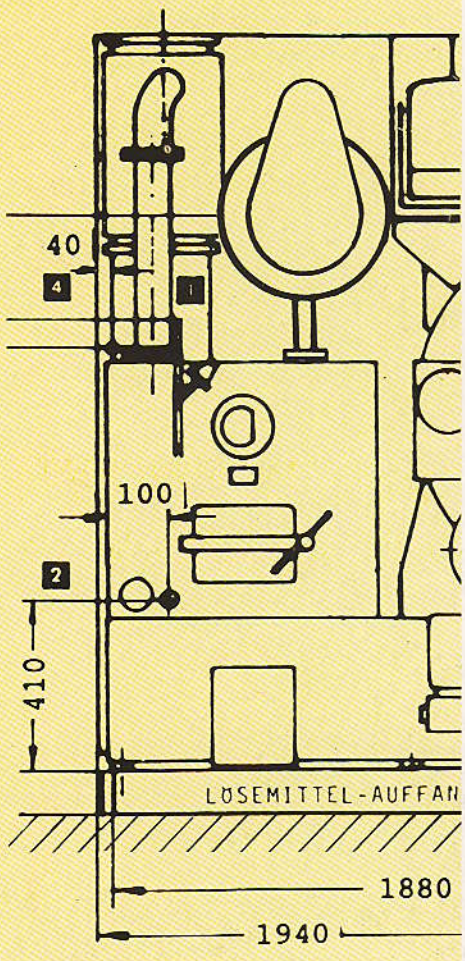
BÖWE
Textile Cleaning

Installation Instructions



P 520

THE FIFTH GENERATION

IA. P 520 /250 /04.95 /E III
SN 703846-0

Dear Customer,

It gives us great pleasure to supply you with your 5th generation **BÖWE-PASSAT** machine.
In designing and building it we have attached great importance to quality. It is up to the latest level of research and technology, particularly concerning environmental protection.

Please do not put this installation instruction aside unread!

This instruction contains important information on operational details of your drycleaning machine.

If specified measurement and installation information are disregarded, we cannot meet the warranty obligations contained in our General Terms of Delivery.

Measurements and other values are as at printing date.

We reserve the right to make technical changes without prior notice in the interest of further development or required constructional modifications.

BÖWE
Textile Cleaning

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1. GENERAL INFORMATION

Technical literature

We make reference to the publications and leaflets by the trade and professional associations as well as research institutes.

Laws and regulations

All regulations concerning the industry, particularly with regard to proper handling of halogen hydrocarbons, have to be met absolutely in order to avoid health risks and environmental damage.

In any case please observe applicable laws and regulations in your country.

Applied Standards and Regulations:

- VBG 66 - Safety Regulations for Drycleaning Equipment
- VBG 20 - Safety Regulations for Refrigeration Equipment
  - Heatpumps and Refrigeration Plants
- VDE 0100 - Requirements for High Tension up to 1000 V
- Pressure Vessel Regulations
- CFC - Halon Prohibition Decree

The following applies to the Federal Republic of Germany:

- 2nd Federal Emission Protection Law (2. BImSchV)
- Water conservation Law (WHG § 19)
- Disposal law
- Technical rules for dangerous substances (TRGS 402)
- VDI guide lines
- DIN standards
- VDE regulations

Repair work

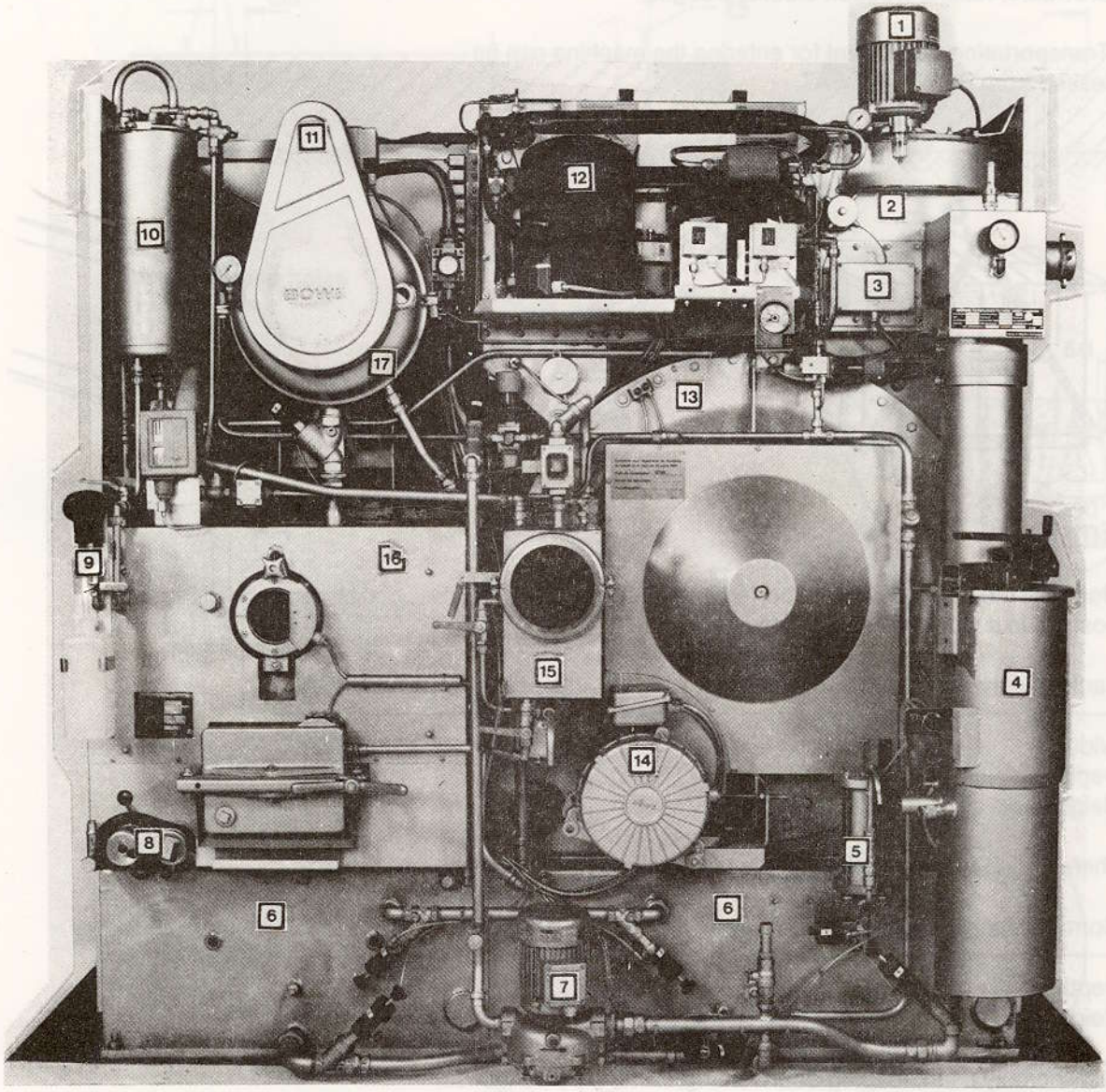
Please consult the BÖWE-PASSAT customer service organization for all maintenance and repair work as well as operating safety aspects of this high-quality drycleaning machine.
If necessary, the BÖWE-PASSAT customer service organization will use original spare parts.

