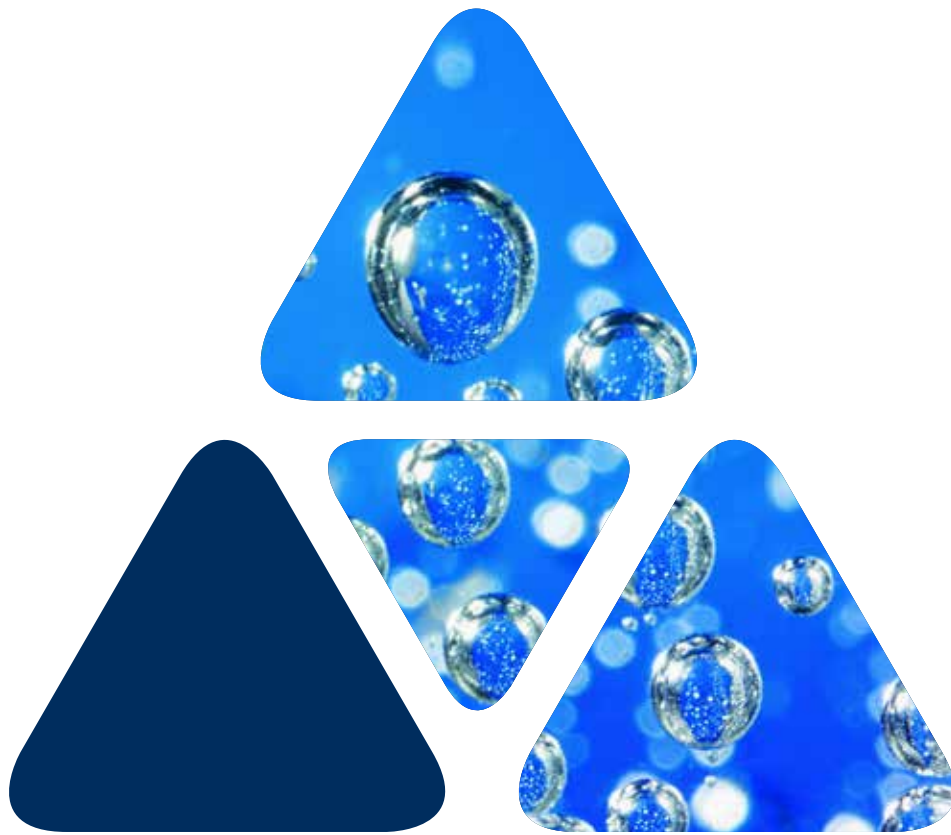




SOLVENT
DISTILLERS



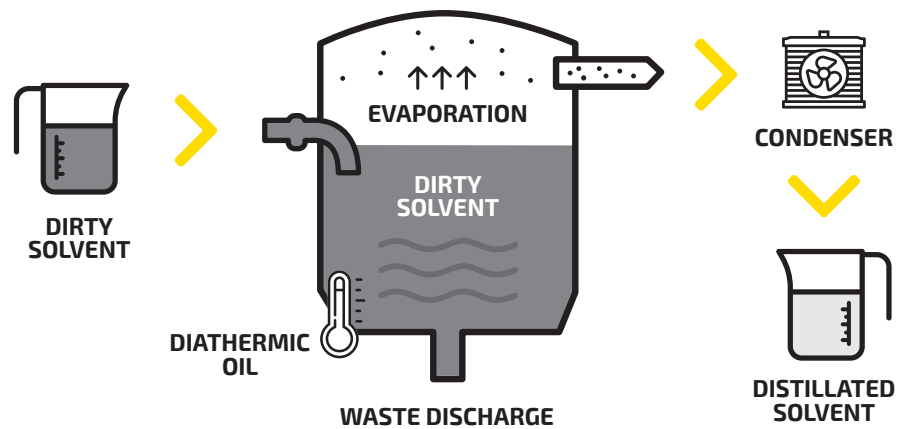


SOLVENT DISTILLERS

DISTILLATION: A PHYSICAL PROCESS

Handling pollutants properly is an essential requisite for any modern industry. Thanks to the wide range of its products and their robustness and efficiency, IST has **for more than 30 years been a byword for the proper handling of waste materials.**

Distillation purifies individual substances or separates out complex mixtures by exploiting the different boiling points of their various components. The change of state from liquid to gas is a purely physical phenomenon, which does not alter the chemical characteristics of the product. The liquid to be distilled is heated to boiling point inside a boiler. The more volatile compounds (such as solvents) change to the gas state sooner and are cooled in the condenser where they return to the liquid state; the pollutant, meanwhile, accumulates in the boiler, from which it is then removed with methods which vary with the type of distillation system.



