Economical, Highly Repeatable Application of Coatings, Plastisols, Adhesives

Ideal for Metal, Plastic, Wood, and Glass

Closed-loop Recirculation System Maximizes Material Use, Is Environmentally Friendly

After-sale Support and Service Nationwide

KOCH
George Koch Sons, LLC
A smarter solution. Worldwide.
The KOCH/ASHDEE Pressure Head Coating System provides precise control of the coating application onto flat or nearly flat substrates of all types. The system is ideal for the application of solvent- or water-borne coatings, adhesives and UV coatings at ambient or elevated temperatures.

Maximum User Flexibility, Highest Transfer Efficiency

The KOCH/ASHDEE system is offered from 12” to 144” of coating width. Process speeds are infinitely adjustable between 200 and 1000 fpm. Once the coating thickness is determined, operation is virtually “hands-off”: no further set-up is needed because the coating is unaffected by changes in product thickness, width or length.

Material transfer efficiency is virtually 100% — material that is not deposited on the substrate is recirculated and re-used, a feature which saves both material costs and reduces environmental impact. Further, since curtain coating does not involve atomizing the coating material, no costly spray booths or air makeup systems are needed.

Manufacturers of circuit boards, paneling, plywood, furniture and dozens of other manufactured products benefit from the unique KOCH/ASHDEE coating system.

Compatible with All Liquid Coatings

KOCH/ASHDEE systems are compatible with virtually any liquid coating, including adhesives, clear and pigmented finishes, plastisols, photoresist materials and UV- and EB-cured coatings. Application is usually at ambient temperature, but can also be equipped with hot oil heating systems to apply hot-melt adhesives and waxes at up to 500°F. Normal coating material viscosity is 200 to 5,000 centipoise at application.

Wide Range of Products

Koch curtain coaters accommodate flat and many contoured products from 12” to 144” wide. Products of various thicknesses and lengths can be coated simultaneously.

The KOCH/ASHDEE System Serves Virtually Every Major Industry:

Woodworking — for the application of thermoset adhesives to plywood, engineered lumber and structural shapes. Furniture makers use Koch curtain coaters to apply base and top coats to residential and office furniture, wall panels and molding. Manufacturers of garage and entrance doors use KOCH/ASHDEE coaters to apply contact adhesives.

Corrugated — for the application of wax blends to corrugated containers.

Automotive — for the application of plastisols to automotive components. Also ideal for the application of hot melt adhesives for laminating fabric upholstery to foam and roof liners.

Glass — architectural and automotive glass products are coated with base coats, masks and decorative coatings.

Electronics — for the application of photoresist material in the manufacture of printed circuit boards.

Ideal for Manufacturing, Converting, Job Shop Environments

Koch will engineer a curtain coating system that meets your requirements for performance, flexibility and cost-efficiency. We manufacture systems to suit the capacity and degree of automation you require, whether yours is a small job shop or large volume operation.

KOCH/ASHDEE Curtain Coaters Provide Dependable, Uniform Coating Application on Flat and Contoured Surfaces.

Front cover photo courtesy of Ohio Design Corp.
A Sampling of Installations
Dual-speed Conveyors

Curtain coaters must move product through the curtain at relatively high speed to be effective. When the optimum speed of the curtain coater is faster than the production line, a two-speed conveyor system interfaces the curtain coater to your production line speed.

The variable speed drive that controls the conveyors has two setpoints: one for line speed, and one for coating. Product moves onto the infeed conveyor at a speed equal to the production line. When the product is on the infeed conveyor, both conveyors accelerate to coating speed. When the product is on the outfeed conveyor, the conveyors decelerate to production speed.

Removeable Pump and Head

The circulation system, including the reservoir, filter, pump, pressure head, and drain trough can be cart-mounted. The cart moves to and from the coating conveyors on tracks. A moveable pump and head cart greatly simplify cleanup and maintenance for both the coating head and circulation system.

Vacuum Hold-down and Exhaust

Most products will remain in place on the coating conveyor, although lightweight parts may move as the conveyor accelerates or as the product enters the liquid curtain.

To secure the product, a vacuum hold-down conveyor can be supplied. Exhaust air can also be evacuated around the pressure head and drain trough to remove fumes.

Belt Cleaning System

Powered by an air motor, the belt cleaner features a static-free rotating cleaning brush. Solvent is applied to the belt for cleaning and is removed by a dual, spring-loaded squeegee which facilitates drying.

Automatic Viscosity Control

Normal evaporation causes the recirculating coatings to become increasingly viscous. An automatic system adds solvent or water to maintain proper viscosity.

Coat-weight indication

In addition to the standard digital indicators for pump and conveyor speeds, a digital indicator is provided to display the amount of coating applied as either thickness or weight per unit area.

Handling and Curing Equipment

George Koch Sons designs and manufactures material handling systems and a wide range of curing and drying equipment, including feeders, stackers, U.V. curing and hot-air convection dryers.

