PHARMACEUTICAL WATER SYSTEMS

PURIFIED WATER

WATER FOR INJECTION

ELETTRACQUA

pure water technologies

SINCE 1966

PHARMACEUTICAL WATER SYSTEMS

PURE STEAM GENERATORS

STORAGE AND DISTRIBUITION LOOP

DESIGN AND CONSTRUCTION OF PURIFIED WATER PACKAGES • DOUBLE PASS REVERSE OSMOSIS • R.O. + ELECTRODEIONIZATION HOT WATER SANITIZABLE • ULTRAFILTRATION • MULTIPLE - EFFECT DISTILLATION UNITS • PURE STEAM GENERATORS • STORAGE AND DISTRIBUTION LOOP • COMPLETE TURN KEY PROJECTS • VALIDATIONS IQ, OQ

OSMOSIS + EDI UNIT HOT WATER SANITIZABLE

MULTIPLE EFFECTS DISTILLATION UNIT

DOUBLE PASS REVERSE OSMOSIS (14m³/h - 3700 GPH)
HIGH TEMPERATURE SANITIZATION + CONCENTRATE RECOVERY SYSTEM

PURE STEAM GENERATOR

SOLE SOLUTION PROVIDER FOR ALL KINDS OF PHARMACEUTICAL WATER SYSTEMS:

GUARANTEED PW, WFI, PS STARTING FROM THE RAW WATER UP TO THE POINT OF USE

PURIFIED WATER - PW

The pretreatment includes all the process steps to prepare the water to feed the final water treatment steps that could be Reverse osmosis, Elettrodeionization, Ultrafiltration and if WFI is required distillation.
The pretreatment is very important because if not adeguate could cause problems to the final purification step.
The pretreatment will be developed depending from the final PW treatment selected; the pretreatment will be finalized to the control or remove the following main groups of impurities:
Turbidity and particulates
Hardness and metals
Organics and impurities
Oxitating agents
The raw water analisys is the first step to achieve a successful water treatment plant.

THE PRETREATMENT TO THE PURIFIED WATER SYSTEMS

Starting from your water analysis we'll design the Water Treatment Unit to meet your compendial PW or not compendial final water requirement.
The pretreatment may include some of the following:
Dualmedia filtration
Cartdrige filtration
Water softening units
Chemical injection systems
Particulate removal filters
Ultrafiltration
Microfiltration
In-line Ultraviolet Units
Antiscalant injection systems
Heat exchangers
Several material could be used for these pourpouse: PE-HD, PVC, PP, AISI.

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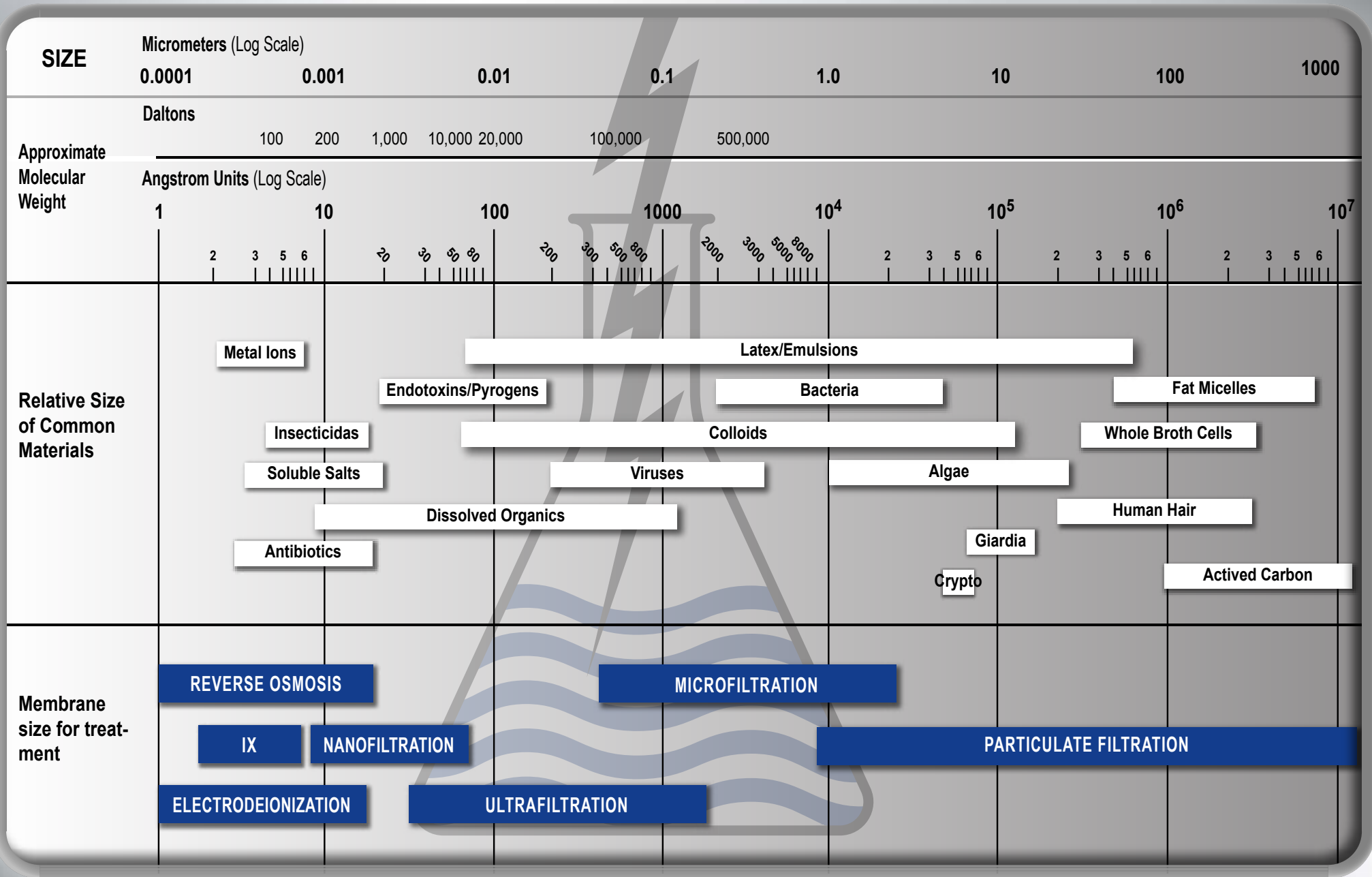
FILTRATION SPECTRUM



