P21
P26
P30

Installation Instructions

IA P21-P26-P30 2018-02 EN
SN 707761

BÖWE

CE

This machine, which works with the solvent
TETRACHLORETHENE (perc), complies with
the EC Machinery Directive 98/37 EC,
the EC Low Voltage Directive 73/23 EEC
in the version RL 93/68 EEC,
EMC Directive 89/336/EEC
and the Harmonized Standards:

EN ISO 12100-1 and 12100-2
EN 60204-1 (DIN-VDE 0113 Part I)

BÖWE

Dear Customer,

It gives us great pleasure to present you with your **BÖWE** machine. You are acquiring a machine that has been designed and manufactured to meet the highest quality standards and that corresponds to the latest standards in research and technology.

Please do not put these installation instructions away without reading them!

This manual contains all of the important information that you need to install your drycleaning machine.

If the prescribed maintenance work is neglected or improperly performed, if repair work is carried out by service technicians other than those authorized by BÖWE or if parts other than original BÖWE spare parts are used, we naturally cannot fulfill the guarantee obligations according to our General Terms of Delivery.

Measurements and other values reflect the status as of the printing date.

We reserve the right to make technical changes at any time and without prior notice in the interest of continuing development or when changes are considered to be necessary for constructional reasons.

BÖWE Textile Cleaning GmbH
Lochmatt 1A, 77880 Sasbach / Germany
T: +49 (0)7841 - 6002 - 200
F: +49 (0)7841 - 6002 - 230
E-Mail: info@bowe-germany.de
Internet: www.bowe-germany.de

Diese Seite ist bewusst leergelassen
This page intentionally left blank

Necessary Operating Materials and Chemical Additives

Dear Customer,

In order to prevent any delays in the commissioning of your P21-P26-P30 drycleaning machine, we ask you to make sure that the following operating materials and chemical additives are available.

- Solvent

Use only stabilized, high-purity TETRACHLORETHENE (perc), in accordance with DIN 53978.

We recommend that only fresh solvent should be used in order to avoid contamination through dirt, foreign substances and smells.

Total filling amount for the first filling:

P21: app. 445 l (app. 721 kg) or app. 117 US gal (app. 1590 lb)*
P26: app. 510 l (app. 826 kg) or app. 135 US gal (app. 1821 lb) *
P30: app. 565 l (app. 915 kg) or app. 149 US gal (app. 2018 lb) *

Tank I: Minimum filling volume:

P21: 110 l (29 US gal)
P26: 135 l (36 US gal)
P30: 155 l (41 US gal)

* Machine with 1 economy filter
For machines with 2 economy filters: + 50 l (13.2 US gal)
For machines with 2 economy filters and 1 cartridge filter: + 75 l (19.8 US gal)
For machines with 2 economy filters and 2 cartridge filters: + 90 l (23.8 US gal)

- Chemical additives

The chemical additives used must be heat-resistant under operating conditions.

Depending on the equipment, the following should be available:

- Drycleaning detergent
- Waterproofing agent
- Pre- and post-spotting agents

BÖWE Textile Cleaning GmbH
Lochmatt 1A, 77880 Sasbach / Germany
T: +49 (0)7841 - 6002 - 200
F: +49 (0)7841 - 6002 - 230
E-Mail: info@bowe-germany.de
Internet: www.bowe-germany.de

Contents

Contents

1. General Information 1

1.1 Technical Literature 1.1

We make particular reference here to the literature and leaflets of the trade and professional associations, research institutes and mutual indemnity associations, as well as safety data sheets provided by the solvent producers.

1.2 Laws, Ordinances, Regulations 1.2

To avoid health risks and environmental damage, you must strictly comply with all directives and regulations pertaining to the industry, particularly with regard to proper handling of TETRACHLORETHENE (Perc).
In any case, you must observe the applicable laws and regulations in the country in which the machine is installed.

The machine complies with the following regulations:
- EC Machinery Directive 98/37 EC
- EC Low Voltage Directive 73/23 EEC in the version RL 93/68 EEC
- EMC Directive 89/336/EEC
- Pressure Equipment Directive 97/23/EC

Applied harmonized standards:
- EN ISO 12100-1 and 12100-2
- EN 60204-1 (DIN-VDE 0113 Part 1)

Applied national standards and directives:
- Accident Prevention Regulations for Refrigeration Plants, Heat Pumps and Cooling Equipment (BGVD4)
- CFC and Halon Prohibition Ordinance
- Operating safety regulation (Your local regulations for operational safety)

When operating the system in Germany, the following laws and directives must be observed:

- 2nd BImSchV (German Federal Pollution Control Act)
- Accident Prevention Regulations for Chemical Cleaning (BGR 500 Kapitel 2.14)
- Water Resources Law (WHG § 19)
- Waste Disposal Law
- Technical Regulations for Dangerous Working Materials (TRGS 402)
- VDI guidelines
- VDE regulations
- GefStoffV with technical rules (Regulation for hazardous material)
- Operating safety regulation

1.3 Corrective Maintenance Work 1.3

We recommend that you commission the customer service department of the BÖWE organization for the maintenance, servicing and operating safety of this valuable drycleaning machine. They use original BÖWE spare parts.

2. Safety Regulations 2

Each person who is charged with the installation, commissioning, operation, maintenance or repair of the drycleaning machine must first have read and understood the operating and installation instructions. In particular, we refer to the observation of the relevant laws and regulations for the countries in question.

The cleaning machine has been built according to the latest state of the technology. Only persons who are familiar with the machine and informed of the possible risks are authorized to set up, install, commission, operate, maintain and repair this machine. The relevant accident prevention regulations and other regulations involving safety and medical care for workers must be strictly adhered to.

Safety Symbols

This safety symbol identifies particular information regarding occupational safety. It points out hazards and serves to protect personnel from physical injury. You must observe all applicable laws and regulations; the information on occupational safety only emphasizes particularly dangerous areas. Failure to observe this information can result in serious consequences for the health, up to and including life-threatening injuries.

This symbol provides important information on the correct use of the machine. Failure to observe this information can lead to disturbances in the machine or surrounding area.

You are not permitted to bypass or turn off safety devices or to make them otherwise inoperative. You must observe all applicable industrial safety regulations during installation and repair work. You must dispose of distillation residues and process water in accordance with regulations.

2.1 Safe Installation and Commissioning 2.1

You must install the drycleaning machine according to the enclosed installation instructions. The room must be sufficiently ventilated.

You are not permitted to operate the machine in potentially explosive areas or in areas in which systems with open flames have been installed.

The BÖWE Organization Customer Service department is responsible for carrying out the first startup.

2.2 Authorized Use 2.2

This drycleaning machine is designed exclusively for operation with the solvent TETRACHLORETHENE (perc). (See "Necessary Operating and Chemical Additives"). Handle these solvents directly only when absolutely necessary and wear protective gloves and goggles.

2 Safety Regulations 2

This closed-circuit drycleaning machine for industrial use (including use in cleaning shops) is intended for cleaning textile articles (also leather or fur or for treating skins). This drycleaning machine is not intended for customer access (such as in self-service shops).

You are not permitted to treat textiles that are easily inflammable or poisonous or that contain radioactive materials.

The definition of authorized use includes compliance with the operating, maintenance and repair conditions prescribed by BÖWE.

The manufacturer is not liable for damages resulting from unauthorized use or from changes to the system made without proper authority.

2.3 Operation and Maintenance 2.3

Only trained service personnel who are familiar with the machine are authorized to operate and maintain the BÖWE drycleaning machine. Safety regulations must be observed during operation and maintenance.

Do not start the system unless all protective devices (belt guard for cage and filter drive) are in place and working.

Check the operating safety of the machine (sealing test) and the liquid levels daily before turning it on. Dispose of lint, process water and distillation residues according to the operating instructions.

Do not perform any maintenance work when the machine is in operation. Make sure that the solvents, lubricants and chemical additives meet the specified quality requirements.
Perform maintenance work only when the machine is turned off and secured and has cooled off.

When the machine is not in operation cooling water feed must be cut off by means of a stop valve to be fitted on site.

2 Safety Regulations 2

	**<u>Attention:</u> Check the liquid level before opening the still door. The collecting tank must hold the amount that is expected to be drained and must be temperature and solvent-resistant.**
	**<u>Attention:</u> Do not allow distillation residues to reach the sewer system or garbage. You must dispose of these residues according to country-specific regulations on special waste.**

Requirements for the owner and operating personnel

	According to the legal stipulations of the German accident prevention regulations BGR 500 Kapitel 2.14 and the 2nd BImSchV, special knowledge is required for the operation and maintenance of drycleaning systems. A person with this special knowledge must regularly be present during the operation of drycleaning systems.

As a person / body who runs a plant one is obliged to have the refrigerating plant of the dry cleaning machine inspected annually with regard to tightness.

2.4 Repair Work 2.4

Only skilled workers with suitable protection devices and work tools are authorized to carry out repairs. Make sure that there are no solvent emissions.

During repair and cleaning work:

Turn main switch off
Close the stop valves on the supply lines (steam, condensate and compressed air).
Make sure that the system cannot be turned on without permission (close off and put up a sign "<u>DO NOT TURN ON - REPAIR WORK</u>“).
Always remove the main fuse when working on the electrical system.
Use only original fuses to replace defective ones.
When working on pneumatic control parts, make sure that there is no pressure in the system.
Only specially trained refrigeration technicians are authorized to make repairs to the refrigeration unit.

All spare parts used must comply with the technical standards set by the manufacturer.

2 Safety Regulations 2

2.5 Decommissioning and Disassembling 2.5

	Only skilled workers with suitable protection devices and work tools are authorized to decommission and disassemble the system.
	When decommissioning and disassembling the machine, drain all solvent from the machine, including the pipelines, valves and fittings. You must remove residues that could cause environmental pollution.
	You must separate electric lines and pipelines that were used to supply or drain the machine from the supply network. Make sure that they cannot be turned on or connected by unauthorized persons.

Have an authorized customer service technician dispose of the cooling agent from the refrigeration unit.

2.6 Further Safety Regulations 2.6

	This BÖWE drycleaning machine works with TETRACHLORETHENE (perc). This solvent is harmful to the health in the context of the Hazardous Substances Ordinance.

Drinking, eating and food storage are prohibited in the area where the machine is installed.

Open flames and fires are not allowed in the operating area. No smoking is allowed.

Install steam generators in such a way that they do not draw in air that contains solvent.

A BÖWE customer service representative must train the personnel in the operation of the machine before the first startup. This training must include information on safe operation and possible hazards.

The owner is responsible for employing trained personnel to load and unload the machine and must employ well-informed and expert personnel for maintenance work. No unauthorized personnel are allowed in the area of the machine.

The daily checks prescribed in the operating instructions represent the minimum requirements. Operating personnel must immediately report any changes in the machine that could affect the safety.

2 Safety Regulations 2

The owner is obligated:

- to draw up clear regulations regarding responsibility for operation and maintenance, to ensure that the machine is only operated when it is in perfect condition and to ensure the order, safety and cleanliness at the workplace by means of instructions and inspections.

The owner is obligated to make sure that no working method is used that could place the health of the personnel, the environment or the safety of the machine at risk.

Notice and warning signs must be placed on the machine or in the operating area in plain sight. Damaged or missing signs must be replaced immediately. The specified safety regulations must be followed at all times.

In the event of any kind of hazard, stop the machine immediately and turn off the main switch.

If there is a solvent leak:

Turn off the machine

Immediately send all personnel into the open air

Open windows and doors

Cut off the cause of the solvent leak

Change any clothing that is wet with TETRACHLORETHENE (Perc),

If necessary, request a BÖWE customer service technician.

The escape of larger amounts of solvent is a reportable malfunction. It must be reported to the responsible authorities, industrial control group, fire department, water resources board or subordinate water authorities.

2 Safety Regulations 2

The proper handling of perchlorethylene is an important prerequisite for workplace safety.

Note the following potential hazards:

TETRACHLORETHENE (Perc) is a very good grease remover; it also removes natural oils from unprotected skin.
Protection: Wear solvent-resistant protective gloves; apply skin cream with oil to the hands.

Liquid TETRACHLORETHENE (Perc) is a strong irritant to the eyes.
Protection: Wear protective goggles.

Inhalation of TETRACHLORETHENE (Perc) vapors reduces alcohol tolerance.
Protection: Do not consume alcohol while working or for a short time after.

TETRACHLORETHENE (Perc) decomposes in the presence of an open flame or red-hot parts.
Protection: No smoking.

TETRACHLORETHENE (Perc) vapors irritate the mucous membranes of the respiratory passage and eyes.
Protection: Prevent vapors from escaping and wear respiratory equipment when performing extensive maintenance work (DIN 3181 gas filter, brown).

