



THE MOST COMPLETE LINE OF
**VERTICAL
RECIPROCATING
CONVEYORS
(VRCs)**

MECHANICAL

•

HYDRAULIC

•

HIGH-SPEED

•

HIGH-THROUGHPUT

•

FULLY AUTOMATED

•

CUSTOMIZED LIFTS

•

CUSTOM VERTICAL LIFTS
FOR ANY APPLICATION

MEZZANINES

BALCONIES

THROUGH-FLOOR

INTERIOR OR EXTERIOR

PFLOW
Industries, Inc.

COMPLETE VERTICAL LIFTING SOLUTIONS

COMPLETE VERTICAL LIFTING SOLUTIONS

Pflow vertical lifts transport materials of all shapes, sizes and weights between two or more levels. We've designed lifts to move everything from spark plugs and medical supplies to 110,000 lb. fuel cells and more. Only Pflow offers the most complete line of vertical lifts available on the market today—from mechanical and hydraulic to high-speed and high-throughput customized vertical lifts. We also offer fully automated systems for automated manufacturing and warehousing operations. Pflow delivers single-source responsibility for vertical lift design, fabrication, installation and service support. Whatever the size, speed and vertical height your application demands – we'll help you develop the best solution.

We solve mezzanine, through-floor, inside and outside application problems. We listen to your needs, design the safest, most effective solution and provide the system that fits your application. Plus, we guarantee code approval in every state and offer the best warranty in the industry.

INDUSTRY LEADER

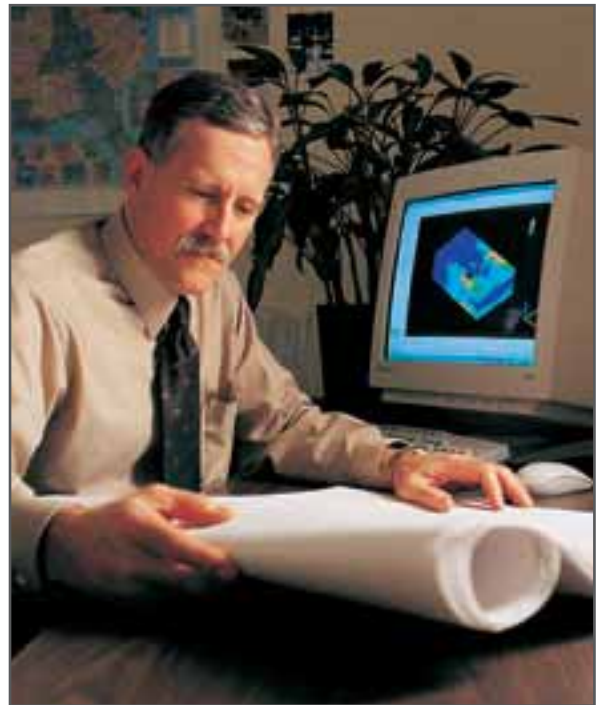
Since 1977, Pflow has been devoted to the design and manufacture of safe and reliable vertical material handling equipment. We were instrumental in creating the vertical conveyor market and have led the industry from the start. And, with over 12,000 installations, we've developed a leadership culture that is unmatched. Nobody can match Pflow's level of experience, engineering know-how and customer support. From simple, two-level vertical lifts to multi-level, multi-directional automated lifting systems, nobody knows vertical lifting better than Pflow.

PROVEN EXPERIENCE

Pflow Industries has the overall capabilities, experience and technical know-how to solve a myriad of vertical lifting problems. We have designed vertical lifts to move materials that weigh 10 lbs. to over 200,000 lbs... with carriages from 30 x 30 inches to 60 x 60 feet... vertical heights from 4 feet to over 200 feet. We have built large load work platforms, over and under equipment for assembly lines, hopper transfer systems and much more. At Pflow, we know each vertical lift application is unique. That's why we scrutinize and address every detail of every job. We carefully analyze your needs, cover all design & construction issues, provide complete code-approved engineered drawings and deliver unmatched, ongoing service support.

ENGINEERING EXPERTISE

Our experienced engineers will design a vertical lift tailored to your needs. Our focus has always been on safety and advanced technology, while creating solutions for specific vertical material handling problems. No other manufacturer provides the kind of application-oriented solution you'll get from Pflow.





OUR COMMITMENT TO SAFETY, ADVANCED TECHNOLOGY AND APPLICATION-SPECIFIC SOLUTIONS HAS EARNED US OUR REPUTATION AS THE LEADER IN THE VERTICAL LIFTING INDUSTRY. PFLOW HAS OVER 100 TEAM MEMBERS DEDICATED TO SOLVING VERTICAL MATERIAL HANDLING CHALLENGES THROUGH SUPERIOR RESEARCH, DESIGN, MANUFACTURING, SALES AND SERVICE INITIATIVES. VERTICAL LIFTING IS OUR BUSINESS – OUR ONLY BUSINESS.

AIRCRAFT PARTS

Pflow 4-post Vertical Reciprocating Conveyor (VRC) lifts special carts that carry fragile aircraft wing parts up to mezzanine. Carriage measures 10' x 40' and features asymmetrical bracing with less than 1" deflection.

PAPER PLANT

High-speed automated system catches and transfers 9,000 lb. paper rolls. System moves 30 rolls per hour, 24 hours per day, 350 days per year.

FUEL CELL

Pflow custom lift transfers 110,000 lb. fuel cell assemblage to shipping dock. Screw drive mechanism allows for vertical and horizontal transfer of components.

BRAKE CASTING

30,000 lb. capacity VRC moves 24,000 lb. buckets of scrap metal and discharges scrap into induction melting furnace. Scrap load is moved every 6 minutes, 16 hours per day.

POWDER COATING

Inverted mechanical VRC with scale, but no carriage frame above grade, raises 5,000 lb. stainless mixing bowls through ceiling.

PARKING GARAGE

Serving 7-level structure, automated system sends and retrieves automobiles at 400 ft. per minute. System includes three high-speed VRCs with special rack retrieval system.

ICE CREAM

M-Series, 3-level VRC with constant use, high-capacity, low-temp. components. Operates in -25° freezer storage area for pallets of ice cream.

SHIPPING PORT

Automated unloading system is lowered into the ship's hold to discharge cargo. Featured is a portable, free-standing, conveyORIZED lift with NEMA 4X components.

FUNERAL HOME

Full garage floor sized 4-post VRC provides vertical transfer of funeral hearses from basement. Lift allows for storage and retrieval of hearses as required.

AUTOMOTIVE PARTS

Two VRCs connected by 75 ft. of roller conveyor through tunnel accommodate outbound loads and return empty containers between foundry and shipping area.

MISSILE

6,500 lb. capacity work platform horizontally transports missiles into anechoic chamber. Platform then raises missiles for testing and diagnostics. Horizontal and vertical positioning is accurate to within 1/8".

CHEMICAL PLANT

Vertical lift moves materials between six exterior levels surrounded by an explosive environment. Series M Lift features 140 ft. vertical travel, NEMA 7 components and urethane/epoxy coating.

BEST CHOICE

Our commitment to the vertical lifting business is unmatched. In 1981, we helped change the national safety codes to specifically exempt "material-moving" vertical conveyors from "people-moving" elevator safety requirements. Over the years, Pflow has successfully changed 25 individual state codes, making vertical conveyors available to businesses throughout the country. For over 30 years, we have built the safest vertical lifting equipment and provided the best product support. Our trained staff is always ready to answer your application, installation or service questions.

QUALITY MANUFACTURING

Pflow has over 110,000 sq. ft. of manufacturing space and a complete vertical lifting research and development center. In addition to experienced, certified welders, we are staffed with production and quality control personnel. We have consistently provided the industry with quality vertical lifting equipment built to exact specifications. Quality is maintained throughout the entire process, from weldments to finished assemblies, with careful inspection. Pflow offers total fabrication and coast-to-coast installation services.



COMMITTED TO SAFETY

Pflow's commitment to safety has resulted in a stronger R&D program and more rigorous testing than any other VRC manufacturer. Each vertical lift is designed with a variety of safety features that protect men, materials and machines. Safety features like spring-loaded safety cams, overtravel protection, safety gates and enclosures that meet or exceed all code requirements provide the best defense against a potential, costly industrial accident. And, only Pflow offers the advanced, patented DeckLock Safety System that provides added protection at critical upper levels. The end result is Pflow vertical lifts deliver longer life, improved performance and safer operation.





PFLOW HAS OVER 12,000 PROVEN VERTICAL LIFT INSTALLATIONS THROUGHOUT THE WORLD, MOVING MATERIALS OF ALL SHAPES, SIZES AND WEIGHTS IN A VARIETY OF INDUSTRIES. OVER 35% OF OUR PERSONNEL ARE ENGINEERS OR R&D SPECIALISTS WHO CONTINUALLY WORK TO ENHANCE THE SAFETY AND TECHNOLOGY BUILT INTO OUR EQUIPMENT. SOLVING VERTICAL LIFTING PROBLEMS IS OUR ONLY BUSINESS.

AUTO ASSEMBLY

Conveyorized, 8,000 lb. high-speed cantilever lift automatically moves large parts racks through production system.

WINDOW LIFT

Special, synchronized lift was custom designed for a contemporary home requiring a wall of 18,000 lb. windows to be retracted for ventilation.

