

Pressure Generator with OIL (Models : CH2, CH3)

Pressure Generator with WATER (Models : CO)



Model : CO-800B



Model : CH2-1250B



Model: CH3-10000B

Concerns the models :

- ✓ model : CO-800B
- ✓ model : CO-1000B

- ✓ model : CH2-125B
- ✓ model : CH2-1250B
- ✓ model : CH2-2000B
- ✓ model : CH2-4000B
- ✓ model : CH2-7000B
- ✓ model : CH3-10000B



europascal
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Your Model :

Serial number :

Made the :

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Read the instructions before handling and retain this information for future use

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The pressure generators models CH2 or CH3 or CO describes in this manual are designed and manufactured by AREMECA (France).

Our products follow manufacturing procedures and controls in line with our Quality System ISO9001 version 2015 and in accordance with the standards in force.

This manual commissioning informs the user about the functioning of the instrument and the safety limits for work peacefully.

This manual is an integral part of the device. It must be kept close to the workstation and accessible at any time by the user.

AREMECA reserves the right to alter the content or form of this manual at any time and without notice. And to make technical amendments to change the product.

Responsibility AREMECA is not liable for any damage caused by :

- not in accordance with intended usage,
- non compliance with instructions for use,
- use of the instrument by unqualified untrained operator ,
- a transformation / modification of the device carried by the user.

The operator must have read and understand prior to operating mode and use the device to start handling.

a) Device

Device Identification



indicates the model of comparator
ex : CH2-2000B

indicates the serial number of comparator

indicates the date of commissioning of the unit

Intended use of the device

Before switching on the device, ensure that the technical characteristics (measuring range, precision, fluid etc...) correspond to your needs



> For example : the maximum pressure defined for this compressor must not be exceeded

The pressure comparator is designed and manufactured for use as described in this document

In this case of misuse or mishandling, outside the technical specifications contained in this manual. The instrument must be immediately isolated, identified as inoperative and must be checked by our service department.

Precautions storage and transport

It's necessary to take care of the unit during storage or transportation. It must be protected from moisture, shock, extreme temperatures and shouldn't be removed or changed.



*> On our catalog, we have a suitcase, adapted to transport your device.
(Ref.OP0002)*

If the comparator is moved to a new environment (warmer, colder, etc..). Observe the phase of "quarantine" and wait until the device temperature stabilizes at room temperature before handling.

b) User

User qualifications



> Improper use of the device can cause significant bodily injury and properly

Qualified operator, due to : it's product training, knowledge in the field of metrology and experiences in field of pressure and knowledge on standards and guidelines, is able to perform the operations describes in this manual. He will be able to detect potential dangers.

AREMECA offers on demand, an installations / commissioning of the instrument performance.

Personal protective equipment (PPE)

The personal protective equipment must be defined in the security register of the user company and made available to the operator. These devices are used to protect the operator from potential risks that impede their safety and health at work.

- Protecting fluid



> Wear eye protection : protects the eyes against splashes and projections of the fluid.



> wear gloves : protect the skin against irritation, allergies.

AREMECA provides for oil dead weight, a bottle of colorless mineral oil. Safety data sheet of used oils are available on request.

a) Unpacking the unit

Upon receipt of the equipment, check the status and content of your package. All of the following elements must be present in the package :

- 1 generator
- 0.5 liter of Oil or water for models (CO, CH2, CH3)
- 1 capstan consists of 4 delivered arms removed
- 2 connectors G1/2 (supplied as standard unless otherwise specified)
- 1 manual

Check that there isn't damage or breakages during transport. If there are missing items, please immediately notify AREMECA or your local distributor for what is missing.

b) Installation

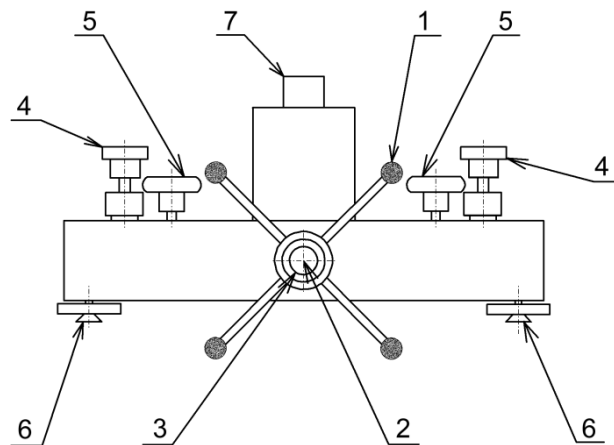
Preferably, install your unit in a stable and controlled environment