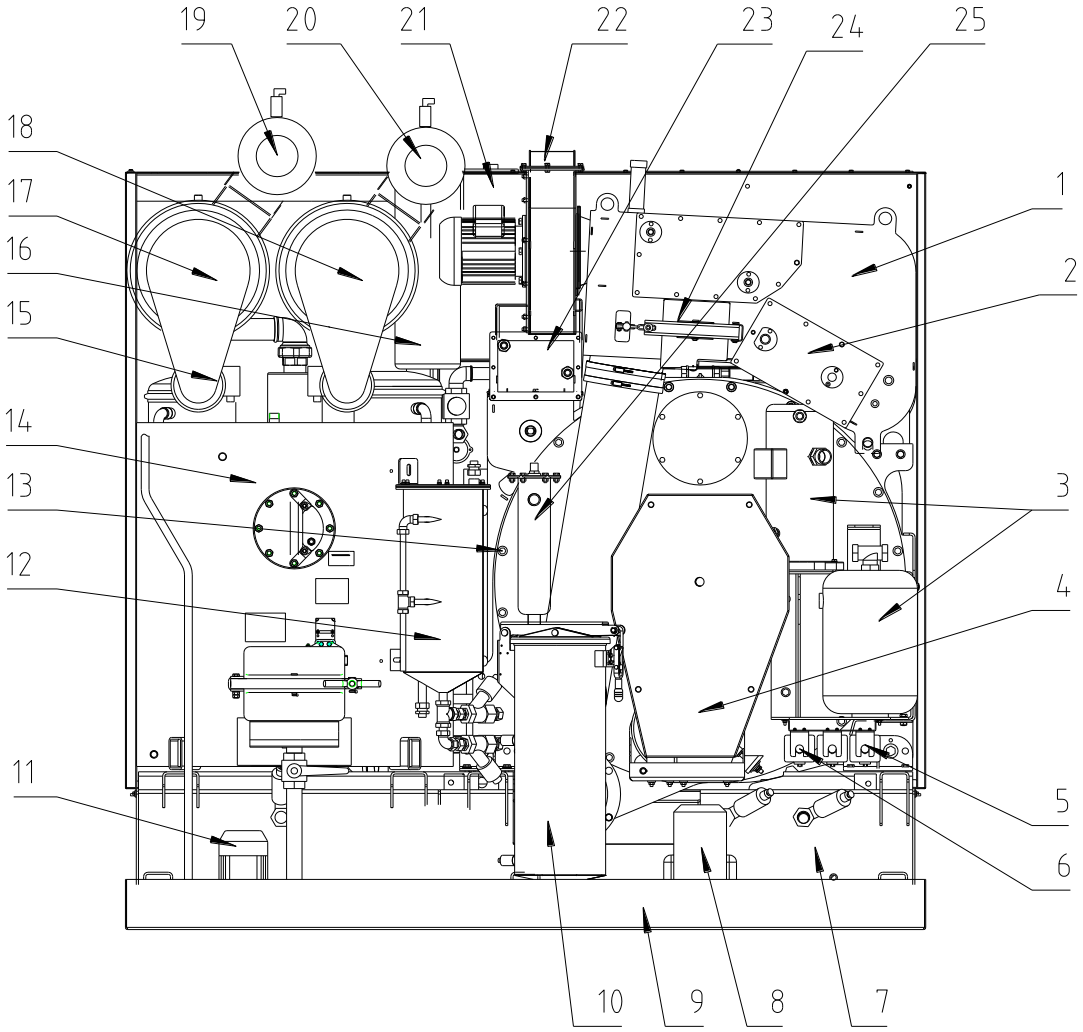
Caution:
It is possible to smell perc (odor threshold) in concentrations as low as 5 ml/m^3 of air.

TETRACHLORETHENE (Perc) has an effect on the central nervous system similar to an anesthetic and can result in unconsciousness and, in very high concentrations, even in death.

Do not overload the machine!

Special rules and regulations for the area where the machine is installed are defined in the operating instructions provided by the customer company. These instructions also contain information on all additional protective measures, information on correct behavior during operating malfunctions according to the local conditions and first aid instructions.

3. View of the Machine 3

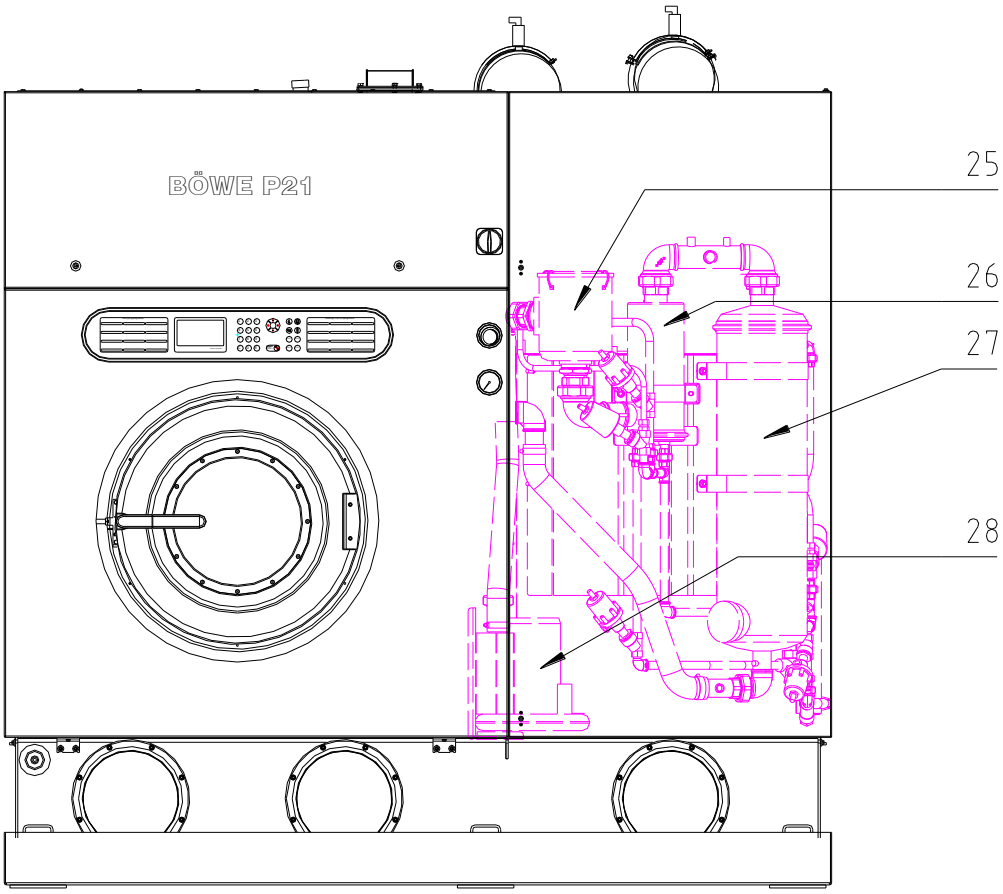


707761-11-0

1	Airshaft	13	Cage housing with cage
2	Cooling register	14	Distillation
3	Refrigeration unit	15	Filter drive
4	Cage drive	16	Capacitor
5	Dosing unit	17	Economy filter 1
6	Sprayer *	18	Economy filter 2 *
7	Tanks 1, 2, 3	19	Adsorption cartridge filter 1*
8	Solvent pump	20	Adsorption cartridge filter 2*
9	Safety trough	21	Venting and aeration filter
10	Button trap with lint filter	22	Fan
11	Still rake out system pump *	23	Heater battery
12	Water separator and safety separator *	24	Lint post-filter
		25	Solvent cooling system *

* Option

3 View of the Machine 3



707761-16-0

Slimsorba option:
25 Air filter
26 Preheater
27 Carbon container with heating coil
28 Fan

4. Transport 4

In order to guarantee that no damages result from the handling, we recommend that you consult with the appropriate experts for correct transport, installation and connection.

You must provide suitable tools and equipment for unloading, transporting, machine entry and installation. For example, crane, forklift, elevating truck, pulley block, rope, winch, crowbar, rollers, wood blocks, wedges.

Caution

Attention: Note the center of gravity of the machine and secure against lateral tipping.

4.1 Entry 4.1

Normally the machine is packed in a crate or shipping box and kept in an upright position when being transported and brought in.

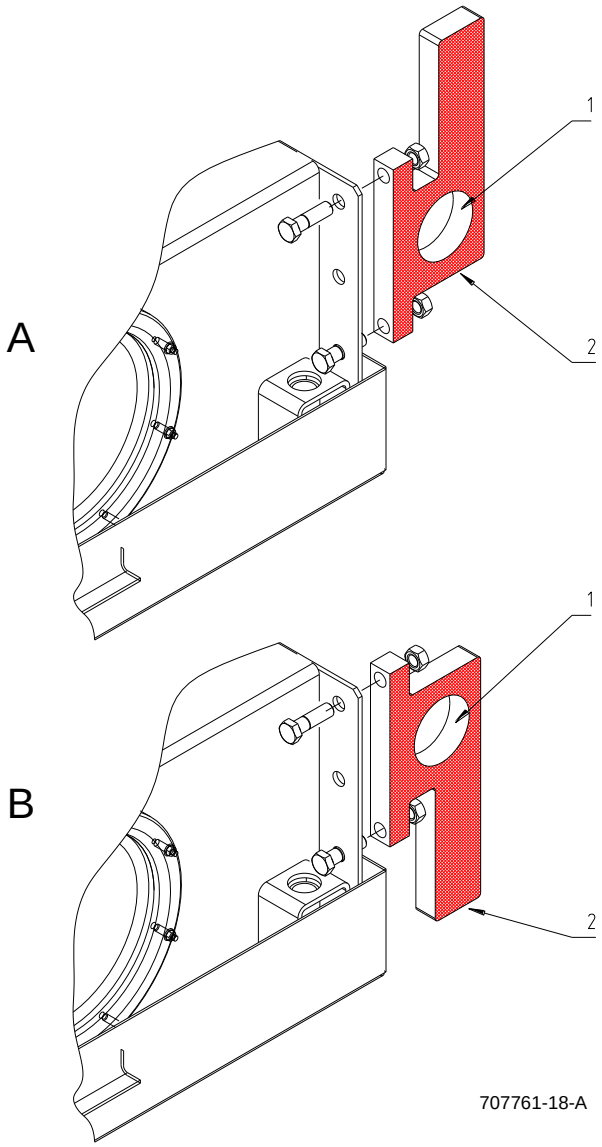
Package dimensions (box measurements)		Machine with distillation		
		P21	**P26**	**P30**
Width	mm (in)	2330 (91.7)	2330 (91.7)	2330 (91.7)
Depth	mm (in)	1650 (64.9)	1780 (70.0)	1885 (74.2)
Height	mm (in)	2495 (98.2)	2495 (98.2)	2495 (98.2)
Normal dimensions after unpacking (entry dimensions)				
Width	mm (in)	2200 (86.6)	2200 (86.6)	2200 (86.6)
Depth	mm (in)	1500 (59.1)	1630 (64.2)	1735 (68.3)
Height (with cartridge filter)	mm (in)	2340 (92.1)	2340 (92.1)	2340 (92.1)
Height (without cartridge filter)	mm (in)	2180 (85.8)	2180 (85.8)	2180 (85.8)
Entry dimensions (without fan cover, without cartridge filter, without flap cylinder)				
Height	mm (in)	2130 (83.9)	2130 (83.9)	2130 (83.9)

Seaworthy packing

Seaworthy packing without solvent	**Crossline (Kg / lbs)**
P21	2.325 / 5,126
P26	2.475 / 5,456
P30	2.625 / 5,787

4. Transport 4.

Removing machine from the pallet and transportation:
Must be done by transport experts.
Note the center of gravity of the machine and
secure against lateral tipping.
Screw on 4 transportation brackets. (option A or B).
Lift the machine only at the sturdy points (2).
Use eyelets (1) for transportation with a crane.
To ensure a safe transportation of the machine,
the forklift should have the capacity to carry at
least 1.5(X) times of the weight of the machine.



5. Installation 5

5.1 Operating Environment 5.1

5.1.1 Regulations

You must observe applicable regulations for room ventilation and size, odor and noise emissions, accident prevention, etc. The switch panel contains contacts for the room ventilation control system (see Point 7.3.2).

Noise level: app. 62dB (A)
(Average value at 6 measurement points at a distance of 2 m (78.7 in) from the machine and 1.60 m (63.0 in) above the floor.

If there is an increase in the air-borne sound (for example, resonance) because of the spatial conditions at the place of installation (for example, the condition of and distances between walls and ceiling), you must take local sound insulation measures.

5.1.2 Temperature

Do not expose the machine to direct sunlight. Ensure that there is an adequate air supply for the heat exchange (heat buildup.)
Room temperatures under 5 °C (41 °F) are not permitted because of the risk that the water in the system will freeze.
During continuous operation, the room temperature is not permitted to exceed 40 °C (104 °F) because of increased solvent consumption and for safety reasons.

