BULK MATERIAL HANDLING
Vacuum/ Pressure Systems

Technical Specifications

The SVP series Bulk Material Handling Systems provide an economical all-in-one vacuum/pressure package featuring a single blower and motor. The SVP single blower vacuum/pressure system is ideal in many applications where pelletized material is to be conveyed from railcars to bulk storage silos with similar equivalent conveying distances for both the vacuum and pressure side of the system. For uneven equivalent distances, longer conveying distances or the need for higher throughput rates the dual blower/dual motor vacuum/pressure systems may be the solution for your application.

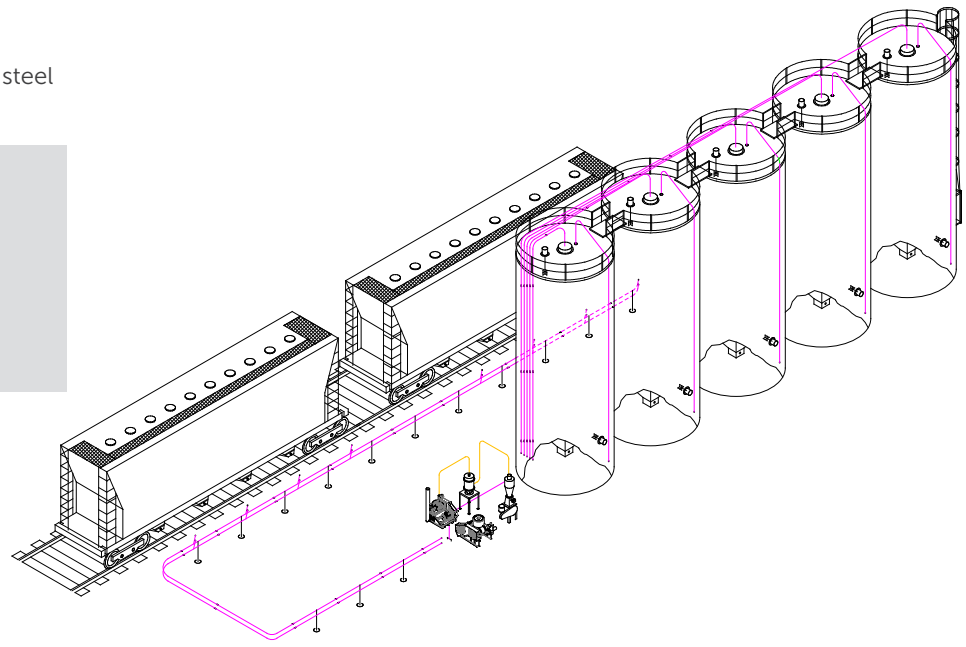
Features

Standard Features

- Single or dual blower configurations
- Single blower systems available in 30, 40, or 50 HP
- Cyclone receiver - pellet
- Continuous self-cleaning filters/receiver - powder
- Rotary valve
- Pressure take-off adapter in mild or stainless steel
- Cartridge-style vortex filter chambers

Optional Features

- Alternate voltages
- Continuous vacuum/pressure power units available in 7.5 - 50 HP
- System after-cooler
- Diverter valve with control interconnect



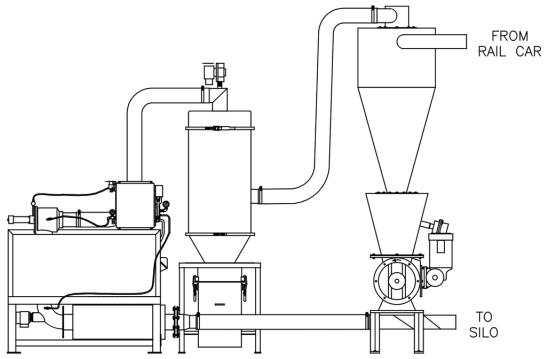
STERLING BULK MATERIAL HANDLING SYSTEMS

Vacuum/Pressure continuous loading systems are used to transfer material over long distances or at high volumes from various material sources like railcars to any number of use points such as bulk storage silos.