PROCESS CONTROL

Industrial distillation systems must be able to run continuously with minimal action from the operator. Each phase of the process is therefore monitored automatically, to assure the quality of the product and maintain its specifications.

A distillation system is controlled by measuring some of the process's significant parameters:

- the heating and cooling temperature
- the temperature of the output vapour
- the level of liquid in the boiler
- the volume of material in the storage tanks

These measurements enable us to modify some of the input parameters with a personalised control system.



CONTINUOUS
DISTILLATION



BATCH
DISTILLATION



VACUUM
DISTILLATION

DISTILLATION METHODS

Distillation can use a variety of methods which implement more or less complex processes (flash, reflux, fractioned and azeotropic distillation).

IST distilling systems use two different distillation methods:

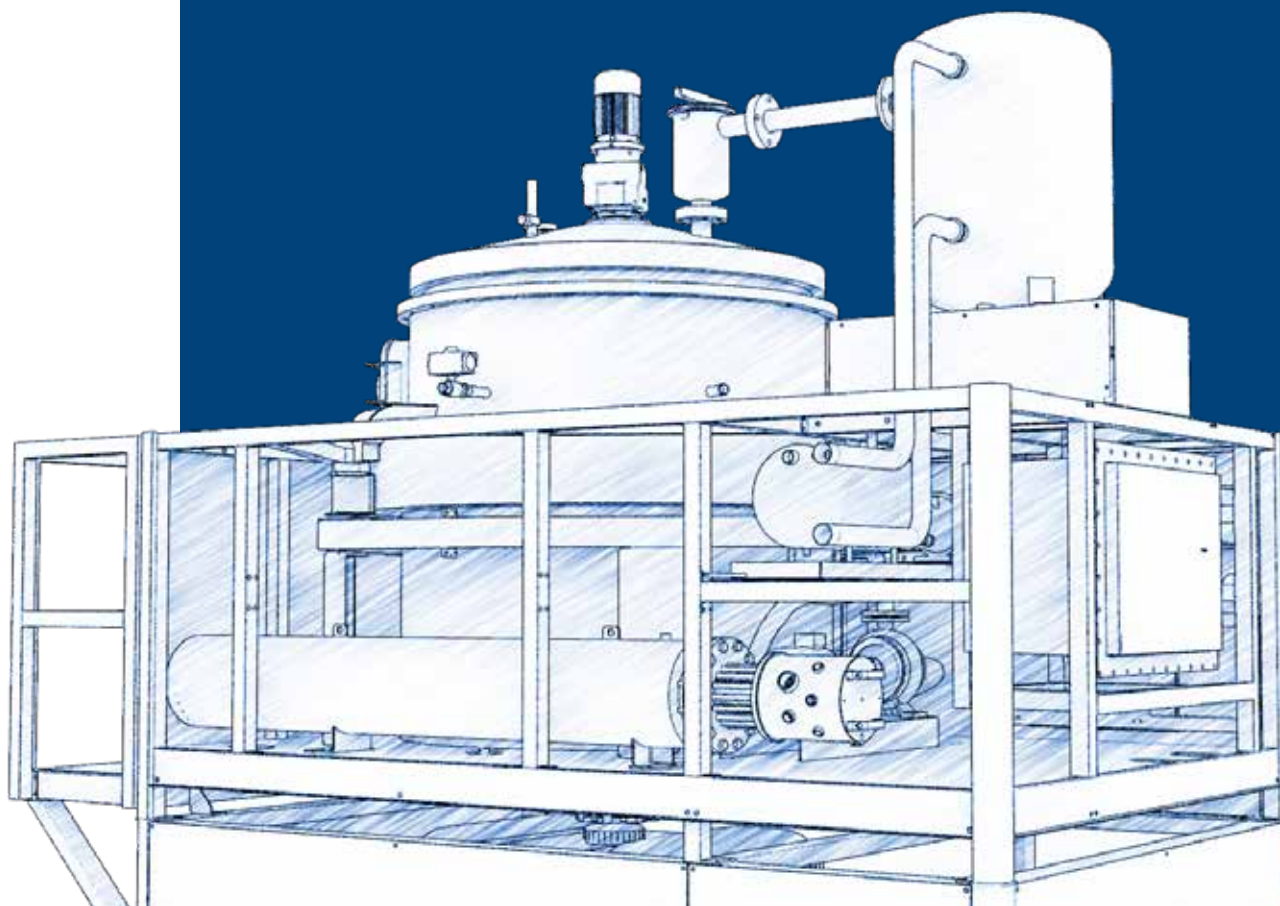
Continuous and batch distillation:

