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B 1 Safety instructions for transport and storage

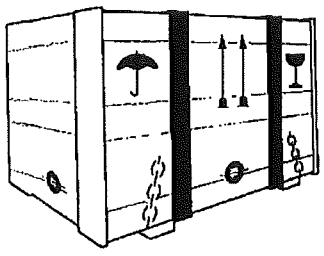
WARNING

Danger: suspended load
Danger: falling parts

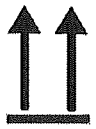
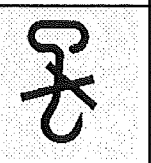
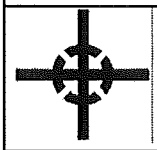
May lead to severe injuries.

- Use only approved hoisting equipment and cranes of sufficient capacity. For information on weights refer to the foundation and layout plan, or information on packing.
- Employ special auxiliary equipment, e.g. traverses, loading joists, if specified.
- Use only undamaged ropes and chains.
- Protect the edges whenever hoisting chains or ropes are conducted over edges of packing or machinery.
- Lifting eyelets are not always designed to receive the total weight. Pay attention to the information contained on their stickers.
- Secure parts against shifting during transport/handling.
- Observe the shift in center of gravity during transport.
- Refrain from staying below suspended loads.

You are requested to pay attention to the marks attached to seaworthy consignments or to consignments executed as per customer specifications.



The signs have the following meaning:

	This side up
	Fragile
	Keep dry
	Keep cool
	Do not use hooks
	Centre of gravity
	Sling here
	Blade of handtruck here
	Do not destroy barrier

In order to enable AC and the owner to make proper preparations for transport of the turbo machinery to the site and to store and transport materials after arrival at the site, the owner and AC must jointly establish the transport route and means, site facilities, storage conditions and handling equipment available for off-loading, handling and erection of the complete equipment.

A site meeting shall be held in conjunction with inspection of the site and shall deal with the following main points:

- Approach routes leading up to the foundation for erection
- Heights and widths of passage on all access and approach routes.
- Spaces requirements
- Availability of electric power, water, compressed air supplies
- First - aid station
- Lifting and hoisting equipment available (shop cranes, mobile cranes).

B 2 Status on arrival

The turbomachinery unit and its accessories have been subjected to the contractually stipulated tests and packed for the specified method of transport to avoid any damage.

Our turbomachines and their accessories are preserved and packed prior to shipment as specified in the purchase agreement.

All nozzles and openings of the unit have been plugged up to protect it against impurities. They may be opened only if dirt and foreign particles cannot enter the unit any more.

Please make sure that the consignment's packing material is intact on its arrival at your site, as it is supposed to protect the consignment during transport, e.g. against entry of water.

Whenever packing is damaged, open the packages in the presence of the truck driver or delivery agent and have them confirm the damage. Do not use the goods!

Whenever packing is intact, but the goods are nevertheless damaged, report the damage without delay (periods: by mail within 24 hours, by forwarding agent within four days, by rail within one week).

Please check the consignment for completeness and damage against the dispatch note.

Also inform the competent representation of Atlas Copco Energas GmbH or directly:

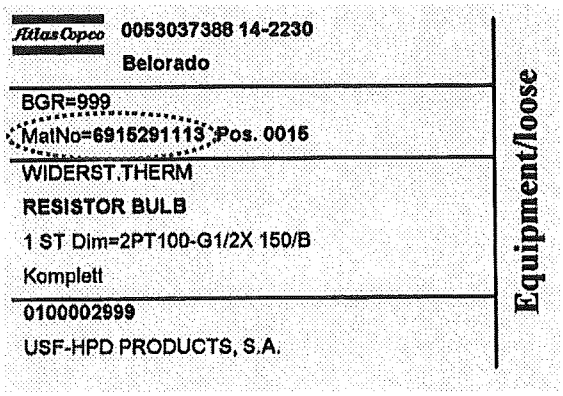
Atlas Copco Energas GmbH
Parts & Service Centre

CAUTION

For reasons of safety, the turbomachinery unit could not provided with an oil filling prior to transport.

B 2.1 Information about packing lists

Each part is equipped with a label containing the detailed information of the delivered parts according to the packing list.



Parts label with detailed information about delivered parts it is possible, that the part no. is the same number as the drawing no.

List of main components of our delivery:

- Base frame parts with Compressor
- Coupling
- Bypass valve
- Cooler
- Water header
- Piping material
- Loose parts acc. packing list
- Non-return valve

B 3 Instructions for storage

CAUTION

Compliance with these instructions for storage is mandatory.

Atlas Copco shall not be liable for damage by corrosion that was incurred by non-compliance with these instructions.

WARNING

Danger: falling parts

May lead to severe injuries.

- Comply with instructions for load capacity of shelves and ceilings when storing parts.
- Do not stack heavy parts.

B 3.1 Storage of disassembled turbomachinery units

The unit has been factory-tested using an oil as per Atlas Copco Works Standard.

When longer storage periods of the disassembled plant or its single parts are inevitable, observe the following notes:

Do not store machinery or their components without packing or without preservation in corrosive atmospheres, i.e. humid or saliferous air etc.

As a rule, the turbomachine, its accessories and spare parts have to be tarped up during road or air transport. Even when being stored the consignment should be kept in its original packing, tarped up and well aerated.

You are requested to store the consignment in its normal position, free of distortion and well supported on solid ground.