Safety

Safety devices may not be bypassed, switched off or otherwise be made inoperative. In case of repair work please observe applicable industrial safety rules.

Disposal of still residues, processing water, lint etc. must be carried out properly.

2. Machine rear



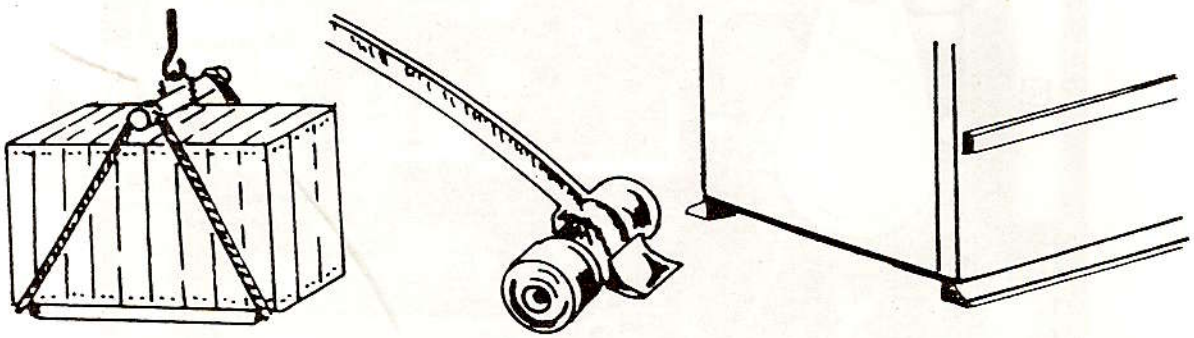
1	Fan	9	Dosing pump anti-foam or neutralizing agent
2	Recovery section	10	Condenser
3	Air heater	11	Filter drive
4	Lint filter/button trap	12	Refrigeration unit
5	Dosing unit	13	Cage housing with cage
6	Tank (2x)	14	Cage drive
7	Pump	15	Water separator
8	Still heating	16	Still
		17	Filter

3. Transportation

For proper transportation, installation and connection it is recommended to consult the appropriate experts.

For unloading transportation, machine entry and installation it is necessary to use suitable tools and devices such as a crane, forklift, elevating truck, bottle lift, ropes, winch, crowbars, rollers, wooden blocks, wedges.

Transportation equipment for entering the machine can be leased from BÖWE-PASSAT.



3.1 Entry

Normally the machine is transported and entered in upright position in a wooden crate or box.

Packing dimensions		Machine	CONSORBA
Width	mm	1,970	900
Depth	mm	1,400	1,350
Height	mm	2,410	2,330

There are alternatives if the entry is too small:

Normal dimensions after unpacking

Depth	mm	1,200	920
Height	mm	2,180	1,960

Disassembly I: fan, loading door venting, water pipe condenser

Depth	mm	1,200
Height	mm	1,980

Disassembly II: loading door, filter, button trap, still rake-out door, pump and pipes to button trap, water separator sight-glass

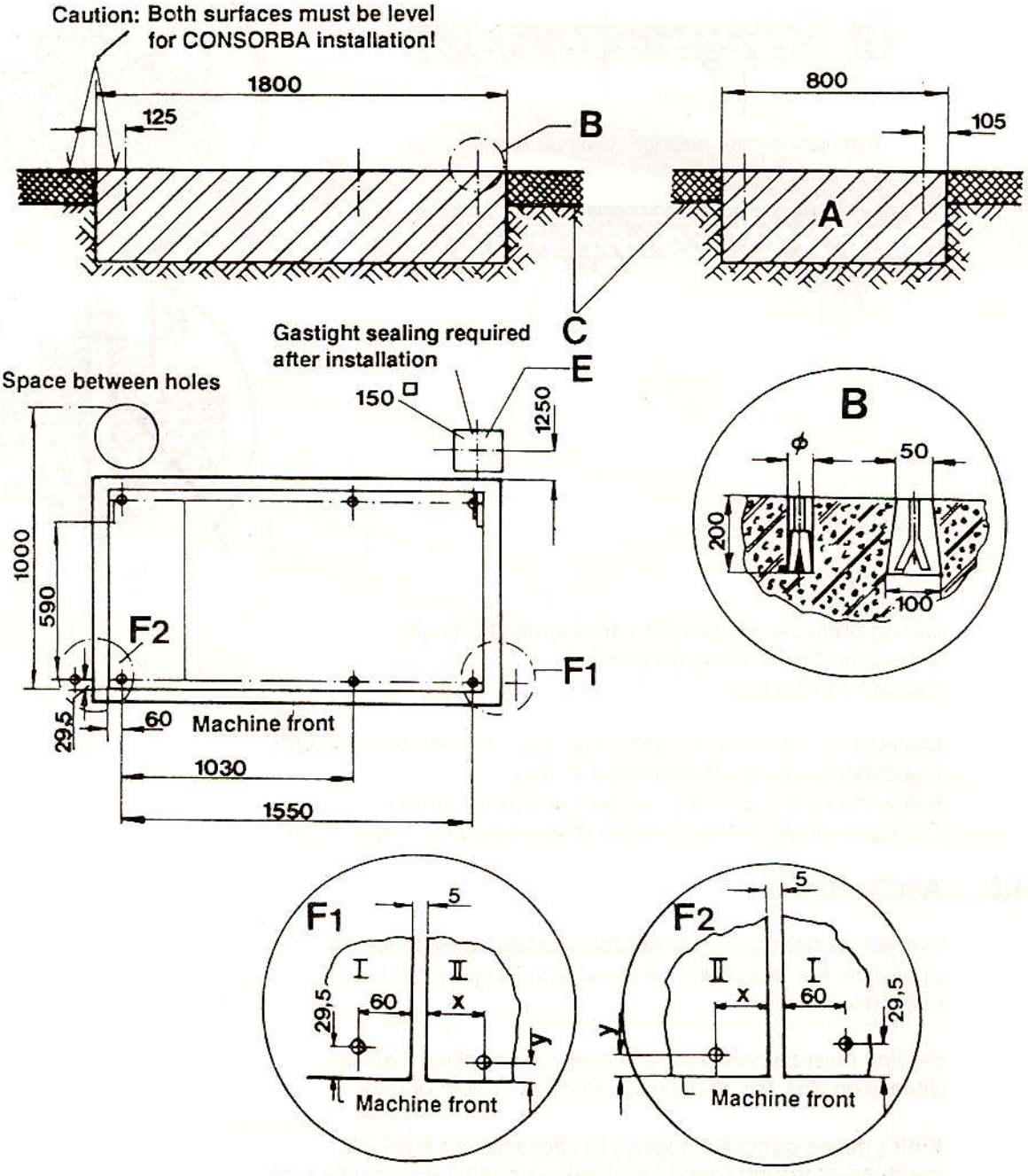
Depth	mm	940
Height	mm	1,980

Disassembly III: Disassembly II and control box cover, door locking, frame loading door, tank and front panelling, operating panel