FOOD SERVICE

Unique system moves food trays to 2nd level of cafeteria-style delicatessen. Customers place food orders on first floor, walk up stairs to seating area and retrieve orders at pick-up station. System is painted multiple colors to match décor. Operation is visible from inside restaurant. Empty trays are automatically returned to first floor.

GROCERY DISTRIBUTOR

Dual, side-by-side automated systems provide continuous, two-way flow of pallet loads between shipping dock and second floor warehouse. System loads/unloads three semi-trailer trucks per hour.

LIBRARY

Pflow system provides the only means for delivering library materials to/from an underground archive to the circulation area. Roller conveyors provide infeed/discharge at each level and allow for continuous operation in both directions.

TRUCK FRAMES

Power-and-Free overhead conveyor system designed as an integral part of truck frame assembly line. System raises and lowers truck frames and incorporates a transfer device to push frames onto a powered conveyor while operating at 130 cycles per hour.

FOOD PROCESSING

Stainless steel Pflow vertical lifts move finished product in food processing plant and are designed to meet FDA and USDA equipment standards for routine washdown operations.

SELF-STORAGE

Practical, easy-to-operate Pflow lifts eliminate need for costly elevators inside self-storage facilities and help facility owners maximize cube. Lifts allow tenants to safely move heavy, bulky items to secured upper levels and are equipped with key-operated controls.

ROCKET FUEL

Completely spark-proof, 15,000 lb. direct-acting, straddle, hydraulic lift transfers highly explosive powder between packaging areas.

POSTAL DISTRIBUTION

Continuous Vertical Conveyors (CVCs) provide high-speed handling of bulk mail trays inside postal distribution facilities. Over 100 systems installed throughout U.S. and Canada move mail trays at rate of 30 trays per minute and are designed for nonstop operation.

SERIES F

MECHANICAL VERTICAL LIFTS

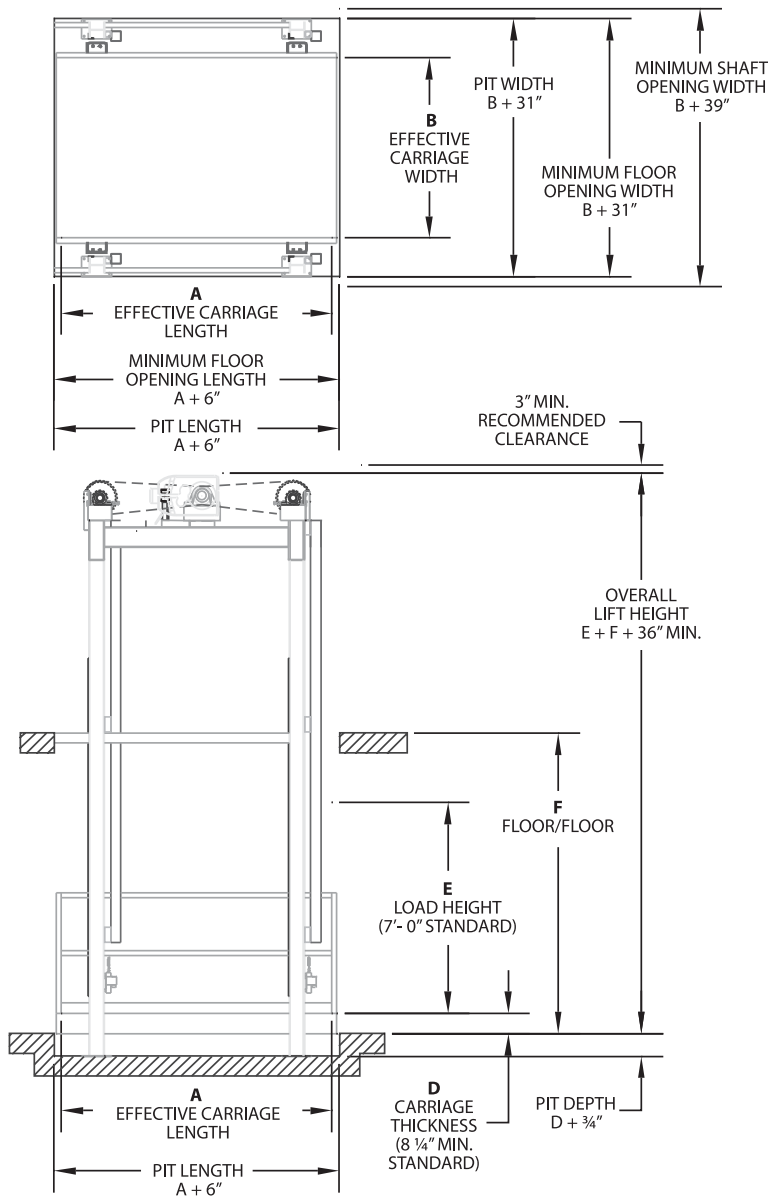
Series F Lift Offers Maximum Capacity And Rugged 4-Post Design For The Heaviest Lifting Applications.

- Lifts heavy, bulky oversized loads up to 50,000 lbs.
- Transports multiple pallet loads, large carts and heavy machinery between two or more levels.
- Offers maximum flexibility in carriage size, capacity and traffic patterns. Loading and unloading from all four sides.
- Engineered to meet your exact application requirements. Unlimited vertical rise. Travel speeds up to 400 fpm.
- Carriage is lifted and lowered by heavy roller chain attached to a mechanical lifting mechanism.
- Heavy-duty construction provides superior strength, reliability and long-term performance.
- Built-in, advanced safety features protect workers and materials. Access gates at each level are interlocked with lift operation.
- Available with patented DeckLock Safety System that provides additional security at critical upper levels.
- Meets ANSI/ASME B20.1 code.



For immediate answers to your application questions, call Pflow at 414-352-9000, or visit: www.pflow.com

SERIES F LIFT DIMENSIONS & DATA



A Effective Carriage Length

B Effective Carriage Width

D Carriage Thickness

E Load Height

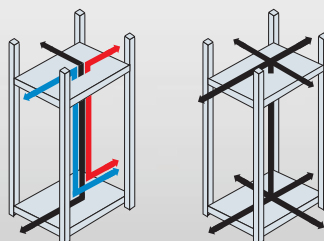
F Vertical Rise

Note: The dimensions shown are illustrative. Request a job-specific drawing before making any building modifications.

Series F Mechanical Lift Loading/Unloading Patterns:

- C-Pattern
- Z-Pattern
- 90°-Pattern/Any Direction

Note: All Patterns Are Reversible.



SERIES F SPECIFICATIONS

GENERAL

Pflow Series F Vertical Lifts move materials between two or more levels. Series F Lifts feature four-corner support for heavy-duty, vertical material handling jobs. Principal components are guide columns, carriage and a mechanical lifting mechanism.

APPLICATION DATA

Pflow Series F Vertical Lifts are available with: Lifting capacities to 50,000 lbs.; carriage sizes as required; vertical rise to 200'. Standard travel speed is 15-20 fpm. Speeds to 400 fpm available on special order.

STRUCTURE

Guide columns are 6" wide flange. Carriage is fabricated of 6" or 8" structural members with deck plate. Other surfaces available. Pflow Series F Vertical Lifts can be loaded/unloaded from all four sides.

OPERATION

Carriage is lifted and lowered by roller chain attached to an electric motor/reducer assembly mounted on the guide columns. Power units employ 7-1/2 HP to 25 HP TEFC brake motors (or custom sized per application). Special sensing and guidance systems monitor lift chains.

ELECTRICAL

Standard power requirements are 230V/460V, 3-phase. Control voltage is 110V. Control stations and remote mounted control panel are NEMA 12. Control stations, provided for each level, include self-maintaining push buttons with mushroom-head E-Stop button.

SAFETY FEATURES

Upward and downward travel of the carriage is limited by a limit switch. When switch is tripped or power is lost, the motor shuts off and the mechanically actuated brake is engaged. Overload protection is provided by a relay that measures the motor current. If the current exceeds the amount required to move the maximum load, it will shut the unit down and engage the brake. Safety cams, mounted on each guide column, prevent uncontrolled descent in case all four chains break. Chain sensors shut down unit if chain tension is lost. Chain tensioners and guides prevent chains from jumping on sprockets. NO RIDER signs are posted at each point of operation. Available with optional DeckLock Safety System.

CARRIAGE SIDE GUARDS

Carriage is equipped with safety rails on non-operating sides and safety chains or diagonal drop bars on operating ends. Optional expanded metal or sheet metal carriage side guards are available.

SAFETY ENCLOSURES

Safety codes (ANSI/ASME B20.1) require gates and enclosures on all sides of the lift. Enclosures must be a minimum of 8' high and reject a ball 2" in diameter. Pflow manufactures gates and enclosures with 1/2" expanded metal in a structural angle frame. Gates are accessible during loading/unloading and are electrically and mechanically interlocked with carriage movement. Interlocks prevent gates from being opened unless the carriage is at the designated level and also prevent carriage movement if any gates are not fully closed and locked.

SERIES M

MECHANICAL VERTICAL LIFTS

Series M Lift Offers High Performance And Durability With A Proven 2-Post Mechanical Design.

- Designed to transport large, heavy loads between two or more levels. Ideal for high-cycle, automated systems or frequent-use applications.
- Lifts up to 10,000 lb. loads with carriage sizes up to 10' x 12'. Vertical rise to 200'. Travel speeds up to 600 fpm.
- Engineered to meet your exact application and height requirements.
- Carriage is lifted and lowered by heavy roller chain attached to a mechanical lifting mechanism.