You will get better performance if :
> the temperature and humidity of the room
are stable,
> the workstation is clean and dry,
protected from drafts, noise, vibration,
and without passing

Component Identification

- 1 : capstan
- 2 : axis of rotation
- 3 : clamping knob
- 4 : connector
- 5 : valves (A, A' and/or B)
- 6 : sidesteps
- 7 : filler cap



Installation / Assembly (P < 2000 bar)

- Install pressure generator on a established stable an rigid about 0,90 m tall.
- Adjust the stability of the generator through sidesteps 6.
- Insert the capstan 1 on the axis of rotation 2, screw the clamping knob 3 to the axis of rotation 2.
Or, for the CH3-10000B, capstans 1 + 2 on the rotation axes
- Remove the yellow caps protections pressure connections.
- Make sure the O-rings are positioned in their throats.
- Place the two adapters rotating nut 4 on the connectors.(Except for the CH3-10000B)
- Make sure that o-ring are well positioned.

Installation / Assembly (P >2000 bar)

- Operations on the previous page are identical then :
- Set up the connectors of the pressure generator :
 - G1/2 provided with o-ring (aluminium, copper or two-component) for maximum operating pressure 1250 bars.
 - Connect directly to the output M16x150 for pressure > 1250 bar



*> Dirty or polluted gauges must be cleaned before mounting the pressure generator to prevent contamination on the hydraulic circuit. Don't clean the tank with alcohol
Option : cleaning bench (Ref.OP0062)*

c) Put into service



> the generators are equipped with precision valves instrumentation, it is imperative to observe the following guidelines to keep your machine in good working condition.

Filling the device with the fluid

1. Open valves **5** and turn the capstan **1** in the direction of clockwise until reaching the stop limit switch forward.
2. Remove the filler cap on the tank
3. Fill the tank with the correct fluid. Use the supplied oil. Don't use other liquids.



> Our devices are mounted and designed to a standard use. They function with the fluid provided. Some fluids such skydrol, castor oil etc... are corrosive and can damage the o-ring of your device.

On request : we can deliver a device designed for these fluids.

4. Turn the capstan completely in the opposite direction of clockwise until it reaches the stop.
5. If necessary replenish the tank.

Purging the device

1. Open the valves **5** and turn the capstan **1** in the direction of clockwise until reaching the stop limit switch forward

- Maximum torque applicable abutment valve open = 0,3 Nm
- Maximum torque applicable abutment valve closed = 4 Nm.

When the abutment valve open is reached, turn the wheel valve 1/4 turn clockwise.

2. Unscrew the filler cap **7** and fill the 3/4 tank with oil(Model CH1 or CH2) or demineralized water (model CO) according the pressure generator mode. Replace the cap **7**.

Put on the connectors : the reference instrument and the gauge to be tested.

3. Turn the capstan **1** in the opposite direction clockwise until reaching the stop end position.

4. Turn the capstan **1** in the direction of clockwise until reaching the end stop before running to purge air from the system.
5. Turn the capstan **1** dans le sens inverse des aiguilles d'une montre jusqu'à atteindre la butée de fin de course arrière.

The pressure generator is ready to use.

d) Test run after installing

1. Perform a calibration test instrument with a "test" known correct (see chapter procedure) to verify and validate the operational statues of the pressure generator

Noted : During calibration of instruments with a large volume, the amount of fluid in the pressure generator may not be sufficient to achieve the desired pressure. in this case the instrument must be filled as much as possible before being connected to the generator to reduce the useful volume of dluid.