Depth	mm	910
Height	mm	1,980

4. Foundation

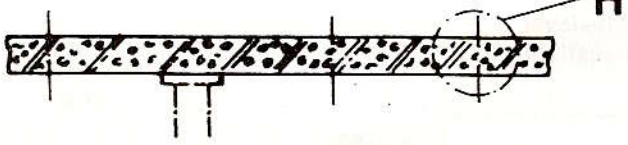
4.1 Foundation measurements



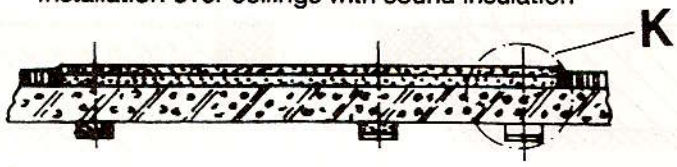
Reinforced concrete: for normal floors at least 300 mm deep	**A**
Hole for stone bolt or expanding anchor depending on make	**B**
Room floor - concrete slab	**C**
(If necessary) ceiling breakthrough for supply lines	**E**
Distance from P 520 to nearest machine (outside edge of machine panelling)	**F**

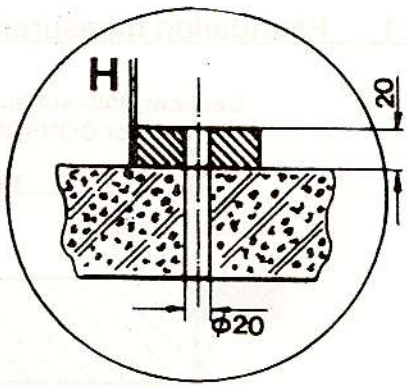
4. Foundation

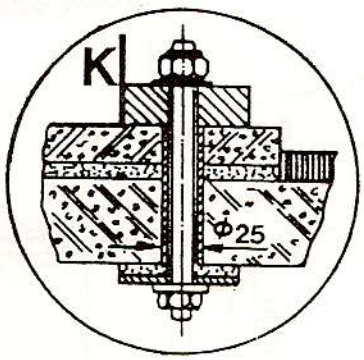
Installation over ceilings



Installation over ceilings with sound insulation







Ceiling borehole (20 mm ø) for through-bolts, length depending on thickness of ceiling.
Support if necessary. **H**

Machine on reinforced concrete slab 100 - 120 mm and pressed foundation cork 12 - 15 mm with 1 - 3 kp/cm^2.
Below the ceiling pressed cork and steel plate 10 mm.
Ceiling borehole 25 mm diameter (if necessary PVC hose inset). **K**

4.2 Anchoring

Correct anchoring is very important for low-noise, fault-free operation. For installation on foundation it is preferable to use stone bolts!

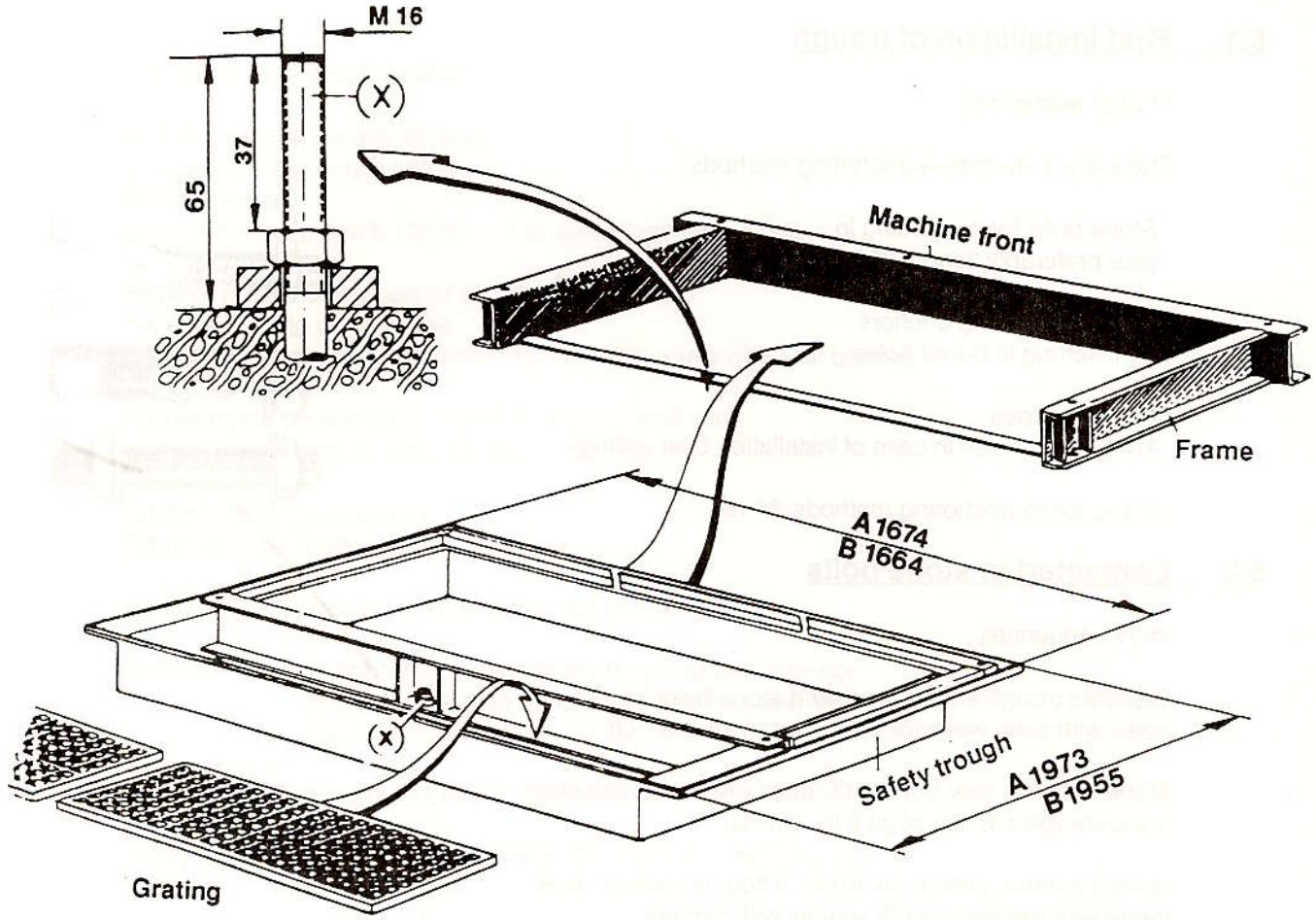
Seating must be horizontal and level. Do not place machine directly on tiles, felt, bituminous coatings, rubber or cork.

