BÖWE PASSAT

BÖWE-PASSAT "Fifth Generation" Dry cleaning machines

INTELLIGENT TECHNOLOGY

P 564
P 5.100

Our hallmarks are hi-tech design and pollution control

With the fifth generation BÖWE PASSAT has developed a range of machines which is setting new standards worldwide:

☐ In performance and economy

☐ In pollution control and safety

☐ In ease of use and engineering excellence.

This trend-setting generation of machines is the product of an innovative and hi-tech approach to systems design.

The integrated BÖWE CONSORBA is the key to environmentally friendly dry cleaning.

Engineering considerations and protection of the environment are not seen by BÖWE as mutually exclusive options. "Work in harmony with the environment" is our motto!

Outstanding advantages of the fifth generation

Not harmful to the environment, as hermetically sealed

■ Hermetically sealed during the whole process sequence. Fluctuations in pressure during the operating cycle are fully contained by the machine.

The result is virtually no solvent emission to atmosphere or residue in the processed garments.

The environment protection package

■ BÖWE-CONSORBA

■ BÖWE P.M.S. 2000 perc monitoring system

■ Emission-free still rake out

■ ECO filter

■ Lint drying

■ Emission-free machine filling

■ Integrated process water separator

■ Safety limit switches

■ Solvent safety trough

■ Emission-free SPRAYMATIC

■ Still tank rinsing

■ Back plate flushing

Staff costs are saved

■ The computer control automates routine operating and maintenance tasks

■ Less machine down time and service work due to built in fault diagnostic system

■ Minimum finishing time due to optimum load temperature and humidity.

Two-fold quality improvement in garments processed

■ Cleaning results visibly better

■ Finishing quality higher

Highly economical

■ Perc consumption greatly reduced

■ Advanced refrigeration technology reduces cooling water and energy consumption

■ With ECO filter no use of filter powder

■ Low disposal costs through use of BÖWE's auto still rake out system

■ Energy saving distillation and drying system

■ Reuse of heat during drying

■ Modular construction enables 2 or more cleaning machines to be connected to a single still.

Reliable and easy to operate

■ Operation and maintenance simplified

■ Sensors and safety limit switches prevent solvent emissions

■ Sequence of operations monitored by sensors and displayed on computer

■ Fixed programs give wide choice

■ Computer allows user to simply and quickly write those "special" programs

■ Automatic maintenance programs with push button control.

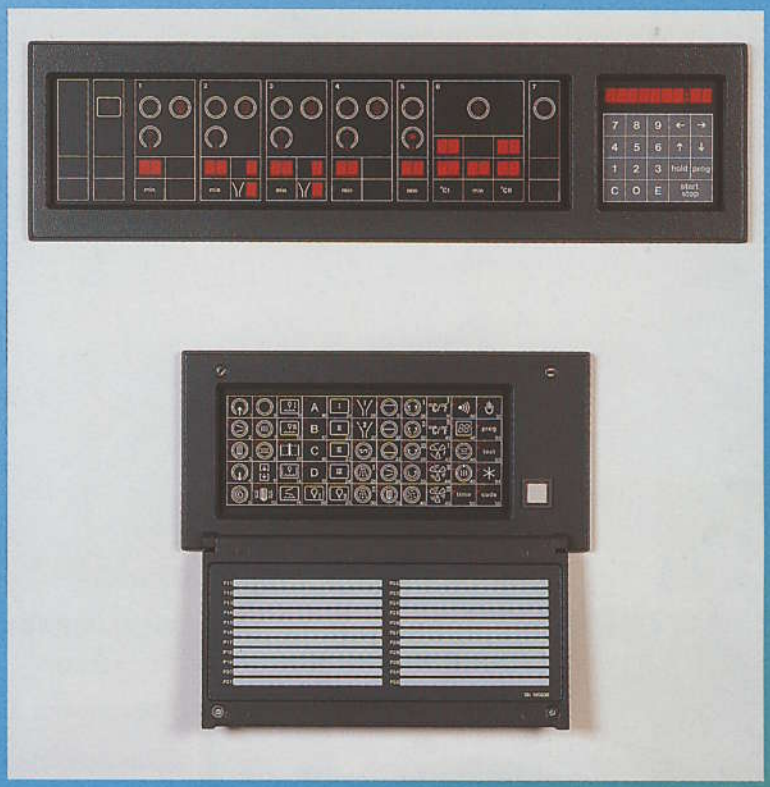
Computer Control for Simple Operation and Maintenance

Simple operation coupled with the very highest performance – two outstanding features of the newly developed computer control. Important cleaning processes are permanently stored in memory. In addition there are sufficient free programming locations available for individual program generation. Manual operation is particularly simple.

The unique user-friendly design is well illustrated by the variety of maintenance programs. At the push of a button the computer automatically takes over such important functions as filter and still maintenance, automatic still rake out, filling the SPRAY-MATIC, waterproofing and suede oiling, preparing stock solutions, solvent neutralization, etc. Also included is a "Deodorize" program which prevents solvent emissions after long periods of not working and after maintenance routines.

An important element of the new control system is the sensor system which monitors drying and distillation temperatures, liquor levels in the drum, condensate return and other functions.

Service and down time is cut to a minimum – more than 100 diagnostic hints help to identify faults and save maintenance time and cost.



Oustanding cleaning quality

BÖWE's 5th generation machines allow you to set new standards in cleaning quality. Quality that can lead to extra profits!

The design of the drum and the integral beaters in conjunction with different liquor levels, rotational speed and temperature control determines the cleaning effect. The interplay of all these factors, in conjunction with computer control and sensor technology, lead to a quality of cleaning that was unobtainable until now. Thanks to optimum temperature control of the load and low moisture loss (an effect of the new BÖWE drying concept), garments have fewer creases and expenditure on finishing is significantly less.

Precise liquor level control has an important influence on the cleaning result. Therefore, the machines are fitted with precision sensors instead of traditional level switches.

The efficient solvent cooling system minimises any tendency for the solvent to get warmer during the working day – a valuable feature when handling delicate garments prone to colour bleeding.

P 564 – 32 kg machine

The "Fifth Generation" – Technology of the future

BÖWE's 5th generation of dry cleaning machines sets new international standards in cleaning technology.

Innovative mechanical design coupled with intelligent computer control provides the optimum in performance, economy and cleaning quality. It also guarantees the highest degree of safety and environmental protection!

All models in the range are the same in construction and function and have the same control system. They merely differ in size and design of specific components. If you know how to operate or maintain one model you can handle any model in the range – savings in time, training costs and spare parts!

The 32 kg P 564 machine is of modular construction and designed also for industrial use.