Heat dissipated to the surroundings: *			
	P21	P26	P30
kJ/cycle	8400	10000	11600

* 2-bath procedure, precleaning bath, low level for distillation

5.1.3 Structural Surroundings

Partitions, panels, suspended ceilings and other structures near the machine must be installed in such a way that they do not interfere with the operation, that no heat buildup occurs and that they can be easily removed for maintenance and repair work.

5 Installation 5

5.1.4 Machine Environment

Do not operate systems with open flames, such as gas-heated flatwork ironers or tumblers, in the same room because poisonous, corrosive gases could result from the solvent decomposition.

No surfaces with a temperature of more than 140° C (284° F) are permitted in the machine room.

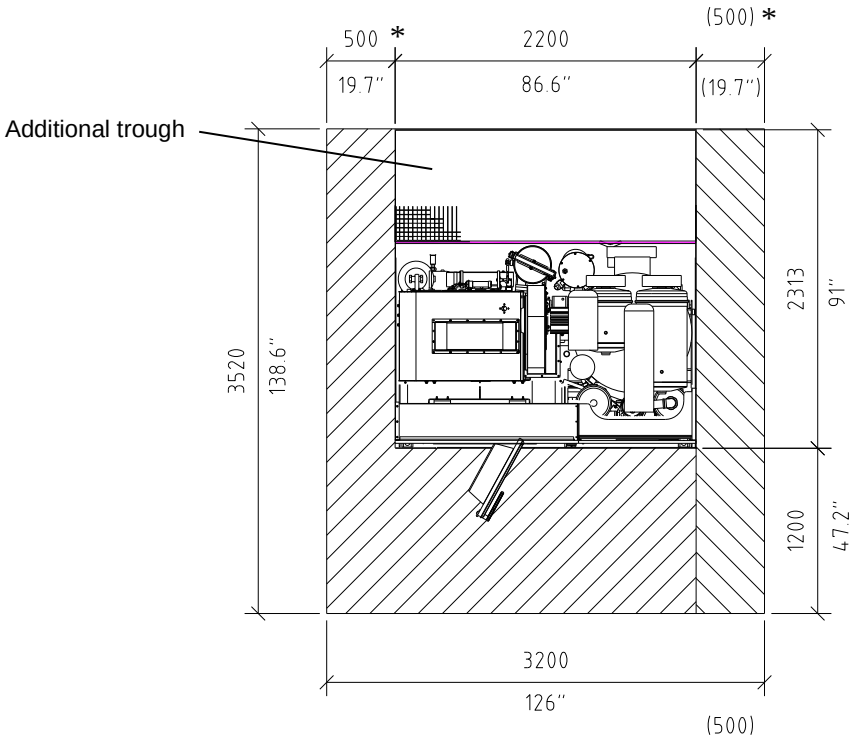
You must ensure that the air from the machine room cannot escape into a heating room, if there is one in the area.
The air from the machine room is not permitted to be fed into the exhaust line of a furnace system.

5 Installation 5

5.2 Place of Installation 5.2

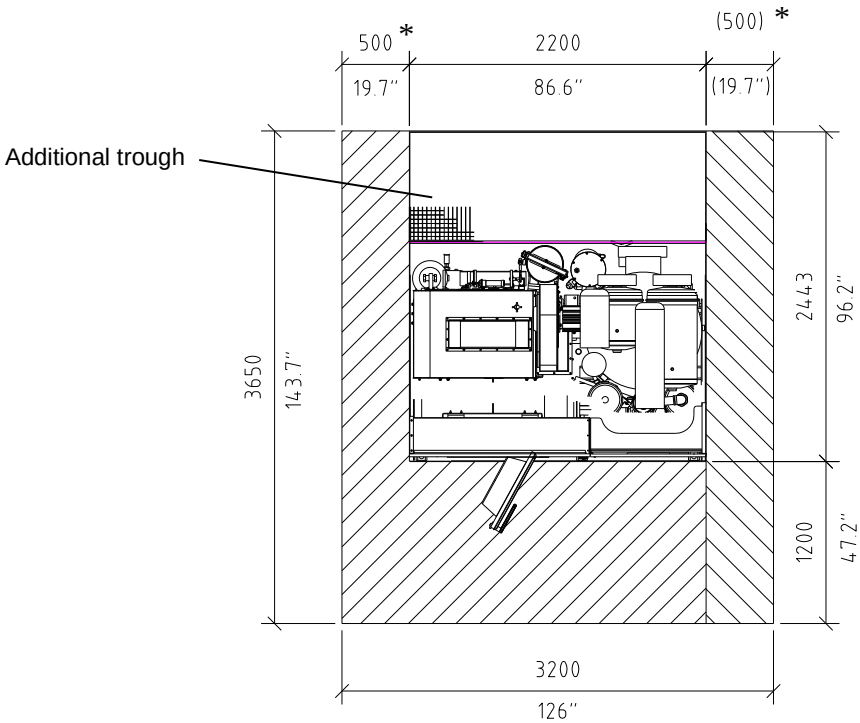
5.2.1 Space Requirements

The machine must be accessible for operation and maintenance and repair work (see hatched areas).



P21

707761-08-0

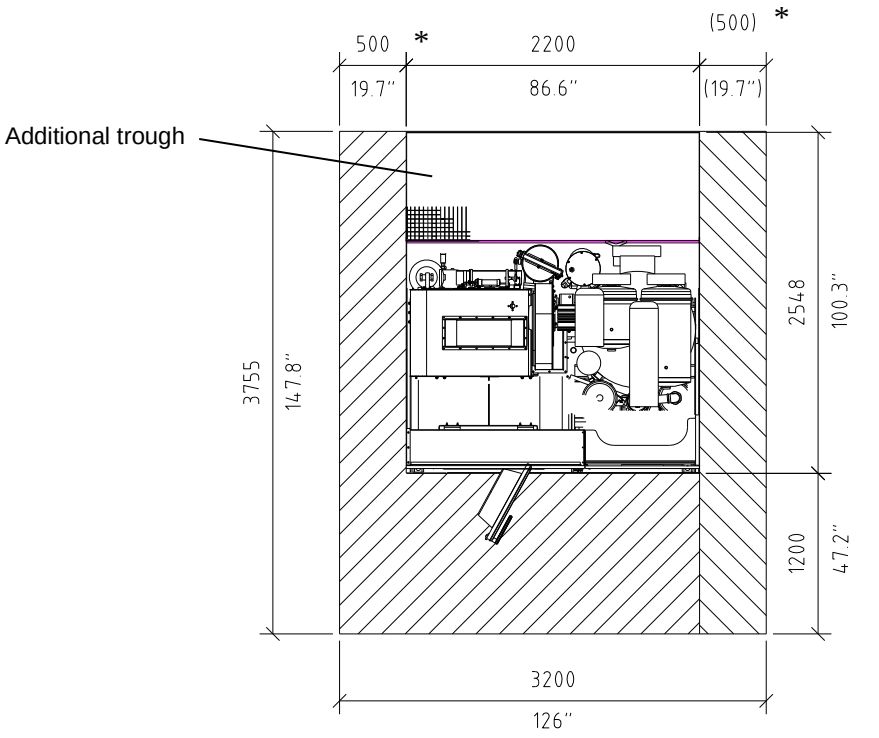


P26

707761-09-0

* The machine can be placed at the wall either at the left or right hand side.

5 Installation 5



P30

707761-10-0

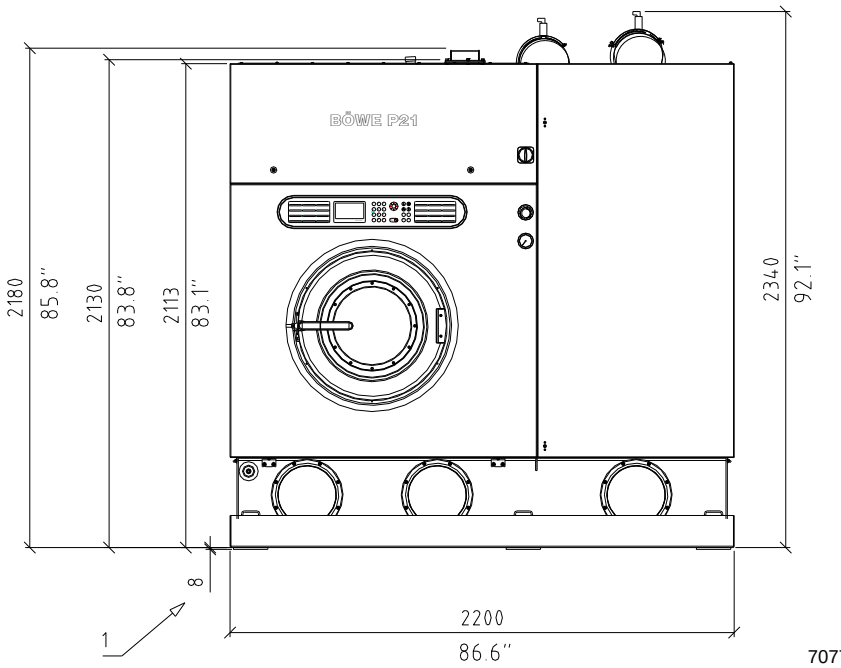
* The machine can be placed at the wall either at the left or right hand side.

5 Installation 5

5.2.2 Machine Dimensions

		P21	P26	P30
Width	mm (in)	2200 (86.6)	2200 (86.6)	2200 (86.6)
Depth	mm (in)	1500 (59.1)	1630 (64.2)	1735 (68.3)
Height incl. trough	mm (in)	2180 (85.8)	2180 (85.8)	2180 (85.8)

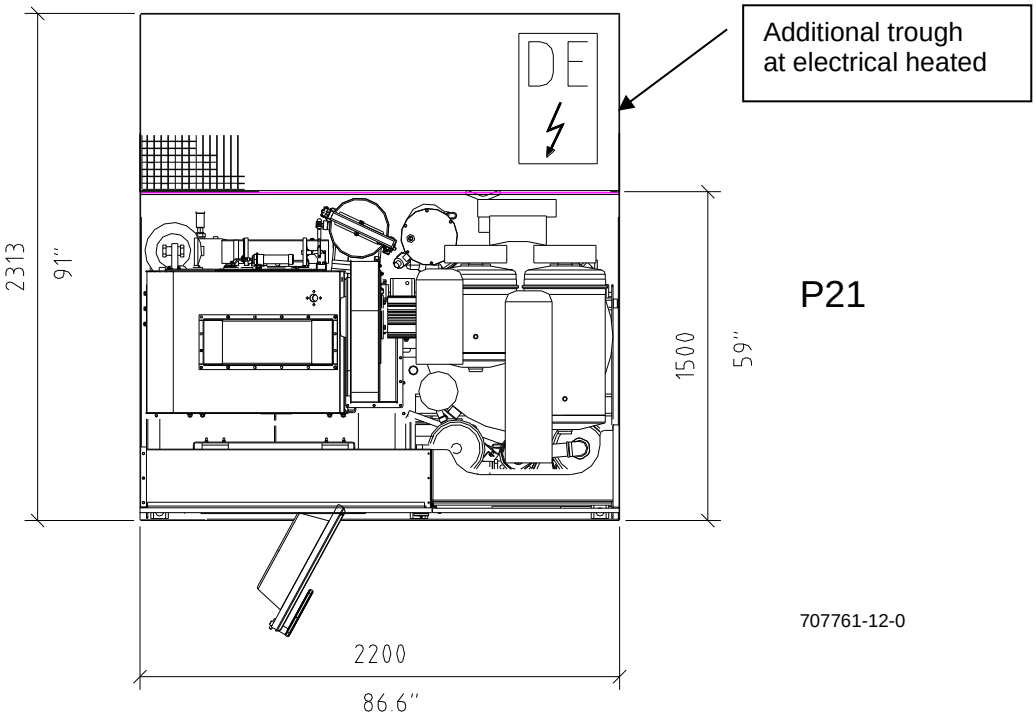
The dimensions given may differ if special options are used



P21
P26
P30

707761-07-0

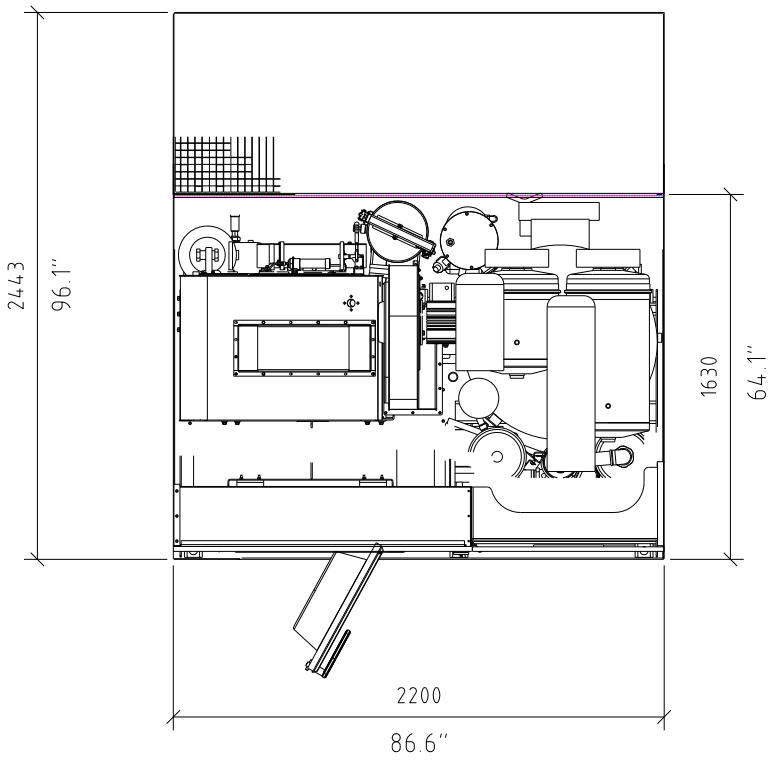
1= With the legally stipulated floor clearance of the safety trough, the machine height increases by the size of the spacer plate (8 mm/.3 in).



