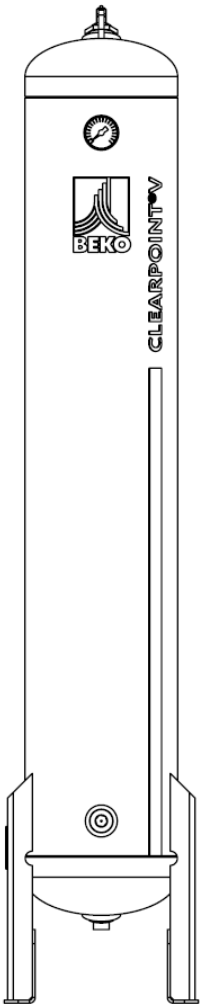
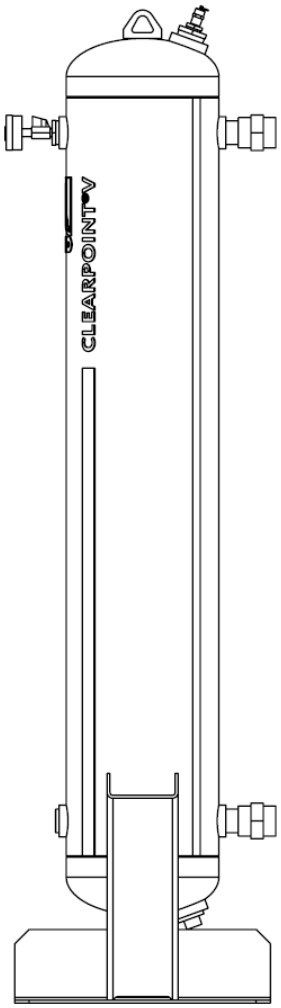
EN

# Installation and Operation Manual

## Activated Carbon Tower




# CLEARPOINT® V

Model 80 – 800

**READ MANUAL BEFORE INSTALLATION AND OPERATION**

BEKO

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**For technical product support please call +1 (800) 235-6797 and select Option 2**

# 1. SAFETY AND SYSTEM PRECAUTIONS

## 1.1 Definition of the Safety Symbols

| | | | | | |
|---|---|---|---|---|---|
| Before attempting any service, please read the manual | **General Warning:** Risk of damage or injury | **Electrical Hazard:** Possibility of electro-cution | **Warning:** Under pressure | **Warning:** High temperature | **Warning:** Non-breathable air |
| **Warning:** Water cannot be used to extinguish fire | **Warning:** Do not operate if parts are missing or have been tampered with | **Warning:** Machine level noise may exceed 85 dBA | **Warning:** Personal pro-tection required | **Warning:** All work to be per-formed by qualified personnel only | Operations that can be performed by qualified operators[1] |
| Compressed air inlet connection | Compressed air outlet connection | Connection point for condensate drain | | | |

**1** Only experienced and trained personnel familiar with all of the relevant laws, rules and regulations, capable to perform the needed activities and to identify and avoid possible dangerous situations while handling, installing, using and servicing the machine.

## 1.2 Operational Warnings

**WARNING: VESSELS UNDER PRESSURE**

+ In most countries, states, cities and/or local municipalities the installation, operation and maintenance of devices where pressure vessels are in use are subject to local boiler and pressure vessel regulations.
+ The end user is responsible for following all of the relevant laws, rules and regulations and ensuring that only experienced and trained personnel install and/or operate the adsorber.
+ In most countries, states, cities and/or local municipalities the installation may only be carried out by a licensed installation company. Inspections must be carried out by a qualified and licensed third-party firm in accordance with all applicable laws, rules and regulations for the region where the adsorber is installed.
+ The pressure vessels used in this device are built according to the American Society of Mechanical Engineers (ASME) standard Section 8, Division 1.

**Compressed Air Warning:**

Compressed air is a highly dangerous energy source.

+ Never work on the adsorber while components are under pressure.
+ Never point the compressed air stream or the condensate drain outlet towards anybody.

The end user is responsible for the installation of the adsorber as laid out in this manual. If proper commissioning steps are not followed, the warranty will be void and dangerous situations involving injury or death and/or damages to the machine could occur.