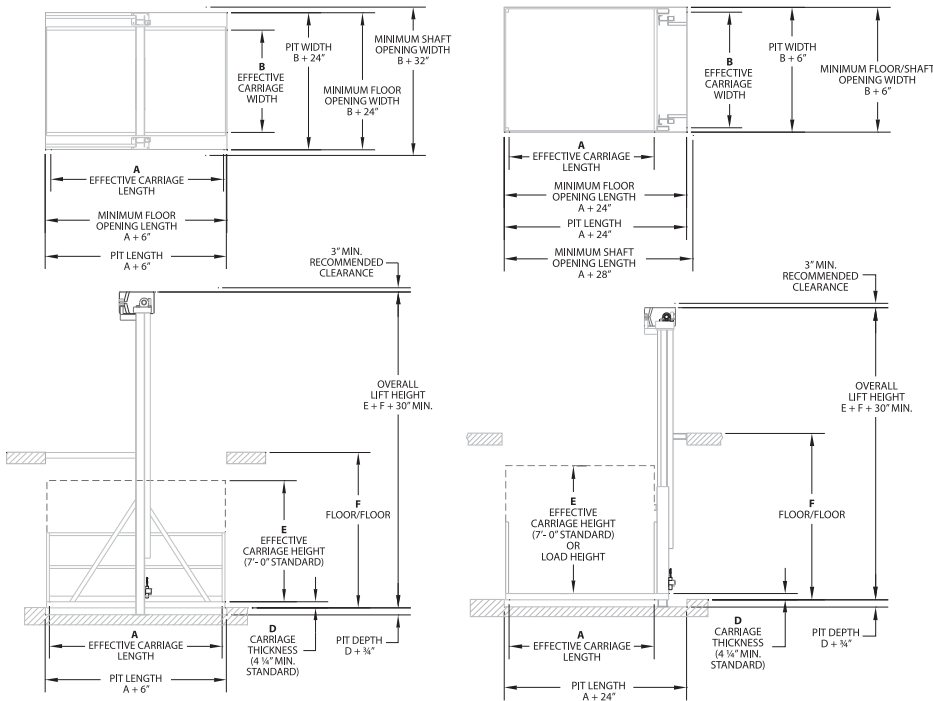
Pflow Series M Mechanical Vertical Lifts provide the added strength, speed and durability required for moving large, heavy loads. Series M Lifts are especially suited for multi-level applications and can be installed in new or existing buildings and unused elevator shafts. When it comes to vertical lifting, no challenge is too big, too heavy or too tall for Pflow. Vertical lifting is our business—our only business.

- Heavy-duty construction provides superior strength, reliability and long-term performance.
- Built-in, advanced safety features protect workers and materials. Access gates at each level are interlocked with lift operation.
- Available with patented DeckLock Safety System that provides additional security at critical upper levels.
- Offered with straddle or cantilever carriages.
- Meets ANSI/ASME B20.1 code.

SERIES M LIFT DIMENSIONS & DATA

STRADDLE CARRIAGE

CANTILEVER CARRIAGE



- A** Effective Carriage Length
- B** Effective Carriage Width
- D** Carriage Thickness
- E** Effective Carriage Height
- F** Vertical Rise

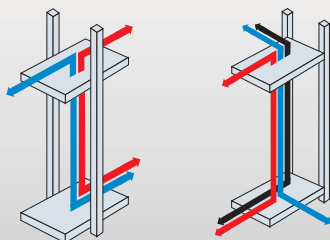
- A** Effective Carriage Length
- B** Effective Carriage Width
- D** Carriage Thickness
- E** Upright Height or Load Height
- F** Vertical Rise

Note: The dimensions shown are illustrative. Request a job-specific drawing before making any building modifications.

Series M Mechanical Lift Loading/Unloading Patterns:

- C-Pattern
- Z-Pattern
- 90°-Pattern

Note: All Patterns Are Reversible.



STRADDLE

CANTILEVER

SERIES M SPECIFICATIONS

GENERAL

Pflow Series M Vertical Lifts move materials between two or more levels. Principal components are guide columns, carriage and a mechanical actuating mechanism.

APPLICATION DATA

Pflow Series M Vertical Lifts are available with: Lifting capacities to 10,000 lbs.; carriage sizes to 10' x 12'; vertical rise to 200'. Standard travel speed is 25-30 fpm. Travel speeds up to 600 fpm are available on special order.

STRUCTURE

Guide columns are 6" wide flange sections. Carriage is fabricated of 4" or 6" structural members with steel deck plate. Other deck surfaces can be supplied. Carriage is available in straddle or cantilever styles depending on application.

OPERATION

Carriage is lifted and lowered by roller chain attached to an electric motor/reducer assembly mounted on the guide columns. Power units employ 2 HP to 10 HP TEFC brake motors. Special sensing and guidance systems monitor lift chains.

ELECTRICAL

Standard power requirements are 230V/460V, 3-phase. Control voltage is 110V. Control stations and remote mounted control panel are NEMA 12. Control stations, provided for each level, include self-maintaining push buttons with mushroom-head E-Stop button.

SAFETY FEATURES

Upward and downward travel of the carriage is limited by a limit switch. When switch is tripped or power is lost, the motor shuts off and the mechanically actuated brake is engaged. Overload protection is provided by a relay that measures the motor current. If the current exceeds the amount required to move the maximum load, it will shut the unit down and engage the brake. Safety cams, mounted on each guide column, prevent uncontrolled descent in case both chains break. Chain sensors shut down unit if chain tension is lost. Chain tensioners and guides prevent chains from jumping on sprockets. NO RIDER signs are posted at each point of operation. Available with optional DeckLock Safety System.

CARRIAGE SIDE GUARDS

Carriage is equipped with safety rails on non-operating sides and safety chains or diagonal drop bars on operating ends. Optional expanded metal or sheet metal carriage side guards are available.

SAFETY ENCLOSURES

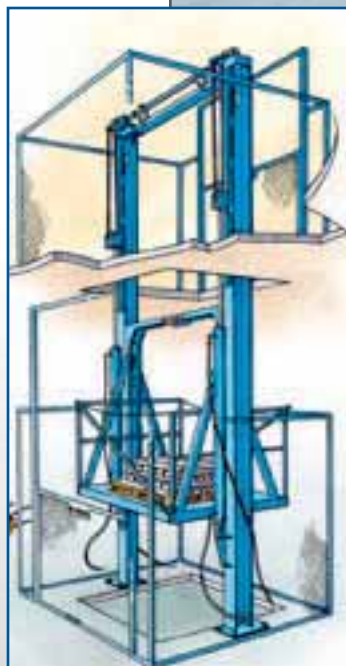
Safety codes (ANSI/ASME B20.1) require gates and enclosures on all sides of the lift. Enclosures must be a minimum of 8' high and reject a ball 2" in diameter. Pflow manufactures gates and enclosures with 1/2" expanded metal in a structural angle frame. Gates are accessible during loading/unloading and are electrically and mechanically interlocked with carriage movement. Interlocks prevent gates from being opened unless the carriage is at the designated level and also prevent carriage movement if any gates are not fully closed and locked.

SERIES 21

HYDRAULIC VERTICAL LIFTS

Series 21 Lift Provides Efficient, Safe Vertical Handling For Loads Up To 8,000 lbs.

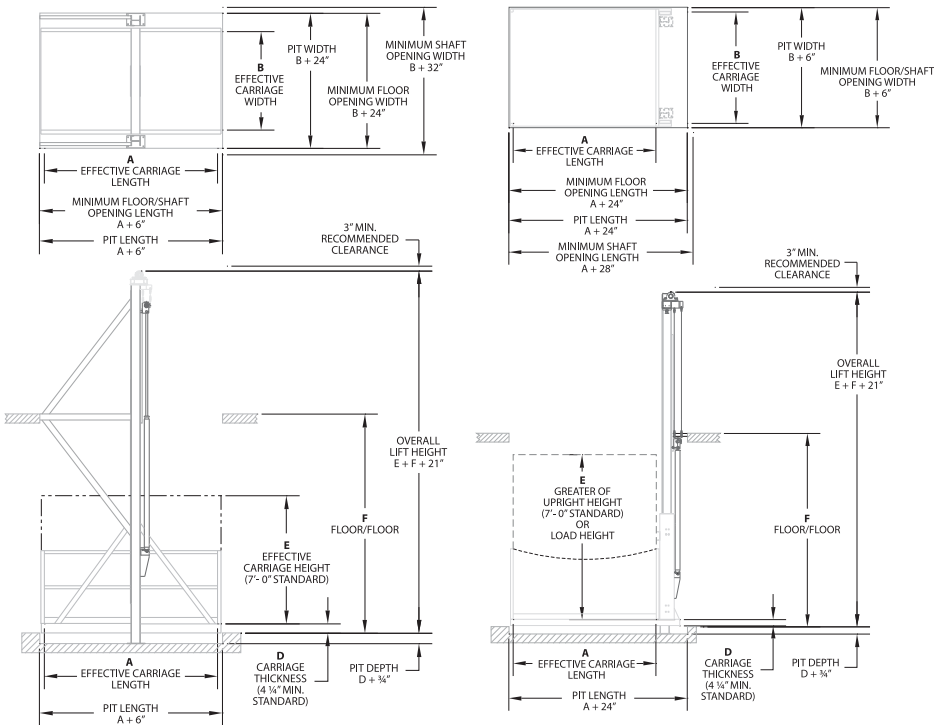
- Adaptable for mezzanines, through-floor, inside or outside applications.
- Customized to meet your exact needs.
- Quality construction with 6" wide flange columns, oversized bearings and heavy roller chain ensures strength, durability and long-lasting performance.
- Carriage is lifted and lowered by two hydraulic cylinders mounted on the guide columns.
- Lifts loads up to 8,000 lbs. Carriage sizes to 10' x 10'. Vertical rise heights to 22'. Available in straddle or cantilever styles.
- Torsion bar links the two hydraulic cylinders to equalize the load and ensure the carriage remains level at all times.
- Optional quick-connect cabling for push-button stations and gate interlocks is available to significantly reduce field-wiring costs. (Check local codes for conformity.)
- Patented DeckLock Safety System is an available option in order to provide additional security at the upper levels.
- Built-in, advanced safety features protect workers and materials. Access gates at each level are interlocked with lift operation.
- Velocity fuses prevent uncontrolled carriage descent in case of hydraulic hose rupture.
- Meets ANSI/ASME B20.1 code.



