VECTOR performance proven VACUUM SOLUTIONS™

Vac Attack!

VecLoader® Vacuums for Catalyst Handling
To 6,200 CFM/ 28" Hg/350 Horsepower
Versatile Closed-Loop Systems with Exceptional Power

Vector Technologies has developed a line of trailer-mounted Catalyst vacuums for the unloading of petrochemical reactors and vessels under inert conditions. VecLoader Catalyst Vacuums are self-contained, closed-loop vacuum systems specifically configured for catalyst handling. Each model will vacuum and directly discharge catalyst product into a tote, truck, dumpster or other collection device. VecLoaders feature ease of set-up and minimal maintenance. VecLoaders Catalyst vacuum remain on the job full time without the dumping, hoisting, and other multiple handling steps required with vac trucks or other vacuum systems. All while providing the utmost in control and safety with an investment significantly below that for a vacuum truck or alternative system.

Vector Catalyst vacuums are completely self-contained, closed loop vacuum conveyance systems. Inert gas is used in lieu of ambient air to convey the recovered product and pulse the baghouse filter bags. Product is vacuumed from the containment vessel into the baghouse/receiver under controlled conditions. The inert gas and the recovered materials are then cyclonically separated within the baghouse/receiver, allowing catalyst-handling jobs to be performed with safety and operating efficiency. The collected material is discharged from the baghouse/receiver through an optional continuous double dump valve or standard gravity dump system. Transport air passes through the filter section and is drawn through the vacuum pump with the filtered inert gas being returned the containment vessel via a return hose. The Vector Catalyst vacuum can also be operated using ambient air in a by-pass mode for jobs where controlled conditions are not required.

VecLoaders feature Roots style positive displacement blowers to 28" Hg, complimented by excellent filtration. Each model shares the common attributes of being simple to use without complicated set-up and easily maintained. VecLoader's direct discharge allows the vacuum to be on the job full-time; eliminating the shoveling, hoisting, dumping, and other multiple handling steps associated with alternative systems. Material discharge can be into drums or (subject to atmospheric controls) directly loaded directly into trucks, dumpsters, or other collection devices. VecLoaders vacuum are a preferred alternative to vacuum trucks at less than ½ the price.

Toll Free 1(800) 832 4010

DELIVERING MORE EFFICIENCY, FLEXIBILITY AND POWER

Vector Technologies Ltd./ Vacuum Engineering Division/ 6820 N. 43rd Street/ Milwaukee WI USA 53209

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Web Site: www.vector-vacuums.com/ E-Mail: sales@vector-vacuums.com

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Model 624 can be towed with a "One-Ton" Standard Miltary Hitch Trailer

Hopper in Partially Raised Position with Optional Gooseneck Trailer

Side View of Catalyst Nitrogen Vacuum Standard Military Hitch Trailer

US SPECIFICATIONS- SELECT DIESEL MODELS WITH OTHERS AVAILABLE SIMILIARLY POWERED UNITS ARE AVAILABLE WITH ELECTRIC MOTORS

Models	Mini-VecLoader 100	VecLoader Titan 616 HP	VecLoader 624	VecLoader Titan 721	VecLoader Titan 6100HP
Maximum CFM/Hg	1,340/28"	2,367/28"	3,510/16"	3,510/16"	6,150/28"
Diesel Horsepower	99	170	155	225	350
Primary Filtration	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned
Secondary Filtration	Pleated cartridge	Pleated cartridge	Pleated cartridge	Pleated cartridge	Pleated cartridge
Maximum Hose Diameter	4"	5"	6"	6"	8"
Dimensions (L, W, H)	16' 1", 7' 2", 10' 0"	17' 5", 8' .5", 11' 2.5"	17' 5", 8' .5", 11' 2.5"	21'0", 8' 2.5", 11' 4"	24' 10", 8' 4.0", 11' 4
Empty Weight Number of Axles	8,100# 2	10,500# 2	10,500# 3	13,950# 3	22,350# 3
Maximum Conveying	1,200'	1,200'	600'	1,200'	1,200'
Maximum Performance/Bulk*	5-7 tons/hr.	10-12 tons/hr.	12-15 tons/hr.	15-18 tons/hr.	23-27 tons/hr.
Maximum Performance/Liquid*	115 gallons/min.	300 gallons/min.	325 gallons/min.	425 gallons/min.	550 gallons/min.

*** Performance figures are averages based on easily conveyed products at shorter distances. Many factors will affect vacuum productivity.**

Options and Alternative Designs:
Power: Diesel, electric, explosion resistant. **Mounting:** Road legal trailer, all terrain, skid, truck, and crane.
Unloader valves: Double dump, gravity, rotary airlock, and specialty valves. **Filtration:** HEPA, nuclear, carbon, product specific.
Accessories: Cyclones, drum fillers, intermediate hoppers and separators, bagging stations, vacuum hose, specialty nozzles, and engineered solutions.