In the first case, the mixture being treated is continuously added into the boiler during the distillation process itself. This continuous charging of product allows us to maximise productivity and reduce energy consumption. In the second case, a set amount of mixture is loaded into the boiler and the distillation cycle is run up to sludge discharge. In general, batch distillation is preferable when the amount and composition of the mixture is quite variable.

Both methods can be used in modified atmospheres, enabling the distillation of products whose boiling point is so high that the compounds are broken up, as well as products which would be unstable if heated directly. Such substances can be treated by means of **vacuum distillation**.

IST DISTILLATION SYSTEMS

Our solutions respond to a vast number of requirements: from recycling to solvent separation, to the drying and continuous evaporation of large volumes. IST products and accessories can be integrated into a complete system, supplemented with a service package to satisfy any specific requirement. All our distillation systems are designed with a user-friendly plug&play approach which means that the user can use them immediately. The control panel is always mounted to the machine, so that there is no need to install control units in non-classified areas, which does away with commissioning costs.



HR 600-1200

ALL OUR EXPERIENCE IN A SINGLE MACHINE

Installation area
ATEX - ZONE 1



TYPICAL APPLICATION
600 to 10.000
l /24 h



Low pressure oil
recirculating pump



Automatic
functioning



Touch screen
and PLC



Self-cleaning



Vacuum distillation

Safe, robust and practical - our HR series distillers are the most advanced on the market, designed for highly specialised industrial applications. Their sophisticated mechanical and electrical design allows the user to easily convert hazardous waste into a resource. A variety of configurations and a wide range of accessories are available to **satisfy the most diverse requirements with unbeatable performance**.

Their **efficient processes** output **highly concentrated sludge with considerably reduced energy costs**. All operations, from loading the exhausted solvent to discharging the sludge, are automatic and totally safe for the operator. The energy required to effect the change is delivered by a dedicated heater with intelligent modulated power control, and a high capacity, low pressure oil pump assures optimal heat exchange. A low speed agitator with antistatic Teflon blades prevents residue building up on the heating surfaces, thus assuring effective heat transfer and constant performance throughout the system's service life.

All cycle parameters are monitored by the PLC and displayed in real time on the machine's on-board touch screen display; the vacuum level and compressed air supply pressure are reported by analogue indicators located next to the control panel.

Model	Installed power	Loading capacity	Productivity
HR 600	44 kW	580 l	600 to 3.600 l/24h
HR 1200	66 kW	1.200 l	1.200 to 10.000 l/24h

THE BENEFITS OF THE HR SERIES

AUTOMATION

- continuous distillation of large amounts of solvent without operator supervision
- safe operation thanks to numerous process control sensors

EFFICIENCY

- minimal manual operation required during distillation, for considerable time savings
- very compact footprint, despite the machine's high capacity
- cost savings over multiple independent distillation systems

EASE OF USE

- the touch screen display reports all process parameters
- remote monitoring with automatic notifications

RELIABILITY

- long service life thanks to the use of stainless steel and highly resistant materials
- guaranteed 24/7 operation thanks to a robust design adapted to industrial applications

SAFETY

- conforming with the highest standards, with materials treated for resistance to any mixture
- ATEX/UL/EAC certification for unbeatable safety