With uneven concrete floors it is necessary to level the machine or trough frame with wedges and fill the spaces with cement.

4.3 Noise or vibration insulation

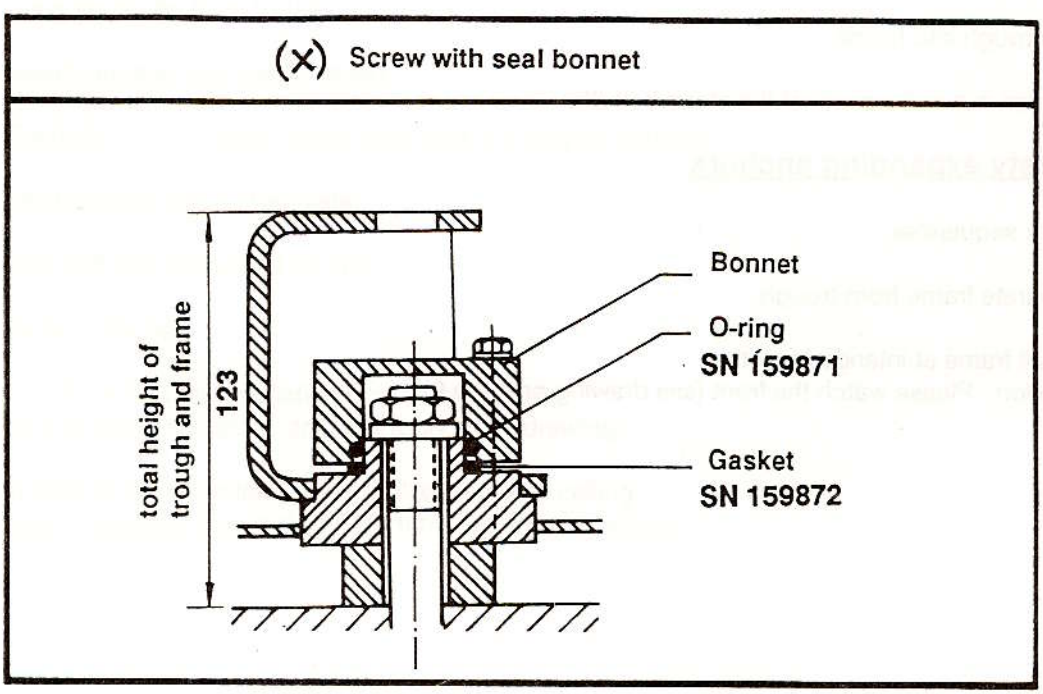
For special vibration insulation special foundations, dampers etc. can be used in collaboration with building and insulation specialists.

5. Solvent safety trough



A with panelling and protective strip

B without panelling and protective strip



5. Solvent safety trough

5.1 First installation of trough

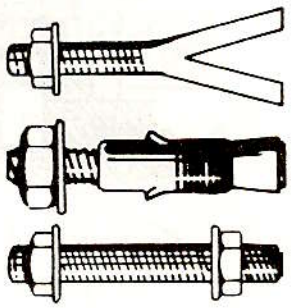
Trough anchoring:

There are 3 alternative anchoring methods:

- Stone bolts for cementing in
  (use preferably; length 250 mm)

- Safety expanding anchors
  for inserting in bored holes

- Threaded rods
  for through-holes in case of installation over ceilings



Thread for all anchoring methods: M 16

5.2 Cemented-in stone bolts

Work sequences:

Separate trough and frame, insert stone bolts into frame holes with plain washers, spring washers and nuts.

Stone bolt with seal bonnet (X) must project 65 mm over concrete (please see page 9 for details).

Level the frame (watch the front). If floor is uneven, level frame with wedges and fill spaces with cement.

Fill anchoring holes with quick-taking cement.

After cementation tighten nuts evenly. Remove stone bolt nut (X).

Unscrew brass seal bonnet from trough, do not damage the gasket.

Put trough into frame.

Tighten nut and washer of the stone bolt (X).

5.3 Safety expanding anchors

Work sequences:

Separate frame from trough.

Install frame at intended location.
Caution: Please watch the front (see drawing on page 9).

5. Solvent safety trough

Use frame as drilling template.

Pilot-drill with stone drill 16 mm.
Minimum drilling depth 130 mm.
Remove frame.
Using the template drill 130 mm deep with 25 mm stone drill.

Remove nuts and washers of expanding anchors.
Put anchors into drilled holes.
Caution: Long expanding anchor into bore (X) screw with seal bonnet.

Put the frame on and level. If floor is uneven, level with wedges and fill spaces with cement.

Tighten anchor nuts evenly.
Put trough into frame.

Tighten nut and washer of screw with seal bonnet (X) .

Caution: In tightened condition the threaded bolt may not project more than a maximum of 5 mm over the nut (grind off if longer).

Safety expanding anchors can be obtained from BÖWE-PASSAT.

Safety expanding anchor (component) SN 155919, consisting of:

1 long SN 149466
5 short SN 149469

5.4 Threaded rods (bored-through ceiling)

Work sequences:

Separate frame from trough.

Install frame in intended location.

Caution: Please watch front (see drawing on page 9).

Use frame as drilling template.

Pilot-drill with stone drill 16 mm.

Remove frame.

In case of normal installation over a ceiling drill 20 mm deep with stone drill (see foundation drawing).

In case of vibration-insulated installation over a ceiling (see foundation drawing) drill 25 mm deep with stone drill.

5. Solvent safety trough

The frame must be completely level on the floor.
If not, level with wedges and fill spaces with cement.

With both floor installations (normal and vibration-insulated), the screw with seal bonnet (X) must freely project 65 mm.

6. Installation

6.1 Surrounding conditions

6.1.1 Regulations

Applicable regulations for room ventilation and size, odour and noise emissions, accident prevention etc. must be met. The control box contains contacts to control the room air (see page 22).

Noise level at a distance 1 m from the machine and 1.60 m above ground:

without CONSORBA	63 dB (A)
with CONSORBA	67 dB (A)

6.1.2 Temperature

Machine should not be exposed to direct sunlight. Adequate air supply is to be ensured due to heat exchange (heat build-up!) Room temperature should not drop below 1 °C owing to the risk of water in the system freezing, and not exceed 40 °C in continuous operation owing to increased solvent consumption.

Heat radiation:

without CONSORBA	6,500 kJ/h
with CONSORBA	6,800 kJ/h

6.1.3 Structural surroundings

Partitions, screens, intermediate ceilings and similar near the machine are to be fitted in such a way that they do not hinder operation and are easily and quickly removed for maintenance and repair.