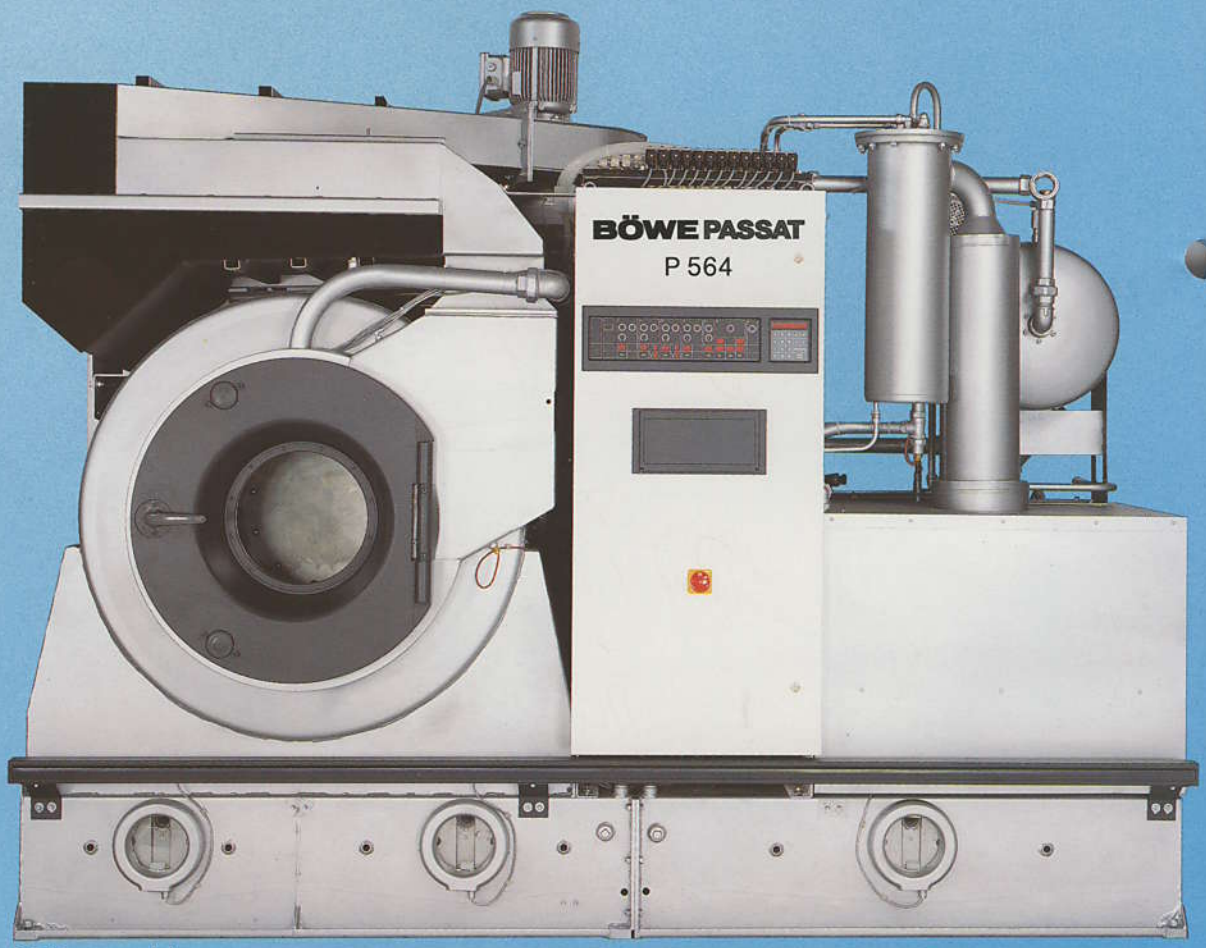
"o-models"

To reduce investment cost and minimise the floor space taken by the equipment, the "o-model" can be supplied without a dedicated still unit. It is normally coupled with a complete standard machine and shares its still. It is even possible to connect several "o-models" to one single central still.

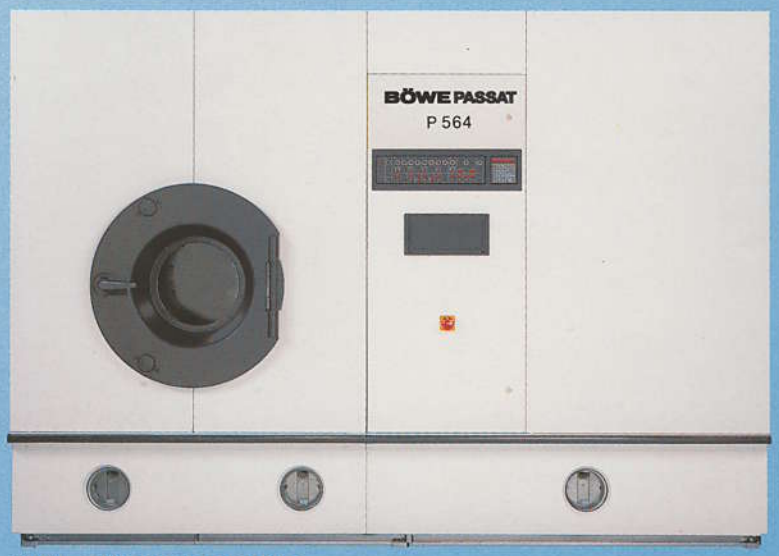
The loading door

On starting the machine the pneumatic door locking system works automatically and keeps the loading door safely closed throughout the process cycle.

An opening angle of 180° makes loading and unloading a great deal easier. Even pressure is maintained all around the hermetic door seal to prevent uneven wear.