VecLoaders are extremely powerful and compact vacuum systems, incorporating innovative technology to solve a wide range of industrial vacuuming and conveyance needs. They move coal, ash, dirt, blast media, sand, stone, water, slurry and other flowable bulk materials utilizing either four, five or six inch diameter hose or multiple smaller diameter hoses. Modular in design, VecLoaders can be easily matched to a broad assortment of customer specified cyclone separators, filter-receivers, collections systems, classifiers, self-dumping hoppers and intermediate collection devices. Specifications subject to change without notice so that improvements are made as quickly as possible.

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Hopper in Partially Raised Position with Optional Gooseneck Trailer

Side View of Catalyst Nitrogen Vacuum Standard Military Hitch Trailer

METRIC SPECIFICATIONS FOR SELECT DIESEL MODELS (OTHER MODELS AVAILABLE) SIMILIARLY POWERED UNITS ARE ALSO AVAILABLE WITH 3ø ELECTRIC MOTORS

Models	Mini 100	Titan 616 HP	624	Titan 721	Titan 6100HP
Max: M^3/mmHg	2,212/712	4,022/712	5,964/406	6,216/712	10,500/712
Diesel Kw	75	128	116	172	242
Baghouse Filtration	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned	Coated bags pulse air cleaned
Secondary Filtration	Pleated cartridge	Pleated cartridge	Pleated cartridge	Pleated cartridge	Pleated cartridge
Maximum Hose Diameter (cm)	10.16	12.70	15.24	15.24	20.32
Dimensions (L, W, H)	400, 234, 274 cm	532, 250, 350 cm	532, 250, 350 cm	532, 250, 350 cm	760, 250, 350 cm
Empty Weight	3,200 Kg	5,550 Kg	5,550 Kg	6,340 Kg	10,900 Kg
Maximum Conveying Distance	300 M	300 M	185 M	300 M	300 M
Maximum Performance/Bulk*	5-6 Tonnes/hr.	9-11 Tonnes/hr.	11-14 Tonnes/hr.	14-16 Tonnes/hr.	23-27 Tonnes/hr.
Maximum Performance/Liquid*	430 L/min.	1,100 L/min.	1,230 L/min.	1,600 L/min.	2,000 L/min.

*** Performance figures are averages based on easily conveyed products at shorter distances. Many factors will affect vacuum productivity.**

Options and Alternative Designs:
Power: Diesel, electric, explosion resistant. **Mounting:** Road legal trailer, all terrain, skid, truck, and crane.
Unloader valves: Double dump, gravity, rotary airlock, and specialty valves. **Filtration:** HEPA, nuclear, carbon, product specific.

Accessories: Cyclone drum fillers, intermediate hoppers and separators, bagging stations, vacuum hose, specialty nozzles, and engineered solutions.

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Baghouse Discharge System
Catalyst Vacuum Packages

The gravity discharge system for Vector Catalyst Vacuums is an extension of the Vector's standard gravity dump-door design. On a standard VecLoader, the filter-receiver (Baghouse) discharges when a dump cycle is initiated, opening a butterfly valve, allowing equalization of pressure between the filter-receiver and atmosphere. During the vacuum cycle, the butterfly is closed and the vacuum holds the counterweighted discharge door closed. Solid state controls manage the duration of both the dump cycle and vacuum cycle on adjustable preselected timed basis. The standard dump system on the Catalyst vacuum is enhanced due to the necessity to be able to keep the pyrophoric collected material from being in contact with atmosphere.

The gravity discharge system on Vector Catalyst Vacuums is comprised of a counterweighted discharge door mounted on the conical bottom of the filter-receiver, a repeat cycle timer (function described below), and two pneumatically actuated butterfly valves.

The butterfly valves are always in an opposed state. The valves are plumbed to achieve a diverter assembly with the vacuum source common to both valves. One valve is then plumbed to the filter receiver outlet and the other valve is plumbed to a bypass connection that can be either: 1) left open to atmosphere for normal vacuuming or, 2) plumbed back to the reactor for closed-loop operation. Upon dump timer initiation, the valve cycles in opposed states. The closed-loop design is shown on a flow diagram, next page.

When the valve connected to the filter-receiver outlet is open, air is drawn out by the positive displacement blower, creating a vacuum on the filter-receiver that holds the counterweighted discharge door closed. When the timer changes its state, the valves also change state, and the valve that is connected to the filter-receiver closes for dumping. This relieves the vacuum on the filter-receiver and allows the gravity door to open and discharge. The operating cycle is repeated over and over until the timer is turned off. On Catalyst systems, the discharge door is fitted with a pneumatically operated override, allowing the door to be closed during a discharge cycle to prevent overfilling of totes or other containers.

In lieu of the aforementioned gravity system, a Continuous Discharge Valve system is offered. The advantage of a Continuous Discharge Valve is that vacuum continues the vacuuming and discharge process without break The standard catalyst gravity dump is a batch processing devise. However, since catalyst is typically very flowable, the dump cycle with a gravity dump is 3 to 5 seconds, dependent on vacuum model. The vacuum cycle is generally anticipated to be 3 to 5 minutes in duration. Extending this computation, time lost to batch processing should be than one or two minutes per hour. So, many users find the simplicity and low maintenance of the gravity dump system to be the best approach.