NOTE!

Do not operate appliances with open flames, e.g. gas-fired flatwork ironers, tumblers, in the same room, because they can be damaged by noxious, corrosive gases in the event of solvent decomposition.

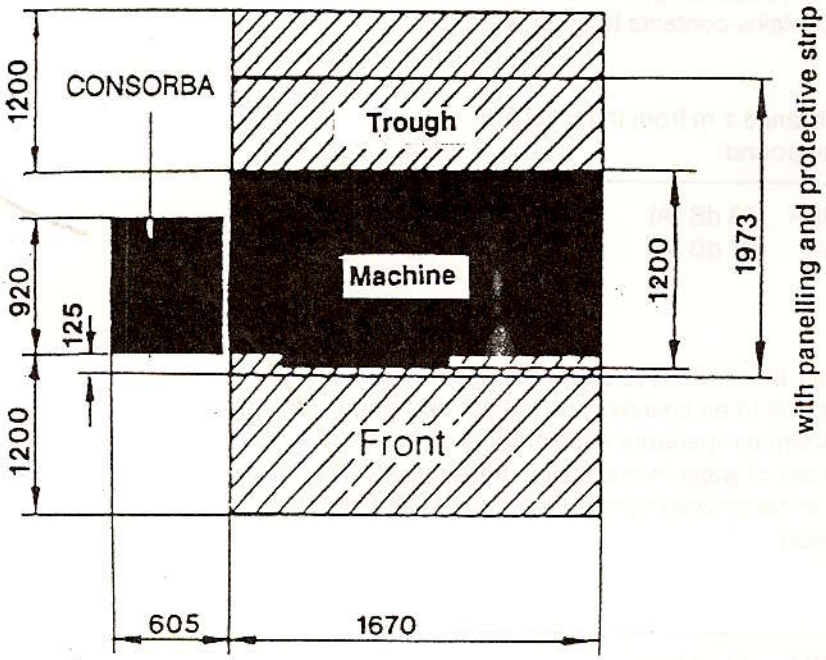
Please ensure that no air from the machine can escape into a possibly existing heating plant room.

6. Installation

6.2 Place of installation

6.2.1 Required space

Front and rear of the machine should be accessible for operation, maintenance and repair.



6.2.2 Machine dimensions

		without CONSORBA	with CONSORBA
Width	mm	1,670	2,275
Depth	mm	1,200	1,200
Height	mm	2,180	2,180

6.2.3 Floor load

The place of installation must conform to the floor load which is composed of:

- static load = machine weight + max. solvent filling and
- dynamic load = centrifugal cage force with normally distributed, extraction-damp garments.

The force created during extraction must also be taken into account (floor, supporting walls etc.). Resonances are not permissible.

Please consult building specialists.

6. Installation

6.3 Floor load data

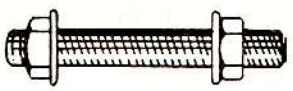
6.3.1 Dimensions

		without CONSORBA
Width	mm	1,600
Depth	mm	630
Floor surface	m^2	1.05
Weight without solvent	kg	1,000
Weight with solvent (stat. load)	kg	1,400
Centrifugal cage force (dyn. load)	N	4,150
Floor load (stat. + dyn. load)		
- Standard drive	N/m^2	17,800

Regarding the foundation work please consult building experts. They will take machine-related as well as local particulars into account and find the best solution.

Please use a load distributor if the permissible floor load is inadequate. We also recommend to install a solvent safety trough (a must in Germany). Please see page 9.

6.3.2 Anchoring methods



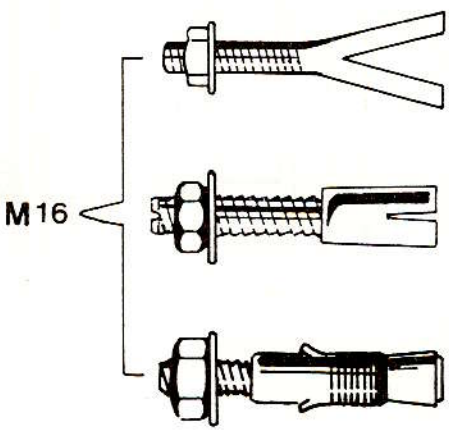
- For installation over ceilings
  Through-bolts (threaded rod)
  with washers and nuts M 16
- For installation on foundation
  Stone bolts for cementing in recessed
  or opened holes.

or

Heavy-load plugs with threaded rod

or

Safety expanding anchors for inserting
in bored holes.



We will not be liable for any damage caused by disregard for our recommendations and information.

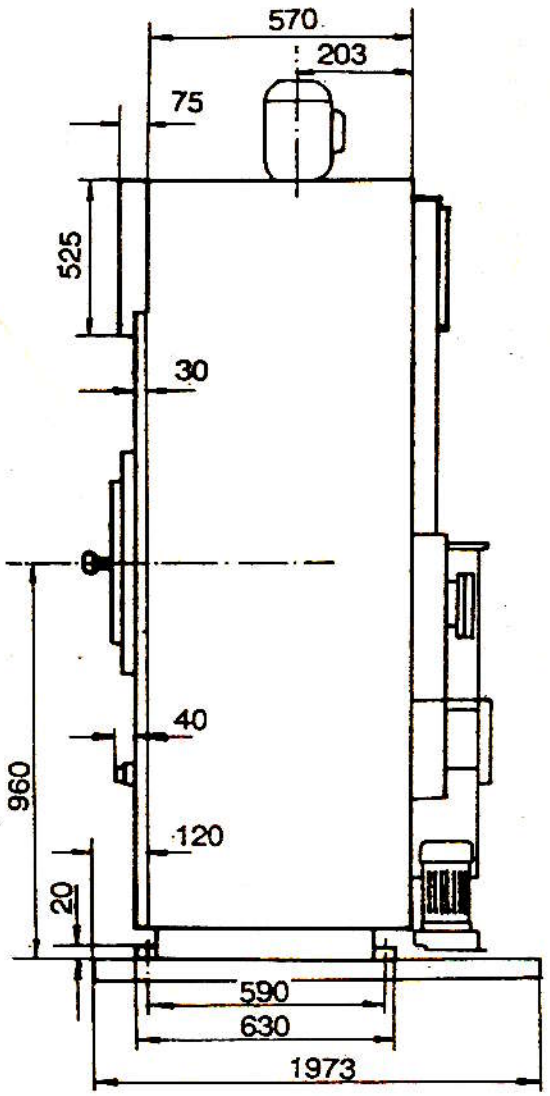
NOTE:
The CONSORBA does not need a foundation and has no influence on the machine foundation.