Only qualified personnel can use and service electrically powered devices. Before attempting any maintenance:

+ Ensure that no part of the machine is powered and is locked out of the electrical mains by following proper “Lock-out, Tag-out” procedures and requirements.
+ Ensure that no part of the adsorber is under pressure by isolating the adsorber from the compressed air system.

Any change to the machine or to the standard operating parameters (see page 5), if not previously verified and authorized by the manufacturer, in addition to creating a potentially dangerous situation, will void the warranty.

# 2. INSPECTION AND INSTALLATION

## 2.1 Incoming Inspection and Transportation

All adsorbers are tested and inspected at the factory prior to shipping. Thoroughly inspect and verify the integrity of the packaging upon receipt and note any damage on the freight bill. Place the unit as close as possible to the installation point before unpacking the contents and inspect for concealed damage. Freight claims are to be filed with the carrier immediately and the manufacturer's technical service department notified thereafter.

+ To move the packaged unit, we suggest the use of a suitable crane or forklift. We do not recommend moving the unit by any hand operated or manual mechanism.
+ Handle with care. Heavy blows could cause irreparable damage.
+ Even when packaged, keep the machine protected from severe weather.

The packaging materials are recyclable. Each material must be properly disposed in a manner complying with the rules and regulations of the local municipality government.