SERIES 21 LIFT DIMENSIONS & DATA

STRADDLE CARRIAGE

CANTILEVER CARRIAGE



- A** Effective Carriage Length
- B** Effective Carriage Width
- D** Carriage Thickness
- E** Effective Carriage Height
- F** Vertical Rise

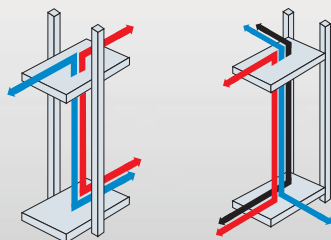
- A** Effective Carriage Length
- B** Effective Carriage Width
- D** Carriage Thickness
- E** Upright Height or Load Height
- F** Vertical Rise

Note: The dimensions shown are illustrative. Request a job-specific drawing before making any building modifications.

Series 21 Mechanical Lift Loading/Unloading Patterns:

- C-Pattern
- Z-Pattern
- 90°-Pattern

Note: All Patterns Are Reversible.



STRADDLE

CANTILEVER

SERIES 21 SPECIFICATIONS

GENERAL

Pflow Series 21 Vertical Lifts move materials between two levels. Principal components are guide columns, carriage and hydraulic actuating mechanism.

APPLICATION DATA

Pflow Series 21 Vertical Lifts are available with: Lifting capacities to 8,000 lbs.; carriage sizes to 10' x 10'; vertical rise to 22'. Standard travel speed is 24 fpm. Speeds to 35 fpm are available on special order.

STRUCTURE

Guide columns are 6" wide flange. Carriage is fabricated of 4" or 6" structural members with steel deck plate. Other deck surfaces can be supplied. Carriage is available in straddle or cantilever styles.

OPERATION

Carriage is lifted and lowered by two hydraulic cylinders mounted on guide columns. Cylinders are actuated by a remote mounted hydraulic pump. Transmission of the lifting force is through roller chain attached to the cylinders and carriage. A torsion bar links the two cylinders to equalize the load and ensure carriage remains level at all times.

ELECTRICAL

Standard power requirements are 208V/230V/460V, 3-phase. Single-phase is an available option. Control voltage is 24V. Control stations and remote mounted control panel are NEMA 12. Control stations, provided for each level, include self-maintaining push buttons with mushroom-head E-Stop button. Quick connect pre-wiring is available as an option.

SAFETY FEATURES

Overtravel is prevented by positive mechanical stops. Safety cams prevent uncontrolled descent in case both chains break. Velocity fuses prevent uncontrolled descent in case of hydraulic hose rupture. NO RIDER signs are posted at each point of operation. Optional DeckLocks automatically lock carriage at the upper level to eliminate drift or bounce. Carriage will not move if loaded to more than 120% of rated capacity.

CARRIAGE SIDE GUARDS

Carriage is equipped with safety rails on non-operating sides and safety chains or diagonal drop bars on operating ends. Optional expanded metal or sheet metal carriage side guards are available.

SAFETY ENCLOSURES

Safety codes (ANSI/ASME B20.1) require gates and enclosures on all sides of the lift. Enclosures must be a minimum of 8" high and reject a ball 2" in diameter. Pflow manufactures gates and enclosures with 1/2" expanded metal in a structural angle frame. Gates are accessible during loading/unloading and are electrically and mechanically interlocked with carriage movement. Interlocks prevent gates from being opened unless the carriage is at the designated level and also prevent carriage movement if any gates are not fully closed and locked.

SERIES D

HYDRAULIC VERTICAL LIFTS

Series D Lift Offers High Quality, Safety, And Low Maintenance. Also Features Exclusive Dual-Pak Design.

- Guided Dual-Pak design has no cables, chains, bearings or other components that can break or require lubrication.
- Carriage is lifted and lowered by dual 2" ram direct-acting hydraulic cylinders.
- Lifts loads up to 3,000 lbs. Carriage sizes to 6' x 6'. Vertical rise heights to 15'. Ideal for mezzanine and balcony applications.
- Pressure-compensated control valve regulates flow of hydraulic oil to ensure smooth, constant lowering speed under any load.
- Ultra-high, molecular weight, polyethylene cylinder guide prevents cylinders from twisting during operation—improving cylinder life.
- Pressure switch prevents the carriage from drifting or sinking to ensure smoother, safer loading and unloading operations.
- Quick-connect cabling for push-button stations and gate interlocks is an available option which significantly reduces field-wiring costs. (Check local codes for conformity.)
- Remote mounted control panel and motor are pre-wired and ready for immediate installation.
- Durable, high-quality construction ensures safe, reliable, long-term performance.
- Meets ANSI/ASME B20.1 code.

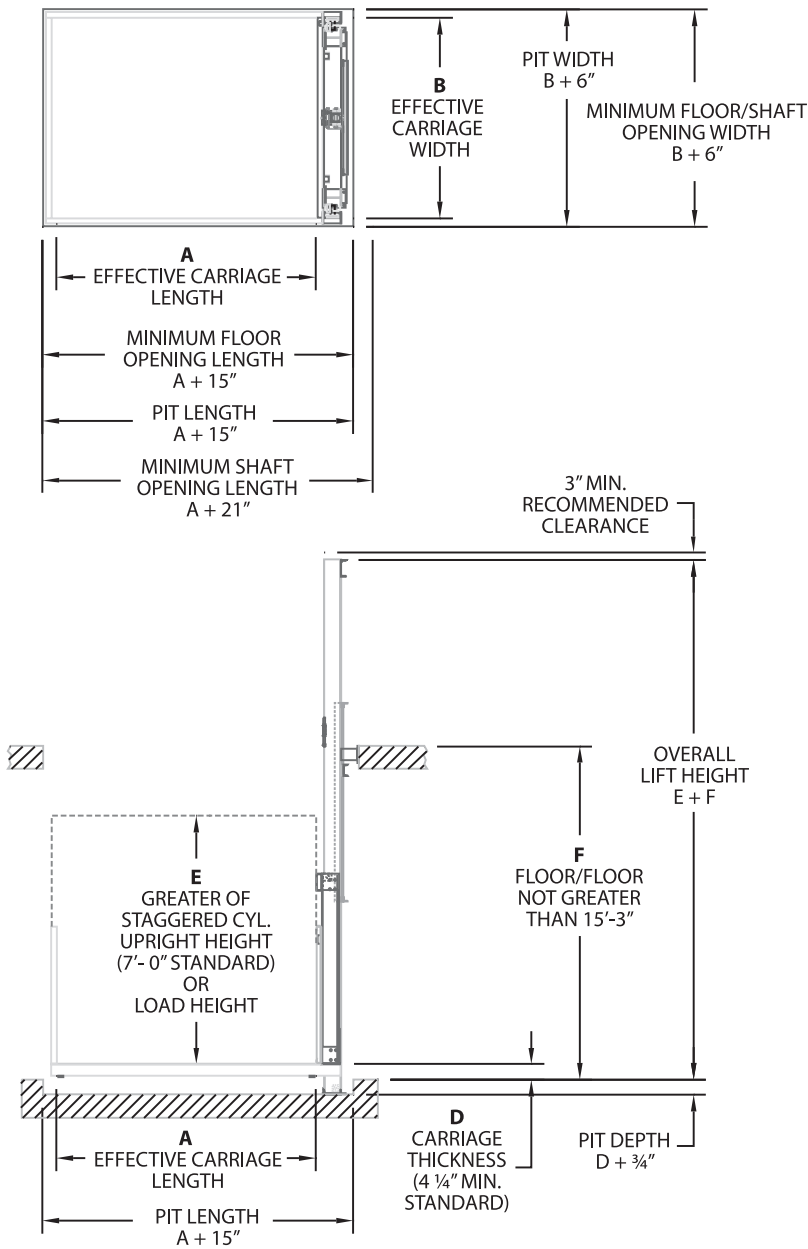


Series D Mezzanine Lift
(Shown without upper-level safety gates)



As an option, the Pflow Series D Lift can be shipped as a self-contained unit equipped to service in-plant mezzanines. The Pflow Series D Mezzanine Lift is pre-assembled and shipped with lower-level enclosures and code-approved safety gates. The lift motor pump and controls are pre-wired for fast, easy, one-day installation.