P21

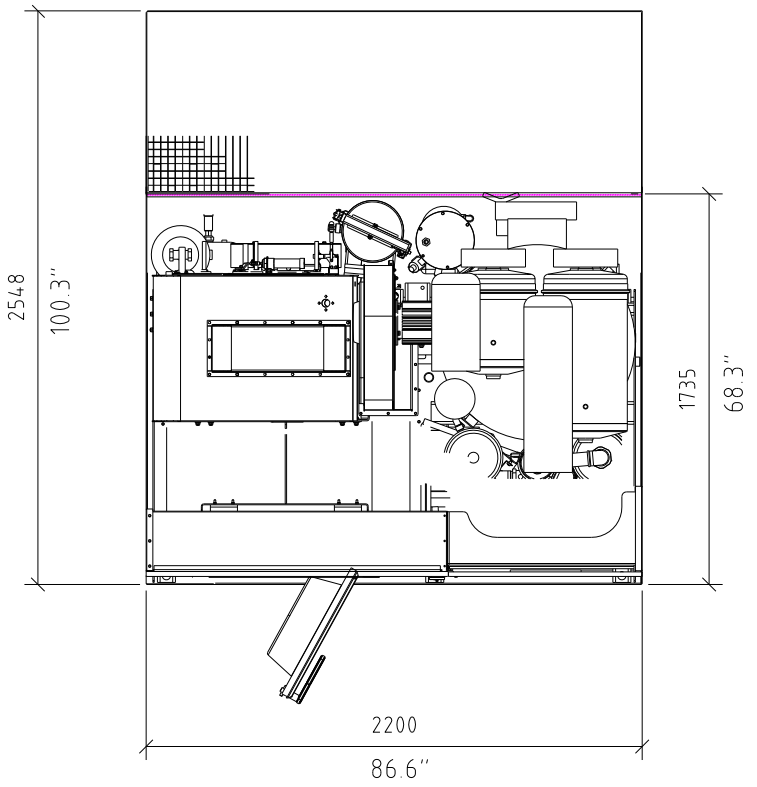
707761-12-0

5 Installation 5



P26

707761-13-0



P30

707761-14-0

5 Installation 5

5.3 Floor Load 5.3

The place of installation must be designed according to the specified floor load. This consists of:

Static load = machine weight + max. solvent filling and

Dynamic load = cage centrifugal force with normally distributed, spin-damp garments.

Do not forget to take into account the centrifugal forces that arise during the spin processes, according to the local conditions (ground, supporting walls, etc.).

No resonance is permitted.
Please consult building specialists.

5.3.1 Dimensions

P21-P26-P30

		P21	P26	P30
Depth*	mm	1060	1190	1295
	in	41.7	46.9	51.0
Width*	mm	2200	2200	2200
	in	86.6	86.6	86.6
Portion of the floor surface for force transmission	m^2	2.3	2.6	2.8
	ft^2	24.8	28.0	30.1
Weight without solvent	kg	2025	2175	2325
	lb	4465	4795	5005
Weight with solvent (stat. load)	kg	2820	3080	3320
	lb	6218	6791	7320
Cage centrifugal force (dyn. load)	N	12600 **	15600 **	18000
	lb	2832 **	3507 **	4046 **
Floor load (stat. + dyn. load)	N/m^2	17500 **	17600 **	18000 **
	lb/ft^2	366**	368**	376 **

* Portion of the machine dimensions that is decisive for the size of the cage centrifugal force and floor load.

** Calculated with:
- 21 kg (46.3 lb) or 26 kg (57.3 lb) or 30 kg (66.1 lb) load weight, respectively, with 50 % unevenly distributed
- Mixed outer clothing
- EBS
- 500 rpm

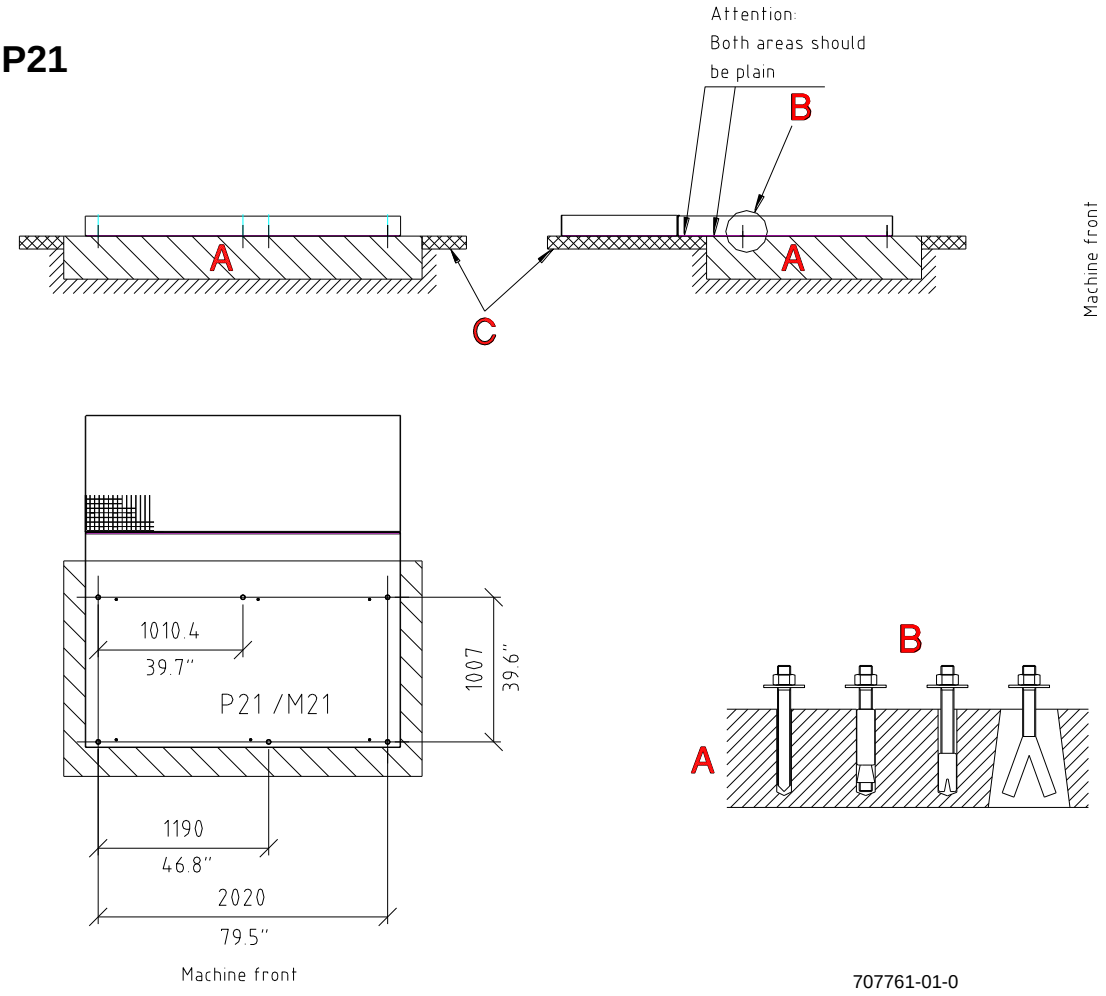
Building specialists will find the best solution, from both a structural and economic point of view, for the design of the foundation, taking into consideration the system or machine-related conditions and the local particulars.

Use a load dispatcher frame if the permissible load for your floor is not sufficient.

