardė 13. Parašas 14. Data 15. Vieta

lv

1. **ES ATBILSTĪBAS DEKLARĀCIJA** 2. Mēs, Atlas Copco Airpower n.v., uzņēmoties pilnu atbildību, paziņojam, ka izstrādājums, 3. Iekārta nosaukums 4. Iekārtas tips 5. Sērijas numurs 6. uz kuru attiecas EK Direktīvas 2006/42/EK par to dalībvalstu tiesību aktu tuvināšanu, kas attiecas uz mehānismiem, 12. panta 2. punkta noteikumi, atbilst šīs direktīvas svarīgākajām veselības un drošības aizsardzības prasībām. Iekārtās atbilst arī šādu direktīvu un to grozījumu prasībām, ja tā ir norādīts 7. Direktīva par to dalībvalstu tiesību aktu tuvināšanu, kas attiecas uz Piemērojama Pielikums # a. Mehānismu drošība - 2006/42/EK b. Elektromagnētiskā savietojamība - 2014/30/ES c. Zemsprieguma iekārtas - 2014/35/ES d. RoHS - 2011/65/ES 2015/863/ES 8.a. Izmantotie saskaņotie un tehniskie standarti turpmāk norādīti pielikumos 8.b. Atlas Copco Airpower NV. ir pilnvarota sastādīt tehnisko lietu 9. Izstrādājuma atbilstība specifikācijai un reizē arī direktīvām 10. Izdevēji 11. Izstrādājuma tehnoloģija 12. Vārds, uzvārds 13. Paraksts 14. Datums 15. Izvietot

mt

1. **DIKJARAZZJONI TA' KONFORMITÀ – UE** 2. Ahna, Atlas Copco Airpower n.v., niddikjaraw b'responsabbiltà unika tagħna, li l-prodott 3. Isem tal-magna 4. Tip tal-magna 5. Numru tas-serje 6. li jaqa' taht id-dispożizzjonijiet ta' l-Artikolu 12.2 tad-Direttiva tal-KE 2006/42/KE, dwar l-approssimazzjoni tal-liġijiet ta' l-Istati Membri marbuta mal-Makkinarju, hu konformi mal-Htiġijiet Essenzjali tas-Saħħa u s-Sigurtà ta' din id-Direttiva. Il-makkinarju hu konformi wkoll mal-htiġijiet tad-Direttivi segwenti u l-emendi tagħhom. 7. Direttiva dwar l-approssimazzjoni tal-liġijiet ta' l-Istati Membri marbuta ma' l-Anness Applikabbli # a. Sigurtà tal-makkinarju - 2006/42/KE b. Kompatibilità elettromanjetika - 2014/30/UE c. Tagħmir b' vultaġġ baxx - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. L-istandards armonizzati u tekniċi użati huma identifikati fl-annessi li jsegwu 8.b. Atlas Copco Airpower NV. huwa awtorizzat li tagħmel il-fajl tekniku 9. Konformità tal-prodott għall-ispeċifikazzjoni u b'implikazzjoni għad-Direttivi 10. Maħruġ minn 11. Inġinerija tal-prodott 12. Isem 13. Firma 14. Data 15. Post

nl

1. **EU-VERKLARING VAN OVEREENSTEMMING** 2. Ondergetekende, Atlas Copco Airpower n.v., verklaart op eigen verantwoordelijkheid dat het product 3. Naam van de machine 4. Machinetype 5. Serienummer 6. vallende onder de bepalingen van artikel 12.2 van de Machineryrichtlijn 2006/42/EG inzake de harmonisatie van de wetgevingen der lidstaten ten aanzien van machines, voldoet aan de toepasselijke noodzakelijke gezondheids- en veiligheidseisen van deze richtlijn. De machine voldoet tevens aan de eisen die gesteld worden in de volgende richtlijnen en wijzigingen daarop zoals aangegeven. 7. Richtlijn inzake de harmonisatie van de wetgevingen van de lidstaten ten aanzien van Van toepassing Bijlage # a. Machineveiligheid - 2006/42/EG b. Elektromagnetische compatibiliteit - 2014/30/EU c. Laagspanningsproducten en elektrisch materieel - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. De toegepaste geharmoniseerde en technische normen zijn aangegeven in de navolgende bijlagen 8.b. Atlas Copco Airpower NV. is gemachtigd om het technisch dossier samen te stellen 9. Overeenstemming van het product met de specificatie en als voortvloeiend van de richtlijnen 10. Afgegeven door 11. Engineering 12. Naam 13. Handtekening 14. Datum 15. Plaats