SERIES D LIFT DIMENSIONS & DATA



A Effective Carriage Length

B Effective Carriage Width

D Carriage Thickness

E Upright Height or Load Height

F Vertical Rise

Note: The dimensions shown are illustrative. Request a job-specific drawing before making any building modifications.

SERIES D SPECIFICATIONS

GENERAL

Pflow Series D Vertical Lifts move materials between two levels. Principal components are guide columns, carriage and hydraulic actuating mechanism.

APPLICATION DATA

Pflow Series D Vertical Lifts are available with: Lifting capacities up to 3,000 lbs.; carriage sizes to 6' x 6'; vertical rise to 15'. Standard travel speed is 17 fpm. Speeds to 25 fpm are available on special order.

STRUCTURE

Guide columns are 6" wide flange sections. Carriage is fabricated of 4" or 6" structural members with steel deck plate. Other deck surfaces can be supplied. Carriage is cantilever style and may be loaded from any one of three operating sides depending on application.

OPERATION

Carriage is lifted and lowered by direct-acting hydraulic cylinders. Cylinders are actuated by a remote mounted hydraulic pump. Transmission of the lifting force is direct from the base of the columns to the carriage using a Dual-Pak ram.

ELECTRICAL

Standard power requirements are 208V/230V/460V, 3-phase. Single-phase is an available option. Control voltage is 24V. Control stations and remote mounted control panel are NEMA 12. Control stations, provided for each level, include self-maintaining push buttons with mushroom-head E-Stop button. Quick-connect cabling is available as an option.

SAFETY FEATURES

Upward travel of the carriage is limited by positive mechanical stops that ensure positive leveling with the upper deck. Redundant overload protection is provided to positively prevent raising of the carriage if loaded to more than 120% of rated capacity. Velocity fuses prevent uncontrolled descent in case of hydraulic hose rupture. NO RIDER signs are posted at each point of operation.

CARRIAGE SIDE GUARDS

Carriage is equipped with safety rails on non-operating sides and safety chains or diagonal drop bars on operating ends. Optional expanded metal or sheet metal carriage side guards are available.

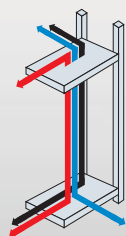
SAFETY ENCLOSURES

Safety codes (ANSI/ASME B20.1) require gates and enclosures on all sides of the lift. Enclosures must be a minimum of 8' high and reject a ball 2" in diameter. Pflow manufactures gates and enclosures with 1/2" expanded metal in a structural angle frame. Gates are accessible during loading/unloading and are electrically and mechanically interlocked with carriage movement. Interlocks prevent gates from being opened unless the carriage is at the designated level and also prevent carriage movement if any gates are not fully closed and locked.

Series D Hydraulic Lift Loading/Unloading Patterns:

- C-Pattern
- Z-Pattern
- 90°-Pattern

Note: All Patterns Are Reversible.



CANTILEVER

SERIES DB

PACKAGE HANDLING LIFTS

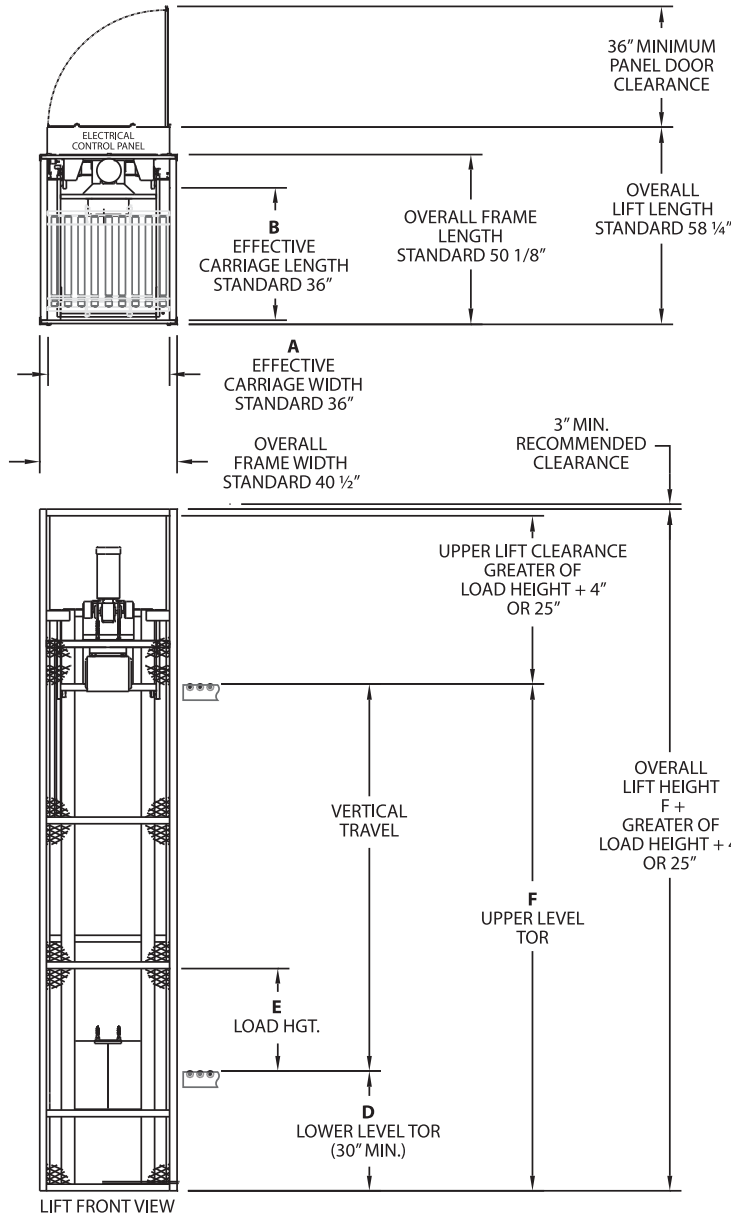
Series DB Lift Provides Fast, Safe Lifting Of Small Loads And Packages, And Features Counterweighted Lifting Mechanism For Smooth, Quiet Operation.

- Ideal for high-speed applications that require light-duty lifting of boxes, cartons, packages, totes, containers or cases.
- Provides throughput of four loads per minute (based on 100 lb. load, 10' vertical rise, 90 to 120 fpm horizontal conveying speed.)
- Perfect for use in an automated system.
- Saves space and handles loads that are often transported on an inclined conveyor.
- Completely self-contained, self-supporting and economical. Moves loads to mezzanines, between floors or between conveyor levels.
- Lifts up to 100 lb. live loads with carriage sizes up to 3' x 3'. Vertical rise to 50'. Travel speeds from 60 fpm to 400 fpm.
- Counter-weighted design minimizes horsepower requirements, saves energy costs.
- Optional variable frequency drive package ensures smooth acceleration and deceleration control in high-speed, automated systems.
- Allows loading and unloading from three sides.
- Durable, high-quality construction ensures safe, reliable, long-term performance. Standard full-height safety enclosure protects workers and materials.
- Meets ANSI/ASME B20.1 code for conveyORIZED systems.



For immediate answers to your application questions, call Pflow at 414-352-9000, or visit: www.pflow.com

SERIES DB LIFT DIMENSIONS & DATA



A Effective Carriage Length

B Effective Carriage Width

D Lower Level TOR

E Load Height

F Upper Level TOR

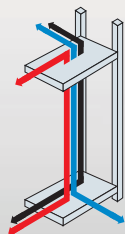
Note: The dimensions shown are illustrative. Request a job-specific drawing before making any building modifications.

Series DB Package Lift

Loading/Unloading Patterns:

- C-Pattern
- Z-Pattern
- 90°-Pattern

Note: All Patterns Are Reversible.



CANTILEVER

SERIES DB SPECIFICATIONS

GENERAL

Pflow Series DB Vertical Lifts move materials between two or more levels. Principal components are guide columns, carriage and mechanical actuating mechanism. All components are pre-assembled for ease of installation.

APPLICATION DATA

Pflow Series DB Vertical Lifts are available with: Live load lifting capacities to 100 lbs.; carriage sizes to 36" x 36"; vertical rise to 50'. Standard travel speed is 60 fpm. Travel speeds up to 400 fpm are available with variable frequency drive package.

STRUCTURE

Frame is designed to be self-supporting and constructed of structural tube and steel. Carriage is typically supplied with powered roller conveyor deck. Carriage is cantilever style and may be loaded from any one of three operating sides depending on application.

OPERATION

Carriage is lifted and lowered by dual chains or timing belts attached to an electric motor-reducer assembly mounted on the frame. Power unit employs a 1/2 HP TEFC brake motor mounted to the top of lift frame.

ELECTRICAL

Standard power requirements are 230V/460V, 3-phase. Single phase is available upon request. Control voltage is 110V. Control panel and push button station are NEMA 12. Control panel is designed to be mounted to the back of the frame, and all control devices are pre-wired at the factory. A variety of control options are available from basic interface to PLC automated controls.

SAFETY FEATURES

Upward and downward travel of the carriage is controlled by a limit switch. When the switch is tripped, the motor shuts off and the brake is engaged. Overload and carriage overtravel protection is provided.

CARRIAGE & SAFETY ENCLOSURES

Standard units include full-height enclosures on all sides made of 1/2" expanded metal. Optional expanded metal and sheet metal side guards are available for carriage.

