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SOLVENT DISTILLATION SYSTEM

IHS-400

400 gallons per day

OVERVIEW

Clean solvent tank	400 gallons, stainless
Dirty solvent tank	400 gallons, stainless
Still (L × W × H)	108 × 76 × 93 in (frame)
Tanks (L × W × H)	One external 48 × 48 × 93 in dirty tank
Electrical	480V or 600V, 3-phase
Output performance	400 gallons per day
Utilities	Chilled water in/out, compressed air and electrical
Electrical classification	Built to meet Class I, Division 2 specifications*. Can be certified if needed for an additional cost.
Construction	All-stainless enclosure, tanks and solvent plumbing
Controls	PLC with browser-based touchscreen; remote factory access
Residue handling	Automatic dump; patented drum cart with level sensor

*Customer's responsibility to make sure all national and local electrical codes are met.



Standard on every IHS-400

- ✓ Fully automatic cycle: fill, heat, distill, cool-down, residue dump
- ✓ Run it from the plate room: graphic display of temps, volumes, timers, alarms; multiple displays can be easily added
- ✓ Clean and dirty tanks with stainless transfer pumps and plumbing
- ✓ Large stainless tube-and-shell condenser with sight glass
- ✓ Gear-driven scraper blades in the cooking pot
- ✓ Heavy-duty vacuum pump for long life
- ✓ Remote factory support; our techs will take after-hours calls. See page 4.

LIFETIME WARRANTY

Lifetime warranty on all tanks and the pressure vessel. One-year parts and labor warranty on all other components. Optional 5-year warranty available.

AVAILABLE ADD-ONS

Automatic solvent balancing
Keeps your solvent at the proper blend without operators monitoring and adjusting it by hand.

Multi-system coordination
With multiple processors or stills, dirty solvent automatically goes to available recovery capacity and clean solvent comes from available storage.

CO_2 fire suppression
Built into the residue drum compartment to meet insurance, state and federal codes.

See page 4 for all options.

Programmed for your solvent, your plates, your needs.

We listen to how you run, solve for it, and deliver an IHS-400 programmed for your operation. Start with a Solvent Consumption Analysis.

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Technical specifications

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Nominal distillation rate	400 gallons per day
Holding tanks	Two 400-gallon stainless tanks, one clean and one dirty
Still frame (L × W × H)	108 × 76 × 93 in (frame)
External tanks (L × W × H)	One external 48 × 48 × 93 in dirty tank
Heater elements	2 × 18 kW
Chiller	8-ton recommended; can be included as an option, and we'll support start-up
Voltage	480V or 600V, 3-phase
Electrical rating	Built to meet Class I, Division 2 specifications. Can be certified if needed for an additional cost. Customer's responsibility to make sure all national and local electrical codes are met.
Distillation	Vacuum distillation for the high boiling points of safety solvents, with hot oil recirculation in the cooking vessel
Controls	PLC controls and a touchscreen PC with browser-based, password-protected GUI software. Can be located anywhere on-site.
Pressure vessel	¼-in stainless steel
Tanks	10-gauge stainless steel
Support frame	2-inch and 3-inch steel tubing, built to handle a lifetime of service
Enclosure	Stainless steel
Condenser	Proprietary stainless tube-and-shell, made in-house
Scraper	Blades made from high-temperature polymer designed to last for a lifetime
Residue handling	Automatic EZ dump onto our patented safety spill-containment drum cart

CUSTOMER TO PROVIDE

Site requirements

- [ ] **Installation space**
  Adequate room for the still and tanks, with service access.
- [ ] **Cooling water**
  As listed in the technical specifications. A closed-loop chiller is available as an option.
- [ ] **Venting and exhaust**
  All venting and exhaust ducts, with an exhaust fan rated at 300 CFM.
- [ ] **Internet connection**
  Required for immediate factory access and remote support.
- [ ] **Electrical service**
  480V or 600V, 3-phase.
- [ ] **Compressed air**
  30 CFM at 80–90 PSI, intermittent demand.
- [ ] **Interconnections**
  All piping and wiring between the still, plate processor(s) and chiller.

Installation of all equipment, physical connections to plate processors (plumbing, electrical, air), adherence to local, regional and national safety and construction codes, and any state or regulatory permits are the purchaser's responsibility.

Automation & instrumentation

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Extensive instrumentation and automation keep clean solvent available while keeping operator involvement to a minimum, so your team can focus on making plates.

Automatic solvent transfer

Solvent moves automatically between your washout units and the still. Tank levels are monitored and reported to the washout units, redundant sensors guard against overfilling, and the pumps respond quickly to clean-solvent demand.

