



PERMAK Laundry Systems

Washer & Extractor Machines
Tunnel Type Washing Systems
Drying Tumblers
Flatwork Ironers and Folding Systems
Hygienic Laundry Systems
Dry Cleaning and Ironing Systems
Steam Generator Systems

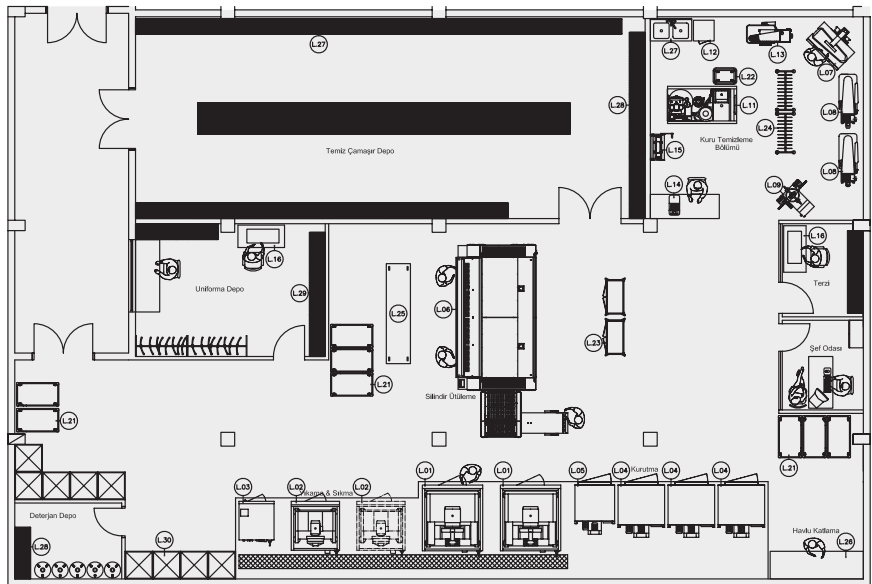
www.permak.com.tr

PERMAK
Makina Sanayi

PERMAK Laundry Systems for Hotels and Industrial Laundries

Industrial Laundry Systems

Laundries at commercial and touristic enterprises must be well studied and dwelled upon in terms of service quality, hygienic conditions and processing the textiles with minimum wear.



Besides that as there are many defects and wearing factors caused by water, steam, chemicals and also mechanical, pneumatical, electrical and electronical troubles the units work under very severe conditions. Therefore factors like high quality units, economical long life, service network, spare parts availability are always important issues for the preference of these units.





Industrial Laundries established by PERMAK can present solutions that can cover all kinds of requirements with their high tech modern structure designs, automatic type units providing energy and staff savings, well educated and experienced project, assembly and technical service departments.

Our company with the brand name of PERMAK establishes laundry facilities for any capacity and functionality using technologies and systems of companies of which PERMAK is the distributor and which are the leaders of their activity fields.

Compared with similar systems our systems provide big savings in staff, chemicals and space and though their high quality they work for years without any problem and as it can be followed from our local and international references they amortize themselves in very short time.

From PERMAK's sales program it is possible to compose facilities for all capacities; for small capacities optional systems with electrical and gas heating are available.

Engineering Services

PERMAK Engineering Services start before the foundation of the investment is laid, go on parallel to the opening activities and also continue after the facility starts to serve. Services provided by our project department are:

- Capacity Analysis
- Operation Cost Analysis
- Machine/Equipment Selection
- Substructure Demand Determination
- Layout Plans
- Construction and Substructure Projects
- Mech./Elec. Plumbing Projects
- Plumbing Detail Plans



Washing & Extracting Systems



Transfer type washing systems which are called as Tunnel Systems consist of 5 together working compartments. These five different compartments are:

- Automatic Loading Conveyor & Weighting System
- Transfer Type Tunnel Washing Machine
- Transfer Type Tunnel Extraction Press
- Loading Conveyor with Lift
- Drying Machines and Loading Systems

Automatic Loading Conveyor & Weighting Systems

This system has been designed for the automatic feeding of the tunnel washing machines and calculates with the build-in scale system automatically the weight and type of the batch. From the program of the machine reports concerning quantity and type of the realized work can be obtained.