# 3. TECHNICAL SPECIFICATIONS AND GENERAL FUNCTION

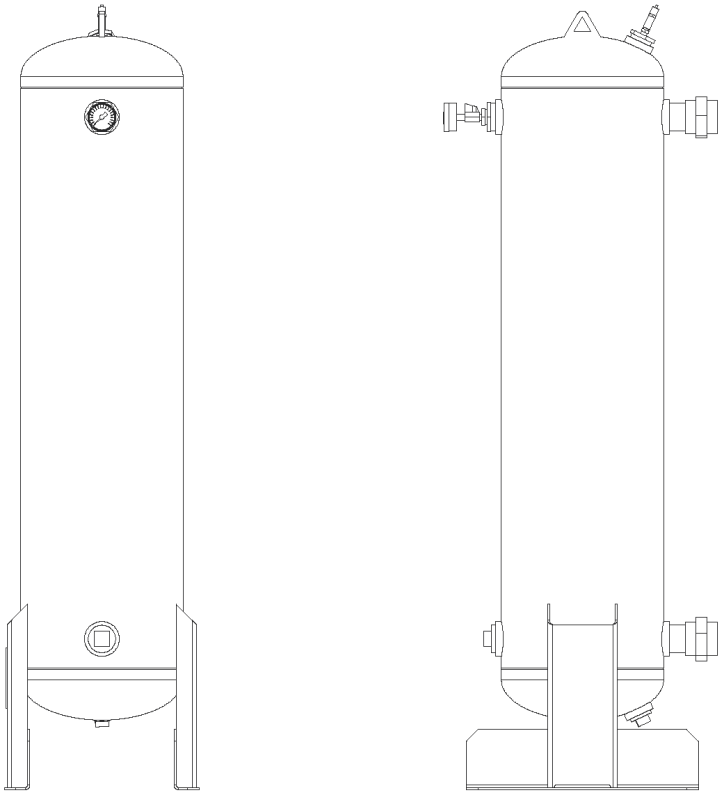
## 3.1 Technical Data by Model Size

| **CLEARPOINT V** | **Model Size** | **80** | **100** | **120** | **160** | **200** | **250** | **300** | **400** | **500** | **650** | **800** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Rate | scfm | 80 | 100 | 120 | 160 | 200 | 250 | 300 | 400 | 500 | 650 | 800 |
| Inlet / Outlet Connection | in. (NPT) | 3/4 | 1 | 1 | 1 ¼ | 1 ¼ | 1 ½ | 1 ½ | 2 | 2 | 2 ½ | 2 ½ |
| Height (A) | in. | 62 | 74 | 74 | 70 | 70 | 78 | 78 | 68 | 78 | 73 | 72 |
| Width (B) | in. | 11 | 11 | 11 | 14 | 14 | 15 | 15 | 17 | 19 | 22 | 24 |
| Depth (C) | in. | 16 | 16 | 16 | 19 | 19 | 22 | 22 | 24 | 26 | 29 | 32 |
| Adsorbent Material | Activated Carbon | ⅛" | | | | | | | | | | |
| Total per Adsorber | Lbs. | 24 | 30 | 35 | 48 | 60 | 75 | 90 | 120 | 152 | 199 | 246 |
| Maximum Inlet Relative Humidity | % | 30 | | | | | | | | | | |
| Maximum Inlet Oil Aerosol Content | $mg/m^3$ | 0.01 | | | | | | | | | | |
| Minimum Ambient Temperature | °F | 40 | | | | | | | | | | |
| Maximum Ambient Temperature | °F | 120 | | | | | | | | | | |
| Standard Inlet Air Temperature | °F | 100 | | | | | | | | | | |
| Maximum Inlet Air Temperature | °F | 120 | | | | | | | | | | |
| Standard Air Pressure | psig | 100 | | | | | | | | | | |
| Maximum Air Pressure | psig | 150 | | | | | | | | | | |

Unit ratings adhere to the following inlet conditions per ISO 7183, Table 2, Option A2:

- + Inlet Compressed Air Temperature 100 °F (38 °C)
- + Inlet Compressed Air Pressure 100 psig (7 bar)
- + Maximum Ambient Air Temperature 100 °F (38 °C)
- + Inlet Compressed Air Relative Humidity 100% (Saturated)

SCFM is defined as the volume of free air in cubic feet per minute measured at 14.696 psia (1.013 bara) at 68 °F (20 °C) temperature with 0% relative humidity (0 WVP).



### 3.2 Correction Factors

| Correction Factors | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **60 psig** | **70 psig** | **80 psig** | **90 psig** | **100 psig** | **110 psig** | **120 psig** | **130 psig** | **140 psig** | **150 psig** |
| **correction factor** | 0.65 | 0.74 | 0.83 | 0.91 | 1.00 | 1.12 | 1.16 | 1.20 | 1.25 | 1.29 |

**How to determine adsorber capacity at operating conditions:**
ADJUSTED CAPACITY =
Standard Flow Rate x Correction Factor
**Example:**
Adsorber Model: CLEARPOINT® V 250
Standard Flow Rate: 250 scfm
Operating Conditions: 110 psig / 110 °F
ADJUSTED CAPACITY = 250 scfm x 1.12 - **280 scfm**

**How to select the adsorber for actual conditions:**
ADJUSTED CAPACITY =
System Flow Rate ÷ Correction Factor
**Example:**
System Flow Rate: 300 scfm
Operating Conditions: 130 psig
ADJUSTED CAPACITY = 300 scfm ÷ 1.20 = **250 scfm**
Select Model: CLEARPOINT® V 250

### 3.3 General Function

The CLEARPOINT® V activated carbon towers use a single pressure vessel, filled with an Adsorption material (1/8" activated carbon as standard) to remove oil aerosol and oil vapor from the compressed air system. As the compressed air flows across the activated carbon, oil aerosol and oil vapor adsorb onto the surface and pores thus removing it.

During this process, there is no regeneration of the activated carbon. As a result, it will become saturated over time and must be replaced as it will no longer function to remove oil.

To achieve maximum effectiveness of the activated carbon, pretreatment of the compressed air is required. Oil aerosols must not exist in high concentration above 0.01 $mg/m^3$ and, the compressed air should be pre dried with a relative humidity not exceeding 30%.