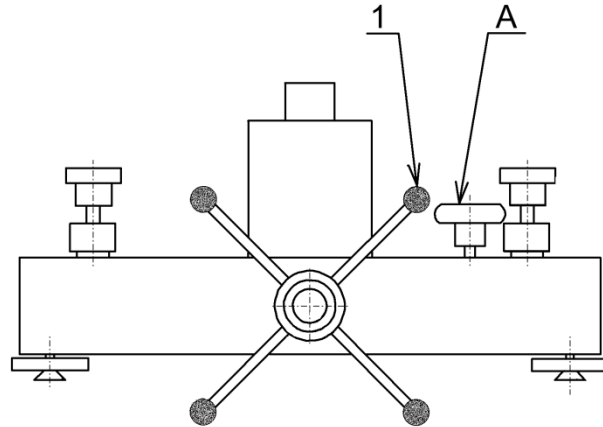
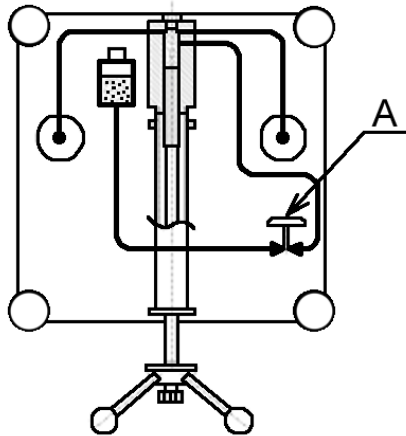
> As an alternative, we provide you with a hand pump Ref. OP0158 with a reservoir volume of 327 cm3

2. Lower the pressure by turning the capstan in the opposite direction of the clock hand and remove the instrument "test". If necessary use the key to start unscrewing the rotating connector

3. **The device is now ready to use.**

Procedure for pressure generator models CH1-125B and CH2-125B

> Hydraulic diagram



> **Pressure mounted**



> *Observe the maximum operating pressures of the pressure generator*

Maximum operating pressure : CH1-125B → 125 bar and CH2-125B → 125 bar

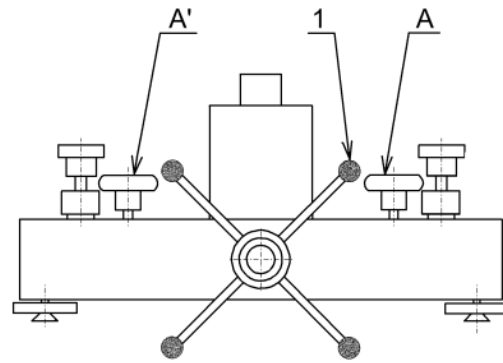
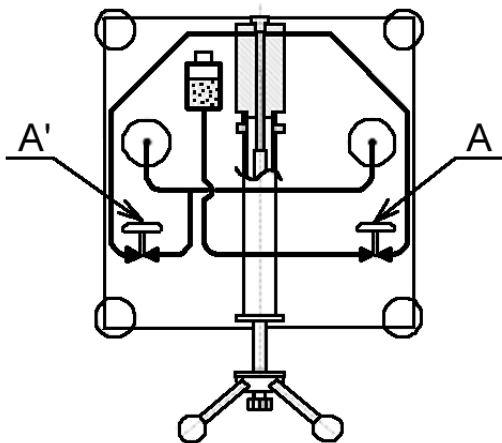
- a) Connect the instrument to be tested
- b) Check the valve **A** is open
- c) Check the capstan **1** the pressure generator is in end position stop.
- d) Close the valve **A**, turn the capstan **1** in the direction of clockwise : you can build up pressure up to 120 bar (Maximum operating pressure : 150 bar)
- e) **Make the measurement point.**

> **Reduce pressure**

- f) After the readings measures, turn the capstan **1** in the opposite direction clockwise until the end position of the stop and slowly open the valve **A**

- g) **The instruments can be disassembled.**

> Hydraulique diagram



The model CH1-1250B have 2 valves **A** and **A'** for multiple round and return of the piston to fill the devices to be tested. The valve **A'** shall be used only for filling, it must remain open.