no

1. **EF-SAMSVARSKLÆRING** 2. Vi, Atlas Copco Airpower n.v., erklærer på eget ansvar at produktet 3. Maskinens navn 4. Maskintype 5. Serienummer 6. som hører inn under bestemmelsene i artikkel 12.2 i direktiv 2006/42/EF om tilnærming av medlemsstatenes lovgivning om maskiner, er i samsvar med gjeldende grunnleggende krav vedrørende helse og sikkerhet i dette direktivet. Maskinen oppfyller også kravene i følgende direktiver med endringer som angitt. 7. Direktivet om tilnærming av medlemsstatenes lovgivning vedrørende Relevant Vedlegg nr. a. Maskinsikkerhet - 2006/42/EF b. Elektromagnetisk kompatibilitet - 2014/30/EF c. Lavspenningsutstyr - 2014/35/EF d. RoHS - 2011/65/EF 2015/863/EF 8.a. De harmoniserte og de tekniske standardene som er brukt, er angitt i vedleggene som følger. 8.b. Atlas Copco Airpower NV. er autorisert til å kompilere den tekniske arkiv 9. Produktets samsvar med spesifikasjonen og følgelig med direktivene 10. Utsteder 11. Produktutvikling 12. Navn 13. Signatur 14. Dato 15. Plass

pl

1. **DEKLARACJA ZGODNOŚCI UE** 2. My, Atlas Copco Airpower n.v., oświadczamy z pełną odpowiedzialnością, że produkt 3. Nazwa maszyny 4. Typ maszyny 5. Numer seryjny 6. Objęty przepisami artykułu 12.2 dyrektywy 2006/42/WE w sprawie zbliżenia ustawodawstw Państw Członkowskich odnoszących się do maszyn jest zgodny z odpowiednimi zasadniczymi wymaganiami ochrony zdrowia i bezpieczeństwa wyznaczonymi w tej dyrektywie. Maszyna spełnia również wymagania następujących dyrektyw wraz z późniejszymi zmianami. 7. Dyrektywa w sprawie zbliżenia ustawodawstw Państw Członkowskich odnoszących się do Ma zastosowanie Załącznik nr a. Bezpieczeństwo maszyn - 2006/42/WE b. Kompatybilność elektromagnetyczna - 2014/30/UE c. Urządzenia niskiego napięcia - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. Zastosowane normy zharmonizowane i techniczne są podane w załącznikach 8.b. Atlas Copco Airpower NV. upoważniony jest do przygotowania dokumentacji technicznej 9. Zgodność produktu ze specyfikacją, a tym samym z dyrektywami 10. Wystawca 11. Inżynier produktu 12. Nazwa 13. Podpis 14. Data 15. Miejsce

pt

1. **DECLARAÇÃO DE CONFORMIDADE UE** 2. Nós, Atlas Copco Airpower n.v., declaramos, sob nossa exclusiva responsabilidade, que o produto 3. Nome da máquina 4. Tipo de máquina 5. Número de série 6. abrangido pelas disposições do artigo 12.2 da Directiva 2006/42/CE se encontra em conformidade com os Requisitos Básicos de Saúde e Segurança da referida Directiva respeitante à aproximação das legislações dos Estados-Membros sobre Maquinaria. A máquina obedece também aos requisitos das directivas abaixo indicadas e seus aditamentos. 7. Directiva respeitante à aproximação das legislações dos Estados-Membros sobre Aplicável Anexo nº a. Segurança de máquinas - 2006/42/CE b. Compatibilidade electromagnética - 2014/30/UE c. Equipamento de baixa tensão - 2014/35/UE d. RoHS - 2011/65/UE 2015/863/UE 8.a. As normas harmonizadas e técnicas utilizadas são identificadas nos anexos seguintes 8.b. Atlas Copco Airpower NV. está autorizada a compilar o processo técnico 9. Conformidade do produto com a especificação e, por implicação, com as directivas 10. Entidade emissora 11. Engenharia de produtos 12. Nome 13. Assinatura 14. Data 15. Lugar

ro

1 **DECLARAȚIE DE CONFORMITATE UE** 2 Noi, Atlas Copco Airpower n.v., declarăm pe proprie răspundere că produsul 3 Nume echipament 4 Tip echipament 5 Număr de serie 6 care face obiectul prevederilor articolului 12.2., al directivei CE 2006/42/EC privind armonizarea legislațiilor statelor membre referitoare la echipamente industriale, este în conformitate cu cerințele esențiale în materie de sănătate și siguranță din această directivă. Acest echipament este, de asemenea, în conformitate cu cerințele următoarelor directive și ale modificărilor acestora. 7 Directiva privind armonizarea legislațiilor statelor membre referitoare la Se aplică Nr. anexă a Siguranța echipamentelor industriale - 2006/42/EC b Compatibilitatea electromagnetică - 2014/30/UE c Echipamentele de joasă tensiune - 2014/35/UE d RoHS - 2011/65/UE 2015/863/UE 8.a. Standardele armonizate și tehnice utilizate sunt identificate în documentele anexate 8.b. Atlas Copco Airpower NV. este autorizat să compileze dosarul tehnic 9 Conformitatea produsului cu specificațiile și, implicit, cu directivele 10 Emitent 11 Proiectant 12 Nume 13 Semnătură 14 Dată 15 Loc