Other conditions that may affect the operating life of an activated carbon tower are:

+ Higher volume flow
+ Higher concentration of oil aerosols
+ Increased operating pressure
+ Increase relative humidity

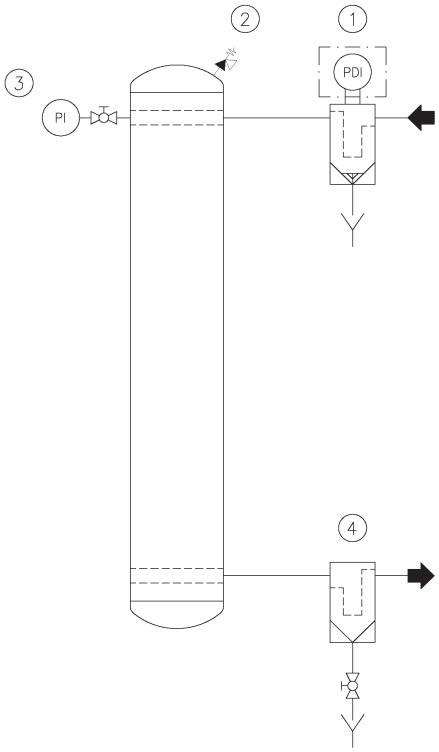
During operation, there is a possibility for activated carbon solid particles (as fine powder) to be released, that are particularly abrasive and can be extremely damaging to downstream components and users.

For the above reasons, it is required that the compressed air system before and after the carbon tower, be equipped with the following:

+ **30% RH** or better **pre-dryer**; achieved with either a refrigeration or desiccant dryer
+ **0.01 micron** filtration grade coalescing **pre-filter** with differential pressure gauge and float drain (automatic drain optional)
+ **1.0 micron** filtration grade particulate **post-filter** (differential gauge optional) and manual drain

The purpose of the carbon tower is the separation of oil aerosol and oil vapor in compressed air. It is not intended to separate other contaminants that are present in compressed air. The compressed air output from this unit cannot be used for respiration purposes of any kind.

### 3.4 Flow Diagram




| Number | Name |
|---|---|
| 1 | 0.01µm Pre-filter with Float Drain |
| 2 | Pressure Relief Valve |

| Number | Name |
|---|---|
| 3 | Vessel Pressure Gauge |
| 4 | 1.0 µm Post-Filter with Manual Drain |

## 4. INSTALLATION

### 4.1 Design and Use of the Activated Carbon Tower

The CLEARPOINT® V activated carbon tower has been designed, manufactured and tested to be used only to separate oil aerosol and oil vapor contained in compressed air; any other use is improper. The manufacturer is not responsible for any problems arising from the improper use of this machine. The end user, in any and all cases, is responsible for any resulting damages.

Moreover, the correct use of this machine requires the verification of certain installation conditions, in particular:

+ Pressure, temperature, flow rate and chemical composition of the incoming compressed air
+ Ambient temperatures

The carbon tower is supplied with the only operations left for the end user to: fill the tower with activated carbon and connect to the plant with the instructions given in this manual.

## 4.2 Location and Installation

Serious consideration should be given when selecting the installation site for the carbon tower, as an improper location could directly affect the proper operation of the carbon tower.

This unit is not suitable to be used in explosive atmospheres, where risk of fire could exist, in the presence of gaseous or solid pollutants or in outdoor applications or areas exposed to the elements.

Do not use water to extinguish fire on the unit or in the surrounding area.

Machine level noise at the area of installation could be higher than 85 dBA. Install the unit in a dedicated area where people are not normally present. The installer and/or end user is responsible to install proper safety signs at the installation site.

Technicians servicing the carbon tower in an area with excessive noise must wear hearing and eye protection. Each employee must select a proper personal protection device (PPD) hearing protector such as earmuffs, ear canal caps, or earplugs in order to prevent permanent hearing damage or loss.

Minimum Installation Requirements:

+ Select a clean, dry room that is free of dust and protected from atmospheric disturbances.
+ The foundation must be smooth, horizontally level, able to bear the weight of the carbon tower and be vibration free
+ The location area must fall within the ambient conditions as listed in section 3
+ Allow a clearance of at least 3ft on all sides of the carbon tower in order easily facilitate all maintenance needs
+ While recommended, the carbon tower is not required to be anchored to the supporting surface
+ An upstream dryer and filtration must be installed
+ The location of an air receiver tank will vary depending on compressor type and application

**Incorrect installation may void warranty.**

**NOTE: All piping connections should be inspected prior to installation to ensure they have maintained their integrity during shipping and locating the unit.**

First, make the initial connections as follows:

1. Coalescing Pre-filter
2. Inlet piping including an isolation valve
3. Outlet piping including an isolation valve
4. Particulate post-filter

Inlet air entering the carbon tower must be pretreated. Oil aerosols must not exist in high concentration above 0.01 mg/m$^3$ and, the compressed air should be pre dried with a relative humidity not exceeding 30%. Not following this practice will lead to overloading the carbon tower, permanently reduce the capacity, and cause rapid deterioration of the activated carbon material.