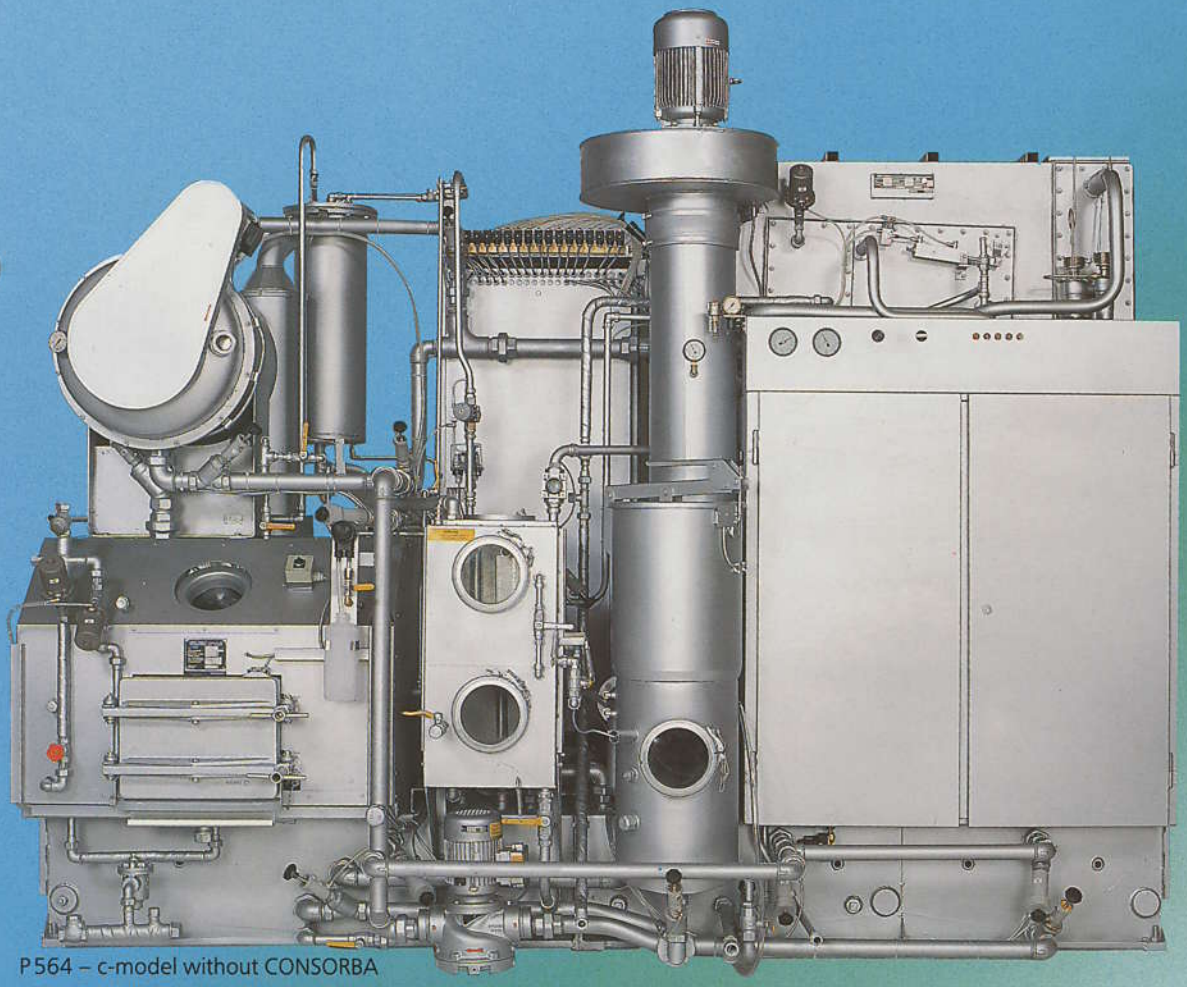


P 564 – c-model



P 564 – with panels on 3 sides

P 564 o-model without still



P 564 – c-model without CONSORBA

Safety and environmental protection

The keys to safety

BÖWE's 5th generation machines are particularly environmentally friendly with performance criteria second to none. Although many manufacturers claim their equipment is "closed circuit", BÖWE machines are truly hermetically sealed and work reliably and safely with minimum residual solvent concentrations in the load.

All environmentally relevant aspects of the cleaning process have been painstakingly investigated. In cooperation with dry cleaners, research institutes and government authorities, solutions have been worked out which have resulted in quite distinctive and standard-setting developments in environmental protection:

☐ The whole drying concept

Residue disposal drum

has been fundamentally reappraised in order to reduce solvent emissions to a minimum.

☐ The latest sensor technology, used extensively for the first time in conjunction with computer controls, meets even the strictest legislation envisaged in the next decade – BÖWE is the yardstick by which others are judged!

The basics of environmental protection

With the machines designed for use anywhere in the world, features and retrofittable options have been developed to meet the increasingly stringent requirements of all the developed nations:

■ CONSORBA for reducing residual solvent concentration in accordance with current and planned legislation.

■ BÖWE P.M.S. 2000 for preventing access via the loading door until the perc concentration in the drum at the end of the cycle is below 2 g/m³ and for monitoring the ambient solvent vapour levels.

■ Emission-free still rake out system with fully automatic discharge into a disposable drum.

■ The environmentally friendly ECO filter, filters undissolved dirt from the liquor, without using filter powder.

■ Drying of the lint in each batch ensures its emission-free removal during daily maintenance.

■ Emission-free solvent filling with the machine's own integral pump for filling from the drum.

■ Process water separator includes collection drum for later transfer to purification unit.

■ Safety limit switches prevent escape of solvent in the event of incorrect operation.

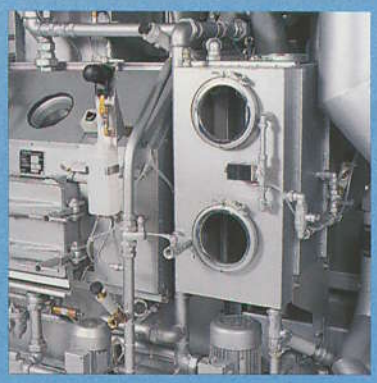
■ Automatic still tank rinsing and back plate flushing prevent build up of lint deposits.

P.M.S. 2000 perc monitoring system

■ Solvent safety trough.

■ Emission-free Spraymatic for spraying suede oil, waterproof finishes, etc. The machine's computer controls the complete sequence of mixing and spraying without any emission of solvent.

Special versions of the Spraymatic are available for products which must be applied undiluted.



Double water separators

SPRAYMATIC SPP 1

CONSORBA and the drying process

CONSORBA – the key to environmentally friendly cleaning

Traditional refrigeration technology has physical limits as regards residual solvent content in the cleaning machine (the perc vapour would reach freezing point long before the residual solvent content was reduced to below the new legal thresholds).

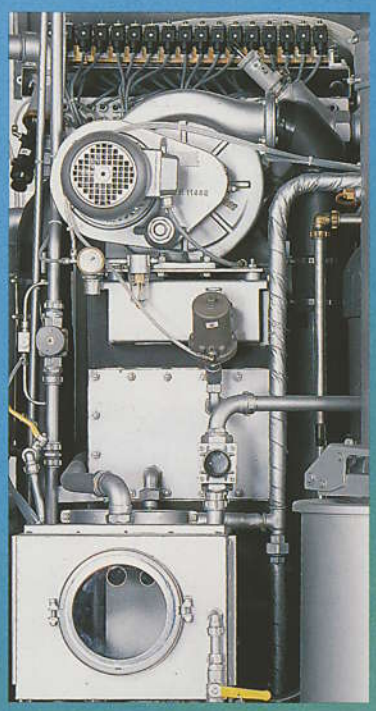
The answer is the BÖWE CONSORBA. By combining the best points of both condensation and adsorption technology (hence the name "CON-SORBA"), previously unachievable low residual solvent levels can be reached. What is more, this all happens as part of the normal machine process. Even regeneration of the carbon is part of the process cycle.

The CONSORBA is fully ready with each new batch to take the solvent out of the circulating air.

Since computer-controlled regeneration of the CONSORBA is done with hot air, the CONSORBA requires no steam, produces no contact water, does not result in "damp garment odour" and can be fitted to standard electrically heated machines.

When a machine is fitted with the integrated BÖWE CONSORBA, the residual gas concentration at the end of the cycle is reduced to under 2 g/m³. Inevitably the residual solvent concentration in the load is also very low.

CONSORBA mounted behind the swing-out switch cabinet on the P 5.100



The new drying concept

The complex processes of drying and recovering solvent have been optimised using the latest scientific methods. With an integrated CONSORBA all the most stringent requirements regarding emission control are met at the same time.

First, the BÖWE drying system reduces the residual solvent concentration in the drum at the end of the batch using particularly high air flow rates. This ensures the best possible removal of solvent from the garments.

Second, the temperature of the load is optimised and moisture loss is therefore kept to the barest minimum because the after-cooler temperature does not drop below 0 °C. (Other manufacturers frequently cool to below 0 °C in an effort to improve solvent recovery but in the process dehydrate the garments making finishing difficult and creating static problems). Apart from reducing the cost of finishing, the new drying system also saves energy and cooling water costs.

Third, the computer controls the drying time and this can be automatically monitored with the BÖWE DRYSTAT electronic drying controller. This new thermistor device is sealed for life, totally maintenance free and reliably controls the drying time, allowing for type of garments, level of loading, etc. (e.g. drying time automatically extended for thick garments such as anoraks).

P 5.100 – 50 kg machine

The tried and tested design principles of the 5th generation have also been used in the latest machine from BÖWE PASSAT, the P 5.100.