PURIFIED WATER SYSTEMS

Successful pharmaceutical water systems are the results of thousands of hours spent pushing the design envelope of every last component to ensure they are the best that today's technonogies offer.
Each Elettracqua systems are custom designed and manufactured meeting each single user requirements.

PW PRODUCTION: DOUBLE PASS RO

COMPLIANCE:

CGMP
USP PW, WFI
EU Pharmacopoeia PW, WFI, PS
ISPE Baseline Guide
GAMP

Sanitization systems:

Elettracqua PW systems are available with hot water sanitization and/or chemical sanitization.
This option could include the pretratment or only the primary purification systems

PURIFIED WATER SYSTEMS

Fully skidded solution, tested in our factory for an easy and quick installation at customer's site.
Each equipment is 3D designed before construction to obtain the better manufacturing results in each detail of the equipment.

PW PRODUCTION: Reverse osmosis + Electrodeionization

EDI UNITS:

Elettracqua could integrate in its systems different kind of EDI systems following end user specification if comply our quality standards.

Stainless Steel:

Elettracqua systems are manufactured only with ASME BPE compliance fittings and piping from the higher quality manufacturer in the word.

PURIFIED WATER SYSTEMS

Documentation: The systems are supplied including all the documentation required for the equipment validation in conformance to the USP and EU Pharmacopoeias.

Stainless Steel:

Each Stainless steel fitting installed on ELETTRACQUA systems are marked with all the data for the complete traceability of the equipment.

Weldings:

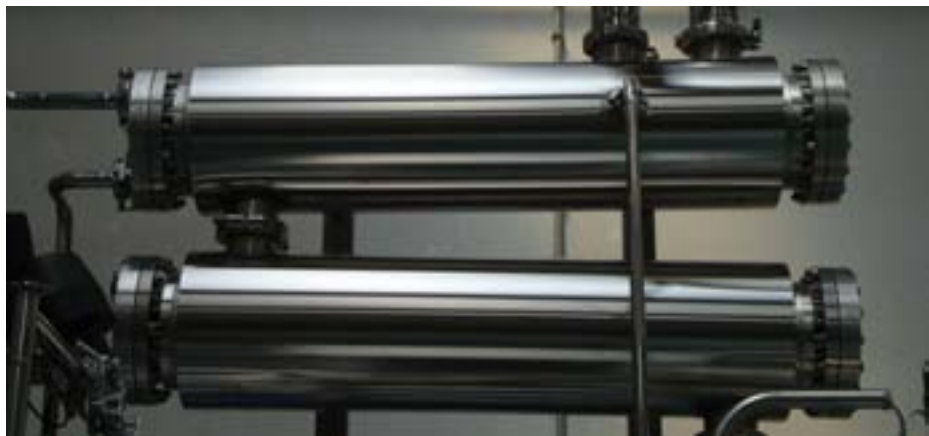
Orbital welding will be made wherever is physically possible by Elettracqua certified welders, the welding map will be supplied for the welding traceability.