PFLOW INDUSTRIES

FULLY AUTOMATED SYSTEMS

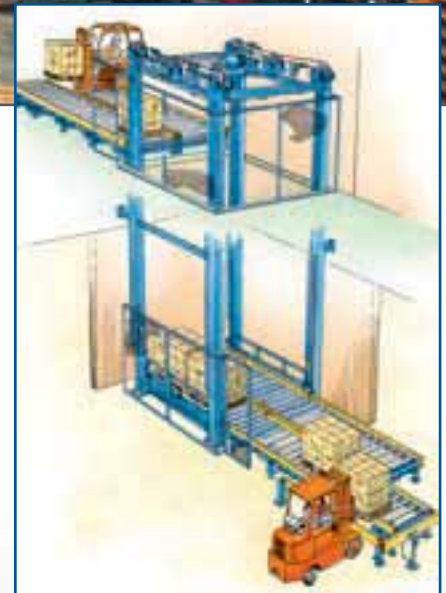


Pflow Fully Automated Systems Provide An Efficient, Reliable Way To Transport Materials In An Automated Manufacturing Or Warehousing Operation.

Custom designed to fit your exact application needs, Pflow Automated Systems range from simple two-level applications to sophisticated multi-level, multi-directional systems—providing both vertical and horizontal conveying means.

- Load capacities up to 15,000 lbs.
- Standard carriage sizes to 10' x 12'.
- Flexible loading/unloading patterns.
- Horizontal conveyors specified for load type, weight, size and throughput requirements.
- Special options included as required: Mode reversal, queuing of loads, full-queue signals, warning signals, door operators, condition lights, load stops, self-diagnostics.
- Tilt-deck, roll-handling and cart-handling systems are available.

Pflow offers single-source responsibility for system design, installation, start-up, training and debugging by factory-trained technicians; plus total support for all components including conveyors, VRCs and programmable controls.

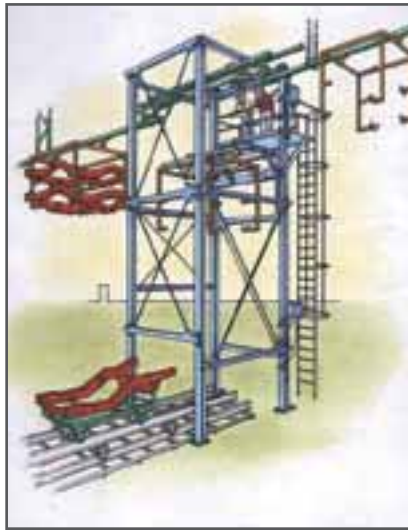


*Automated conveying systems that involve a vertical lift component differ dramatically from horizontal systems. The success of this type of system depends largely on the designer's experience. **Pflow has over 30 years experience designing fully automated systems that integrate both horizontal and vertical components.***

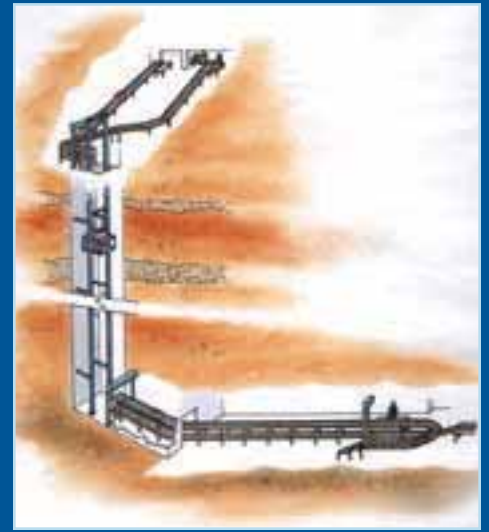
For immediate answers to your application questions, call Pflow at 414-352-9000, or visit: www.pflow.com



Paper Plant: Fully automated, high-speed system designed to catch paper rolls that are discharged from a paper machine and transfer rolls to shipping area. System had to meet high-throughput, high-frequency, heavy-load requirements (9,000 lb. rolls, 30 rolls per hour, 24 hours per day, 350 days per year.) VRC is equipped with a cushioning device to catch paper rolls and a customized V-shaped carriage that tilts to load/unload rolls. System is an integral part of the paper production line, designed to run around the clock with no downtime.



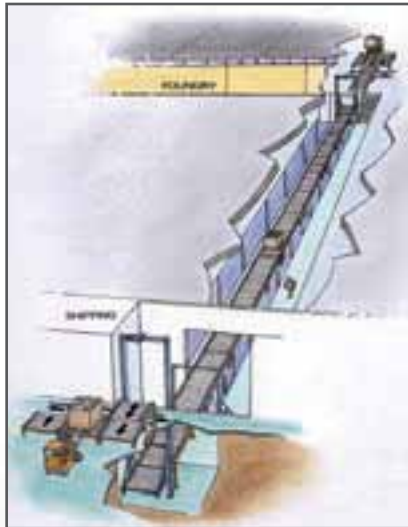
Truck Frame Manufacturer: Power-and-Free overhead conveyor system designed as an integral part of truck frame assembly line. System raises and lowers truck frames and incorporates a transfer device to push frames onto a "powered" conveyor. VRC operates at 90 fpm and features variable speed operation for soft starts/stops and precise positioning. System operates continuously at 130 cycles per hour.



University of Minnesota Library: Pflow system is an indispensable part of a university library that includes an underground archive. System is the only means for delivering library materials to and from the archive to the circulation area. Roller conveyors provide both infeed/discharge at each level and allow for continuous operation in both directions. System also services shipping dock (100 ft. away from archive) and includes a flexible, telescoping conveyor that allows for loading/unloading of library materials directly from trucks.



Brake Casting Foundry: System includes a 30,000 lb. capacity, 4-post VRC designed to raise a 24,000 lb. scrap charge bucket, mounted on a transfer car, to an elevated runway track. Charge bucket is then moved horizontally on runway track to any one of three induction melting furnaces. Scrap load is then automatically discharged into a furnace charge car. After load is discharged, charge bucket is returned to scrap area for reloading. System is operational 16 hours per day. During operation, a scrap load is lifted and moved every six minutes.



Automotive Parts Manufacturer: System features two VRCs connected by 75' of roller conveyor installed inside a tunnel. Incorporates a reversing system to accommodate outbound loads and returned empty containers. VRCs handle both infeeding and discharging of loads. Specially designed transfer cars move odd-sized, heavy loads. System includes load buffer zones at each end of the tunnel. Photoeyes monitor positions to track outbound and returned containers. System eliminated manual labor, doubled throughput, and provided a safer way to move parts from the auto parts foundry to the shipping area.



Grocery Distributor: Dual, side-by-side, automated systems provide continuous, two-way flow of pallet loads between shipping dock and second floor warehouse. Programmable controls accommodate multiple traffic flow arrangements: 1) Both systems dedicated to deliver pallets to warehouse; 2) Both dedicated to dock area; 3) One system dedicated to warehouse and the other to the dock area. Equipment is rated to handle 4,000 lb. live loads under continuous operation. Unloads or loads three semi-trailer trucks per hour when both systems are dedicated to one-way operation.

PFLOW INDUSTRIES

CUSTOM VERTICAL LIFTS

Pflow Industries Has The Engineering Capabilities, Experience And Technical Know-How To Solve A Myriad Of Vertical Lifting Problems.

We have designed vertical lifts to move materials that weigh 10 lbs. to over 100,000 lbs... with carriages from 30" x 30" to 30' x 30'... vertical heights from 4' to over 200'. We have built high-capacity oversize load work platforms, over and under equipment for assembly lines, hopper transfer systems and more. Pflow offers complete single-source responsibility for system design, installation and total support for all components including conveyors, VRCs, and programmable controls.

If you are faced with a difficult or unusual vertical lifting application, call Pflow. Whatever the size, speed and vertical height your application demands—we'll help you develop the best solution.



Missile Work Platform: Major defense contractor required a work platform to move missiles into a special chamber where missiles are tested, calibrated and certified. Vertical and horizontal travel control was critical. Pflow designed a 6,500 lb. capacity work platform that travels laterally on 18" wheels via a gear and pinion line shaft drive. Vertical travel is controlled via screw jacks mounted inside the platform support columns. Horizontal and vertical positioning is accurate to within 1/8".



Showroom Tower: Motorcycle dealership right next to the freeway wanted passing motorists to be able to see their bikes. Pflow designed a lift with a 3000 lb. capacity and a 6' X 10' carriage to transport the product to the five upper-level display areas for a towering showcase. In addition to bi-swing gates, each level has solid metal doors for added security.



Performance Stage: Normally NASCAR Nextel Cup Series™ driver Kyle Busch doesn't need a lift. But here his #5 Chevrolet rides a Pflow lift up and onto the stage at Westover Church in Greensboro, NC. As the lift retracts, the stage floor descends back into place. It's just one example of the numerous, custom vehicle lifts that Pflow has engineered and manufactured.

For immediate answers to your application questions, call Pflow at 414-352-9000, or visit: www.pflow.com



Recreational Vehicle Lift: Massive hydraulic lift accommodates a 55 ft. long recreational vehicle weighing more than 50,000 lbs. Lift retracts completely into a 13 ft. deep pit to service a 6,100 sq. ft. below-grade parking garage. Top of lift platform is covered by a 90,000 lb. lid made of steel and concrete. When in the lowered position, the platform lid doubles as part of the residence driveway. Lifting is accomplished via six 12-inch bore telescopic hydraulic cylinders and a 75 hp, 600-gallon hydraulic power unit delivering 160 GPM. Lifting capacity exceeds 100 tons.