P 5.100

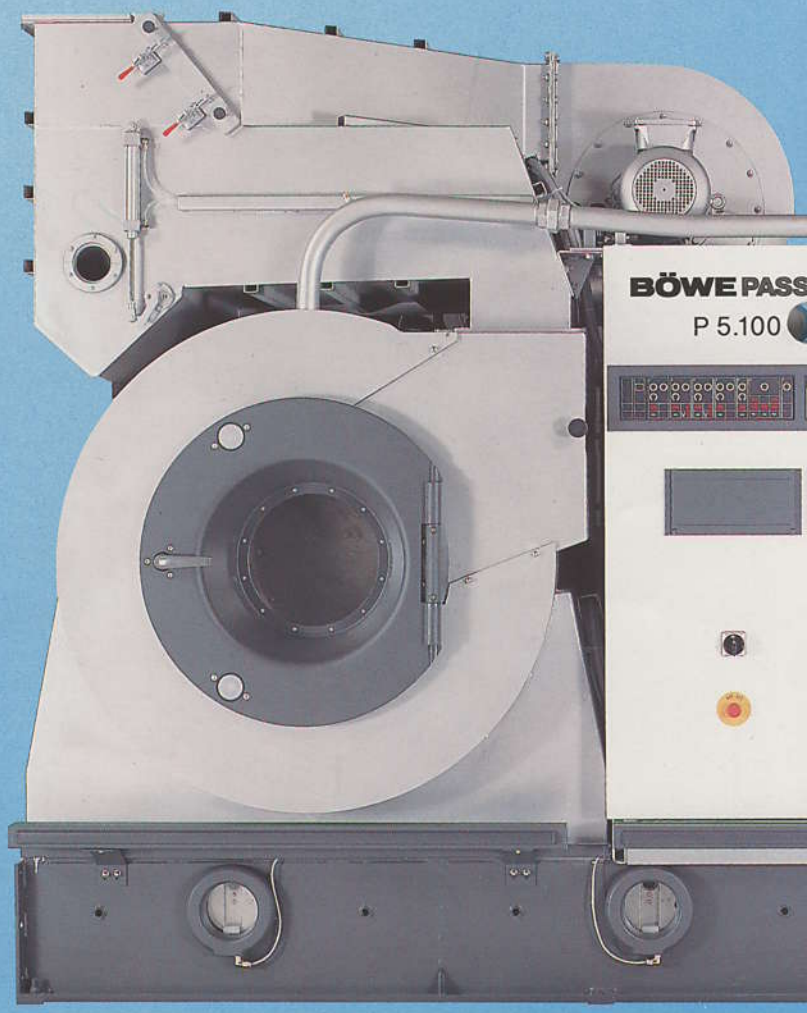
Drum capacity 1 000 litres.

The P 5.100 50 kg machine is of modular construction and designed also for industrial use. It is therefore possible to combine multiple cleaning modules with different sized still units. This allows the greatest flexibility in your production planning – a BÖWE dry cleaning system which can be customised to your precise requirements.

Fitting an integrated Consorba unit (either at the time of installation or as a simple retrofit option) makes the P 5.100 the key to environmentally friendly dry cleaning.

New solvent cooling system

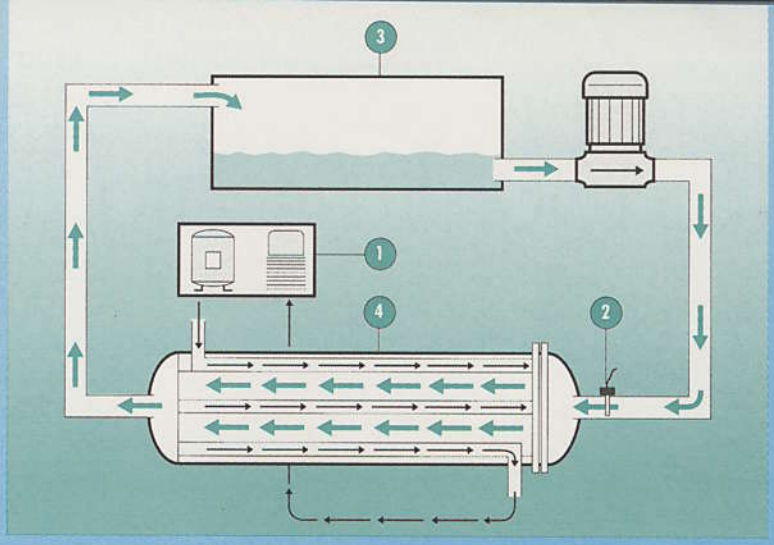
Another BÖWE "first" is the idea of utilising the "waste" energy from the heat pump to cool the solvent. This is done through a heat exchanger cooled with refrigerant during the wash cycle when the heat pump is not in use. This system not only keeps the solvent temperature low (a major advantage when processing delicates or colours prone to bleeding) it also reduces solvent and cooling water consumption still further, and is far more efficient than any water cooling system.



P 5.100 c-model

The required solvent temperature is entered on the computer as part of each program and can be set at between 10 and 35 °C.

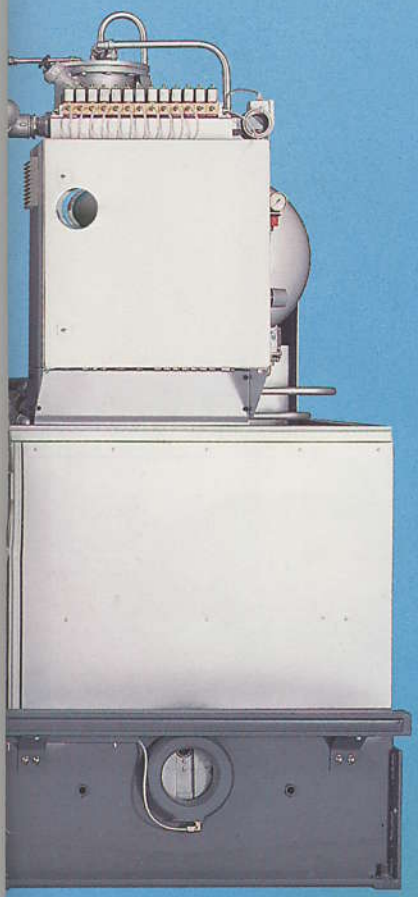
The solvent can be cooled either in the tanks (work tank or clean tank) or during the pump or filter circuit.



Solvent Cooling

- ▶ Sensor controlled
  - refrigerant-cooled heat exchanger
  - temperature range selectable from 10 – 35 °C
- ▶ Solvent cooling
  - in the pump and filter circuit
  - in the tank
- ▶ Highly effective
- ▶ Safety for the handling of sensitive garments
  - no colour bleeding
  - no damage to garments
  - cooling runs automatically
- ▶ Temperature control at all times, indicated on the computer control display

❶ Refrigeration unit
❷ Temperature sensor (10 – 35 °C)
❸ Solvent tank
❹ Heat exchanger



Optimum air flow

The air flow of the P 5.100 is virtually identical to that of the P 564. Only the fans have been repositioned to reduce the installed height of the machine.

An additional filter with large filter area has been fitted in the air duct for further protection of the heating and cooling damper. In the event of a problem with the main lint filter this additional filter would protect the air shaft against linting up.