sk

1. VYHLÁSENIE O ZHODE EU 2. My, spoločnosť Atlas Copco Airpower n.v., vyhlasujeme na našu výhradnú zodpovednosť, že tento produkt 3. Názov stroja 4. Typ stroja 5. Výrobné číslo 6. ktorý spadá pod ustanovenia článku 12.2 Smernice Európskych spoločenstiev 2006/42/ES je v súlade s príslušnými základnými bezpečnostnými a zdravotnými požiadavkami horeuvedenej Smernice Rady o aproximácii práva členských štátov v súvislosti so strojnými zariadeniami. Toto strojné zariadenie vyhovuje aj požiadavkám nasledovných smerníc a ich dodatkov. 7. Smernica o aproximácii práva členských štátov v súvislosti s Použitelnosť Príloha č. a. Bezpečnosť strojných zariadení - 2006/42/ES b. Elektromagnetická kompatibilita - 2014/30/EÚ c. Nízkonapäťové zariadenia - 2014/35/EÚ d. RoHS - 2011/65/EU 2015/863/EU 8.a. Použité harmonizované a technické normy sú určené v nižšie uvedených prílohách 8.b. Atlas Copco Airpower NV. je oprávnený zostaviť technickú dokumentáciu 9. Zhoda produktu so špecifikáciou a tým aj s uvedenými smernicami 10. Vydavateľa 11. Návrh produktu 12. Názov 13. Podpis 14. Dátum 15. Miesto

sl

1. IZJAVA EU O SKLADNOSTI 2. Mi, Atlas Copco Airpower n.v., s polno odgovornostjo izjavljamo, da je izdelek, 3. Ime stroja 4. Tip stroja 5. Serijska številka 6. ki spada pod določbe člena 12.2 Direktive 2006/42/ES o približevanju zakonodaj držav članic v zvezi s stroji, v skladu z ustreznimi bistvenimi zdravstvenimi in varnostnimi zahtevami te direktive. Stroj je skladen tudi z zahtevami naslednjih direktiv in njihovih dopolnil. 7. Direktive o približevanju zakonodaj držav članic v zvezi Uporabljeno Priloga # a. Varnost strojev - 2006/42/ES b. Elektromagnetna združljivost - 2014/30/EU c. Nizkonapetostna oprema - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. Uporabljeni usklajeni in tehnični standardi so navedeni v prilogi 8.b. Atlas Copco Airpower NV. je pooblaščen za sestavljanje tehnične dokumentacije 9. Skladnost izdelka s specifikacijo in z direktivami 10. Izdal 11. Inženiring izdelka 12. Ime 13. Podpis 14. Datum 15. Kraj

sv

1. EU-DEKLARATION OM ÖVERENSSTÄMMELSE 2. Vi, Atlas Copco Airpower n.v., förklarar på eget ansvar att maskinen 3. Maskinens namn 4. Maskintyp 5. Serienummer 6. som omfattas av bestämmelserna i artikel 12.2 i EG-direktiv 2006/42/EG om tillnärmning av medlemsstaternas lagstiftning om maskiner, uppfyller de relevanta grundläggande hälso- och säkerhetskraven i detta direktiv. Maskinen uppfyller även kraven i följande direktiv och deras tillägg. 7. Direktiv om tillnärmning av medlemsstaternas lagstiftning om Tillämplig Bilaga nr a. Maskinsäkerhet - 2006/42/EG b. Elektromagnetisk kompatibilitet - 2014/30/EU c. Lågspänningsutrustning - 2014/35/EU d. RoHS - 2011/65/EU 2015/863/EU 8.a. De harmoniserade och tekniska standarder som använts anges i bilagorna nedan 8.b. Atlas Copco Airpower NV. bemyndigas att upprätta den tekniska dokumentationen 9. Produktens överensstämmelse med specifikationen och indirekt med direktiven 10. Utfärdat av: 11. Produktteknik 12. Namn 13. Namnteckning 14. Datum 15. Plats

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1. AT UYGUNLUK BEYANI 2. Atlas Copco Airpower n.v. olarak, yalnızca bizim sorumluluğumuz altında, 3. Makine adı 4. Makine türü 5. Seri numarası 6. özelliklerine sahip olan ürünün, Üye Devletlerin makineler ile ilgili mevzuatının yakınlaştırılması konusundaki EC Direktifi 2006/42/EC'nin 12.2 sayılı maddesinde yer alan şartlara tabi olduğunu ve bu direktifin ilgili Temel Sağlık ve Güvenlik Gereksinimlerine uyduğunu beyan ederiz. Makine, aşağıdaki direktiflerin ve bu direktiflerle ilgili belirtilen değişikliklerin gerekliliklerine de uymaktadır. 7. Üye Devletlerin mevzuatının yakınlaştırılması ile ilgili direktif: İlgili Ek No. a. 2006/42/EC - Makine güvenliği. b. 2014/30/EU - Elektromanyetik uyumluluk. c. 2014/35/EU - Düşük voltajlı ekipman. d. 2011/65/EU 2015/863/EU - RoHS 8.a. Kullanılan uyumlandırılmış ve teknik standartlar, eklerde tanımlanmaktadır 8.b. Atlas Copco Airpower n.v. teknik dosya derleme konusunda yetkilendirilmiştir. 9. Ürünün teknik özelliklere ve dolaylı olarak direktiflere uyumu 10. Hazırlayan 11. Mühendislik 12. Ad 13. İmza 14. Tarih 15. Yeri

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