> Pressure mounted



> *Observe the maximum operating pressures of the pressure generator*

Maximum operating pressure : CH1-1250B → 1270 bar

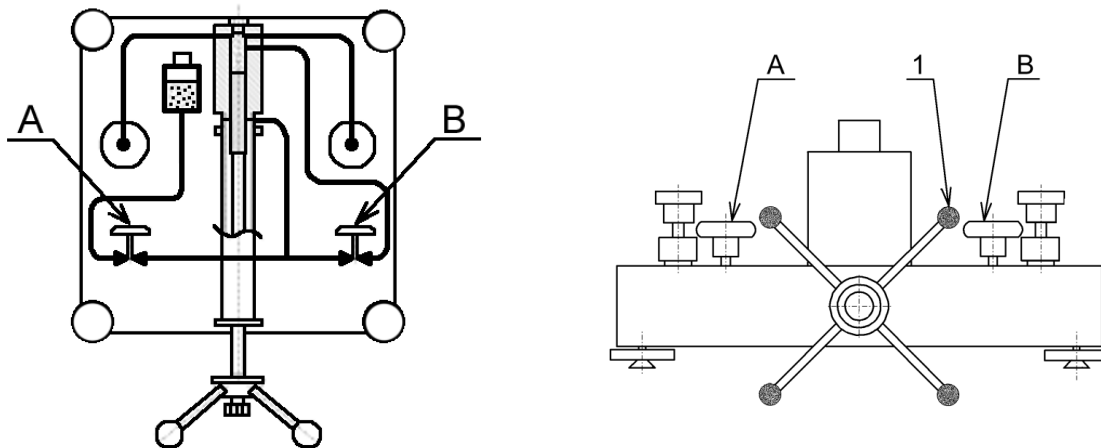
- a) Connect the instrument to be tested (G1/2<1200bar / M16x150>1200 bar)
- b) Check the valves **A**, **A'** are open (the valve **A'** is not marked on the crankcase).
- c) Check the capstan **1** pressure generator is in the end position.
- d) Close the valve **A**
- e) Turn the capstan **1** in the direction of clockwise
- f) If the resulting pressure is not sufficient
- g) Close the valve **A'**
- h) Open the valve **A**
- i) Turn the capstan **1** in the opposite direction of clockwise.
- j) Close the valve **A**
- k) Equalize the pressures by turning the capstan **1** in the direction of clockwise.
- l) Open slowly valve **A'**
- m) Repeat steps e) to j) again if necessary to achieve the desired pressure.
- n) Realize the measurement point.**

> Reduce pressure

o) After the readings measures, turn the capstan **1** in the opposite direction clockwise until the end position of the stop and slowly open the valve **A**

p) The instruments can be disassembled.

> Hydraulic diagram



Presson / Pressure	< 120 bar / 1750 psi		
	> 120 bar / 1750 psi		

> **Pressure mounted**



> *Observe the maximum operating pressures of the pressure generator*

Maximum operating pressure : CO-800B → 850 bar and CO-1000B → 1050 bar
CH2-1250B → 1270 bar and CH2-2000B → 2020 bar and CH2-4000B → 4020 bar
and CH2-7000B → 7000 bar

- Connect the instrument to be tested (G1/2<1200bar / M16x150>1200 bar)
 - Check the valves **A** and **B** are open
 - Check the capstan **1** pressure generator is in the end position.
 - Close the valve **A**, turn the capstan **1** in the direction of clockwise : you can build up pressure up to 120 bar (Maximum operating pressure : 150 bar). Make readings of measurements points in this measuring
- > To generate higher pressures, close the valve **B** and open the valve **A**, turn the capstan **1** in the direction of clockwise.

e) Realize the measurement point.