Particular attention has been paid to minimising the level of residual solvent in the garments after processing. Therefore of the recovery head and the actual drying process itself have been designed to give the best possible result.

The electronically controlled DRYSTAT drying controller and the P. M. S. 2000 perc monitoring system optimise the drying time as a function of load type and quantity.

Lint filter in the air duct

In order to eliminate a further source of emissions, the lint filter and button trap have been combined and incorporated in the air flow. This means that only dry lint is removed from the machine.

Safety limit switches prevent escape of solvent in the event of incorrect operation.

P 5.100 – the big "Fiver"

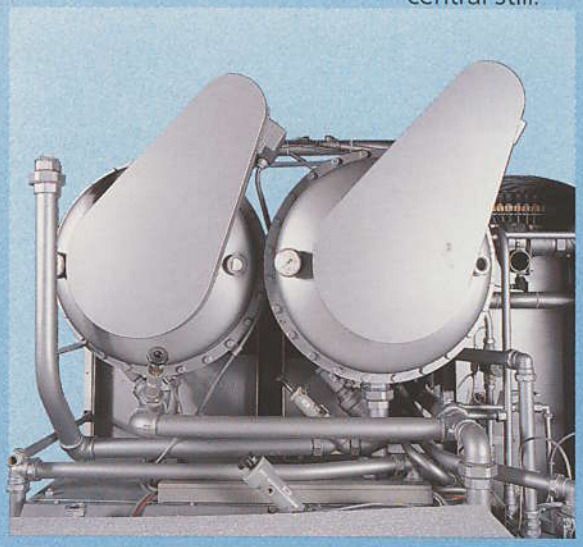
State-of-the-art filters

The ECO filter is a regeneratable filter system that works on the same principle as the centrifugal filter. A large filter surface makes for a longer service life and good filtration, faster soil removal minimising the risk of greying.

The ECO filter can be used either with or without filter powder. However, powder must not be used in conjunction with the emission-free, automatic still rake out system. The functions of filter draining, filling and precoating are combined in a fully automatic filter maintenance program.

Second filter

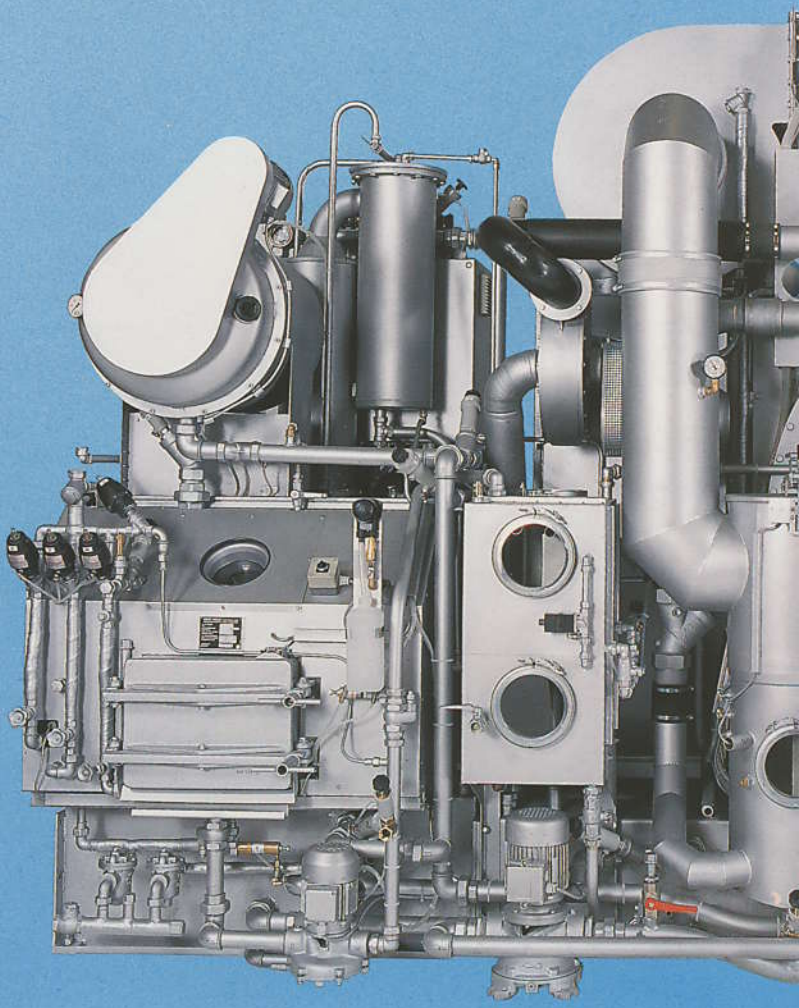
A second filter may be fitted if required. This may be to extend the process options (e.g. separate processing of light and dark loads) or when combining c and o-models or two o-models with a single, central still.



Still unit with 2 filters

"o-models"

To reduce investment cost and minimise the floor space taken by the equipment, the "o-model" can be supplied without a dedicated still unit. It is normally coupled with a complete standard machine and shares its still. It is even possible to connect several "o-models" to one single central still.



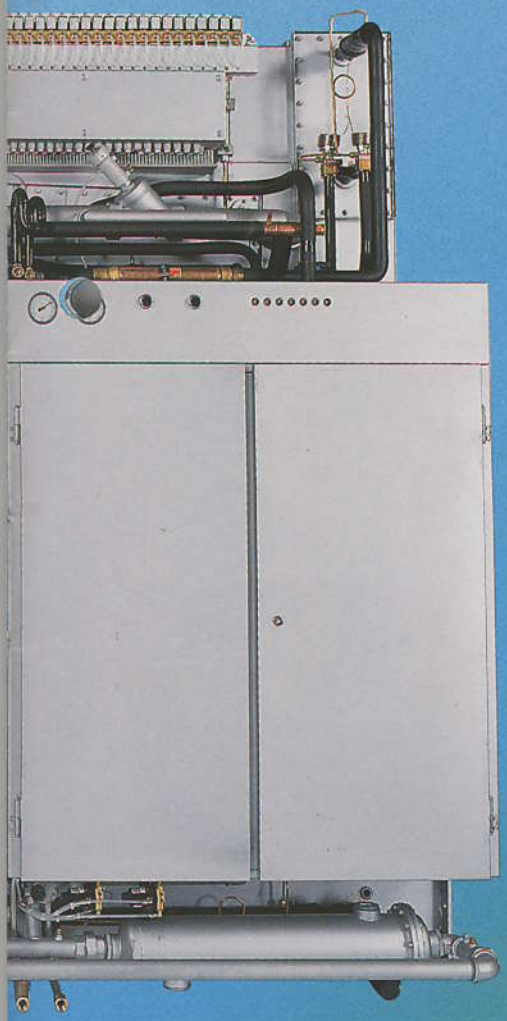
P 5.100 – c-model with CONSORBA and solvent cooling

Use of variable speed drive

Variable speed drive is offered as an optional extra and reduces current peaks on startup and the dynamic loads which have a direct influence on foundation requirements.

- Variable speed control allows you to select the ideal speed for each program to suit the garments being cleaned.

P 5.100
o-model



This means gentle start-up when washing and extracting; optimum mechanical action.

Even the most delicate work such as wedding dresses, ball gowns or valuable rugs no longer present a problem. The "lift/drop: rotation ratio" can be reduced to less than 1 if you so wish.