6.4 Machine installation

Work sequences:
Using rollers and other tools bring machine 10 mm over the trough. It is preferable to push the machine into the trough from the narrow side. If the machine has to be pushed on from the front, BÖWE supports SN 139516 are available. For mounting instructions please see the label on the supports.
Screw machine to frame by means of hexagon screws M 16 (included in delivery).
Retighten foundation screw nut with seal bonnet (X).
Put on copper gasket according to drawing.
Screw on seal bonnet and tighten.
Insert gratings.

7. Connection

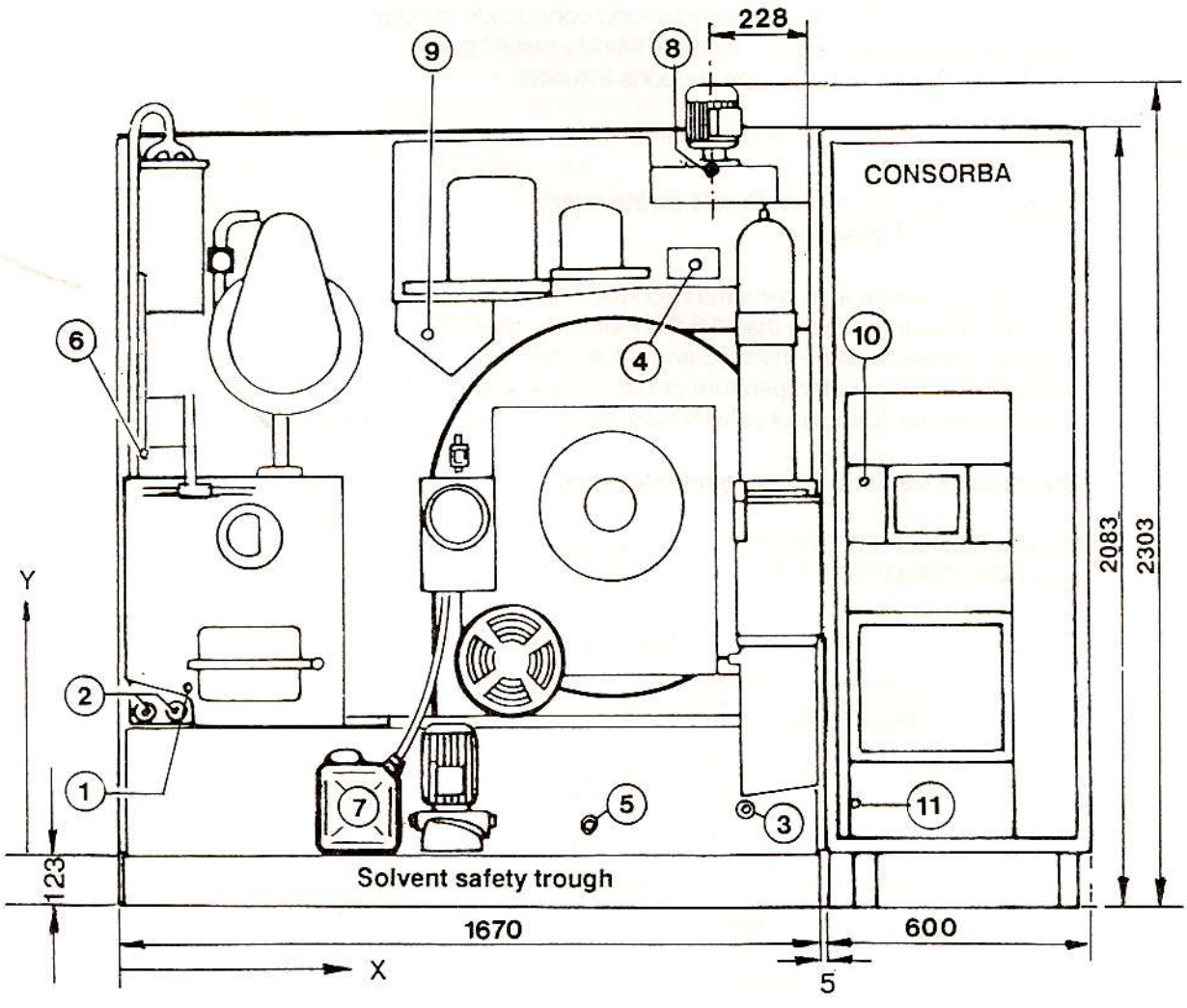
7.1 Machine dimensions specification



with panelling and protective strip

7. Connection

7.2 Machine connections specification



We reserve the right to change measurements!

Pos.	Medium	NW mm	Zoll inch	- X - mm	- Y - mm
1	Steam/still	15	1/2	120	460
2	Condensate/still	15	1/2	50	410
3	Condensate/heater	15	1/2	1,360	320
4	Steam/heater	15	1/2	1,270	1,570
5	Cooling water inlet	15	1/2	1,050	85
6	Cooling water drain	20	3/4	40	1,085
7	Processing water collecting container				
8	Compressed air	8	1/4	1,442	1,900
9	Elec. connection			1,620	1,590
10	Steam CONSORBA	15	1/2	50	1,050
11	Condensate CONSORBA	15	1/2	20	90

7. Connection

7.3 Piping

Connect the supply and drain pipes (supplied by customer) in accordance with the installation details. Steam, compressed air and water must receive stop valves. Water connection must be according to DIN 1988. To avoid sound conduction through walls, an intermediate piece - made of flexible metal hose - can be connected and the pipe supports insulated.

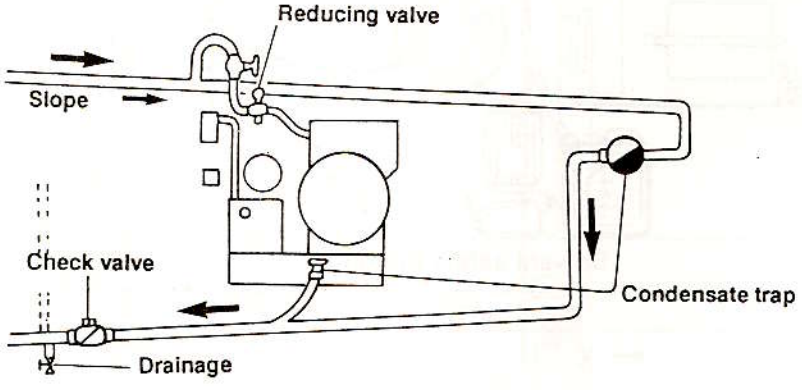
7.3.1 Steam

Installation and connection should be insulated.
Avoid the use of asbestos!

Operating pressure 4 - 5 bar saturated steam.
At a pre-pressure of more than 5 bar a reducing valve with pressure gauge must be installed and set so that the admissible max. perc temperature of 150 °C (please measure!) is not exceeded (Danger of solvent decomposition and machine damage!).

Steam peak demand (steam generator size)

without CONSORBA	kg/min	0.5
with CONSORBA	kg/min	0.7



7.3.2 Condensate

Install insulated condensation line with a slope, away from machine. In case of an ascending slope check valve and drainage must be at the lowest point.