5.4 Foundation 5.4

5.4.1 Foundation Dimensions

P21

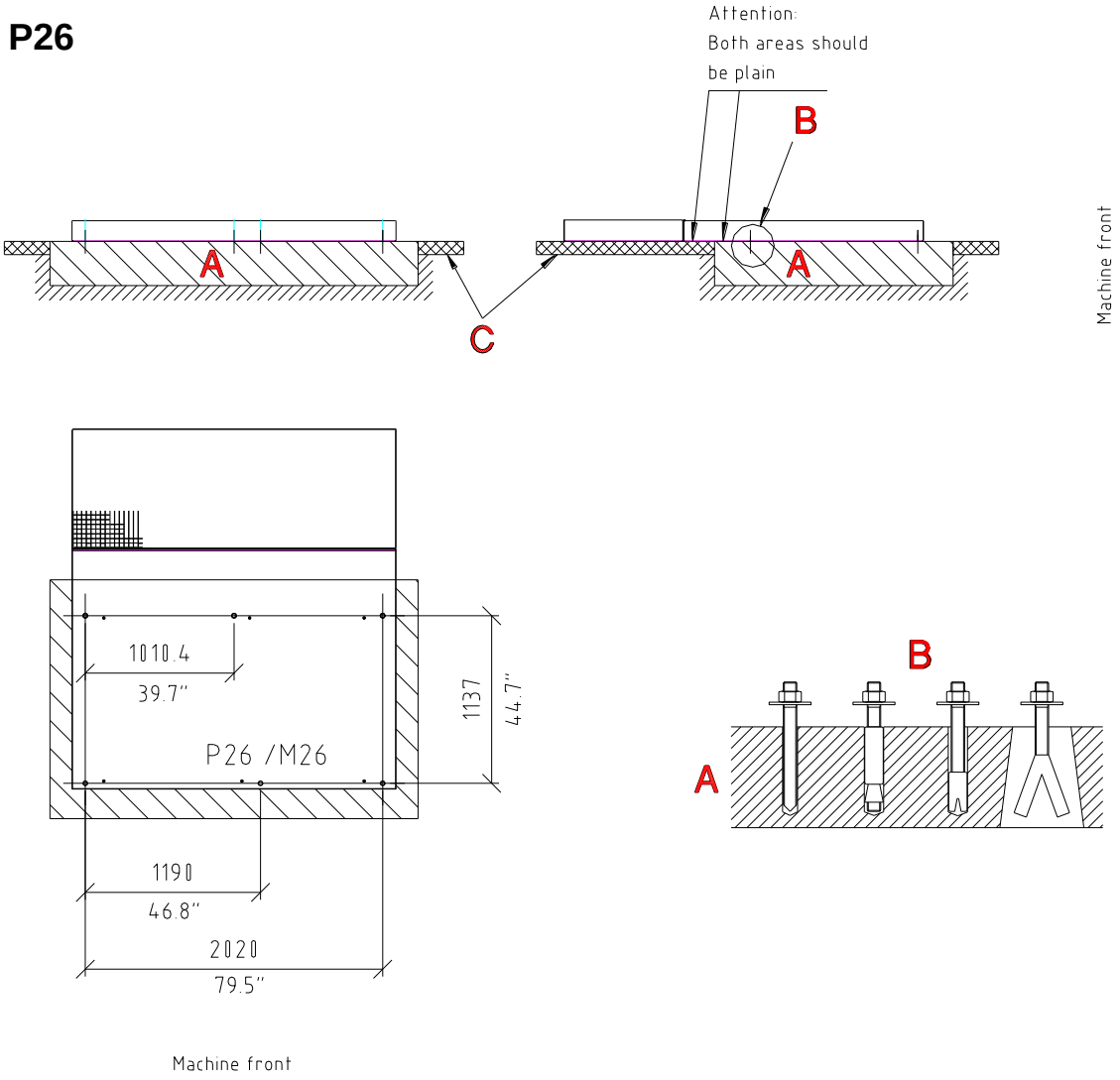


A ..... Reinforced concrete

B ..... Examples for fixing the machine in place

C ..... Room floor surface - concrete slab

P26



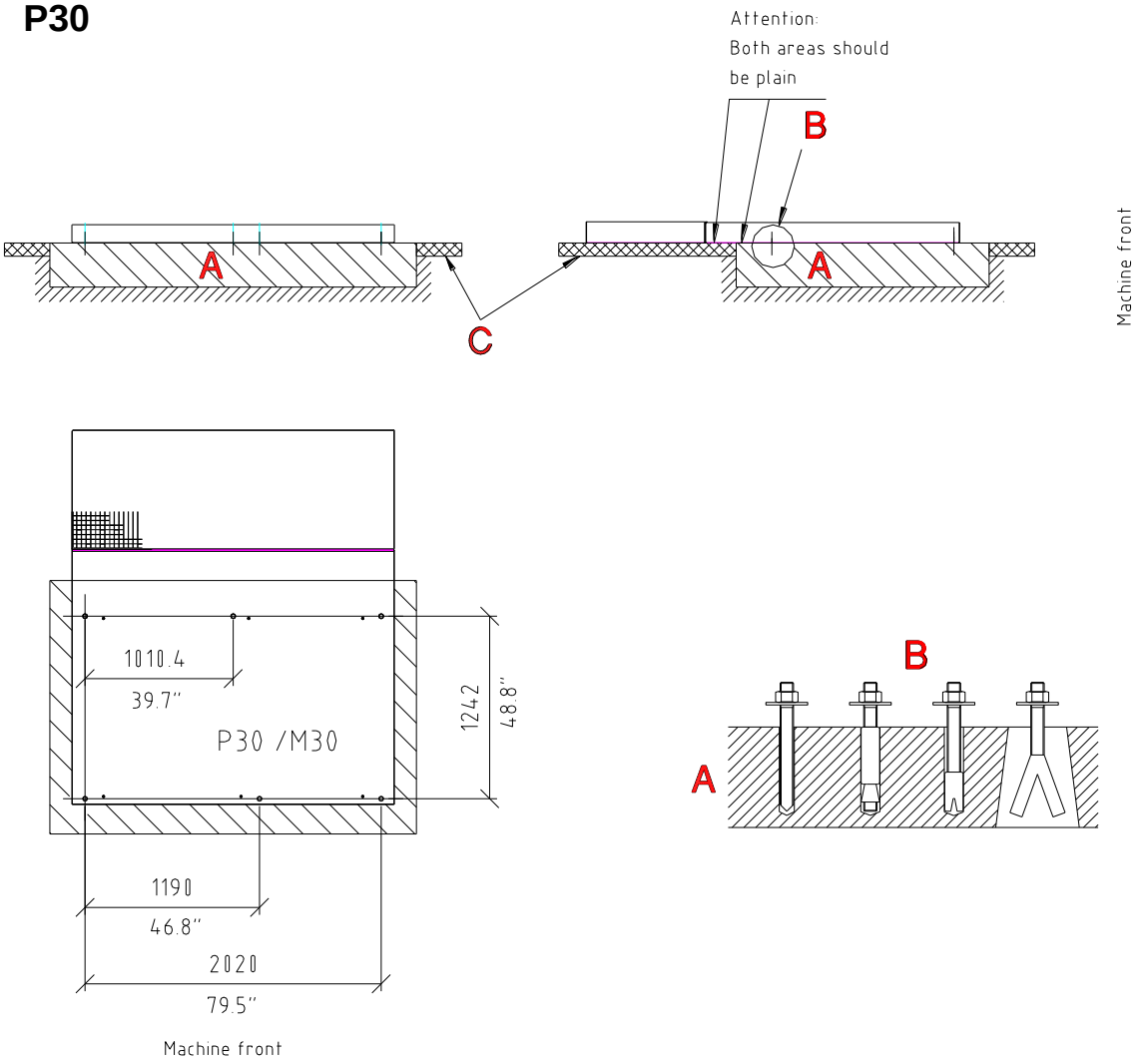
707761-02-0

A ..... Reinforced concrete

B ..... Examples for fixing the machine in place

C ..... Room floor surface - concrete slab

P30

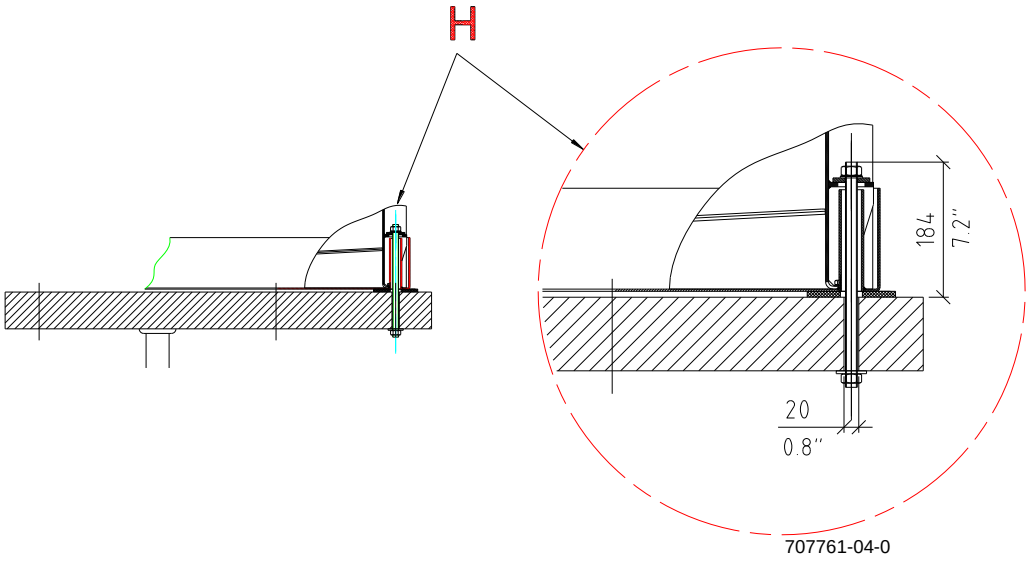


707761-03-0

A ..... Reinforced concrete

B ..... Examples for fixing the machine in place

C ..... Room floor surface - concrete slab



H ..... Ceiling bore holes (20 mm or 3/4 in ∅) for through bolt, length depending on the thickness of the ceiling. Support if necessary

5.4.2 Anchoring Surface

Correct anchoring is extremely important for low-noise, fault-free operation. When installing on the foundation, the use of stone bolts is preferable.

The anchoring surface must be horizontal and level.
Never place the machine directly on felt, bituminous coatings, rubber or cork.

On uneven concrete floors, you must level the machine or safety trough with leveling plates and even out the supporting surface with filler (epoxy resins).

5.4.3 Sound and Vibration Insulation

Consult with building and insulation specialists with regard to the use of special foundations, dampers, spring cups or similar devices for special vibration insulation.

6. Fixing the Machine in Place 6

6.1 Machine Trough 6.1

The machine trough is a permanently integrated component of the machine.

Collecting capacity:	P21	377 l (100 US gal)
	P26	410 l (108 US gal)
	P30	437 l (115 US gal)
Material:	St1203 /1.0330.03 /3 mm (.1 in)	
	painted active primer	

6.2 Anchoring Methods 6.2

Alternatively, you can also use the following anchoring methods for fixing the machine in place:

For ceiling installation:

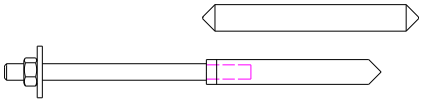
- Through bolts (threaded rod) with M16 washers, nuts.

703871-25-0

For foundation installation:

M16

- Adhesive plugs/shear connectors.



707761-15-A1

Thread for all anchoring methods: **M 16**
Quality: Property class 8.8 - DIN 267
The fixing nuts must be self-locking, with quality conforming to DIN 985.

We will not accept any liability for damages that result from the failure to comply with our recommendations and information.

Attention:

Pay attention to the floor load of the machine floor space.

6 Fixing the Machine in Place 6

Threaded rod (bored-through ceiling)

Steps:

- Position the machine in its intended position. Note the transport information in Chapter 4.
  Use the holes of the machine trough as a template.
- Holes in the ground pretend.
- Take the machine away.
- Prebore with 16 mm (.6 in) stone drill. Drill in vertically!
- Drill the boring pattern for normal ceiling installation.
  (see foundation sketch in Point 5.4) with stone drill 20 mm (.8 in).
- Position the machine and level.
  The machine must lie flatly on the ceiling.
  If the floor is uneven, level the machine with leveling plates and even out the surface with filler (epoxy resins).
- Mount the threaded rod
- Tighten the nuts evenly.

6 Fixing the Machine in Place 6

Adhesive plugs/shear connectors

Steps:

- Position the machine in its intended position. Note the transport information in Chapter 4.

Use the holes of the machine trough as a template.

- Holes in the ground pretend.
- Remove the machine.
- Prebore with 16 mm (0.6 in) stone drill. Drill in vertically!

- Boreholes: Drill the diameter and depth according to the information provided by the plug manufacturer and blow out any dust.

For further steps, refer to the information provided by the plug manufacturer.

Note the hardening time.

Position the machine and level.
If the floor is uneven, level the machine with leveling plates and even out the surface with filler (epoxy resins).

Finish the machine installation according to Point 6.3.

6 Fixing the Machine in Place 6

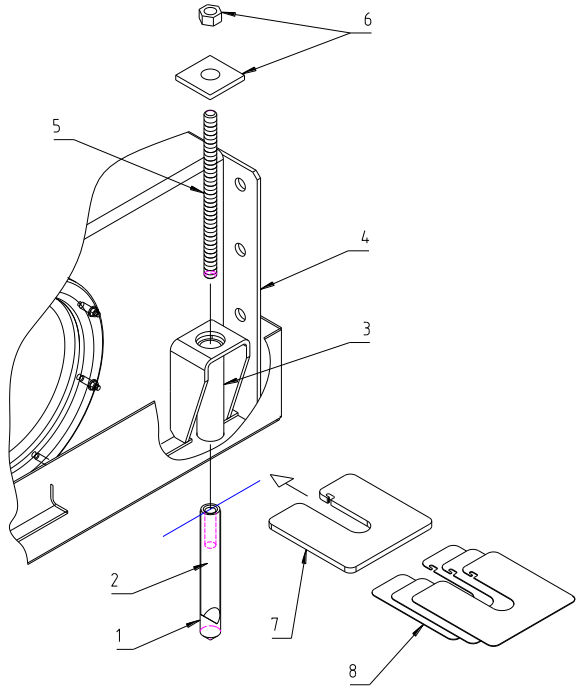
6.3 Machine Installation 6.3

Work steps:

- To level the machine, slide the slotted leveling plates (8) included with the machine between the trough and floor.

Attention: **For the legally stipulated floor clearance of the safety trough, you must also install the supplied spacer plates (7) between the trough and floor.**

- Put the threaded rod (5) through the trough pipe (3)
- Mount the washers and nuts (6).
- Tighten the nuts on the anchor evenly.



1 Grout cartridge
2 Plug with internal thread
3 Trough pipe
4 Tank
5 Threaded rod
6 Washer and nut
7 Spacer plate (8mm)
8 Leveling plates

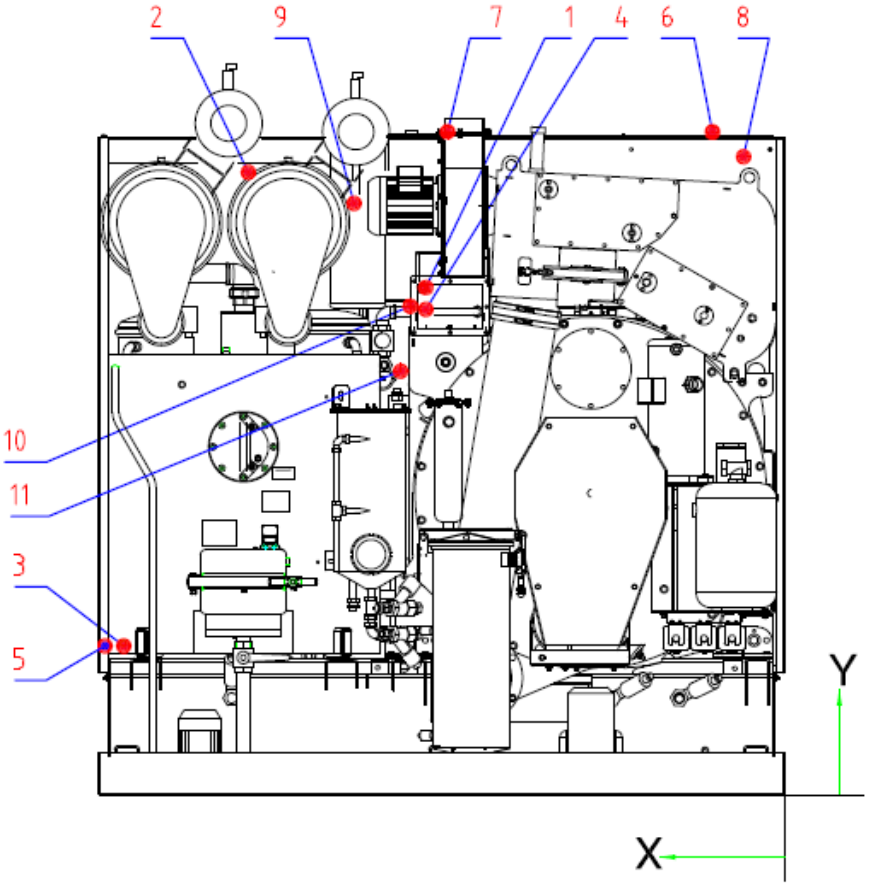
707761-15-A

Part numbers:

Leveling plates:	1 mm	SN 709955
	2 mm	SN 709954
	3 mm	SN 709909
Spacer plates:	8 mm	SN 709902

7. Connection 7

7.1 Dimensioned Drawing of the Machine Connections 7.1



707761-05-0

We reserve the right to change dimensions!