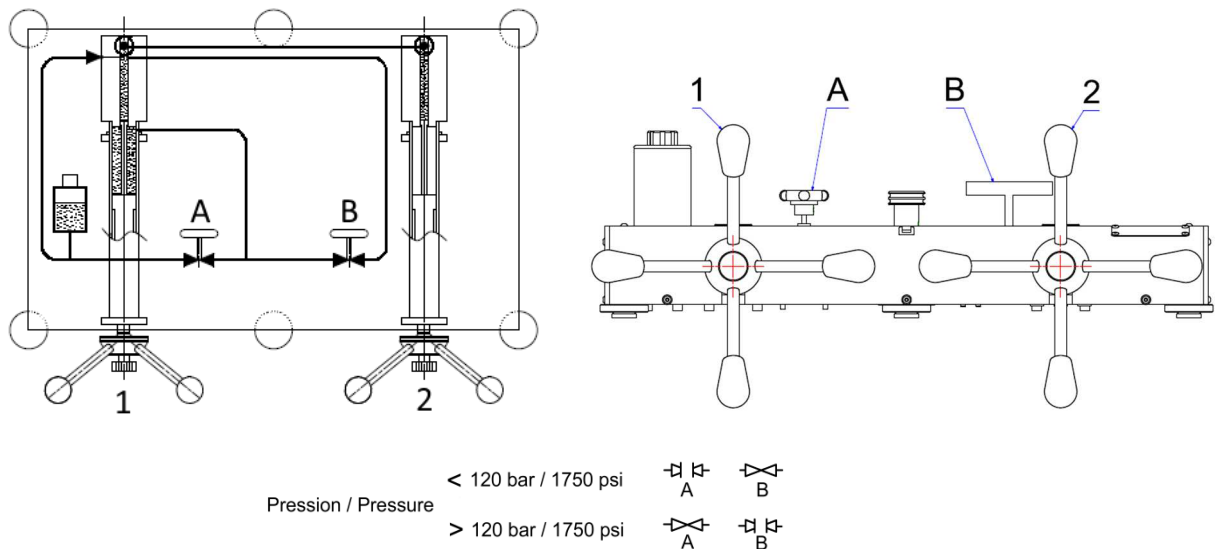
> **Reduce Pressure**

- After the measurement point readings, turn the capstan **1** in the opposite direction of clockwise until the stop end position and open the valve **B**.

g) The instruments can be disassembled.

d) Mode opératoire pour le générateur de pression modèle CH3-10000B

> Hydraulic diagram



> Pressure rise



> Observe maximum operating pressures for pressure generator

Maximum operating pressure:
CH3-10000B → 10 050 bar

- a) Connect standard instrument (see commissioning chapter) + Connect instrument to be tested to M20x150 (= M20x1.5) socket
- b) Check that valves **A** and **B** are open.
- c) Check that pressure generator capstans **1** and **2** are in the rear end-of-travel position
- d) Close valve **A**, turn capstan **1** clockwise to build up pressure to 120 bar (max. operating pressure: 150 bar). Take measurement point readings within this range.
- e) To generate higher pressures and take the following point readings, close valve **B** then open valve **A**, turning capstan **1** clockwise. In this way, pressure can be built up to 5000 bar (pressure given as an indication, as it all depends on the volume of your pressure gauge). Continue building up pressure until you disengage capstan **1**.
- f) To continue pressure build-up and measurement point readings, turn capstan **2** clockwise to 10000 bar.

> Pressure drop

- g) After taking the measuring point readings, turn capstan **2** counter-clockwise to the rear travel limit stop, then turn capstan **1** counter-clockwise to the rear travel limit stop and open valve **B**.
- h) Measuring instruments can be dismantled.

a) Cleaning

The generator cleaning and checking fluid levels are the only periodic maintenance required. No additional maintenance should be necessary if all instructions are followed.

We recommend a complete overhaul of the unite every 2 years. This operation can only be performed by the manufacturer. If necessary, send us your device for maintenance. A complete assessment of your device will be made and an estimate of rehabilitation will be sent.

Instructions reminders :

- Use only oil H40 or H15 or Sebacate (depending on model).The guarantees of performance and operation are insured with the use of these oils.



*> wear are protection : protects the eyes
against splashes and projections of the
fluid.*

- Don't remove the protective cover.

NOTES : For comparators without isolation valves **A'**, the capacity of the pumps 60 cm³ may be insufficient to fully complete a high volume measuring device. In this case, a solution with intermediate valve is possible by interposing it between the bench and the device. We repeat the cycle as many times as necessary. For these applications, a specific kit can be supplied.

It can also fill in advance before mounting the pressure generator.

b) Maintenance

> Piezometric set

It's designed for extremely narrow limits of accuracy. It's forbidden to disassemble it.

> Valves

Generator and dead weight are equipped with instrumentation valves, it's imperative to observe the following guidelines :

- Maximum torque applicable abutment valve open = 0,3 Nm
- Maximum torque applicable abutment valve closed = 4 Nm.

When the abutment valve open is reached, turn the wheel valve 1/4 turn clockwise.

> Tank oil

Make sure the tank contains enough liquid to make the required calibrations. If necessary, fill the tank with the same liquid as that already used. Don't mix different types or brands of fluids into the generator and use the recommended oil.

Skydrol, solvents may damage the o-rings mounted on a generator.

Keep clean bench, wipe traces of fluid, and particularly the oil condition in the tank to detect traces of pollution. If the fluid in the system is dirty, drain the device and remove dirty oil.



> Option : cleaning kit Ref. OP0025 you will aspirate oil dirty present in the tank.