ROTO PLUS 100-202-400

SAFETY, AUTOMATION AND MAXIMUM MODULARITY

Installation area
ATEX - ZONE 1



TYPICAL APPLICATION
100 to 2.000
l/24 h



Static oil



Automatic
functioning



Touch screen
and PLC



Self-cleaning



Plug & Play

The new version of the ROTO PLUS series satisfies the highest demands for **practicality and versatility**. Its modular construction allows the user to build a **completely integrated system which can be expanded at any time**. **Plug&play technology** means the user can start using the system immediately. The system is always **easy to implement with printing machines, coating lines, washing systems and so on**. With its unique combination of design, heating technology and vacuum system, profitability can be **maximised even with small batches**.

The Digit-Touch® PLC with touch sensitive keys has a user friendly interface and 2 x 16 character screen. The pre-installed software offers 5 languages and displays all diagnostics and alarm messages, including routine maintenance notifications. The conical bottom distillation tank has a single-rotor vertical mixer whose blades are equipped with robust, reliable scrapers: this self-cleaning function prevents build-up on the interior of the tank, as well as assuring optimal heat transmission and extending maintenance intervals.

ROTO PLUS distillers can be equipped with storage tanks to automate the entire process. The optional iST-Remote kit makes the distiller connected and intelligent: another plant component integrated into the internet of things, thus contributing to the digitalisation of the client's business.

Model	Installed power	Loading capacity	Productivity
ROTO PLUS 100	10 kW	100 l	100 to 500 l/24h
ROTO PLUS 202	12 kW	200 l	200 to 1.000 l/24h
ROTO PLUS 400	22 kW	400 l	400 to 2.000 l/24h

THE BENEFITS OF THE ROTO PLUS SERIES

Practicality

- Self-cleaning with scrapers mounted on the mixer
- easy to use thanks to the touch screen monitor, with all process parameters available at a glance
- guided, easily programmable operation for even the most complex mixtures
- completely automatic operation without operator supervision

Convenience

- reduced footprint optimises production space
- low heater specific power reduces maintenance requirements and maintains performance over time
- efficiency and environment sustainability, thanks to the diathermic oil heater and vacuum pump

Reproducibility

- all process parameters can be logged with the optional iST-Remote interface
- automatic routine maintenance notifications reduce downtime





ECO PLUS 122-202-400

EXPANDABLE, PRACTICAL AND SAFE

Installation area
ATEX - ZONE 1



TYPICAL APPLICATION
140 to 2.000
l/24 h



Static oil



Automatic
functioning



Touch screen
and PLC



Plug & Play

The ECO PLUS distiller is an **expandable system designed for intelligent integration with other products**. Conceived for continuous operation, ECO PLUS distillers can handle **up to 2000 litres of polluted product a day**. Their numerous optional accessories, **ease of integration** with existing plant and **high level of automation** have made these distillers a **success** in the **most diverse industries worldwide**, from large multinationals to small workshops. **Flexible and easy to use**, they can be supervised even by first time users.

The components in contact with the product being treated are in stainless steel and materials treated for resistance to chemical aggression. The tank's wall cavity is filled with diathermic oil which transfers the energy to the mixture. The heating elements feature a low specific power coefficient (W/cm²) to ensure the oil has a long service life. The condenser input vapour and output liquid temperatures are monitored continuously and are used to determine the moment at which evaporation starts and distillation has terminated. The solvent charge is usually controlled by a pneumatic double membrane pump, but in the case of vacuum distillation, the underpressure in the boiler itself can also be used for this purpose. In both cases, proper charging is controlled by the tank level and a PLC time out parameter. At the end of the cycle, the residue is discharged via the valve on the conical bottom of the tank, either manually or automatically, depending on system configuration.

Model	Installed power	Loading capacity	Productivity
ECO PLUS 122	10 kW	140 l	140 to 700 l/24h
ECO PLUS 202	12 kW	200 l	200 to 1.000 l/24h
ECO PLUS 400	22 kW	400 l	400 to 2.000 l/24h

THE BENEFITS OF THE ECO PLUS SERIES

The ECO PLUS system offers all the benefits of the ROTO PLUS series, with the exception of the boiling chamber self-cleaning system; it has thus been conceived as a solution for all applications in which the residue is easy to discharge or is itself the most valuable product of the distillation process.