Please protect the consignment against vermin.

When consignments are stored outdoors, make sure that the tarpaulin does not have direct contact to the machine parts to ascertain proper air circulation. All parts must be protected from moisture from below.

The following storage periods are feasible if these conditions have been met:

- **Standard preservation**
  - Moderate climate, outdoor storage **Maximum storage period 3 months**
  - Moderate climate, storage in dry-frost-free, well-aerated and clean rooms **Maximum storage period 12 months**
- **Seaworthy packing for**
  - Moderate climate, unopened PE-foil packing **Maximum storage period 12 months**
  - Tropical climate, unopened and undamaged packing of welded Al-compound foil **Maximum storage period 24 months**

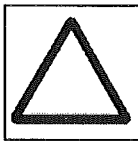
CAUTION

It might be possible that bags containing desiccant were placed in the turbo-machinery.

The number of bags that were used is indicated on caution signs (it is imperative to remove these bags prior to commissioning the machine).

- **Pressure vessels filled with nitrogen**

Pressure vessels or other parts of the plant filled with nitrogen are marked by the following yellow sign:



Achtung: 0,3 bar(g) Stickstoff
Attention: 0.3 bar(g) nitrogen
Attention: 0,3 bar(g) d'azote

When vessels have been preserved by means of a nitrogen filling, you are supposed to check pressure of N_2 filling in regular intervals. If it has dropped, refill.

On termination of the storage periods specified here, the status of the parts must be checked. If required, they must again be preserved. Please contact our Service department.

B 3.2 Storage of electrical machines

As the storage of electrical machines is a critical issue adherence to the relevant instructions issued by the manufacturers is mandatory.

As a rule, electrical machines have to be protected against moisture. Store them in a clean, well vented, low-vibration atmosphere and at constant temperatures. Protect the electrical machines against rodents and vermin.

Make sure to comply with all the instructions issued by the manufacturer of the electrical machine prior to commissioning the motor. This might e.g. also mean that the insulation resistances etc. will have to be checked.

If manufacturer's instructions do not contain sufficient information on methods of preservation and associated storage periods, contact the manufacturer.

B 3.3 Storage of elastomer seals (O-rings or similar)

The presence of oxygen, ozone, heat, humidity, solvents, etc. may have a considerable impact on the service life of elastomers. For this reason, proper storage of elastomer materials is imperative.

Elastomer seals should be packed in boxes or in paper-lined PE foils impervious to light and stored in cool, dry, dust-free and moderately aerated rooms at an air humidity of approx. 65 percent and at air temperatures between +40 °C and –10 °C.

The materials to be stored must not be subjected to direct heat sources. A minimum distance of at least 1 m to said sources must always be kept.

B 4 Preservation and protection against corrosion

B 4.1 Preservation when erection was interrupted

If the interruptions are brief, e.g. over the weekend, just covering the machine with a tarpaulin will do.

If erection is interrupted for a longer period of time, the same preservation methods as those described in the subsequent chapters are to be applied.

B 4.2 Weather protection of turbomachinery temporarily stored outdoors

Whenever turbomachinery erection and installation of protective roofs or silencing hoods are not effected subsequently, the turbomachines must be protected against moisture and corrosion.

We recommend the installation of a provisional protective roof (tent or similar) and of a hot-air heating, if necessary.

Drain any plant accessory. Plug up all openings to rule out damage by moisture. To avoid any corrosion we recommend to flush the plant gas side, e.g. by means of instrument air.

The flushing pressure must be continuously controlled.

B 4.3 Standstill operation

After conclusion of erection or shutdown of the turbomachine, make sure that the unit itself and its single parts are undamaged. Check for the presence of rust. If any is found, it must be promptly removed. Only then should the plant be preserved.

If required, the lubricating system must be drained and then re-filled with about one third of the oil quantity specified for operation. This amount of oil will make sure that the suction pipe of the auxiliary oil pump is located below the oil level.

Only oils specified in AC's Works Standards must be employed.

Then start the oil pump and keep circulating oil for about 30 minutes to wet all parts with oil.

Start the oil pump once a week for about 10 minutes to circulate oil through the machine. Minimum oil temperature should be 20 °C. If oil temperatures are lower, heat the oil.

Drain and flush the plant as described above.

The machine should be turned by hand every three months to avoid damage to the rotors by corrosion.

We recommend to energise the heating of the control panel in humid rooms.

Treat electric machines as per manufacturer's instructions, i.e. energise the standstill heating.

The pipes for leakage gas should be heated during stand still if ambient temperature is below 0 °C.

Check the plant for damage by corrosion every six months.

CAUTION

In plants erected outdoors, the oil heating and the auxiliary oil pump should remain in operation in winter.

Drain water from all pipes and pressure vessels containing water. The same applies to condensate.

For other action to be taken for your plant, please contact the **Atlas Copco Parts & Service Centre.**

Prior to commissioning the plant, check the oil. If it complies with the requirements specified in the above mentioned Works Standard, it may remain in the plant, otherwise it must be changed.

If you do not intend to re-commission the turbomachinery plant and still do not want to dismantle it, please contact the **Atlas Copco Parts & Service Centre.**

B 5 Transport sketches

For the transport and hoisting of the base frame please pay attention for exact horizontal position of the unit. Pay attention that the ropes must be sling beside the junction boxes and seal gas pipes.