Don't clean the tank with alcohol

c) Inspection

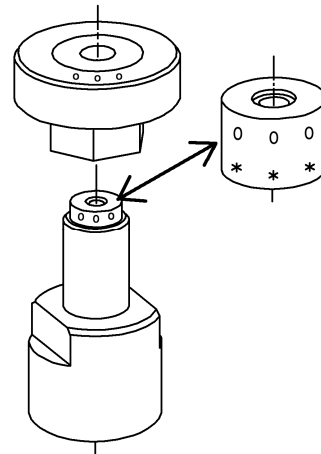
It's recommend to a service of your device every 2 years. The average response time is 2 weeks. Cleaning generator, replacement o-rings, testing pressure rise and stability are made.

d) Connection

The device is equipped with a specific connector for less than 1250 bar pressure. It is necessary to orient the ring according to the type of connector correctly.

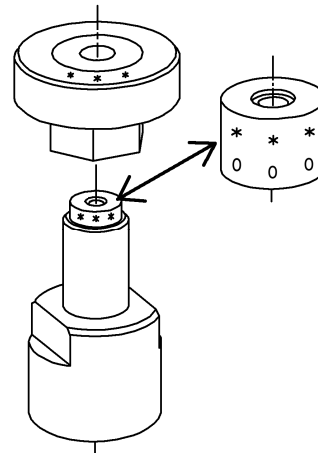
Thread M10x100, G1/8, 1/8 BSP-TR, 1/8 NPT

For these connectors guide ring, mark : 000 visible.
The connector must be tightened by hand.



Thread M12x150, M16x150, M18x150, M20x150, G1/4, G3/8, G1/2, 1/4 BSP-TR, 3/8 BSP-TR, 1/2 BSP-TR, 1/4 NPT, 3/8 NPT, 1/2 NPT

For these connectors guide ring, mark : *** visible.
The connector must be tightened by hand.



> Available as an option :
Suitcase with 4 connectors type G (Ref.OP0171)
Suitcase with 4 connectors type NPT (Ref.OP0172)
Suitcase with 4 connectors type BSPTR (Ref.OP0173)
Suitcase with 5 connectors type M (Ref.OP0174)
Suitcase with 17 connectors (Ref.OP0037)
standard o-ring (Ref.OP0038CEO)



> OPTIONS

Huiles

OP0013 : 1 liter Oil H15

(models CH1-125B + CH2-125B)

OP0014 : 1 liter Oil H40

(models CH1-1250B + CH2-1250B)

OP0135 : 1 liter Oil Sébacate

(models CH2-2000B + CH2-4000B + CH2-7000B)

Connectors

OP0174 : Suitcase with 5 connectors metrics - M10x100 ; M12x150 ; M16x150 ; M18x150 ; M20x150

OP0171 : Suitcase with 4 connectors gas cylindrical - G1/8 ; G1/4 ; G3/8 ; G1/2

OP0172 : Suitcase with 4 connectors NPT - 1/8NPT ; 1/4NPT ; 3/8NPT ; 1/2NPT

OP0173 : Suitcase with 4 connectors BSPTR - 1/8BSPTR ; 1/4BSPTR ; 3/8BSPTR ; 1/2BSPTR

OP0037 : Suitcase with 17 connectors - all connectors

OP0220 : Suitcase with adaptors HP for 2000<CH2<10000B

OP0250 : Suitcase with adaptors HP+ for CH3

Kit cleaning

OP0025 : Cleaning kit for tank

OP0062 : Cleaning bench for manometers

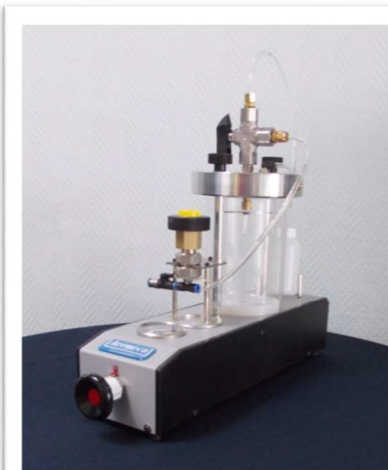
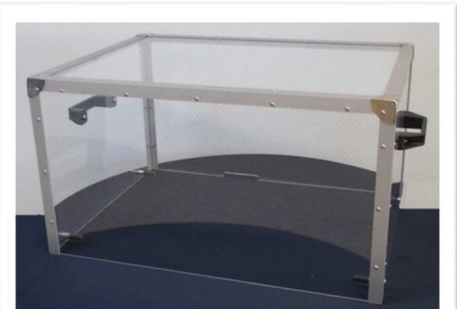
OP0023 : Separator

Transport

OP0002 : Suitcase for dead weight or comparator

Protection of the workstation

OP0192 : transparent protective cover for dead weight without motorization



Notes