It is required that the compressed air system before and after the carbon tower, be equipped with the following:

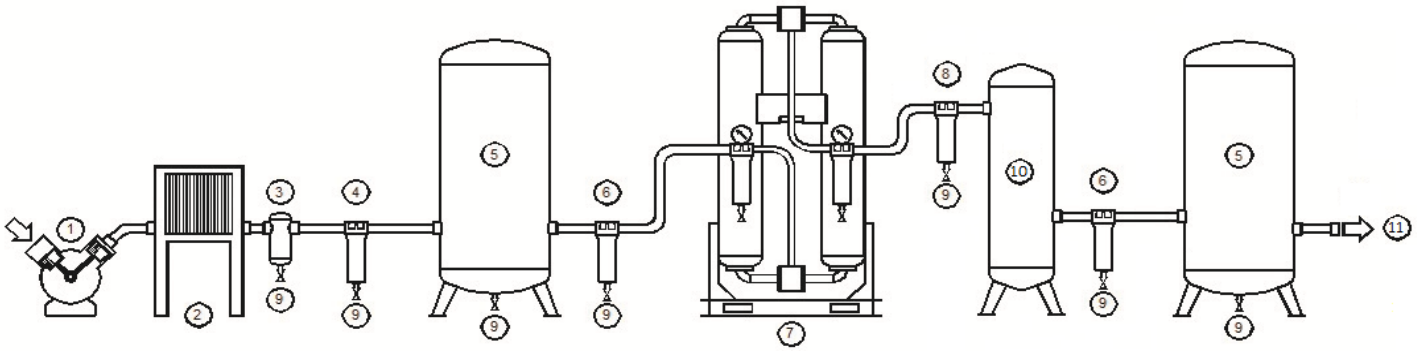
+ **30% RH** or better **pre-dryer**; achieved with either a refrigeration or desiccant dryer
+ **0.01 micron** filtration grade coalescing **pre-filter** with differential pressure gauge and float drain (automatic drain optional)
+ **1.0 micron** filtration grade particulate **post-filter** (differential gauge optional) and manual drain

Activated carbon dust traveling downstream of the carbon tower may cause contamination and/or accelerated wear to other components and equipment. Therefore, a particulate post-filter should be used to prevent carbon dust from traveling downstream. Activated carbon is considered a nuisance dust and proper precautions should be taken during handling (refer to applicable SDS sheet).

5. **IMPORTANT!** Bypass piping is necessary. Only bubble tight valves should be used.
6. Points of access should be provided upstream and downstream of the carbon tower for pressure and temperature monitoring prior to finalizing the installation. These access points can also serve as periodic monitoring of oil aerosol and oil vapor carryover, to determine whether the carbon tower is performing optimally. We recommend using METPOINT® instrumentation to ensure accurate measurements.
7. All piping must be adequately supported and at least of equal size to the carbon tower connections.

Before any attempt is made to operate the carbon tower, the operator must thoroughly read and understand this installation and operation manual.

### 4.3 Optimal Installation Diagram



| Number | Name |
|---|---|
| 1 | Air Compressor |
| 2 | After Cooler |
| 3 | CLEARPOINT® Inline Water Separator |
| 4 | CLEARPOINT® 5.0 micron (Grade G) Filtration |
| 5 | Receiver Tank |
| 6 | CLEARPOINT® 1.0 micron (Grade F) Filtration |
| 7 | DRYPOINT® XCp Desiccant Dryer (Shown with CLEARPOINT® Pre and Post-Filtration |
| 8 | CLEARPOINT® 0.01 micron (GradeF) Filtration |
| 9 | Condensate Drainage Points for BEKOMAT® |
| 10 | CLEARPOINT® V Activated Carbon Tower |
| 11 | Dry Air Outlet |

Optimal installation is with moderately sized receivers at the inlet and outlet side of the dryer and carbon tower. This allows for the additional free cooling and moisture collection as well as a more consistent dryer inlet flow provided by an upstream receiver while providing the most reliable shop air supply due to the downstream receiver.