Important: Condensate counter-pressure must be at least 1.5 bar below the steam inlet pressure.

7.3.3 Cooling water supply

Fit the line to the machine without reduction of cross section and if possible without bends. The heat balance of the machine is optimally set to 12 °C cooling water inlet temperature and a uniform pressure of 2 - 4 bar.

Cooling water peak demand 4 bar (12 °C)

without CONSORBA	l/min	7.5
with CONSORBA	l/min	8.5

7. Connection

For safety reasons a water flowback stop and venting device should be installed.

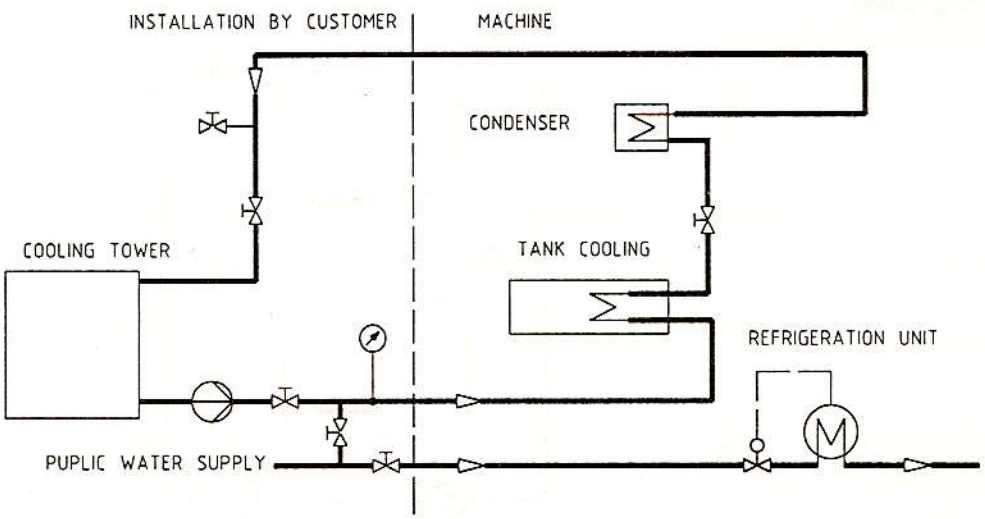
Cooling tower operation:

With a pressure drop in the cooling water supply or higher cooling water temperatures (e.g. re-chilling operation), the supply line must be at least one nominal size larger. Inlet temperatures should not exceed 22 °C as otherwise stains would be caused on the garments, solvent consumption would increase and the drying time would be longer.
Water pressure must be adapted to the higher inlet temperature up to double the max. requirement.

With re-chilling the correct installation is especially important. Among other things, the following must be taken into account: cooler performance, switch-over to public city water supply, low temperature storage, pump size, cooling water valve by-pass.

Cooling water valve for distillation should be removed.

Cooling water valve for refrigeration unit should be exchanged against another with the next larger nominal width. Cooling water should come from the public city water supply network.



Data for temperatures up to 22 °C:

Min. nominal width	NW	25 / 1"
Pump throughput	m^3/h	0.7
Pump pressure	bar	4 - 6
Heat to be eliminated:		
without CONSORBA	kJ/h	25,000
with CONSORBA	kJ/h	27,000

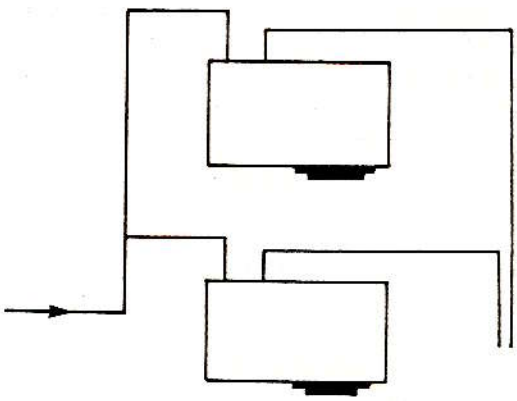
See also the special installation and instruction manual for the re-chiller.

7. Connection

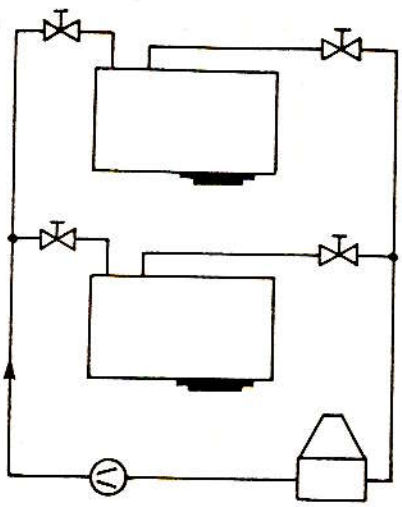
Installation examples for cooling water supply

Connection for city water supply

Cooling water drains must be separate.



Connection with water recirculation (refrigeration unit or cooling tower)



When supply and drain lines are fitted with hand valves, both valves must be opened before starting the machine, so that cooling is ensured and the sensor in the condensate drain line of the still responds in case of cooling water shortage.

7.3.4 Cooling water drain

Cooling water leaving the machine can be passed to the drains, re-used or re-chilled as it flows in closed circuit within the machine and has no contact with solvent.

Cooling water re-use is preferable.

7. Connection

7.3.5 Processing water

The processing water collecting container must be drained every day. Purify by means of processing water purification system.

7.3.6 Compressed air

Air pressure should be at least 6.0 bar. The machine is equipped with a compressed air reducing valve, pressure gauge and compressed air water separator.

7.3.7 Electric connection

Note mains voltage (data-plate). Make connections L1 /L2 /L3, establish neutral and protective conductor with corresponding cross-section and fusing. Pass cable through existing PG union into the control box and connect at terminal.