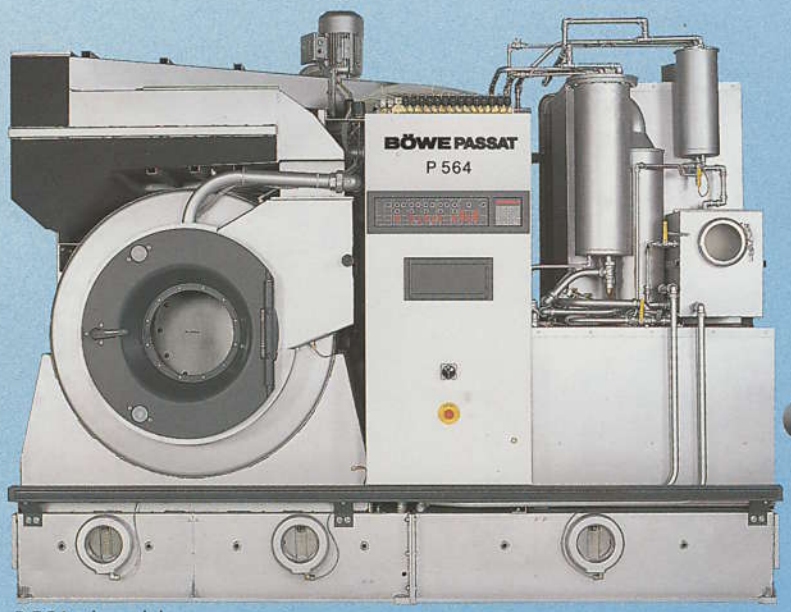
Truly compact: drive, refrigeration unit and two automatic dosers.

Energy-saving, high perform

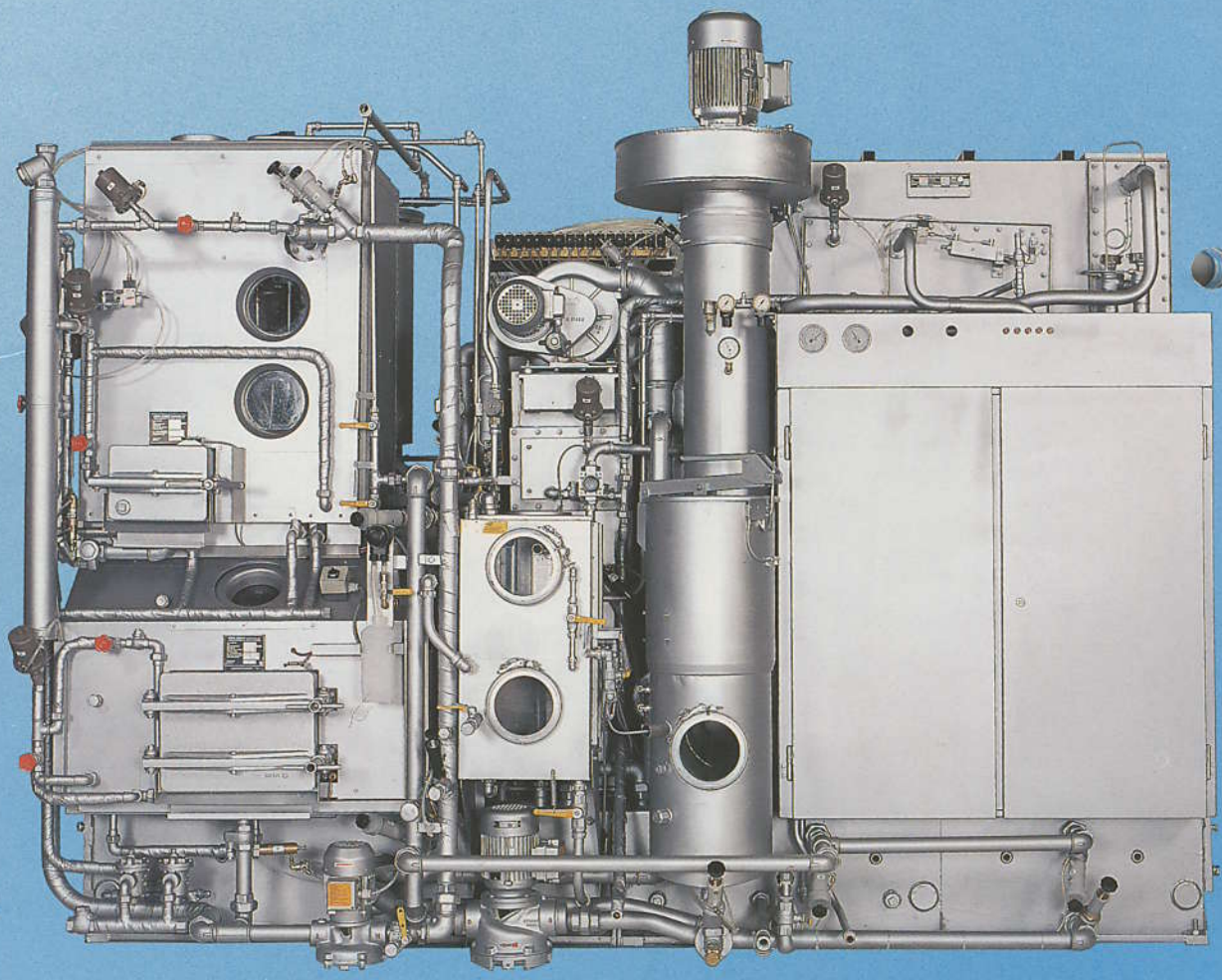
BÖWE stills are traditionally energy-saving and very efficient. At BÖWE PASSAT great emphasis has always been placed on high still performance because the availability of clean solvent on demand is a fundamental requirement for the professional cleaning of textiles.

Sensors accurately monitor the flow of solvent into the still to prevent "blacking over" and thermal breakdown or "cracking" of the solvent.

Heating both in the bottom and sides of the still ensures top performance.



P 564 – i-model



P 564 i-model
with integrated
CONSORBA

nce still

Still modules

Although the P 564 and P 5.100 normally come complete with their own still units, the wash modules can be combined with separate still units as well. This means that the still can be sited remotely from the washing module (e.g. if there are space limitations) or two washing modules can share the same still unit.