Under no circumstances should the peak demand air flow exceed the maximum rated air flow of each system component.

# 5. ACTIVATED CARBON TOWER OPERATION

## 5.1 Start Up

### 5.1.1 Verification Prior to Start Up

Verify that the operating parameters match with the acceptable ranges indicated on the data plate of the carbon tower (air pressure, air temperature, ambient temperature, etc.). This is not the same as the ASME UW plate on the vessels and may be lower than what is stamped on the ASME UW plate.

Before delivery, each carbon tower completes a quality check for approval. Nevertheless, the unit could be damaged during transportation. Therefore, we suggest checking the integrity of the carbon tower upon arrival (see section 3) and observing the carbon tower during the first hours of operation.

The start-up must be performed by qualified personnel only. It is mandatory that the qualified person in charge will verify safe operational conditions complying with the local safety and accident prevention requirements.

The same qualified person will be responsible for the proper and safe operation of the carbon tower. Never operate the carbon tower if any component is missing or appears damaged.

Service is to be performed by qualified personnel only. The end user is responsible to ensure that the carbon tower will never be operated with pressure that exceeds the maximum pressure rating of the unit. Operating the carbon tower at a pressure higher than the maximum rating could be

The inlet air temperature and air flow rate entering the carbon tower must be within the limits indicated on the data plate.

### 5.1.2 Activated Carbon Fill Procedure

The CLEARPOINT® V activated carbon tower may be delivered without activated carbon filled in the vessel. This is done for the ease of transportation and the higher center of gravity resulting from the carbon tower after it is filled. Activated carbon filling should only be done by an experienced professional. Personal protection equipment (PPE) must be used when filling activated carbon into a carbon tower such as: dust mask, proper full cover eye protection, and protective clothing including gloves.

1. Make sure the carbon tower is properly placed in the installation location. The unit may be bolted down before filling.
2. Verify the vessel pressure gauge reads zero (0) psig.
3. The carbon tower's activated carbon fill port is shared with the high pressure relief valve. Therefore, you must remove the bushing from the port that holds the valve before filling can be done.
4. Fill the carbon tower with the correct amount of activated carbon according to the spare parts table in secon 6.2.1. (a funnel may help in this process)
5. Re-tape the threading on the pressure relief valve's bushing with a Teflon sealing tape and replace.
6. Verify there are no leaks at the pressure relief valve location.

### 5.1.3 Start-up Procedures

During the first start-up or start-up after a long period of inactivity or following maintenance, the technician must comply with the instructions below. The start-up must be performed by qualified personnel only.

The employee that operates the machine must wear hearing and eye protection before operating the adsorber. Each employee must select proper personal protection equipment and device(s) (PPE & PPD). Hearing protection such as earmuffs, ear canal caps, or earplugs is needed in order to prevent permanent hearing damage or loss.

**Start-up Sequence**

+ Please read and understand the entire manual before operating the carbon tower
+ Verify that all the steps of in the previous chapters relating to installation have been observed
+ Verify that the connection to the compressed air system is correct
+ Remove any packaging and other material that might obstruct the area around the carbon tower

Before bringing pressure to the activated carbon tower, your compressor should be running, your compressed air system pressurized, and the carbon tower bypassed and not yet pressurized. With the adsorber is bypassed and in isolation follow these steps.

1. **SLOWLY** open the inlet isolation valve allowing compressed air into the carbon tower. It is critical that the carbon tower be pressurized slowly to prevent damage to the activated carbon bed. Keep the outlet isolation valve closed at this time.
2. **SLOWLY** open the outlet isolation valve. All valves are now in their open positions and compressed air is flowing through the carbon tower and downstream.
3. Close the carbon tower bypass valve. The bypass valve must be bubble tight to prevent any oil vapor from contaminating the dry air outlet from the adsorber.
4. Check all piping for compressed air leaks.