P 520 without CONSORBA		P 520 da	P 520 el
	Operating load kW	4.4	12.4
230 V	Nominal current A	22.6	42.7
	Fuse A	25	50
400 V	Nominal current A	14.5	26.1
	Fuse A	20	35

P 520 with CONSORBA		P 520 da	P 520 el
	Operating load kW	5.5	17.0
230 V	Nominal current A	28.1	57.0
	Fuse A	35	63
400 V	Nominal current A	17.7	34.3
	Fuse A	20	35

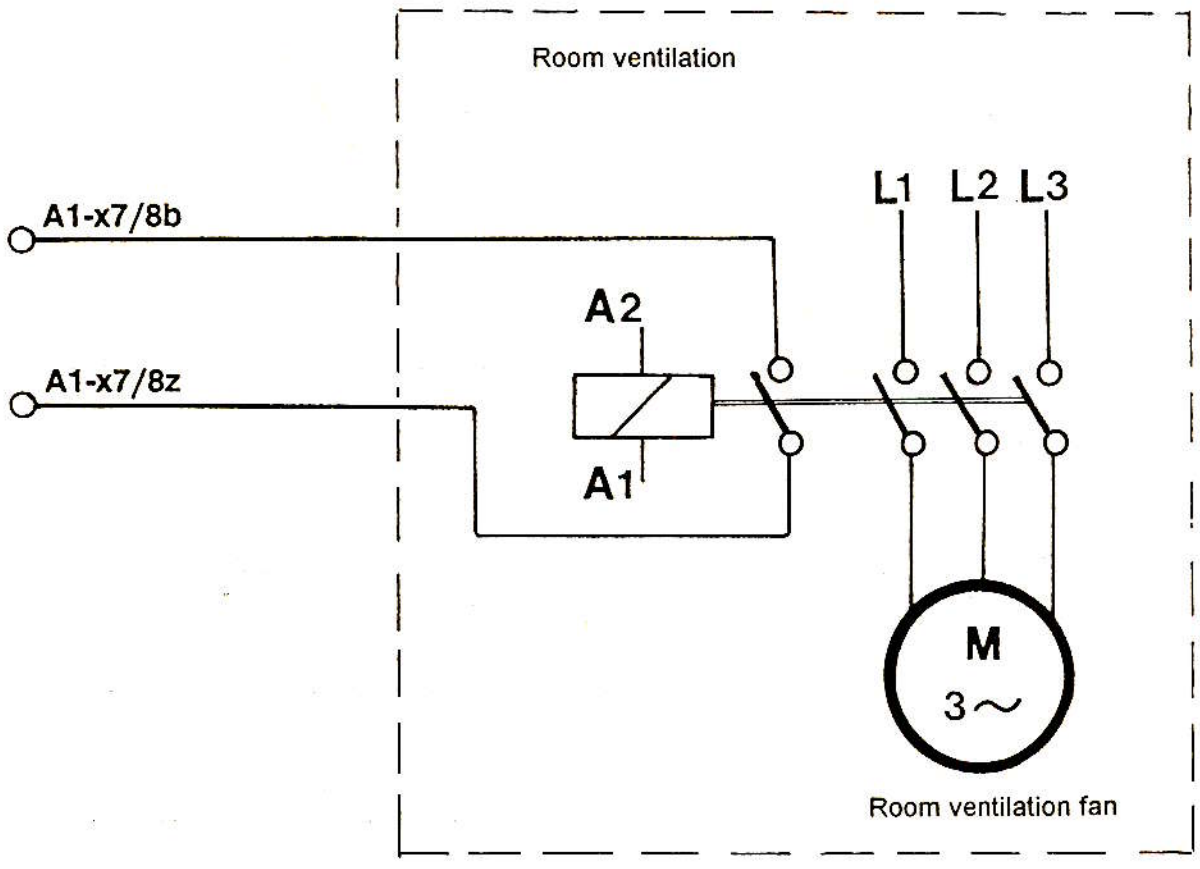
7. Connection

7.3.8 Actuation of room ventilation

Regulations permit to couple the machine's automatic controls to a room ventilation fan. The machine cannot be started before room ventilation has been switched on.

Room air intake inlet 71 (in 71)
A1-x7/8b
A1-x7/8z

The contacts are connected with the fan controls.



Safety hints (Perchloroethylene machines)

Each person who is in charge of installing, commissioning, operating, servicing or repairing of the textile drycleaning machine, must have read and understood the operating and installation manual. We explicitly refer to the observance of the respective laws and regulations of the countries in question.

The drycleaning machine was built according to the latest state of engineering and may only be assembled, installed, operated, served and repaired by persons familiar with the machine and informed about possible dangers. The relevant safety regulations as well as other safety and industrial medicine rules are to be strictly obeyed.

Installation and commissioning

When installing the drycleaning machine the installation instructions should be obeyed. A sufficient room ventilation system must be available. It must be ascertained that the drycleaning machine can be turned on only, when the ventilation system is in operation.

The machine should not be installed in rooms with danger of explosion or in rooms with gas heated machines.

The first start-up is carried out by the service department of the BÖWE-PASSAT Organization.

Authorized use

This textile drycleaning machine is exclusively designed for operation with Perchloroethylene (Tetrachlorethen C_2Cl_4). The direct handling with these solvents should be reduced to absolutely necessary work, whereby safety gloves and -goggles should be worn.

Inflammable, poisonous or radiactive textiles should not be treated.

It is relevant that the prescribed BÖWE-PASSAT operating, service and maintenance regulations are maintained.

Unauthorized changes and alterations of the equipment exclude liability of the manufacturer from resulting damages.

Operation and Maintenance

Operation and maintenance of the BÖWE-textile drycleaning machine is reserved for qualified and trained specialist staff. Take system into operation only after all safety devices are installed and in function. During operation and maintenance all safety regulations are to be obeyed.

Check machine daily for operational safety before turning on (for leakages) and control feed readings. Dispose of lint and distillation residue according to the operating manual.

Do not carry out any maintenance work while machine is running. Please pay attention to the recommended quality of solvents, lubricants, and additives!

Safety hints (Perchloroethylene machines)

- In the event of a solvent leak:

  - Evacuate all the personnel immediately into the open air.
  - Open all windows or turn ventilators up to maximum.
  - Remedy the cause of the leak (wearing appropriate breathing apparatus if necessary).
  - Change any clothing soaked with perchloroethylene.
  - Request BÖWE-PASSAT service personnel if necessary.

- The proper handling of perchloroethylene is an important prerequisite for safety whilst working with the machine.

  The following potential dangers should be noted:

  - Perchloroethylene is a very good grease remover, it removes all natural oils from unprotected skin.

    Protection: Wear solvent resistant gloves, apply fatty cream to the hands.

  - Liquid perchloroethylene irritates the eyes very badly.

    Protection: Wear goggles.

  - Inhaling perchloroethylene vapours reduces alcohol tolerance.

    Protection: Do not consume alcohol at work or shortly afterwards.

  - Perchloroethylene decomposes in the presence of a naked flame or even hot metal.

    Protection: No smoking.

  - Perchloroethylene vapours irritate the mucous membranes in the respiratory passages and eyes.

    Protection: Prevent escape of vapours, wear breathing apparatus when carrying out major maintenance work.

    Caution: It is possible to smell perchloroethylene (odour threshold) in concentrations as low as 5 ml/m^3 of air. The maximum allowable workplace concentration is 50 ml/m^3 - 345 mg/m^3 over 8 hours.

    Perchloroethylene has a similar effect on the central nervous system to that of an anaesthetic, it may cause unconsciousness and, in very high concentrations, cause death.

- Special rules and regulations for the room containing the machine are defined in the operating instruction manual supplied by the manufacturer. This manual also contains guidelines on all additional safety measures and procedures in the event of operational faults depending on the local situation as well as instructions for First Aid.