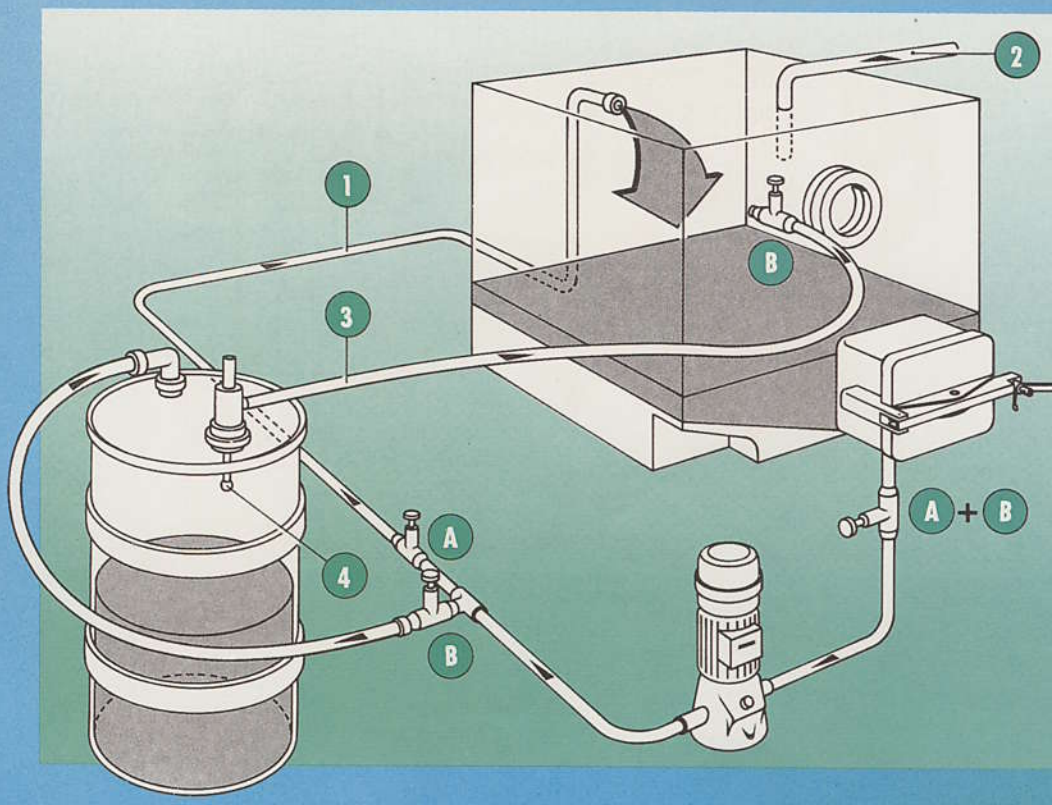
The kind of still fitted will depend on the machine's intended application.

For shop machines we would normally fit a standard D 564 still which operates at 300 l/hr. With additional heating elements this can be boosted to 450 l/hr. Where several machines are connected to a single still a D 5.100 module with a total capacity of 1100 l/hr is used.

Industrial machines are equipped with a double still. The P 564 i is fitted with the D 564 i still, distillation-rate 420 or 570 l/hr. The P 5.100 i is fitted with the D 564 i still with additional heating, distillation-rate 600 l/hr.

Several industrial machines can be linked with a central D 5.100 i still module. The total capacity is 1 600 l/hr.

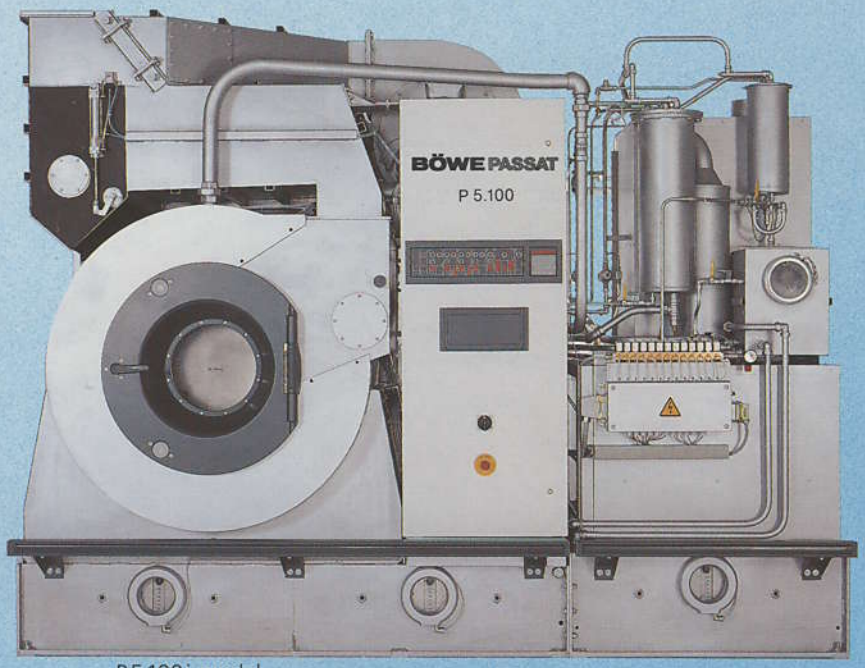
In conjunction with the ECO filter, BÖWE offers fully automatic, emission-free still residue disposal. The residues are pumped directly into the disposal drum. Solvent vapours are returned to the machine via a gas displacement line. Again this option is easily retrofittable to both the P 564 and P 5.100.



Emission-free still rake-out

- ► Closed system
- ► no odours, no pollution, no filter powder
- ► Maintenance program fully automated
  - circulation pumping
  - steam injection
  - pumping out
- ► Solvent consumption significantly reduced
- ► Cost savings
  - filter powder
  - quantity of residues
- ► Sensor protects waste drum against overflowing
- ► Ready for connection to any waste container
- ► Ready for recycling process

1. Circulation pumping line
2. Water feed (el)
3. Gas displacement line
4. Overflow preventor
5. Circulation pumping
6. Pumping out



P 5.100 i-model

A tradition of excellence

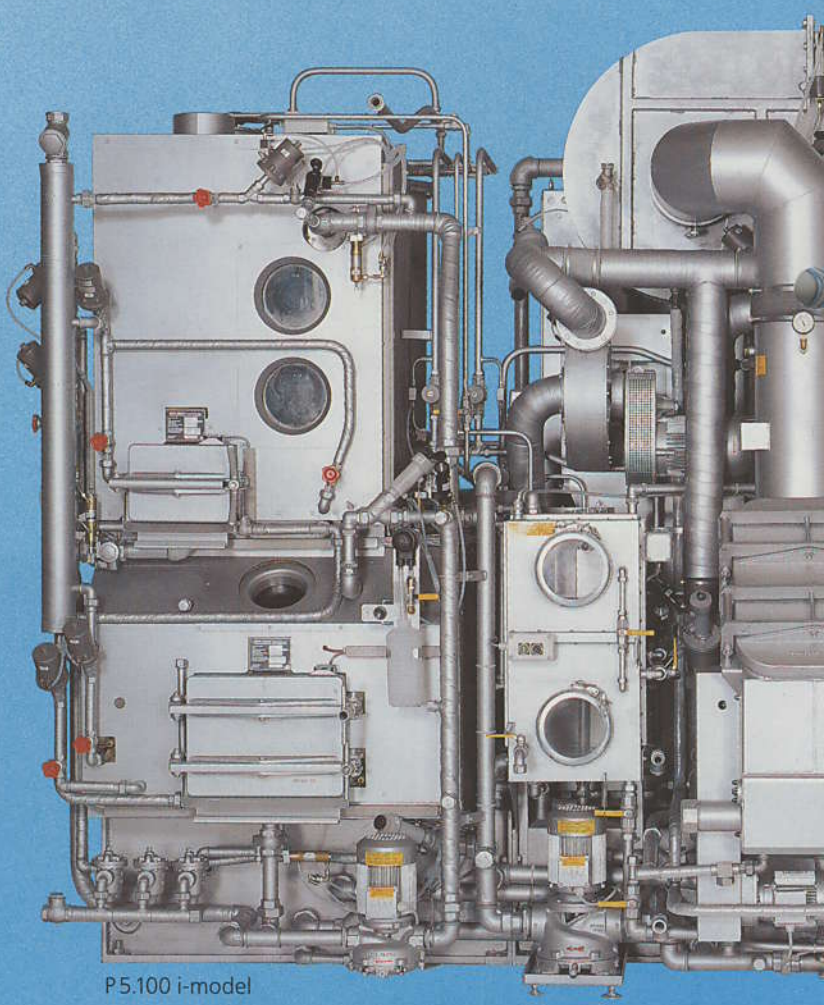
The high standards of materials used and careful workmanship reduce the cost of spare parts and service during the machine's life and are your guarantee of quality, for which BÖWE has always been renowned. The extraordinarily high proportion of BÖWE machines still in regular use after 15, 20 or even 25 years service is testimony to the quality of their construction.