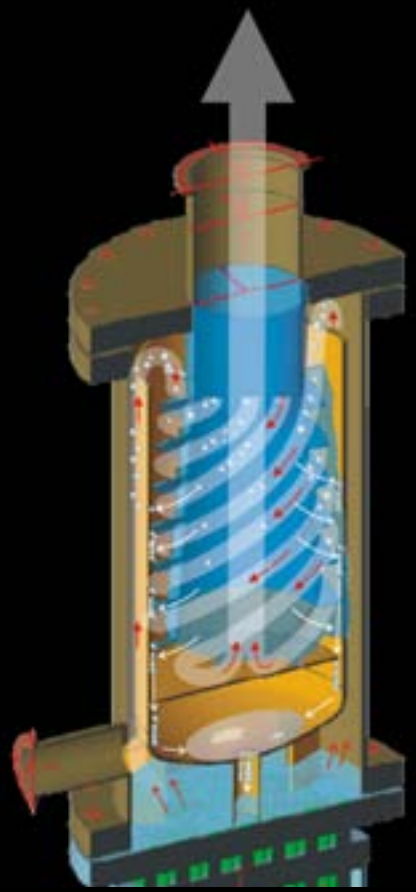
System Control:

Elettracqua System control could includes dfferent kind of PLC meeting the customers company standards: Allen Bradley, GE Fanuc, Invensys, Mitsubishi, Omron, Siemens.

WATER FOR INJECTION - WFI

ELETTRACQUA multiple effects distillation units consist of different evaporation sections each provided of liquid disengaging sections and a final condensing units. In order to increase the energy savings, an additional DTS sanitary heat exchanger is installed to recover heat from the steam condensate to the first effect, transferring sensible heat to the feed water. The column of each effect operates in series, only the first one is heated by plant steam. The steam produced from each effect is used to feed the downstream effect in sequence of steps.





CYCLON SEPARATION SYSTEM

The steam separation system is the heart of the system being installed inside the evaporation column directly in contact with the pure steam produced by the separation of the water droplets from the pure steam.
ELETTRACQUA new pure steam generators and distillation units are all equipped of cyclone steam separation systems instead of the demister traditionally used for this purpose.
Two basic principles are involved in the steam separation by Cyclon System:

High Steam Speed creating centrifugal forces that separate any entrained water particles and throw them to the outer wall of separator to drain.

Double 180 turns: the pure steam flow direction is forced to double 180° turns inducing gravity separation of larger water droplets
The pharmaceutical customers pay lots attention to the materials and surface finishing, the cyclone system, that is the heart of the system is the only device designed to meet all the material and finishing requirements, including ferrite tests. The cyclone separation system for its nature is a fully hygienic device.

KEY FEATURES AND BENEFITS

High Efficiency: Maximum efficiency is obtained from the design and from the high system automation, inlet DTS heat exchanger is designed to obtain the maximum energy savings recovering the industrial steam condensate from the first effect.

High Automation for high operating results, reliability and operative cost savings: Comparing to the other system on the markets, Higher automation and controls are used to reach higher system efficiency and reliability. The main utilities, industrial steam and Purified Water (PW) are continuously controlled and regulated to obtain the maximum results from each effects, transient in the industrial steams are managed automatically by the system.

PURE STEAM

STORAGE TANK AND DISTRIBUTION LOOP

STORAGE AND DISTRIBUTION LOOP

Pharmaceutical water is one of the most important component in the pharmaceutical companies, since it is produced with system generators that meets all the quality requirements, very important scope of the storage and distribution system is to distribute the water to all the point of use (POU) through all the facility maintaining the initial quality requirements.

A pharmaceutical water loop must be designed in order to prevent:

- Microbial growth
- Conductivity increase
- Physical entry of external contaminants

Starting from customer requirement ELETTRACQUA design, manifacture, install, validate complete PW, WFI, Pure steam turn-key project.

Different Sanitization options are available:

- Hot water T > 85°C
- Hot Pressurized water T > 121°C
- Ozone (not raccomended in biotechnologies companies)
- Sterilization with pure steam

Different sanitization process requires different storage and loop design contact us for more information.

REFERENCES

ELETTRACQUA has supplied the most important pharmaceutical, biopharmaceutical and cosmetics companies through the last 45 years, with high quality systems. Here you'll could find some of our equipments manufactured in our factory in Genova, Italy.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