Item	Medium	NW mm	Inch	-X- mm (in)	-Y- mm (in)
1	Machine steam	15	1/2	1150 (45.3)	1630 (64.2)
2	Distillation steam	15	1/2	1720 (67.7)	2000 (78.7)
3	Distillation condensate	15	1/2	2120 (83.5)	480 (18.9)
4	Heater battery condensate	15	1/2	1150 (45.3)	1560 (61.4)
5	Slimsorba condensate (option)	15	1/2	2180 (85.8)	480 (18.9)
6*	Cooling water inlet	20	3/4	230 (9.1)	2130 (83.9)
7	Cooling water outlet, distillation	20	3/4	1080 (42.5)	2130 (83.9)
8	Cooling water outlet, refrigeration unit	20	3/4	130 (5.1)	2050 (80.7)
9	Compressed air	8	1/4	1380 (54.3)	1900 (74.8)
10	Electric connection (front side)	-	-	1200 (47.2)	1570 (61.8)
11	Option: Loading door suction	50	2	1220 (48.0)	1110 (43.7)

* There must be a measuring potentiometer installed (on the machine) between the machine and customer wiring system.

7 Connection 7

7.2 Lines and Pipelines 7.2

Connect the customer-supplied supply and drain lines according to the information in the dimensioned drawing. Steam, condensate, compressed air and water must be equipped with stop valves. Follow DIN 1988 when connecting the water. To avoid transmission of structure-borne noise, you can connect the pipelines with a spacer of flexible metal tubing and insulate the pipe holders.

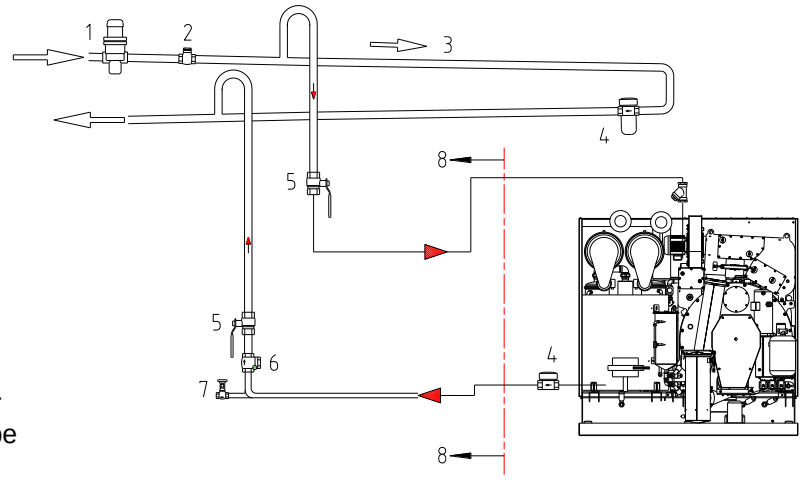
7.2.1 Steam

Install the wiring system and connections in such a way that they are insulated.
Operating pressure 4 - 5 bar (58 - 72.5 psi) saturated steam.
If the admission pressure is more than 5 bar (72.5 psi), build in a steam reducing valve with pressure gauge and set it so that the highest permissible temperature for perc of 150 °C (302 °F) (measure!) is not exceeded (danger of solvent decomposition and damage to the machine).
!!! Be careful overheated steam !!!

Peak steam demand (large steam generator):

P21-P26-P30

Drying	0.6 kg/min (1.3 lb/min)
Distillation	0.6 kg/min (1.3 lb/min)



1 = Reducing valve
2 = Vacuum breaker
3 = Descending slope
4 = Steam trap
5 = Stop valve
6 = Non-return valve
7 = Drain
8 = Customer side

707761-06-0

7.2.2 Condensate

Install condensate line so that it slopes away from the machine, if possible. If there is an ascending slope, provide a non-return valve and drain at the lowest point.

Attention:
Condensate counter-pressure must be at least 1.5 bar (21.8 psi) under the incoming steam pressure.

7 Connection 7

7.2.3 Cooling Water Supply

7.2.3.1 Mains water supply

The cross-sections of the lines to the machine should not get smaller and should be without bends and curves, if possible. The heat balance of the machine has been optimally designed for cooling water with an inlet temperature of 12 °C (53.6 °F) and uniform pressure of 2 - 4 bar (29 - 58 psi). (Minimum pressure 2.0 bar (29 psi), maximum pressure 6.0 bar (87 psi))

A manually operated stop valve should be fitted.

Peak cooling water demand 2 - 4 bar/29 - 58 psi (12 °C/53.6 °F):

P21-P26-P30

Drying	6 l/min (1.6 US gal/min)
Distillation	12.5 l/min (3.3 US gal/min)

According to DIN 1988, a water flowback stop and venting device must be installed on machines in the Federal Republic of Germany.

7.2.3.2 Cooling Tower Operation

For cooling tower or recooling operation, the nominal width of the feeding and drain lines must be dimensioned to be larger than the nominal width of the circulation pump or must be dimensioned according to the pump.

Inlet temperatures are not allowed to exceed 24 °C (75.2 °F) because otherwise the solvent consumption increases and the drying times are also longer. Cooling water inlet temperatures that are too high can also overload the refrigeration unit.

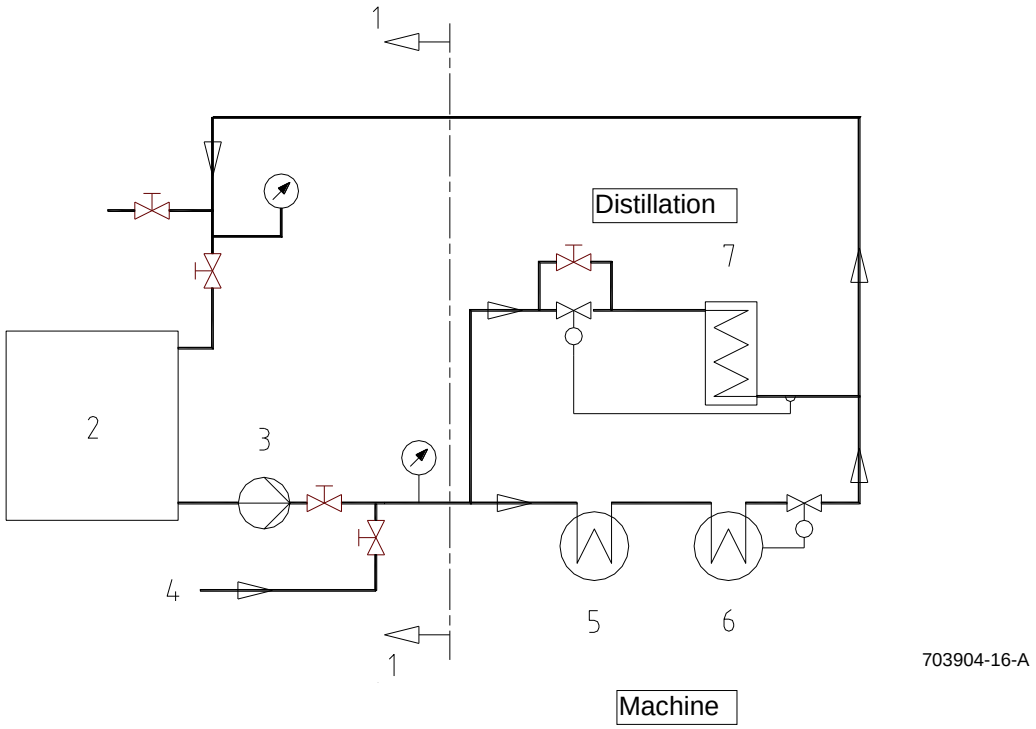
The water pressure must be adapted to the higher inlet temperature, up to double the peak demand.

In cooling tower or recooling operation, correct installation is especially important. Consequently, some of the things that must be kept in mind are the cooler capacity, mains water supply switch-over, stored cooling capacity, pump size and cooling water by-pass.

The cooling water regulator (water economizer valve) for the machine and distillation system must be corrected or avoided with a bypass (manual valve) (= continuous water flow).

The cooling water supply or the backfeeding to the recooling unit must come from the mains water system or from a soft water system. The cooling water should be approx. 5° dH.

7 Connection 7



1 = Customer side
2 = Cooling tower
3 = Circulation pump
4 = Mains water supply
5 = Undercooler cooling agent
6 = Refrigeration unit
7 = Condenser

Data for temperatures up to 24 °C (75.2 °F)
(Nominal width NW at least 32 mm (1 1/4“):

Pump throughput	m^3/h US gal/h	3.2 * 845.4 *
Pump pressure	bar psi	4-6 58 - 87

Heat to be dissipated over cooling water*:			
	P21	P26	P30
kJ/cycle	33800	38600	44800

* refers to water without additives

Also refer to the separate installation and operating instructions for the rechilller.

7 Connection 7

7.2.4 Cooling Water Outlet

The cooling water leaving the system can be directed to the sewer system, reused and recooled because it circulates through the machine in a closed system and does not come into contact with the solvent. You should endeavor to reuse the cooling water.

7.2.5 Compressed Air

The operating pressure is 6 bar (87 psi). The machine is equipped with a compressed air reducing valve, pressure gauge and compressed air water separator. The line pressure should be 10 - 12 bar (145 - 174 psi). The customer has to install at his air compressor an automatic water drain and an air cooler (refrigeration dryer). Otherwise BÖWE can not take any warranty on pneumatic parts.
The compressor has to be located in a dry and cool area.

7.2.6 Process Water

Empty the process water collecting tank daily.
Dispose of the contents according to the regulations for your country.

7.2.7 Aeration Lines

Machine venting and aeration is done through a carbon filter cartridge or the Slimsorba.

7 Connection 7

7.3 Electrical Connection 7.3

Caution

Only trained electricians are permitted to work on the electrical system according to the relevant standards of the respective countries. The power supply must be provided by the customer/operator of the machine and is not included in the delivery.

Note the supply voltage (on the nameplate). Connect L1 /L2 /L3, neutral and ground wires with the appropriate cross section and fusing. Pass the cable into the switch panel through the PVC screwed union provided and connect to terminal.

Main switch connection

The main switch must be connected at the customer with an approved cable. Strip the cable right before the main switch only. Do not lay stripped cable in the cable trunking.

Attention: Supply voltage must be present even when the machine's main switch is turned off in order to guarantee the function of the crankcase heating in the refrigeration unit.

Ground-fault circuit interrupter at the customer
In case of a fault current breaker integratred in the building it is recommandable to make sure,if it is applicable to the machine with variable speed drive.
As the manufacturer we recommend an all-current sensitive residual-current breaker (RCD) with at least 300 mA.

P21	Operating load kW	Max. current A	Fuse A
400 V, 50 Hz			
Steam /electric standard	12	25	35
Steam /electric with all options	13	27	35
230 V, 60 Hz			
Steam /electric standard	12	44	50
Steam /electric with all options	13	48	50

Attention: The electric model is implemented with a separate steam generator. This steam generator must have separate fusing.

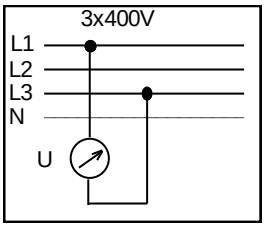
P 21	Operating load kW	Max. current A	Fuse A
400 V, 50 Hz			
Steam generator	30	44	50
230 V, 60 Hz			
Steam generator	30	74.8	80

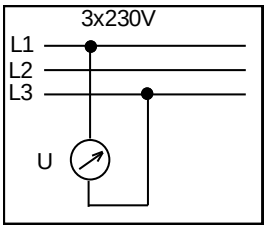
7 Connection 7

P26-P30 heated with external steam	Operating load kW	Max. current A	Fuse A
400 V, 50 Hz			
Steam standard	12	25	35
Steam with all options	13	27	35
230 V, 60 Hz			
Steam standard	12	44	50
Steam with all options	13	48	50

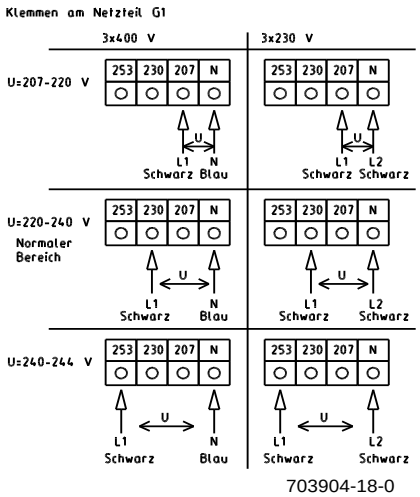
7.3.1 Permissible Voltage Range

Attention:
The power supply must be measured at the machine before you turn the machine on. If it deviates from the standard voltage, you must adapt the machine to the local voltage with an autotransformer.