Transfer Type Tunnel Washing Machine

- Capacity options from 1200 to 2500 kg per hour
- Highly technological structure which can transfer the textiles and the bath with the help of the partition wall mechanism completely to the next compartment (pre and main wash processes)
- Highest cleanliness and hygiene results achieved through the possibility of draining water completely at the last compartment of pre-wash and main wash processes
- Water and chemical saving at high level without decreasing the washing quality through water recovery from rinsing and pressing zones and re-use of the recovered water through automatically programmable system
- Flat drum ribs and higher drum volumes
- Disinfection program control and reporting
- Industrial PLC panel (heavy duty) where all functions can be followed
- With network connection PLC can be followed from other locations
- Rational Metric Control System which enables automatic adjustment and control of inputs and variables during washing processes
- Inverter controlled drive system which enables variable speed use during washing period
- Complete stainless steel valve and piping components according to German BGA norms in order to wash the hospital textiles hygienically



Transfer Type Tunnel Extracting Press

This unit is a component of tunnel washing systems specially designed for extracting textiles in transfer type with a press diameter of 1000 mm providing 0-40 bar continuously variable pressure.

Loading Conveyor with Lift

With single or double compartment, with availability for horizontal and vertical movement and providing connection between press and drying, capable of loading many extractors at a time this conveyor is micro processor controlled and has electronic indicators.

Drying Machines

These drying machines are designed for tunnel systems with front loading and back unloading with options for gas and steam heating back and front tilting possibility. Drying time is set automatically by humidity control.



Washer & Extractor Machines

Industrial type washing machines which can be used for all types of washing processes. Through high cycle pressing and suspended housing minimum humidity level is achieved.

These machines are suitable to the new modern washing technology "WET CLEAN" with its sensitive drum structure, use of inverters and liquid detergent inlets.

Equipments contain high quality bearings suitable for heavy use (and extreme environmental conditions) Besides that a control system with frequency inverter, sensitive temperature and time checking provides the complete control of washing, distribution and pressing speeds and secures energy saving. Manual intervention system on the machine enables direct interfering at emergency cases.

- Heavy duty rigid frame construction according to CE norms.
- Open pocket design for easy loading and unloading.
- Suspended housing construction for free standing installation.
- Fully automatic operation system with 79 programmes controlled by microprocessor.
- Variable washing speed control and less energy consumption obtained by "G drive" (single motor and use of inverter)
- High speed extraction (G's:300) for less moisture retention.
- Programmable and water saving 6 water level controls.
- Accurate reporting possibility controlling operation inputs and loading numbers.
- Gentle perforated drum produced completely out of stainless steel and front and upper panels.
- Accumulated powder (4 comp) dispenser and liquid dosing system.
- Construction suitable for central detergent dosage system.
- Direct steam or electric heating options.



PERMAK Hygienic Laundry Systems for Hospitals



The Importance of Hygienic Laundry Facilities at Hospitals

Cleanliness and hygienic conditions have greater importance at today's hospitals. Quality assurance standards and also European Union integrity conditions which will be valid in near future will bring new norms and limitations to the hospitals for textile hygiene level and also precautions to prevent spreading of infections. As a result hospital establishments will need soon to make correct investments, renovations or to undertake the necessary precautions.

A-Need of a Hygienic Construction Design to Prevent Infection Spread

Hospitals due to their nature are places which have to fight continuously against dirt, microbes, and prevent the spread of infections. Because of this the hospital laundries should be designed in a way to fulfill the criteria accepted by international norms. In Turkey hospitals in general from maternity department to infectious diseases department and surgical intervention bear the risk of contagion of bacteria and microorganisms. This risk coming from non-sterilized/ non-desinfected textiles can be overcome by planning the laundry facilities correctly.