A pneumatic butterfly valve is additionally offered as lower cost alternative to the Continuous Discharge Valve. While not providing continuous discharge, this butterfly dump will provide the benefit of added control over a standard air-assisted gravity dump.

Alternative Discharge Devises

Pneumatic 10" Butterfly

Standard Air-assisted Valve

Continuous Discharge Valve

Performance Proven Vacuum Solutions™

Discharge Valves Matched to Specific Customer Needs

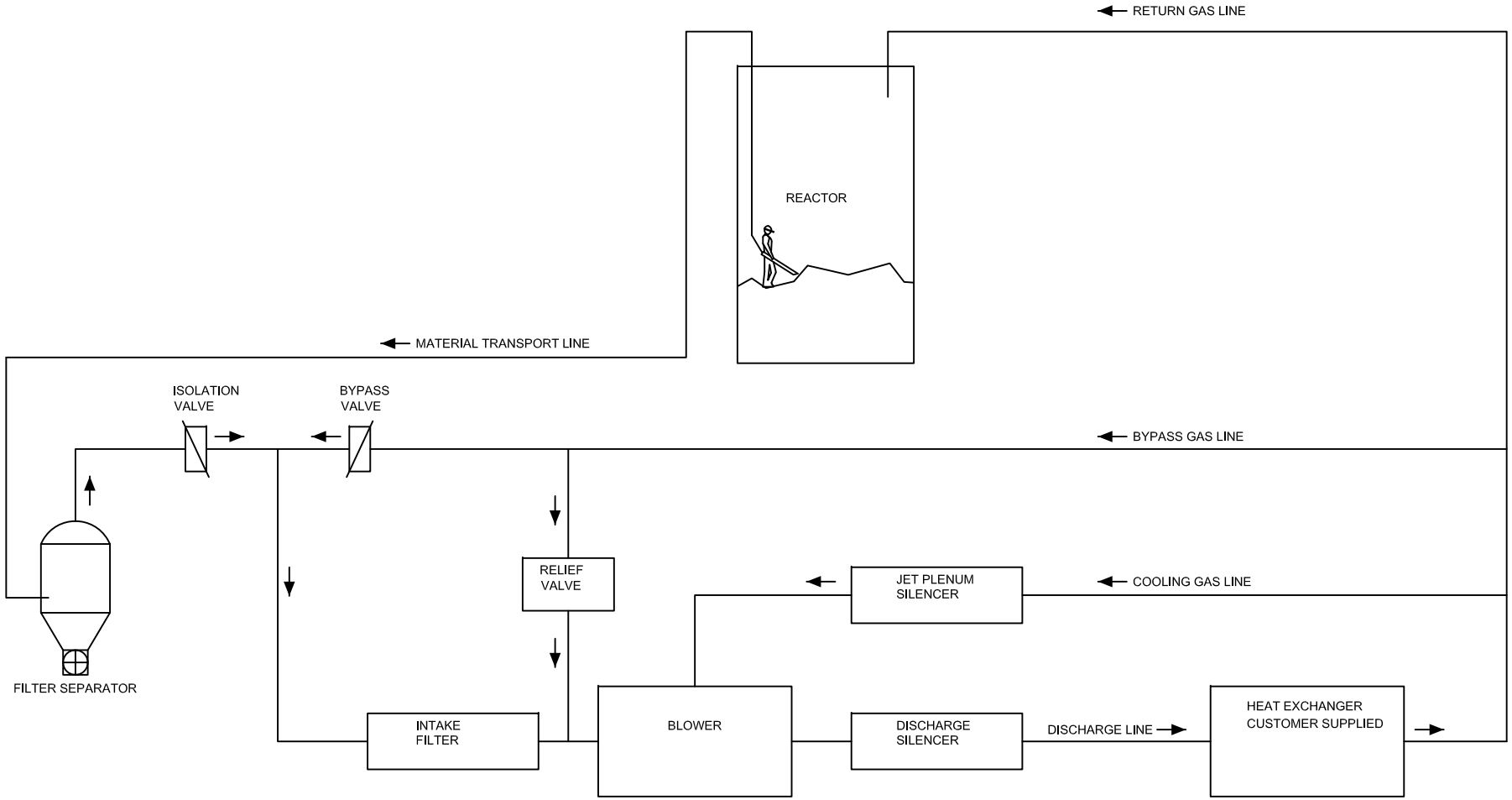
Continuous Discharge Valve

Standard Gravity Dump Door with Pneumatic Assist

Chose from a variety of bulk loading and continuous baghouse unloading options. All valves are flanged for ease of changeover, transport and maintenance.

1. ALL DIMENSIONS SHOWN ARE IN INCHES.

NOTES: UNLESS OTHERWISE SPECIFIED



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Vector Technologies Ltd.
performance proven VACUUM SOLUTIONS™
Ross Cook BRAND

TITLE: INERT GAS TRANSPORT SYSTEM
28" Hg Hi-mercury models

SIZE	CAGE CODE	DWG. NO.	REV.
D		IGTS PROCESS FLOW	—

SCALE NTS | CALC WT | ACT WT | SHEET 1 OF 1