Robotic Parking Garage: Fully automatic robotic parking garage features three high-speed vertical lifts that send and retrieve automobiles at a rate of 400 feet per minute. System incorporates a special rack retrieval system for high-density structure. Services 7-level parking garage and accommodates 325 parking spots. Programmable controls and sophisticated diagnostics help to ensure uninterrupted operation. System solved major parking needs while adding significant value and aesthetic appeal to surrounding neighborhood.



Aircraft Manufacturer: Specially engineered 4-post VRC lifts odd-sized carts that carry fragile aircraft wing parts up 20' to a mezzanine. Carriage had to accommodate a shallow floor pit and had to be built with asymmetrical bracing to provide less than 1" of deflection. Carriage measures 10' x 40' and is equipped with solid steel guards to withstand impact of tow trucks and carts while they are backed into position onto lift. VRC moves entire load (tow truck, cart and wing parts) ten times per day up to mezzanine.



Fuel Cell Manufacturer: Company needed to assemble extremely large, heavy fuel cell components and solve related vertical lifting problems. Pflow designed a system that incorporates two vertical material handling devices. Lift #1, which incorporates a screw lift mechanism, lowers a 90,000 lb. piece below grade level. Lift #2 lifts a 20,000 lb. piece, traverses the piece sideways and then lowers it on top of the 90,000 lb. piece. After the two elements are assembled together, Lift #1 then raises the resulting 110,000 lb. load back to grade level for shipping.



Stainless Steel Lift: Pflow lifts have been designed to move materials inside freezers, chemical plants, high-temperature facilities, oil rigs, wash-down facilities, petrochemical plants, clean rooms and more. We have customized lifts to operate aboveground, underground and even underwater. We have built lifts of stainless steel and galvanized steel for extreme environmental conditions. Pflow has the capability to design a vertical lift that meets any application challenge. Call us to discuss your vertical lifting needs.

SAFETY SYSTEMS

SAFETY GATES

Quality, Code-Approved Safety Gates & Enclosures Provide Maximum Safety Protection For VRC Installations.

All gates are equipped with elevator-approved electro-mechanical interlocks and are available in custom sizes.

Vertical acting gates, available in single and bi-panel models are designed to save space, don't intrude into aisles, and are not easily damaged. Bi-panel models, with telescoping panels, offer the most space-efficient protection and require significantly less overhead clearance.

Non-binding UHMW sliding guides on vertical acting gates tolerate misaligned posts better than roller guides and are more resistant to damage. Chain is used instead of cable for greater strength and durability.

Vertical acting gates are counterbalanced with an exclusive cross-shaft design. This ensures the gate remains constantly level when raised from either the right side, left side or center.

Single or bi-parting swing gates and **sliding gates** are offered in a variety of widths. Tubular panel construction on swing gates allows for oversized gates to 7' width maximum.

Enclosure panels are made of 8' high, 1/2" expanded metal. Standard panels are 6" to 5' wide and painted to match VRC. All mounting hardware is included. Nonstandard sizes, custom finishes and galvanized panels available on request.

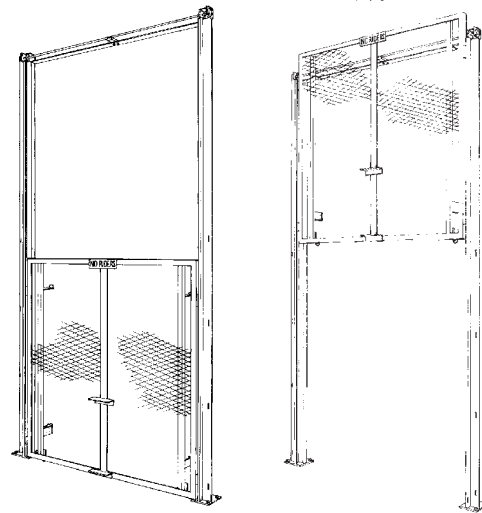
Both pneumatic and motorized operators are available for vertical acting and sliding gates to allow push button operation.

Accessories For An Exact Fit

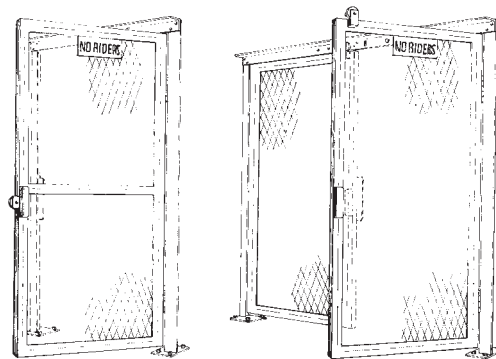
Pflow Safety Gates and Enclosures can be equipped with a variety of accessories to fit your application. These include filler panels, inside and outside angles, wall fasteners, stiffeners and mounting hardware. Power operators are available on vertical acting and sliding gates.

Variety of Gate Interlocks

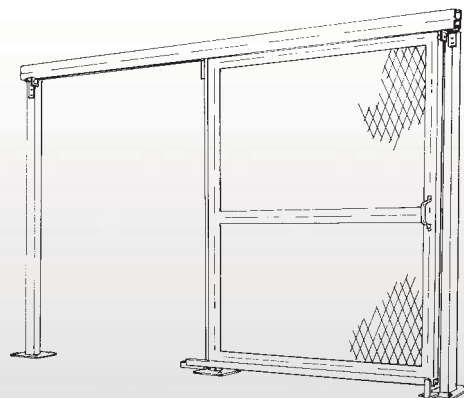
Pflow offers a wide variety of safety gate interlocks to meet your exact application requirements (including environmental and explosion-proof.) Interlocks prevent the gate from being opened unless the carriage is at a designated level and also prevent carriage movement if the gate is not fully closed.



Vertical Acting Gates provide ease and safety in loading and unloading of Pflow VRCs. Standard clearance permits passage of full 7' high loads. A 72" high vertical acting gate is recommended at all levels. In certain applications, a 48" high gate may be sufficient at the upper level.



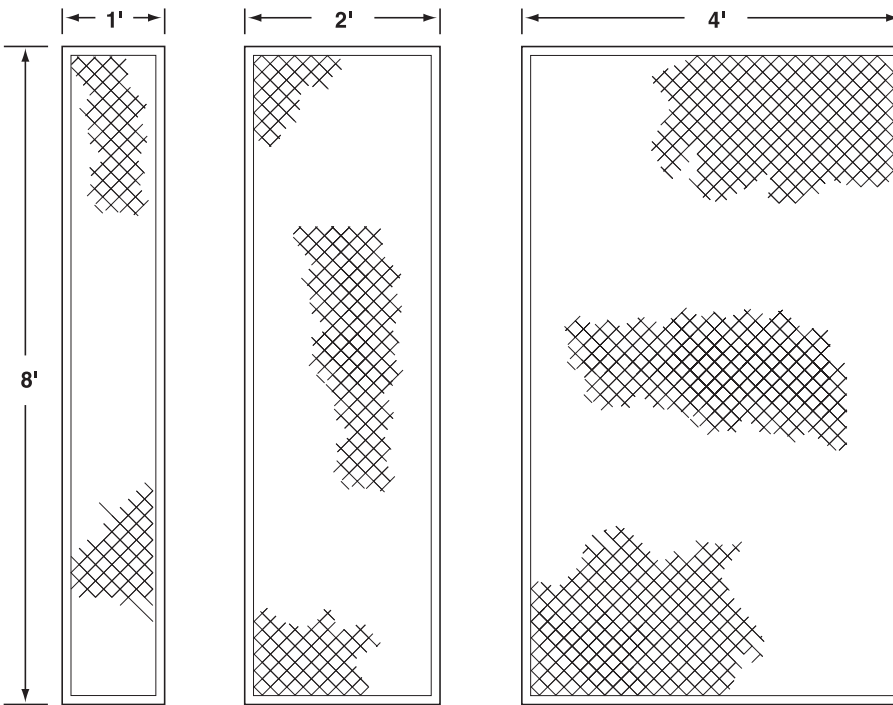
Single and Bi-parting Swing Gates are available in a variety of widths. Equipped with 8' post heights that permit passage of full 7' high loads. Maximum single-panel width is 7'. Bi-parting swing gates save space using smaller panels and come in standard sizes to 12' wide overall. Both types are available in custom sizes.



Sliding Gates conserve space and are supplied with overhead track and 8' high support posts to permit passage of full 7' high loads. The maximum standard width is 11' overall. Custom sizes and bi-panel gates are available.

For immediate answers to your application questions, call Pflow at 414-352-9000, or visit: www.pflow.com

ENCLOSURES



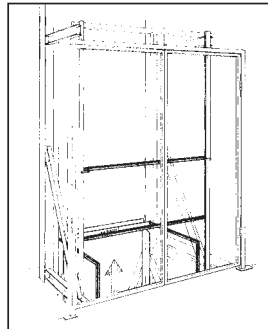
Pflow provides enclosure panels fabricated of 1/2" expanded metal and structural angle in 1' to 5' increments. Supplied with appropriate mounting hardware and painted to match the VRC.

SAFETY BARRIERS

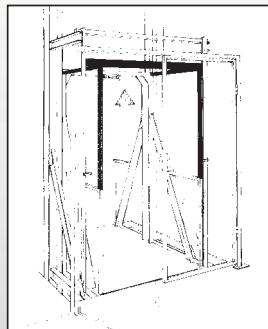
AVAILABLE AS AN OPTION

Pflow Safety Barrier Adds A New Level Of Safety And Helps Prevent Accidents.