Koch/Ashdee UltraCoat™

The Ultimate Curtain Coater for Class A and UV-curable Finishes

UltraCoat is a “clean room” coating system engineered for maximized cleanliness. The system features a pressure head which is surface-ground and polished to a #4 finish. Other features include:

- Powder coated finish on cart and conveyor
- Modular stainless steel piping
- Fully automated operation
  - Pull-out cart
  - Dust covers

Equipment Options Add Flexibility, Reduce Operator Involvement
Simple Operating Principle

A KOCH/ASHDEE curtain coater features two (2) synchronized conveyors with the pressure head positioned over a narrow space between the infeed and outfeed conveyors. Product moves from the infeed conveyor to the outfeed conveyor, passing beneath the pressure head through a liquid "curtain" of material. Excess material flows into a trough between the conveyors and drains to the circulation system's reservoir for reuse.

Infeed and Outfeed Conveyors

K Koch/ASHDEE curtain coaters use infeed and outfeed conveyors driven by a single motor with variable speed drives. The drive, which is normally configured for single-speed operation, can be engineered for two (2) speeds. This arrangement allows the curtain coater to operate at optimum coating speed without affecting production line speed.

In a single-speed system, product moves onto the infeed conveyor, receives a uniform coating as it passes through the liquid curtain, then moves onto the outfeed conveyor.

In the two-speed system, product moves onto the infeed conveyor and both infeed and outfeed conveyors accelerate to coating speed. The product moves through the liquid curtain and onto the outfeed conveyor. When the product reaches the outfeed conveyor, the conveyors decelerate to the production speed.

Varying coating conveyor speed is an effective way to control coating thickness.

Circulation

A positive displacement pump draws coating material from a reservoir and forces it through a filter, then into the pressure head. A variable speed drive controls pump speed.

Changing pump speed is another way to control coating thickness. As pump speed increases, a thicker coating is deposited.

The Pressure Head

The design and operation of the pressure head are the keys to uniform coating. The KOCH/ASHDEE pressure head is machined from stainless steel and has a removable lid, a sightglass, and a pair of knives that form an adjustable opening across the bottom of the head.

The head is designed to ensure the parallel opening formed by the knives, and the resulting liquid curtain, remain constant across the product width.

The precision-ground knives are mounted precisely parallel. A lever and cam mechanism moves one knife to change the opening. A scale indicates the relative width of the opening.

Adjustable knives allow the velocity of the liquid curtain to be adjusted without affecting coating thickness. The positive displacement pump delivers the same amount of material to the head regardless of the position of the knives. Reduce the knife opening, and the head discharges coating with greater velocity. Increase the opening, and liquid leaves the head at a lower velocity.

Adjusting the height of the head above the conveyor provides additional control of curtain velocity.

Indication and Control

K Koch/ASHDEE curtain coaters provide the control needed to produce uniform, repeatable coatings.

Digital meters indicate conveyor speed in feet per minute and pump speed in revolutions per minute. An optional digital meter displays "coat weight" as thickness or volume per unit area.

Variable speed drives allow precise control of both pump and conveyor speeds; adjustable knives and head height control curtain velocity. Set-up is achieved quickly.

Simple Maintenance for Maximum Up-time!

The Koch Curtain Coater has been engineered for ease of access and maximum performance. Flushing the system with water or solvent and replacing the filter element is all the regular maintenance that's required. The top-opening head allows cleaning without disturbing knife settings.

In-Line, Two-sided Finishing System

Quality Control — by Design!

K Koch/ASHDEE curtain coaters provide highest film uniformity. They eliminate "washboarding" and "memory effects" that can occur with contact type coaters, because with curtain coating, only the coating contacts the product. Curtain-coated surfaces rarely have the "orange peel," sags or runs found in spray applications.
KOCH/ASHDEE System Advantages

- Uniform, repeatable coatings
- Efficient, economic operation
- Simplified maintenance
- Comprehensive system support
- Documented performance history

Standard Features

- Stainless steel pressure head
- Top-opening design head
- Adjustable head height
- Adjustable knife opening
- Knife opening indicator
- Sightglass in pressure head
- Variable speed pump drive
- Variable speed conveyor drive
- Digital pump speed indication
- Digital conveyor speed indication

Optional Equipment

- Two-speed conveyor control
- Moveable pump and head cart
- Digital coat-weight indication
- Vacuum hold-down
- Automatic viscosity control
- Handling and curing equipment

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Technical Support

George Koch Sons has engineered, built, installed and serviced finishing equipment for more than 60 years. We are the leader in the development of curtain coating technology, with more than a half-century of hands-on experience in adapting this versatile and cost-effective technology to applications of all types.

On-line Service

Experienced Customer Service Engineers are available for phone or on-site consultations. All equipment is U.S.-manufactured and repair parts are stocked for immediate availability.

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