The greatest attention is paid to the selection of materials

Double still

Industrial machines are equipped with a double still. Sensors accurately monitor the flow of solvent into the still to prevent "blacking over" and thermal breakdown or "cracking" of the solvent. Heating both in the bottom and sides of the still ensures top performance.

A large illuminated sight glass allows visual inspection, and automatic live steaming further assists the distillation process and minimises the perc content in the still residue. There is a special dosing device for the injection of antifoam additives if required, and the specially contoured still bottom ensures the smooth operation of the automatic still rake out system. Because the "hands off" still rake out system is totally emission free, the P 5.100 complies will all current and projected environmental legislation.


P 5.100 i-model

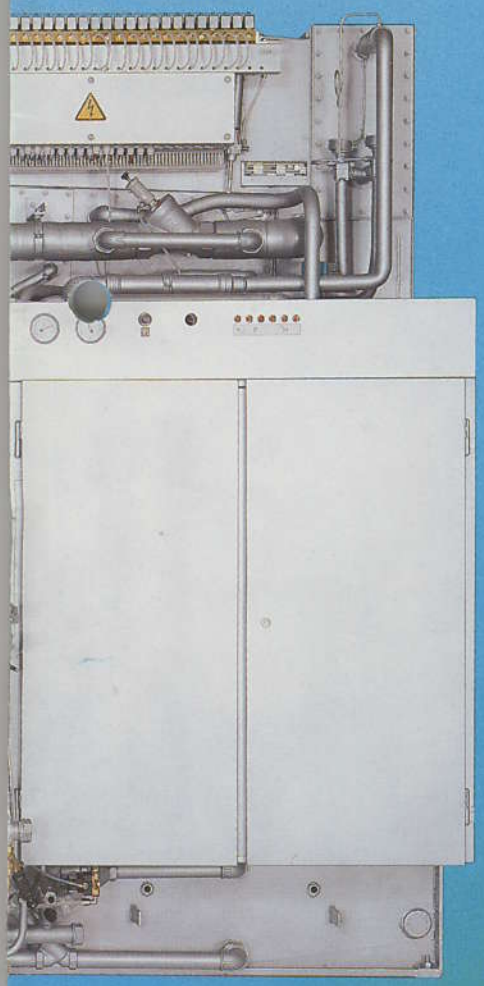
Features and Options

and for that reason all key components are made of high-quality special stainless steel.

Parts which are particularly susceptible to corrosion are also given a proven temperature and solvent-resistant, non-porous coating.

Strong, solidly built supports ensure stability and freedom from vibration of the whole machine system.

The fully enclosed drive motor guarantees optimum quiet running. All pipes and valves are visible at a glance and are easily accessible for operators and service engineers alike.



Steam heated version (da)		●
Drystat drying controller	Ⓓ	○
Overfill preventer for still	Ⓓ	○
Computer control		●
Antifoaming agent doser		●
1 st automatic dosing unit		●
2nd automatic dosing unit		○
Sight glass illumination		●
Cooling water shortage safety device		●
Loading door interlock		●
Emission-free solvent filling		●
ECO filter		●
2nd ECO filter		○
CONSORBA with lint drying	Ⓓ	○
Emission-free still rake out	Ⓓ	○
Double water separator		●
P.M.S. 2000 perc monitoring device		○
Solvent safety trough		○
SPRAYMATIC SP 5		○
SPRAYMATIC SPP 1 (for neat additives)		○
3-sided paneling	P 564	○
Solvent cooling (refrigerant-cooled)		○
Loading door ventilation (machines without CONSORBA only)		○
o-model (without still)		○
Fine lint filter	P 5.100	●
Variable speed drive		○
Double still (industrial machines only)		●
Back plate flushing (machines with CONSORBA only)		●
Still tank flushing		●

● Standard
○ Optional
Ⓓ Standard in Germany

Owing to our commitment to continued innovation and improvement we reserve the right to update the above specification without notice.

Technical data

		P 564			P 5.100		
Solvent	Perchlorethylene	c-model	o-model	i-model	c-model	o-model	i-model
Loading (1:20)	kg	32	32	32	50	50	50
Drum capacity	l	640	640	640	1000	1000	1000
Drum diameter	mm	1150	1150	1150	1260	1260	1260
Drum depth	mm	615	615	615	800	800	800
Cleaning speed	rpm	30	30	30	26	26	26
Spin speed	rpm	380	380	380	380	380	380
Tank volumes							
Tank I	l	250	250	250	325	325	325
Tank II	l	350	–	350	400	–	400
Tank III	l	200	200	200	325	325	325
Still I/II	l	800	–	800/335	800	–	1120/780
ECO filters I/II	l	130/130	–	–	180/130	–	–
Operating load max. (steam-heated)							
– with CONSORBA	kW	13.6	13.6	13.6	17.4	17.4	17.4
– without CONSORBA	kW	12.5	12.5	12.5	14.8	14.8	14.8
Still capacity: (1st/2nd still)							
D 564	l/h	300	–	300/120	–	–	–
D 564 with additional heating	l/h	–	–	450/120	450	–	450/120
D 5.100 (for more than one shop machine)	l/h	1100	–	–	1100	–	–
D 5.100 (for more than one indust. machine)	l/h	–	–	1100/500	–	–	1100/500
Machine dimensions: (without safety trough)							
Length	mm	3210	2260	3150	3430	2400	3430
Width	mm	1890	1890	1890	1870	1750	1870
Height	mm	2630	2630	2630	2680	2680	2680
Height of D 5.100 (for multiple machine installations)	mm	–	–	2920	–	–	2920
Dimensions dismantled (max):							
Width	mm	1590	1590	1590	1700	1700	1700
Height	mm	2300	2300	2300	2250	2250	2250
Weight without solvent							
– without CONSORBA	kg	2850	2050	3050	3700	2700	4700
– with CONSORBA	kg	3050	2250	3250	4000	3000	5000
Weight with solvent							
– without CONSORBA	kg	4150	2780	4350	5170	3700	6700
– with CONSORBA	kg	4350	2980	4550	5470	4000	7000
Floor loading (static + dynamic)							
– without CONSORBA	N/m^2	14900	17050	15600	18500	23500	19000
– with CONSORBA	N/m^2	15400	17600	16100	19400	24600	19600

Subject to changes

BÖWE PASSAT

BÖWE-PASSAT Reinigungs- und Wäschereitechnik GmbH
Rumplerstr. 2 · D-86159 Augsburg
Tel. 08 21/57 07-0 · Fax 08 21/57 07-3 51 · Telex 5 36 480 boe d

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