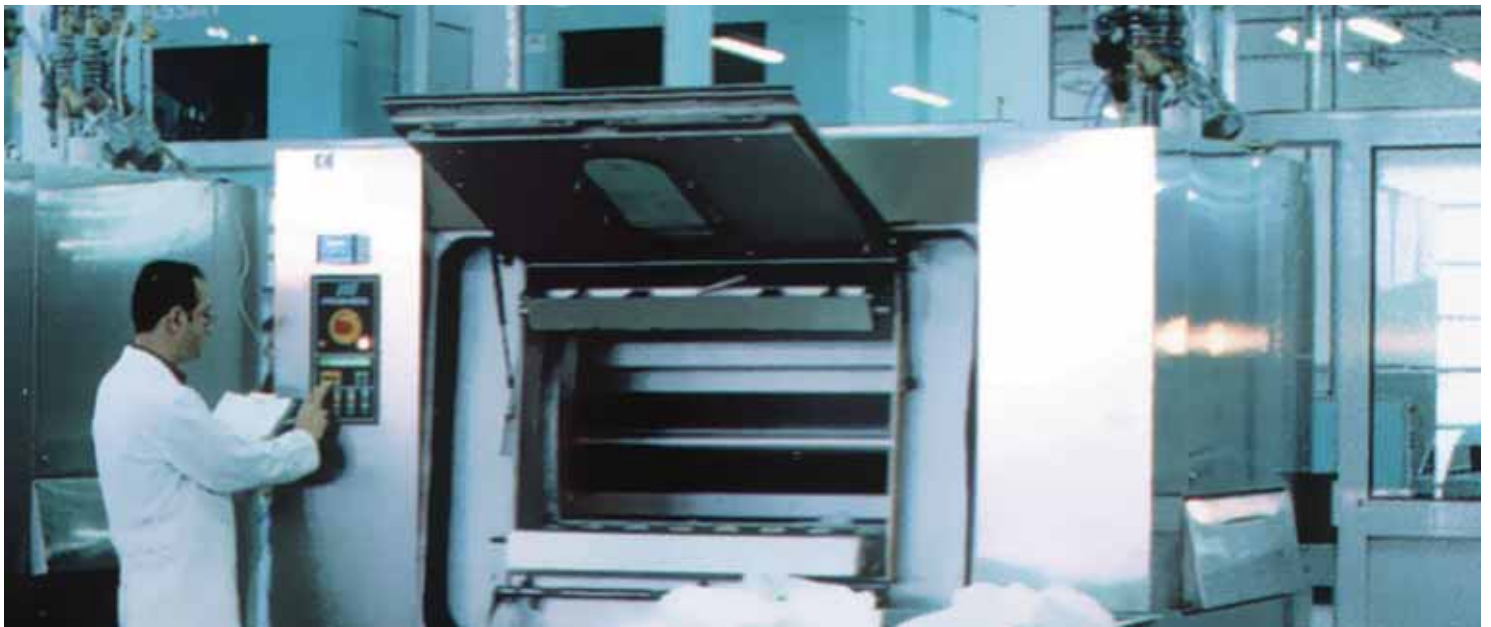
B-Precautions preventing Infection Spread

The microorganism and bacteria in operating rooms, on bedlinen, on personal clothing, in cafeterias grow faster by presence of food residues, blood, skin residues and in humid environments. (Their growing speed might be 100% within 20 minutes) A big percentage of these can be removed with thermic disinfection lasting for 10-15 minutes at 85-90 degrees Celcius. During disinfection heat and time should be controlled very accurate and reliable at washing machines. Another method applied is disinfection at lower temperature with the help of chemicals.

C- Laundries with Hygienic / Barrier type Construction Design

The aim of designing Hospital laundries with hygienic construction design is in addition to remove the microorganism with disinfection during washing process also to eliminate the risk of contamination between loading and unloading batches. The machines designed for this purpose are called barrier type machines and thus with the help of a barrier wall the loading and unloading of batches are completely separated from each other. All kinds of leak proof systems are present in the machine in order to secure the separation.





Hygienic Barrier Washer & Extractor Machines

Barrier washing and extracting machines which are developed especially for hospital applications, work with completely separated dirty and clean compartments principle. Thus the cleanliness and hygiene needed in hospitals can be achieved.

The completely leak proof front loading - back unloading structure prevents infection spread. The purpose of this structure is that the clean and dirty items not even share the same air and thus a complete hygiene is secured.

These machines are designed at a wide capacity range to cover all needs.

- Ergonomic design developed for Chemicals / wet system textile washing and disinfection processes
- Barrier type, completely leak proof structure to prevent infection spread (loading from front, unloading from back)
- Heavy duty suspended housing construction absorbs more than 95% of vibration.
- High energy and time saving provided through high speed extraction at drying and ironing processes
- G's:300 , Humidity rate: 45-50%
- Touchscreen micro process control and automatic working system with micro processor controlled 40 programs
- Adjustable washing, distribution and pressing control
- Water saving programmable water level control
- Electric or steam heating options
- Completely stainless steel drum and outer panels to provide full hygiene.
- Completely leak proof pneumatically operated loading door system
- Suitable construction for central detergent dosage system



PERMAK
provides
purpose oriented
technologies

PERMAK

Dry Cleaning, Drying, Flatwork Ironing and Folding Systems



Dry Cleaning Systems

Dry Cleaning machines operate with perchloroethylen and hydrocarbon solvents in fully automatic close circuits. They reuse the same solvent after filtration and distillation so that the same solvent is used for a long period. They are used to remove special stains and for cleaning of valuable garments.