- Provides an extra measure of protection to VRCs by acting as a backup system to standard safety gates and doors. Ensures backup protection if the vertical lift safety gate or door interlock system is damaged or malfunctions.
- Installs directly to your vertical lift—behind the lift safety gate or door. Automatically creates a barrier at uppermost openings when the carriage is not present.
- Fully automatic—requires no controls or complicated mechanisms.
- Highly recommended for use with opaque doors or with gates installed in areas with poor lighting.



Safety bars are in position at upper-level opening as the vertical lift carriage is raised from a lower level.



When carriage is in position at upper-level opening, both safety bars are at the highest position, completely out of the way. When carriage is lowered again, the bars automatically are lowered into position to close off upper-level opening.

SAFETY REQUIREMENTS

Pflow installation crews are skilled in applying all safety devices in accordance with OSHA, ANSI/ASME B20.1 code. The following guarding is required to meet code:

- All accessible sides of the unit not used for loading or unloading must be protected by enclosures a minimum of 8' high and capable of rejecting a ball 2" in diameter at each level. If attached to the edge of a mezzanine or balcony, only minimal enclosure is required because the equipment is guarded by location.
- In a manual loading application, each unit must be equipped with a safety gate that is electrically and mechanically interlocked with the carriage movement.
- To protect workers from exposure to moving machinery, Pflow gates are a minimum 6' high (4' at the upper level may be used in some low-clearance situations).
- Any combination of shaftways, walls or permanent enclosures that provides equivalent protection is acceptable. Fire doors, acoustic doors, finish doors, etc., are acceptable if they are provided with appropriate interlocks.

FIRE CODE REQUIREMENTS

If a floor is penetrated, your insurance company or local fire authorities should be contacted to determine if a fire-rated enclosure is required.

Each VRC application should be reviewed for adherence to all codes.

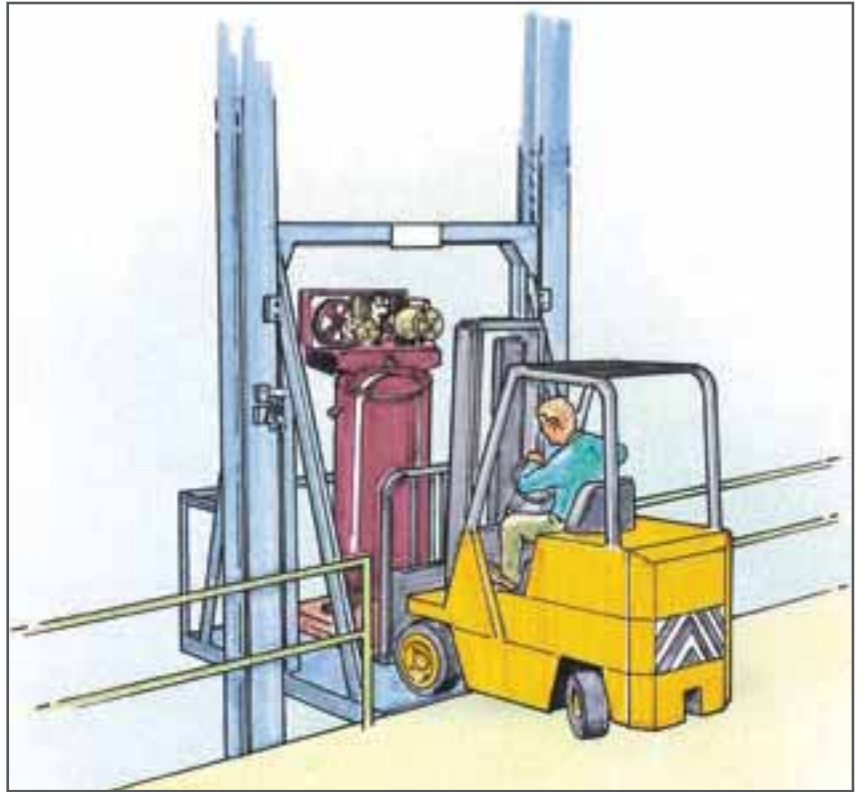
SAFETY SYSTEMS

DECKLOCK

AVAILABLE AS AN OPTION

Pflow's Patented DeckLock System For Vertical Reciprocating Conveyors Locks In Safety At Every Level.

- Exclusive safety system available only on Pflow vertical lifts.
- Locks automatically extend to prevent carriage free fall at critical upper levels.
- Offers added assurance for safe loading and unloading with a forklift.
- Prevents uncontrolled descent in the case of overload condition during loading/unloading operations.
- Protects men, materials and machines by eliminating potential accidents caused by carriage drop.
- Simple and reliable gate-operated mechanical version as well as pneumatic and electric version.



High-capacity DeckLocks automatically extend to prevent uncontrolled descent at critical upper levels.

SAFETY CAMS



In the unlikely event of a lifting chain break, a Pflow "safety cam," mounted on the carriage and positioned between the flanges of the guide column, will immediately and automatically rotate into position.

These spring-loaded safety cams are designed with a series of hardened teeth. As they rotate into position, the downward pressure of the carriage forces them into the flanges of the guide columns, preventing carriage descent. When chain tension is returned to normal, the cams automatically rotate back to their inoperative position, allowing the VRC to resume normal operation.

On Series M and F units, slack or broken chain conditions are sensed by a switch on the chain tensioner assembly which cuts power to the drive.

MAINTENANCE PINS



Maintenance pins are available as an option to add additional safety when performing service on the VRC. Maintenance pins can be actuated manually or automatically and can be interlocked with the lift operation. When actuated, the maintenance pins extend under the carriage structure to remove potential energy and provide additional assurance that the VRC carriage is properly secured.

Pflow Vertical Lifts are built with a substantial safety factor, but inadvertent overload can result in dangerous, unintentional carriage descent. Mechanical vertical lifts depend upon spring-set brakes to maintain the carriage position. These brakes are sized to provide a minimum of 150% of maximum load capacity; however, wear and lack of brake maintenance can reduce that capacity. Overload of the carriage can cause brake slippage.

SERVICE & SUPPORT

We don't just offer solutions up front during the design and engineering stage, but all the way through the life cycle of the product.

After the sale, we have a dozen aftermarket sales and service specialists who are fully dedicated to superior customer support. We stand behind our product with the knowledge and parts to ensure that a lift keeps functioning continuously at peak performance levels.

You can call on us for troubleshooting, on-site assistance and a variety of duties in between, such as:



- **Site Measurements**
- **Drawing Approval**
- **Safety Inspections**
- **Code Compliance Inspections**
- **Installation Supervision & Assistance**
- **Start-up & Training**
- **Maintenance Contracts**
- **Extended Warranties**

Our highly-trained technicians are available 24/7. If a problem does arise, one of them will be on the next flight out to get a unit up and running whether it's located in North America or overseas.

Pflow also has an ongoing improvement and training program in place for dealers, installers and technicians. We regularly conduct Service and Sales Schools at our headquarters in order to keep people up-to-date and machines up-to-speed.

It's no secret that many competitive dealers call us for service and support help.

Assistance is available on-line as well as in the field. Comprehensive Owner's Manuals are accessible in PDF Format so that they can be easily downloaded. Each Manual also includes exploded drawings of subassemblies.

In 2006, Pflow purchased the Langley Manufacturing Company, a builder of high-quality material lifting and dumping machinery for over 40 years. Existing Langley customers can rely on Pflow for continued service and replacement parts. We also maintain an extensive parts inventory for each of our series of lifts.

Work with Pflow and you'll discover what our thousands of satisfied customers have come to know and expect. Our engineered-to-order products are designed and manufactured to provide years of trouble-free operation. And in case you need help, we have the resources and highly qualified people to get you up and running as quickly as possible.



FIRST OF ALL... NOBODY KNOWS VERTICAL LIFTING BETTER THAN PFLOW

Instrumental in creating the vertical conveyor market, Pflow has led the industry from the start:

- **First** to offer safe, efficient VRCs.
- **First** manufacturer to sit on the ANSI/ASME B20.1 Board Committee.
- **First** to guarantee code approval.
- **First** manufacturer with continuously active R&D and testing programs.
- **First** to offer mechanically driven unit employing lift chains.
- **First** with the four-post design for added capacity and size.
- **First** with automated VRC systems.
- **First** to offer patented LevelDeck carriage leveling system.
- **First** to introduce patented DeckLock safety system.
- **First** to offer extended warranty program—the most impressive in the industry.
- **First** to guarantee delivery.



Some of Pflow's 100+ team members gather outside our new building in Milwaukee, Wisconsin.

When you buy from Pflow, you can be assured of a vertical lift that meets your exact needs. There are other companies that dabble in the VRC business, but nobody can match Pflow's commitment to research & development, product innovation, engineering expertise, manufacturing excellence and total customer support. We were the first in the Vertical Reciprocating Conveyor industry, and we intend to remain the best. At Pflow, vertical lifts are our business . . . our only business.

PFLOW
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Pflow is a member of CEMA, MHEDA, NAEC and MHIA.

Pflow Vertical Reciprocating Conveyors are covered by one or more of the following U.S. Patents: 5,228,537; 5,205,379; 5,601,157; 5,908, 088. Other patents pending.