Practicality

- easy to use thanks to the touch screen monitor, with all process parameters available at a glance
- guided, easily programmable operation for even the most complex mixtures
- completely automatic operation without operator supervision

Convenience

- reduced footprint optimises production space
- low heater specific power reduces maintenance requirements and maintains performance over time
- efficiency and environment sustainability, thanks to the diathermic oil heater and vacuum pump

Reproducibility

- all process parameters can be logged with the optional iST-Remote interface
- automatic routine maintenance notifications reduce downtime





IST 90-122-202

SMALL SIZE, BIG PERFORMANCE

Installation area
NON HAZARDOUS
ATEX - ZONE 2
ATEX - ZONE 1



TYPICAL APPLICATION
800 l /24 h



Static oil



Semi-Automatic
 functioning



Touch screen
 and PLC



Small size

Designed for medium to large companies, these three models in the IST series bridge the gap between medium volume applications and large scale industries. The machine can be set to run multiple cycles, for consecutive distillation with accumulation and easy final sludge discharge via the 3" manual valve.

With their **highly efficient** distillation process, **excellent sludge concentration and low energy consumption**, the IST 90, IST 122 and IST 202 units are the state of the art in industrial distillation equipment. Their **compact design** and **robust construction** make them simple to install both **indoors and outdoors**. Every cycle parameter, including process temperatures, is displayed continuously on the touch screen PLC display, enclosed in an Ex-Proof housing mounted on the machine itself, which makes the machine suited to immediate installation even in ATEX zones.

Model	Installed power	Loading capacity	Productivity
IST 90	8 kW	90 l	90 to 360 l/24h
IST 122	12 kW	140 l	140 to 560 l/24h
IST 202	15 kW	200 l	200 to 800 l/24h

THE BENEFITS OF THE IST SERIES (90-122-202)

Convenience

- exclusive, low cost system for basic requirements
- reduced footprint optimises use of space
- resource savings with intelligent temperature management

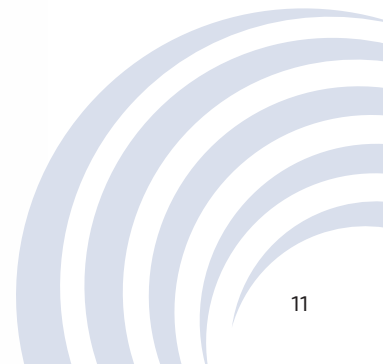
Efficiency

- centrally controlled vacuum pump and recirculation chiller
- full process control with precise vacuum regulation
- reproducible results guaranteed by stable parameters

Practicality

- ergonomic, user friendly interface
- maximum user comfort thanks to the option to tilt the machine





IST 15-22-42-62

SMALL SIZE, UNBEATABLE EFFICIENCY

Installation area
NON HAZARDOUS
ATEX - ZONE 2
ATEX - ZONE 1



TYPICAL APPLICATION
15 to 240
l / 24 h



Static oil



Manual functioning



Touch screen and PLC



Small size



Easy to use

IST series distillers with a load capacity of 15 to 60 litres are the ideal solution for small and medium sized businesses which require a high quality, safe and flexible **distillation unit to handle constant repeated solvent loads**. The powder coated steel structure guarantees a **long service life** even in heavy duty applications.

The IST 15, IST 22, IST 42 and IST 62 regenerators, designed for applications with a moderate solvent consumption, represent the state of the art in small industrial distillation units: they offer **highly efficient** distillation with **excellent sludge concentration** and **reduced energy consumption**. All cycle parameters, including process temperatures, are monitored by the PLC and can be viewed in real time. On machine classified for Zone 1, the PLC is protected by an explosion proof housing. Distillation units in this range run a software which is similar to that used on larger unit, with a vast range of functions.