- Specially for solvent dry cleaning (perchloroethylen) developed completely closed constrictive structure
- Wide range of utilization for softening, fledging and touch giving of textile batches
- "Open pocket" structure for front loading and unloading and with rigid connection
- Ideal control system with buttons for either fully automatic microprocessor and/or manual control
- Electronic balance system and inverter drive system for variable speed control
- Refrigerated solvent recovery system for fully closed circulation without any exhaust.
- Automatic self cleaning double solvent tank.
- High capacity ecological filter and optional active carbon filter.
- Button trap filter with self drying unit
- Standard heating and cooling system (cool down)
- Drum, drying chamber, button trap and solvent tanks completely out of stainless steel
- Multisolvent systems with the same features are available

Drying Machines

Drying machines are industrial type professional machines with high efficiency. Towels, blankets, dimities and all other textile products which should be not ironed in cylinder ironing machines can be dried at these machines. Build according to CE norms they have rigid frame construction and are capable for heavy duty work. Drying temperature and time are controlled through microprocessors.



- Special design developed for textile drying and conditioning.
- Heavy duty, rigid frame construction according to CE norms.
- Microprocessor controlled automatic working system with 8 programs
- Economic structure with double level V shaped belt pulley drive system which needs no maintenance
- Standard drum rotating (straight or reversing) control system
- Gentle perforated drum out of stainless steel.
- Electronical speed control with frequency inverter
- Easy cleanable lint filter sytem with cover located in front.
- Accurate process time, temperature and cool down control.
- Automatic door switch to stop the drum when door is opened.
- Automatic relative humidity control sytem (optional)
- Heating options for steam, gas or electricity

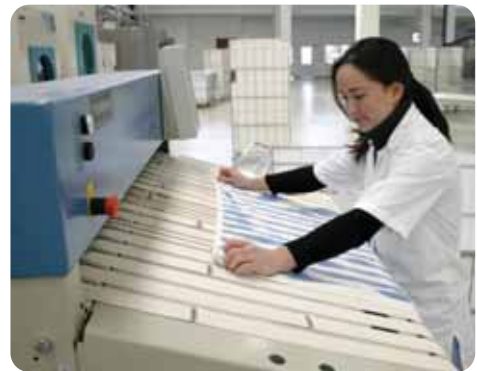


Flatwork Ironing and Folding Systems

Flatwork ironing and automatic folding machines are designed for towels, sheets, bedlinen and other flat products.

With these machines perfect ironing and folding can be realised in a few seconds. Flatwork Ironers can be with belt or heated bed type. The belt type ironers provide the ironing of the textile with feeding bands to heated cylinder. At the small models of this type textiles can be fed from the front and also taken from the front.

At the high capacity models textile can be fed from the front and received from the back in folded form. In flatwork ironer models textile is ironed moving between heated cylinder and cylinder bed. It is possible to add separate folding machines to the end of flatwork ironers.



- With patented "Autospeed" automatic speed control system all types of textiles with different thicknesses can be processed completely dried.
- Free standing front feeding / back receiving structure
- Optimum operation possibility provided with microprocessor control system
- Speed control possibility with frequency inverter
- Cylinder options: 80 cm diameter, 300-330 cm length and 1, 2 or 3 cylinders
- Cylinder and feeding bands out of special material "Nomex"
- For each cylinder separate V belt drive system
- Housing isolation with ceramic fiber
- Process and operation control and warning system
- Heating options for steam, gas or electricity



Ironing Systems



Uniform and Shirt Ironing System

- Special ergonomic design for ironing cotton shirts and uniforms.
- Advanced cabin type pressing design for improving the ironing quality to pressing quality
- Anti corrosive painted rigid housing construction
- Fully automatic microprocessor controlled working system.
- Universal mannequin designed for shirts and uniforms.
- Complete body and double (right/left) front plates designed for ironing the front part effectively
- Complete body back plate designed for ironing the back part.
- Pneumatic sleeve stretcher clamps and effective sleeve blowing fan
- Tuck press plates for sleeves for effective ironing
- Strong vacuum system to ease the wearing of garments
- Automatic collar adjustment and fixing mechanism
- Foot pedal control system developed to ease the operation
- Mechanical flow control of cooling / blowing air



- Structure designed for ironing shirts, uniforms, collars and cuffs ironing processes
- Rigid mounted standard plain operated design
- Heavy duty, anti corrosive painted rigid housing construction.
- Automatic working system with pneumatic drive and double button control
- Standard triple flat table profile for two shirt s(210+450+210/152 mm.)
- Steam heated and chrome plated upper tray with adjustable press pressure
- Steam heated lower tray with vacuum and felt filling
- Built in vacuum fan motor.