When making the electric connections for a drycleaning machine, you must observe the following voltage ranges:

1. Main supply (according to DIN IEC 38):		
Range	Primarily 400-V power system	Primarily 230-V power system
Not allowed; requires external adjustment	< 360 V	< 207 V
Normal working range MIN: -10.0 % MAX: + 6.0 %	360 V to 424 V	207 V to 244 V
Not allowed; requires external adjustment	> 424 V	> 244 V
Range	Primarily 230-V power system	
Not allowed; requires external adjustment	< 207 V	
Normal working range 207 V to 244 V		
Not allowed; requires external adjustment	> 244 V	

7.3.2 Control of Room Ventilation

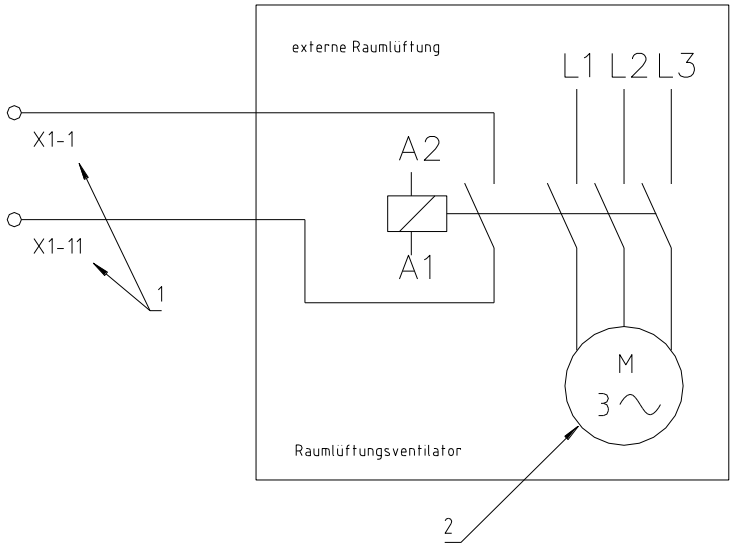
If there is already a room ventilation system, you can couple the automatic machine actions with the ventilation system.

In this case, the machine starts only when the room ventilation has been turned on.

Recommendation for renewing the room air:
The room ventilation must be sufficient to meet the requirements for your country.

Example: BGR 500 Kapitel 2.14:

The minimum requirement for renewing the room air is achieved when the dissipated amount of air in m^3 /h is equal to 60 times the numerical value of the standard loaded amount in garments in kg. The air renewal rate can be limited to 5 per hour if the calculation results in a larger numerical value.



703904-17-0

1 = Terminals in switch panel
2 = External room ventilation - room ventilation fan

8. Important Information 8

8.1 First Startup 8.1

The BÖWE Customer Service department is responsible for carrying out the first startup.

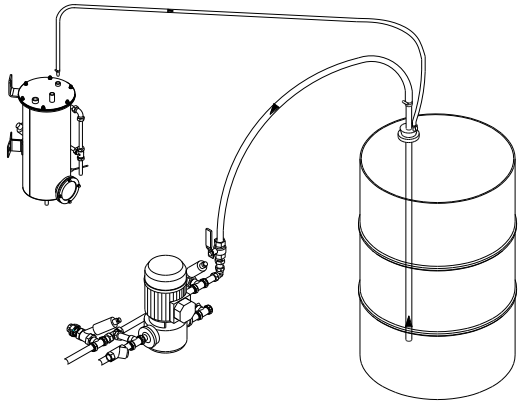
	**<u>Attention:</u> Before opening the switch panel or removing paneling, set the main switch to "0".**

8.1.1 Preparatory Work

Set up the supply systems (electrical current, cooling water, compressed air, steam and condensate lines).

8.1.2 Filling Machine With Solvent

(When filling the machine using the gas pendulum process, refer to diagram)



707761-17-0

Use only stabilized, high-purity TETRACHLORETHENE (Perc), in accordance with DIN 53978.

The amount of solvent needed is:

Machine P21 tank l:	about 110 l (about 178 kg) or about 29.0 US gal (about 392.5 lb)
Machine P26 tank l:	about 135 l (about 219 kg) or about 35.6 US gal (about 482.9 lb)
Machine P30 tank l:	about 155 l (about 251 kg) or about 40.9 US gal (about 553.5 lb)
Total filling amount P21:	about 445 l (approx. 721 kg)* or about 117.5 US gal (1589.8 lb)*
Total filling amount P26:	about 510 l (approx. 826 kg)* or about 134.6 US gal (1821.3 lb)*
Total filling amount P30:	about 565 l (approx. 915 kg)* or about 149.2 US gal (2017.6 lb)*

	**<u>Attention:</u> Perc is a powerful fat solvent. Wear gloves when handling perc and apply protective skin ointment to hands when done. Do not smoke. If you get perc in your eyes, seek further medical care.**

	**If there is no suction from the pump, pour about 5 liters (1.3 US gal) of solvent into the button trap. Check that the direction of rotation is correct.**

* Machine with 1 economy filter.
For machines with 2 economy filters: + 50 l (13.2 US gal)
For machines with 2 economy filters and 1 cartridge filter: + 75 l (19.8 US gal)
For machines with 2 economy filters and 2 cartridge filters: + 90 l (23.8 US gal)

8 Important Information 8

To fill without emissions, proceed as follows:

- Remove the screw cap on the pump line.
- Connect a hose between the barrel and pump suction side.
- Connect gas displacement line between the barrel and water separator.
- Open the ball valve.
- Start program P51
- The tanks fill up, with one overflowing into the other.
- Watch the level of the liquid in the tanks and stop program P51 when the tanks are full or when enough solvent has been filled in.
- Close the ball valve.
- Remove the connecting lines to the barrel.
- Screw the cap back on to the pump line.
- Remove the gas displacement line.

If may be necessary to refill with solvent after the filter is filled each time you replace a filter.

8.1.3 Refilling Solvent

Follow the procedure given in Point 8.1.2 for routine refilling of solvent.

<u>Attention:</u> Even empty containers can still hold solvent residues. Therefore tightly seal the container (barrel) again and store or dispose of in accordance with regulations!

8 Important Information 8

8.1.4 Filling Slimsorba Carbon Container (Optional Equipment)

For the first startup, perform the following steps in the order given to fill the carbon container with activated carbon:

1. Loosen the upper tube of the carbon container again
2. Loosen the quick release fastener on the cover and lift off the cover
3. Remove fine filter sieve and clamping ring.
4. Fill in 13 kg/28.7 lb of activated carbon (cylindrical pellets with approx. 4 mm/0.16 inch diameter, type SUPERSORBON K40). The heating coil must be covered.
5. Replace the fine filter sieve and clamping ring.
6. Replace the cover and close the quick release fasteners.
7. Secure the upper tube of the carbon container again.

The Slimsorba is an integrated multiple-cycle unit for reducing the solvent residue in perc machines. The Slimsorba is desorbed with hot air.

As an integrated multiple-cycle device, the Slimsorba does not require any additional space.

The main components of the Slimsorba are:

- Carbon container	with a filling of absorbing carbon and an internal cooling coil (optional with additional cooling coil) Note: You must fill in activated carbon when commissioning the machine
- Heater battery	for hot air desorption
- Air filter	lint filter
- Fan	for moving the air flow
- Sensors	for monitoring temperature
- Connecting pipes	to the drycleaning machine

8.2 Refrigeration Unit 8.2

	**<u>Attention:</u>** **No cooling agent is allowed to escape into the atmosphere during operation, servicing work and decommissioning of refrigeration units.** **You must keep a record of the quantities of cooling agent used and present this record to the authorities upon demand.** **Only people who have the necessary special knowledge and technical equipment are authorized to service and decommission refrigeration units.**

9. Technical Specifications 9

P21

Heating		**Steam**	**Electric**
Filling quantity	kg (lbs)	21 (46.3)	21 (46.3)
Cage volume	l (US gal)	420 (110.9)	420 (110.9)
Cage diameter	mm (in)	1000 (39.4)	1000 (39.4)
Cage depth	mm (in)	535 (21.1)	535 (21.1)
Cleaning speed/drying speed	RPM	35	35
Spinning speed:	RPM	500	500
Max. g-factor		140	140
Low level	l (US gal)	52.5 (13.9)	52.5 (13.9)
High level	l (US gal)	105 (27.7)	105 (27.7)
Operating load (max. at 400 V,50Hz)			
Standard model	kW	12	42
With all options	kW	13	43
Connected loads:			
Compressor capacity	kW	4.0	4.0
Fan capacity	kW	1.5	1.5
Solvent pump capacity	kW	1.1	1.1
Still rake out system pump capacity	kW	0.55	0.55
Cage drive capacity	kW	5.5	5.5
Filter drive capacity	kW	0.55	0.55
Slimsorba fan capacity	kW	0.75	0.75
Steam generator capacity	kW	-	30
Dimensions:			
Machine dimensions:			
Width with distillation	mm (in)	2200 (86.6)	2200 (86.6)
Depth	mm (in)	1500 (59.1)	1500 (59.1)
Height without cartridge filter	mm (in)	2180 (85.8)	2180 (85.8)
Height with cartridge filter	mm (in)	2340 (92.1)	2340 (92.1)
Floor space	m^2 (ft^2)	3.3 (35.5)	3.3 (35.5)
Filling volumes:			
Tank I filling	l (US gal)	200 (52.8)	200 (52.8)
Tank II filling	l (US gal)	125 (33.0)	125 (33.0)
Tank III filling	l (US gal)	200 (52.8)	200 (52.8)
Economy filter 1	l (US gal)	75 (19.8)	75 (19.8)
Economy filter 2	l (US gal)	50 (13.2)	50 (13.2)
Distillation filling	l (US gal)	220 (58.1)	220 (58.1)
Cartridge filter 1 (long)	l (US gal)	25 (6.6)	25 (6.6)
Cartridge filter 2 (short)	l (US gal)	15 (4.0)	15 (4.0)

The dimensions given may differ if special options are used

9 Technical Specifications 9

P21

Heating			**Steam**	**Electric**
Consumption for drying:				
Drying time inc. reduction		min.	15	15
Electric energy drying	without Slimsorba	kWh	2.4	4.0
	with Slimsorba	kWh	2.6	4.2
Saturated steam drying	without Slimsorba	kg (lbs)	4.0 (8.8)	-
	with Slimsorba	kg (lbs)	4.0 (8.8)	-
Cooling water drying (12 °C/53.6 °F)				
	without Slimsorba	l (US gal)	85 (22.4)	85 (22.4)
	with Slimsorba	l (US gal)	75 (19.8)	75 (19.8)
Consumption for distillation(1x at low level):				
Electric energy distillation		kWh	-	8.0
Saturated steam distillation		kg (lbs)	12.0 (26.5)	-
Cooling water for distillation (12 °C/53.6 °F)		l (US gal)	160 (42.2)	160 (42.2)
Consumption per cycle: *				
Electric total energy	without Slimsorba	kWh	2.8	12.0
	with Slimsorba	kWh	3.0	12.2
Saturated steam	without Slimsorba	kg (lbs)	16.0 (35.9)	-
	with Slimsorba	kg (lbs)	16.0 (35.9)	-
Cooling water drying (12 °C/53.6 °F) without/with Slimsorba		l (US gal)	245/235 (64.7/62.0)	245/235 (64.7/62.0)
Compressed air (6 bar/87 psi)		l (US gal)	6 (1.6)	6 (1.6)

9 Technical Specifications 9

P21

Heating		**Steam**	**Electric**
Other:			
Distillation throughput (DIN 11916) max.	l/h (US gal/h)	240 (63.4)	180 (47.6)
Filter throughput	l/h (US gal/h)	5000 (1320)	5000 (1320)
Filter surface, economy filter 1	m^2 (ft^2)	5.0 (53.8)	5.0 (53.8)
Filter surface, economy filter 2	m^2 (ft^2)	3.5 (37.7)	3.5 (37.7)
Weight without solvent (with 2 economy filters, 2 cartridge filters, Slimsorba)	kg (lbs)	2025 (4465)	2025 (4465)
Weight with solvent (with 2 economy filters, 2 cartridge filters, Slimsorba)	kg (lbs)	2890 (6218)	2890 (6218)
Floor space	m^2 (ft^2)	3.3 (35.5)	3.3 (35.5)
Floor surface **	m^2 (ft^2)	2.3 (24.8)	2.3 (24.8)
Cage centrifugal force	N (lb)	12600 (2830)	12600 (2830)
Floor load, static and dynamic	N/m^2 (lb/ft^2)	17500 (365)	17500 (365)
Noise level	dB (A)	62	62
Heat balance: *			
Heat to dissipate via cooling water ***:			
	kJ/cycle	33800	33800
Heat dissipated to the surroundings:			
	kJ/cycle	8400	8400

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature + 5 °C to + 40 °C (41 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point 5.3.1

*** Refers to water without additives

Subject to change!