Automated recovery cycles

The system watches the clean and dirty tank levels to start each cycle at the most efficient time. Heat transfer fluid temperatures change through the cycle to maximize recovery, then the waste dumps automatically.

Unattended operation

Every system can finish a cycle and start the next one without an operator. Operators only step in when the waste drum is full. Automatic restarts can be limited or turned off when you need.

INSTRUMENTATION

Every process variable, monitored continuously

PROCESS VARIABLE	CONTROL USE	SAFETY USE
Tank level	Input to automated recovery cycles	Prevent tank overfill
Tank safety level (all tanks)	–	Prevent tank overfill
Heat transfer fluid input temperature	Recovery cycles; performance monitoring	Minimize fire hazards
Heat transfer fluid output temperature	Recovery cycles; performance monitoring	Minimize fire hazards
Heat transfer fluid flow	–	Minimize fire hazards
Chilled water input temperature	Monitor chiller performance	–
Chilled water output temperature	Monitor chiller performance	–
Chilled water flow	Monitor chiller performance	–
Distillate temperature	Monitor process performance	Protect the vacuum pump
Sludge temperature	Input to automated recovery cycles	–
Vapor temperature	Input to automated recovery cycles	–
Vacuum level	Monitor process performance	Minimize distillation hazards
Sansol level	Add Sansol correctly	–
Waste drum level	Prevent drum overflow	Prevent drum overflow

BUILT-IN SAFETIES

Protection at every stage

- ✓ Patented Sansol injection raises the flash point of the residue and improves recovery (surrogate setups)
- ✓ Residue drum overfill safety and drum level sensor
- ✓ Redundant tank level sensors to prevent overfilling
- ✓ Low-vacuum and distillate temperature sensors
- ✓ Multiple sensors monitor the run and cook-down cycles
- ✓ Sight glass to see the distillate
- ✓ Electronic controls for interfacing with the plate processor
- ✓ E-stop button

Vacuum distillation

Provides a high margin of safety.

Standards, options & support

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SAFETY STANDARDS

Designed to meet recognized standards

ASME Boiler and Pressure Vessel Code
Pressure vessels are built to meet applicable Code requirements for design, fabrication, inspection and testing.

NEC Class I, Division 2
Appropriately rated electrical components and installation practices for classified areas.

NFPA 30
Containment, transfer and fire-risk controls for handling flammable and combustible liquids.

UL 142
Tank construction to applicable requirements for aboveground tanks storing flammable and combustible liquids.

UL 508 / UL 60947
Control components evaluated to applicable requirements for industrial control equipment.

IHSolve provides no official certification to any standard. All IHSolve solvent recycling systems are designed to meet the standards above.

AVAILABLE OPTIONS

Configure it for your operation

- **Automatic solvent balancing**
  Determines and adds the right amounts of solvent components to freshly distilled solvent, so washout units perform at their best while keeping interruptions for the still and solvent operator to a minimum.
- **Multi-system coordination**
  Sends dirty solvent to available recovery capacity and supplies clean solvent from available storage across multiple processors or stills.
- **Closed-loop water chiller**
  Supplies the cooling water the still needs.
- **CO_2 fire suppression**
  Detects and responds to fire in the dump compartment, configured to your site and the authority having jurisdiction.
- **Double-wall tanks**
  Added containment for solvent storage.
- **Enclosure cooler**
  A vortex tube turns compressed air into cold air for the electrical enclosure, with no moving parts or refrigerant.
- **Power monitoring**
  Real-time and historical electrical use, for preventive maintenance and energy decisions.
- **Shift and time awareness**
  Schedules cycles around operator availability, and around low-cost hours where time-of-use electric billing applies.
- **Solvent usage monitoring**
  Time-based totals of solvent pumped to the washout units, for regulatory and materials planning.
- **UL 508 / UL 60947 certification**
  Control panel certification, where the authority having jurisdiction requires it.
- **Washout pressure regulation**
  Complete pressure regulation kits for the clean solvent supply to washout units.
- **Washout drum kit**
  Complete washout drum kits for washout units so you're prepared.

LIFETIME WARRANTY

Warranty
Lifetime warranty on all tanks and the pressure vessel. One-year parts and labor warranty on all other components. Optional 5-year warranty available.

Annual heat transfer fluid service by IHSolve technicians and the use of IHSolve Sansol as the only additive are required to keep the warranty in effect.

Support
Remote factory support over the internet, telephone support, and a US-based field service team. As an IHSolve customer, you will receive the cell numbers of technicians your operators can call for support when you are not on-site.

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