Press Ironing Machine

- Specially developed ergonomic construction for press ironing
- Housing painted with electrostatic oven paint
- Pneumatic drive system for easy use
- Perforated stain tray and steam tray heating
- Upper head with felt filling
- Upper head steam injection system
- Upper head pres pressure setting and locking system
- Universal tray shape (1190*360/220 mm.)
- Double hand push button control system for secured work.
- Built in vacuum fan motor
- Central steam heated or built in steam generator



Steam Ironing Board

- Specially designed rigid structure for hand ironing processes
- Mechanical height adjustment device
- Electrostatic painted housing
- Foot pedal control sytem developed for easy working
- Standart right side working design and optional left side working design
- Perforeted steel tray and electrical tray heating
- Built-in vacuum motor
- Special tray ped and cover
- Axuilliary ironing arm (600*100*70cm)
- Isolated cast aluminium steam / electrical hand iron
- Central steam heated or built in steam generator

Spotting Table

- Specially designed construction for stain removing processes
- Specially developed ergonomic design for optimum working conditions
- Electrostatic painted housing
- Food pedal control sytem for easy operation
- Stainless steel working table with perforation on the front end
- Stainless steel auxilliary stain arm
- Stain removal chemicals recovering tank
- Optimum working conditions with single steam / air gun
- Hanging type water spray gun
- Chemical storage section on the side
- Built-in vacuum motor
- Bottom protection tray
- Automatic spotting gun

Marking Machine

- Free standing, desktop type structure
- Heavy duty anti corrosive painted rigid housing construction
- Optimum operation through electronic control sytem
- Simple working system with no need for solvents and chemicals
- Automatic label writing function
- Automatic label ribbon cutting function
- Automatic thermal temporary bonding function
- Automatic counter process follow-up advantage
- Built in ribbon box for using different cords and colors.
- Central PC connection feature
- Built-in clip board



For the follow up of personal garments (for example uniforms) at the laundries labeling and barcode systems are used.

Steam Generators and Hygenic Steam Systems

Steam Generators

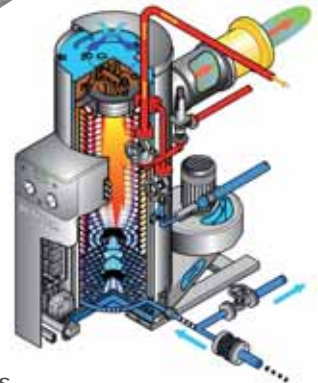
Certuss steam generators are designed to work fast and securely with high efficiency.

The steam produced at steam boilers is not clean and sterile. Besides that particles from plumbing and from production unit can be present in steam as well.

Steam is used in hospitals generally for sterilization and also in laundries and kitchen departments. Surgery clothes and tools are sterilized in steam autoclaves. The steam used during the sterilization process should be "clean steam" because of direct contact with the items to be sterilized.

Basic Features of Steam Generators:

- Specially improved patented vertical structure with minimum space requirements
- With no explosion risk and 100% secure working the unit can be mounted every where
- Vertical type special burner which enables high efficiency (92%) and clean exhaust
- Patented double wall design which increases efficiency and provides natural isolation.
- Through double wall complete thermic isolation and through the burning air leaded at 100 degrees Celcius additional fuel saving (2-2,2%) is achieved
- Through steam production as much as needed operation economy is obtained
- Achieved through lowest water volumes very low blow down and cooling losses
- Because of high pressure flow through serpentine structure steam production without blow down
- With the digital error indicator all external problems can be indicated, warned and the unit can protect itself automatically.
- Compact design with all control panel, pressure control gauges, pump and burner group
- High pressure, ceramic feed water pump with triplex pistons
- Energy and time savings by short start-up time (3-5 minutes)
- According to EN, DIN and TSEK. TÜV Quality Certificate. Lloyd and Bureau Veritas Certificate possibility.



If you want more information about Clean Steam Systems or about converting the steam at your facility to Clean Steam please contact us.

Basic Features of the Hygenic Steam Systems:

- All parts in direct contact with water are 316 quality stainless steel.
- Built in inlet steam pressure regulator
- Automatic steam pressure or heat control
- Double water pump with inverter control
- PLC control panel

ISTANBUL CENTAL OFFICE

Barbaros Bulvarı, No: 105 B (93)
34353 Besiktas - Istanbul - TURKEY
Tel : +90 212 259 11 71 (pbx)
Fax : +90 212 261 80 50
e-mail : permak@permak.com

PERMAK
Makina Sanayi

www.permak.com.tr