9 Technical Specifications 9

Machine		**P26**	**P30**
Heating		**steam**	**steam**
Filling quantity	kg (lbs)	26 (57.3)	30 (66.2)
Cage volume	l (US gal)	520 (137.3)	600 (158.4)
Cage diameter	mm (in)	1000 (39.4)	1000 (39.4)
Cage depth	mm (in)	665 (26.2)	770(30.3)
Cleaning speed/drying speed	RPM	35	35
Spinning speed:	RPM	500	500
Max. g-factor		140	140
Low level	l (US gal)	65 (17.2)	75 (19.8)
High level	l (US gal)	130 (34.3)	150 (39.6)
Operating load (max. at 400 V,50Hz)			
Standard model	kW	12	12
With all options	kW	13	13
Connected loads:			
Compressor capacity	kW	4.0	4.0
Fan capacity	kW	1.5	1.5
Solvent pump capacity	kW	1.1	1.1
Still rake out system pump capacity	kW	0.55	0.55
Cage drive capacity	kW	5.5	5.5
Filter drive capacity	kW	0.55	0.55
Slimsorba fan capacity	kW	0.75	0.75
Steam generator capacity	kW	-	-
Dimensions:			
Machine dimensions:			
Width with distillation	mm (in)	2200 (86.6)	2200 (86.6)
Depth	mm (in)	1630 (64.2)	1735 (68.3)
Height without cartridge filter	mm (in)	2180 (85.8)	2180 (85.8)
Height with cartridge filter	mm (in)	2340 (92.1)	2340 (92.1)
Floor space	m^2 (ft^2)	3.6 (38.7)	3.8 (40.9)
Filling volumes:			
Tank I filling	l (US gal)	225 (59.4)	250 (66.0)
Tank II filling	l (US gal)	140 (37.0)	155 (40.9)
Tank III filling	l (US gal)	225 (59.4)	250 (66.0)
Economy filter 1	l (US gal)	75 (19.8)	75 (19.8)
Economy filter 2	l (US gal)	50 (13.2)	50 (13.2)
Distillation filling	l (US gal)	220 (58.1)	220 (58.1)
Cartridge filter 1 (long)	l (US gal)	25 (6.6)	25 (6.6)
Cartridge filter 2 (short)	l (US gal)	15 (4.0)	15 (4.0)

The dimensions given may differ if special options are used

9 Technical Specifications 9

Machine			**P26**	**P30**
Heating			**steam**	**steam**
Consumption for drying:				
Drying time inc. reduction		min.	17	19
Electric energy drying	without Slimsorba	kWh	2.8	3.0
	with Slimsorba	kWh	2.6	2.8
Saturated steam drying	without Slimsorba	kg (lbs)	4.5 (9.8)	5.0 (11.0)
	with Slimsorba	kg (lbs)	4.5 (9.8)	5.0 (11.0)
Cooling water drying (12 °C/53.6 °F)				
	without Slimsorba	l (US gal)	95 (25.1)	105 (27.7)
	with Slimsorba	l (US gal)	85 (22.4)	95 (5.1)
Consumption for distillation(1x at low level):				
Electric energy distillation		kWh	-	-
Saturated steam distillation		kg (lbs)	14.5 (32.0)	17.0 (37.5)
Cooling water for distillation (12 °C/53.6 °F)		l (US gal)	190 (50.2)	220 (58.1)
Consumption per cycle: *				
Electric total energy	without Slimsorba	kWh	3.2 /3.0	3.4 /3.2
	with Slimsorba	kWh		
Total saturated steam	without Slimsorba	kg (lbs)	19.0 (41.9)	22.0 (48.5)
	with Slimsorba	kg (lbs)	19.0 (41.9)	22.0 (48.5)
Total cooling water (12 °C/53.6 °F)				
without Slimsorba		l (US gal)	285 (75.2)	325 (85.8)
with Slimsorba			275 (72.6)	315 (83.2)
Compressed air (6 bar/87 psi)		l (US gal)	6 (1.6)	6 (1.6)

9 Technical Specifications 9

Machine		**P26**	**P30**
Heating		**Steam**	**Steam**
Other:			
Distillation throughput (DIN 11916) max.	l/h (US gal/h)	240 (63.4)	240 (63.4)
Filter throughput	l/h (US gal/h)	5000 (1320)	5000 (1320)
Filter surface, economy filter 1	m^2 (ft^2)	5.0 (53.8)	5.0 (53.8)
Filter surface, economy filter 2	m^2 (ft^2)	3.5 (37.7)	3.5 (37.7)
Weight without solvent (with 2 economy filters, 2 cartridge filters, Slimsorba)	kg (lbs)	2175 (4795)	2325 (5125)
Weight with solvent (with 2 economy filters, 2 cartridge filters, Slimsorba)	kg (lbs)	3140 (6925)	3380 (7455)
Floor space	m^2 (ft^2)	3.6 (38.7)	3.8 (40.9)
Floor surface **	m^2 (ft^2)	2.6 (28.0)	2.8 (30.1)
Cage centrifugal force	N (lbs)	15600 (3505)	18000 (4045)
Floor load, stat. and dyn.	N/m^2 (lbs/ft^2)	17600 (370)	18000 (375)
Noise level	dB (A)	62	62
Heat balance: *			
Heat to dissipate via cooling water ***:			
	kJ/cycle	38600	44800
Heat dissipated to the surroundings:			
	kJ/cycle	10000	11600

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (41 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point 5.3.1

*** Refers to water without additives

Subject to change!

10. Settings and Optimum Operating Values 10

Machine		P21	P26	P30
Basic values:				
Steam pressure (saturated steam)	bar (psi)	4 – 5 (58 - 72)	4 – 5 (58 - 72)	4 - 5 (58 - 72)
Steam temperature (max. permitted)	°C (°F)	150 (302)	150 (302)	150 (302)
Cooling water pressure	bar (psi)	2 – 4 (29 - 58)	2 – 4 (29 - 58)	2 – 4 (29 - 58)
Low cooling water level switch	bar (psi)	2 (29)	2 (29)	2 (29)
Cooling water temperature, max.	°C (°F)	25 (77)	25 (77)	25 (77)
Compressed Air	bar (psi)	6 (87)	6 (87)	6 (87)
Low air pressure switch (if present)	bar (psi)	4 (58)	4 (58)	4 (58)
Cage speeds:				
Cleaning /drying	RPM	35	35	35
Spinning	RPM	400 /500	400 /500	400 /500
Reversing cycle (cleaning)	sec.	10 /5 /10	10 /5 /10	10 /5 /10
Low level	l (US gal)	52.5 (13.9)	65 (17.2)	75 (19.8)
High level	l (US gal)	105 (27.7)	130 (34.3)	150 (39.6)
Pump pressure (max.)	bar (psi)	2.5 (36)	2.5 (36)	2.5 (36)
Filter surface, economy filter	m^2 (ft^2)	5.0 (53.8)	5.0 (53.8)	5.0 (53.8)
Filter powder (only for machines without emission-free still rake out system)	kg (lb)	2.5 (5.5)	2.5 (5.5)	2.5 (5.5)
Tank I: Optimum filling volume (high level)	l (US gal)	110 (29.0)	135 (35.6)	155 (40.9)
Detergent solution cooler:*				
Detergent solution thermal sensor: Detergent solution cooler ON	°C (°F)	15 - 30 (59 - 86)	15 - 30 (59 - 86)	15 - 30 (59 - 86)
Refrigeration technology:				
Filling capacity, cooling agent R 404A	kg (lb)	5.2 (11.4)	5.2 (11.4)	5.2 (11.4)
Expansion valve:				
Nozzle size: solvent cooling	No.	03	03	03
drying /reduction	No.	01	01	01
High pressure control ON	bar (psi)	21 (304.6)	21 (304.6)	21 (304.6)
High pressure control OFF	bar (psi)	25 (362.6)	25 (362.6)	25 (362.6)
Low pressure control	bar (psi)	2 (29)	2 (29)	2 (29)

10 Settings and Optimum Operating Values 10

Machine		P21	P26	P30
Drying:				
Cooling water regulator setting:				
Adjust 4 – 6 min. after start of drying	bar (psi)	18 (261)	18 (261)	18 (261)
Temperature sensor cage inlet	°C (°F)	60 (140)	60 (140)	60 (140)
Temperature sensor after cooler:				
Control value, drying	°C (°F)	40 (104)	40 (104)	40 (104)
Control value, cycle end	°C (°F)	15 (59)	15 (59)	15 (59)
Distillation				
Cooling water regulator condenser	°C (°F)	45 (113)	45 (113)	45 (113)
Thermal sensor:				
Cycle distillation OFF	°C (°F)	135 (275)	135 (275)	135 (275)
Still stripping OFF	°C (°F)	138 (280)	138 (280)	138 (280)
Thermal sensor, distilled solvent	°C (°F)	55 (131)	55 (131)	55 (131)
Restrictor in steam feeder	mm (in)	6 (.24)	6 (.24)	6 (.24)
Restrictor in direct steam line	mm (in)	4 (.16)	4 (.16)	4 (.16)

*Option

11. Safety Remarks Located on the Machine 11

Gemäß EN ISO 8230 befinden sich an der Maschine nachfolgende Sicherheitshinweise:

In accordance with EN ISO 8230 the machine is fitted with safety hints as given below:

Conforme à EN ISO 8230 les indications de sécurité suivantes se trovent à la machine:

Kontaktwasser kann geringe Spuren von Lösemittel enthalten.
Vorschriftsmäßig entsorgen!

Contact water may contain small quantities of solvent.
Please dispose of according to the regulations in your country!

L'eau de contact peut contenir une petite quantité de solvant.
Evacuer l'eau de contact conformément à la réglementation.

SN 708073

Nadelfänger täglich bzw. bei Bedarf öfter reinigen
(Nur bei ausgeschalteter Maschine und nach beendeter Trocknungsphase).

Clean button trap if necessary but at least once a day
(only if machine is switched off and the drying phase has been finished).

Nettoyer le filtre à épingle tous les jours et si nécessaire plus souvent
(seulement hors fonctionement de la machine et après une opération de séchage).

SN 708074

Reinigen der Destillation nur bei
- ausgeschalteter Maschine und
- kalter Destillierblase durchführen

Clean still only if
- machine is switched off and
- distillation is cold

Nettoyer l'alambic seulement si:
-La machine est hors de fonctionement
- Le distillateur est revenu à température ambiante

SN 708075

11 Safety Remarks Located on the Machine 11

Vorsicht!
Heiße Oberflächen

Attention!
Hot surfaces

Attention!
Surface chaude

SN 708076

Zulässige Füllmenge

Max. filling capacity

Capacité admissible

SN 708086

Filter täglich bzw. bei Bedarf öfter reinigen
(nur bei ausgeschalteter Maschine und nach beendeter Trocknungsphase)

Clean lint filter if necessary but at least once a day
(only if machine is switched off and the drying phase has been finished.)

Nettoyer le filtre tous les jours et si nécessaire plus souvent
(seulement hors fonctionement de la machine et après une opération de séchage).

SN 708087

Filter und Wasserabscheider dürfen manuell
nur bei leerer Destillation abgelassen werden.

Filter and water separator must only be drained manually
if the distillation is empty.

La vidange manuelle du filtre à solvant et du séparateur d'eau
est seulement permise quand le distillateur est vide.

SN 708077

21 kg /46 lbs **Zulässige Füllmenge** ***Max. filling capacity*** **Capacité admissible** SN 800195	**26 kg /57 lbs** **Zulässige Füllmenge** ***Max. filling capacity*** **Capacité admissible** SN 800196
30 kg /66 lbs **Zulässige Füllmenge** ***Max. filling capacity*** **Capacité admissible** SN 800197	

Changings in this issur:

Page 1-7: Regulations
Page 40: Consumption electric
Page 12, 16, 18, 24, 26, 28, 30, 32, 35, 36, 38, 41, 45, 46

BÖWE Textile Cleaning GmbH
Lochmatt 1A, 77880 Sasbach / Germany
T: +49 (0)7841 - 6002 - 200
F: +49 (0)7841 - 6002 - 230
E-Mail: info@bowe-germany.de
Internet: www.bowe-germany.de