## 5.2. ISOLATION AND SHUT DOWN PROCEDURES

Users operating the machine must wear hearing and eye protection. Each employee must select proper personal protection device(s) (PPD). Hearing protection such as earmuffs, ear canal caps, or earplugs are required to prevent permanent hearing damage or loss.

**Isolation**

1. Open the bypass valve.
2. Close the outlet isolation valve.
3. Close the inlet isolation valve.

**Depressurization and Shut Down**

1. Open the bypass valve.
2. Close the outlet isolation valve.
3. Close the inlet isolation valve.
4. Open the manual ball valves on any filters with manual ball valves to allow full depressurization. Also, leave manual ball valves on filter open during maintenance and service.

**IMPORTANT!** Always remove all pressure and disconnect all power before servicing the carbon tower.

To bring the carbon tower back in use, follow the start-up procedure in section 5.1: Start Up

# 6. MAINTENANCE AND SERVICE

## 6.1 Maintenance and Service Information

### 6.1.1 Routine Maintenance

The service must be carried out only by a qualified technician.

**Before any service is carried out, always verify that:**

+ **The unit is depressurized and ensure the unit is isolated from the compressed air system**

Users operating the machine must wear hearing and eye protection. Each employee must select proper personal protection device(s) (PPD). Hearing protection such as earmuffs, ear canal caps, or earplugs are required to prevent permanent hearing damage or loss.

**DAILY**

+ Check the differential pressure of any installed pre and post filtration
+ Check that the tower pressure gauge reads full line pressure

**ANNUALLY**

+ Replace the pre and post filter elements
+ Check the air quality for oil aerosol and oil vapor content. Replace the activated carbon material in the tower as necessary

### 6.1.2 Activated Carbon Replacement

**CAUTION:** Activated carbon dust is considered a nuisance dust. Proper precautions should be taken prior to replacing the activated carbon material in the tower. Please refer to the Safety Data Sheet (SDS).

1. Isolate and shut down the carbon tower (see sect. 5.2).
2. Place a suitable container at the edge of the drain port on the bottom of the tower.
3. Open the drain port on the bottom of the tower and catch the activated carbon in the container.
4. Refill the tower with the recommended type, size, and quantity of activated carbon. Only use manufacturer supplied activated carbon, which is high quality, high capacity activated carbon designed and sized for the carbon tower.
5. Replace the drain port using thread sealant.
6. Carefully knock on the sides of the tower chamber while filling so that the activated carbon will pack tightly. Some settling may be required in order to fit the specified fill amount into the tower. Tank sizes may be the same for multiple models so do not be concerned if the tower is not entirely full.
7. Activated carbon contaminated with oil or other substances may require different disposal methods and procedures. Consult the appropriate SDS and follow all applicable laws and regulations regarding disposal.

## 6.2 MAINTENANCE AND SPARE PARTS

We strongly recommend stocking the suggested spare parts to help enable you to promptly carry out any required maintenance and/or replace any parts that may fail without having to wait for the parts to be delivered. If you need to replace any other parts, please contact your local distributor or BEKO Technologies, Corp. Technical Service Department at +1 (800) 235-6797 for assistance.