Model	Installed power	Loading capacity	Productivity
IST 15	1.6 kW	15 l	15 to 60 l/24h
IST 22	2.5 kW	25 l	25 to 100 l/24h
IST 42	3.2 kW	45 l	45 to 180 l/24h
IST 62	4.5 kW	60 l	60 to 240 l/24h

THE BENEFITS OF THE IST SERIES (15-22-42-62)

Practicality

- easy sludge removal thanks to a handy tilt function and practical waste bags
- immediate regulation of the heating temperature and cycle time on the digital control panel

Versatility

- tank capacities available from 15 to 60 litres
- a vast range of useful accessories is available, including a solvent loading kit, distillate tank and sight glasses

Reproducibility

- precise control with integrated visual display of distillation parameters
- alarm with message on display for process anomalies which require a service response



IST C1-C2

SMALL, HANDY, HIGH PERFORMANCE

Installation area
NON HAZARDOUS



TYPICAL APPLICATION
10 to 60
l /24 h



Static oil



Manual
functioning



Small size



Easy to use

This series has been designed for all applications using a small amount of solvent. **Safe, solid, easy to install and operate** - they are the ideal solution for small companies with a limited solvent consumption; they offer a **small investment** for small and occasional solvent recycling requirements. Thanks to their **highly efficient distillation process**, optimal sludge concentration and low energy consumption, the C1 and C2 are cutting edge industrial distillation solutions.

Model	Installed power	Loading capacity	Productivity
IST C1	1.6 kW	10 l	Da 10 a 40 l/24h
IST C2	1.6 kW	15 l	Da 15 a 60 l/24h

THE BENEFITS OF THE IST C SERIES

Practicality

- easy sludge removal thanks to a handy tilt function and practical waste bags
- real time heating temperature and cycle time regulation with conveniently located knobs

Convenience

- safe, low cost system for standard requirements
- reduced footprint optimises production space





CERTIFICATIONS SAFETY FIRST

Safety is a critical factor in the choice of a distillation solution. IST has a long, well established experience in flammable liquid treatment. Combining the benefits of the Made in Italy brand with the use of cutting technologies, our products conform to all EU legal requirements and those of many other countries.

Since 1997 our processes have been controlled by a certified Quality System, currently pursuant to UNI EN ISO 9001:2015.

In 2010 we obtained ATEX certification, currently issued by the notified body ALBARUBENS n. 2632, relating to equipment and components for use in potentially explosive atmospheres, pursuant to Directive 2014/34/EU.

EAC certification (Russia)

In 2012 we obtained the EAC Ex Conformity Mark: this attests that our products are explosion proof under the law of the Russian Federation.

ETL Listed Mark (USA and Canada)

Since 2012 we have been certified to use the North American ETL Mark (Electrical Testing Laboratories), which attests the conformity of our distillation equipment with the electrical, gas and other safety standards applicable in North America and Canada.



AFTER-SALES SERVICE

ASSISTANCE IN THE FIELD AND REMOTE ASSISTANCE

The service life of equipment is a decisive factor in the production efficiency of any plant. Defects and malfunctions must be identified and corrected as promptly as possible. You need not always wait for one of our technicians to arrive at your premises; in many cases, you can contact our technical assistance team by phone or email, at no charge and for an immediate response.

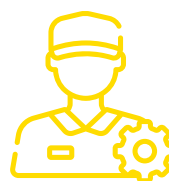
Preventive maintenance

IST after-sales service offers preventive maintenance contracts which include the inspections required to keep your equipment in good working order.



**General information
and spare parts**

info@ist.it



**After-sales service and
technical assistance**

service@ist.it

DISCLAIMER

This publication is a general guide: the photographs, illustrations and technical data may refer to models still being designed and may therefore differ from products already in production. IST reserves the right to modify its product specifications and information at any time without advance notification; it is the responsibility of the reader of this document to obtain the correct information at any given time.

Technical data, especially relating to productivity, refer to generic applications.

Actual productivity data may vary in practice, either positively or negatively.

The distillation rate depends on the type and composition of the solvent, the type and amount of contaminant, the heating temperature, vacuum pressure, coolant temperature and pressure and the machine's operating conditions.

IMPORTANT! Take special care when distilling the nitrocellulose contained in printing solvents and inks.



I.S.T. Italia Sistemi Tecnologici S.p.A.

Via S. Anna, 590
41122 - Modena - Italy
Tel. +39 059. 314305

www.ist.it