### 6.2.1 Required Maintenance Parts

| Interval | DESCRIPTION | Order No. | 80 | 100 | 120 | 160 | 200 | 250 | 300 | 400 | 500 | 650 | 800 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | *Pre-filter Element 0.01 µm* | | | | | | | | | | | | |
| | 07SX | 4038113 | ♦ | ♦ | | | | | | | | | |
| | 10SX | 4038149 | | | ♦ | ♦ | | | | | | | |
| | 12SX | 4038114 | | | | | ♦ | | | | | | |
| | 15SX | 4038115 | | | | | | ♦ | | | | | |
| | 18SX | 4038150 | | | | | | | ♦ | | | | |
| | 20SX | 4038151 | | | | | | | | ♦ | ♦ | | |
| | 25SX | 4038116 | | | | | | | | | | ♦ | ♦ |
| | *Post-filter Element 1.0 µm* | | | | | | | | | | | | |
| | 07FX | 4038106 | ♦ | ♦ | | | | | | | | | |
| | 10FX | 4038140 | | | ♦ | ♦ | | | | | | | |
| | 12FX | 4038107 | | | | | ♦ | | | | | | |
| | 15FX | 4038108 | | | | | | ♦ | | | | | |
| | 18FX | 4038141 | | | | | | | ♦ | | | | |
| | 20FX | 4038142 | | | | | | | | ♦ | ♦ | | |
| | 25FX | 4038109 | | | | | | | | | | ♦ | ♦ |
| | *Desiccant Adsorption Material* | | | | | | | | | | | | |
| | 1/8" Activated Carbon (total fill in lbs) | *4056165 | 24 | 30 | 35 | 48 | 60 | 75 | 90 | 120 | 152 | 199 | 246 |
| *Pressure Relief Safety Valve* | | | | | | | | | | | | | |
| ¼" Pressure Relief Safety Valve | | 4026666 | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |
| *Tower Pressure Gauge* | | | | | | | | | | | | | |
| 2½" 0-160 psig Pressure Gauge Economy | | 4026663 | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |
| Gauge Clamp | | 4026665 | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |
| *Tower Screen* | | | | | | | | | | | | | |
| Replacement Tower Screen | | on request | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |
| *Ball Valve* | | | | | | | | | | | | | |
| 1/4" Male-Female | | 4034538 | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |

***replacement carbon supplied in 30lb box; order quantity of boxes needed for total fill**

**NOTE: When inquiring about any other part always indicate the data listed on the identification plate.**

## 7. TROUBLESHOOTING GUIDE

The troubleshooting and the eventual checks must be performed by qualified personnel only.

Users or technicians operating or servicing the machine must wear hearing and eye protection. Each employee must select proper personal protection device(s) (PPD). Hearing protection such as earmuffs, ear canal caps, or earplugs are required to prevent permanent hearing damage or loss.

| COMPONENT TROUBLE | POSSIBLE CAUSE and SUGGESTED ACTION |
|---|---|
| ❖ Leak Detected in a component (such as: Pressure Gauge, PRV, etc...) | ⇨ Check each componenet for connection of fitting<br>⇨ Refit or replace component |
| ❖ High Oil Carryover | ⇨ Replace activated carbon |

## 8. DISMANTLING OF THE UNIT

If the carbon tower is to be dismantled and disposed of then it must be split into groups of materials of construction.

| Part | Material |
|---|---|
| Activated Carbon Material | Activated carbon, Oil contaminated |
| Frame and supports | Carbon steel, Powder coated |
| Piping | Galvanized steel, Galvanized malleable iron, Brass, Aluminum |
| Towers and screens | Carbon steel, Stainless steel |
| Filter housing | Aluminum, Epoxy paint |
| Filter cartridge | Filtering material, PVC, Oil |
| Safety Valves | Brass, Bronze |

We recommend complying with the safety rules and regulations for the disposal of each type of material. The adsorption material and the filter cartridge will contain droplets of lubrication oil. Do not dispose of these materials in the environment. All local Governmental laws and regulations must be followed in disposing of the above listed materials.

## 9. GENERAL DESCRIPTION OF PARTS

+ **Activated Carbon** – An absorbent used for removing oil vapor. The proper quantity, size, and type are necessary.
+ **Safety Relief Valves** – Valves on each tower to protect the vessels from overpressure situations. The setting is indicated on each valve.

*For technical product support please call +1 (800) 235-6797 and select Option 2*

## The product categories

| | |
|---|---|
| **Condensate drainage** BEKOMAT® | **Filtration** CLEARPOINT® |
| **Measurement technology** METPOINT® | **Condensate processing** ÖWAMAT® \| QWIK-PURE® \| BEKOSPLIT® |
| **Drying** DRYPOINT® | **Process technology** BEKOKAT® |

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