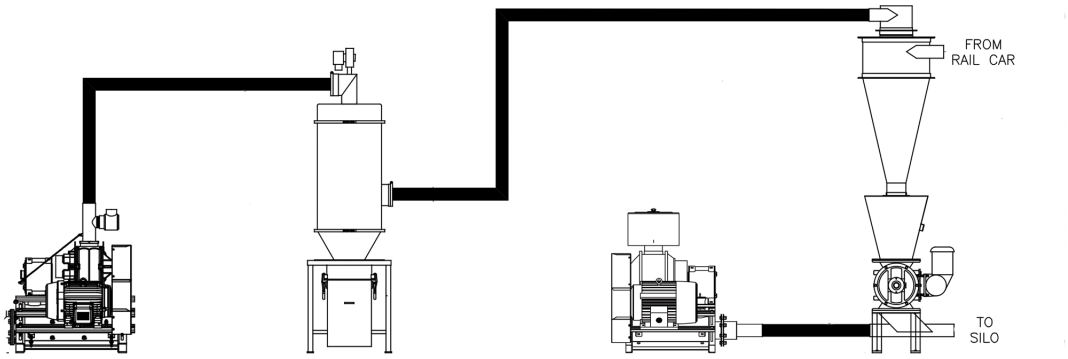
The transferred material is separated from the vacuum air stream using a Filter Receiver or Cyclone assembly and metered into the pressure side of the system. A rotary airlock is used to maintain a separation between the vacuum and pressure side of the system and to meter the material into the pressure airstream.

Quick Change manifolds can be used on both the vacuum and pressure sides of the system and assist in material distribution.

Typical Single Blower System



Typical Dual Blower System



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Single Blower Vacuum/Pressure Units

12" Hg/6 psi (406 millibars/41.37 kPa) maximum. Single blower units include positive displacement blower, air-operated vacuum vent valve, 460/3/60 TEFC motor, vacuum and pressure gauges, pressure check valve, and mechanical pressure release valve.

System must be designed with relatively similar vacuum-side and pressure-side equivalent conveying distances for proper operation. Add proper cyclone/filter receiver, rotary valve, pressure take-off adapter, central filter, and control panel.

Model	Power Unit HP (kW)	Line Size in. dia. OD	Airflow cfm (cmh)	FLA @ 460V	Recommended Cyclone Size
SVP 30	30 (22.4)	3	20 (51)	36	WSC4
SVP 40	40 (29.8)	4	26 (66)	47	WSC5
SVP 50	50 (37.3)	5	28 (71)	59	WSC6

Continuous Vacuum Power Units

Standard 12" Hg (406 millibars) maximum. All vacuum power units include a positive displacement blower, vacuum gauge, 460/3/60 TEFC motor, and vacuum relief valve.

Model	Power Unit HP (kW)	Line Size in. dia. OD	Airflow cfm (cmh)	FLA @ 460V
CVP 7.5	7.5 (5.6)	2.5	150 (255)	10
CVP 10	10 (7.5)	3	225 (382)	13
CVP 15	15 (11.2)	3, 3.5 (3 SCH. 5)	225, 303 (382, 515)	18
CVP 20	20 (14.9)	4	408 (693)	25
CVP 25	25 (18.6)	4.5 (4 SCH. 10)	495 (841)	31
CVP 30	30 (22.4)	5	646 (1098)	36
CVP 40	40 (29.8)	5 SCH. 10	765 (1300)	47
CVP 50	50 (37.3)	6 SCH. 10	1100 (1869)	59

Continuous Pressure Power Units

Standard 6 psi (41.37 kPa) maximum. All "Pressure" power units include a positive displacement blower, pressure check valve, mechanical pressure relief valve, 460/3/60 TEFC motor, pressure gauge, inlet filter/silencer and premium discharge silencer.

Model	Power Unit HP (kW)	Line Size in. dia. OD	Airflow cfm (cmh)	FLA @ 460V
CPP 7.5	7.5 (5.6)	2.5	150 (255)	10
CPP 10	10 (7.5)	3	225 (382)	13
CPP 15	15 (11.2)	3, 3.5 (3 SCH. 5)	225, 303 (382, 515)	18
CPP 20	20 (14.9)	4	408 (693)	25
CPP 25	25 (18.6)	4.5 (4 SCH. 10)	495 (841)	31
CPP 30	30 (22.4)	5	646 (1098)	36
CPP 40	40 (29.8)	5 SCH. 10	765 (1300)	47
CPP 50	50 (37.3)	6 SCH. 10	1100 (1869)	59

System Aftercooler: Air-Cooled/Fan Operated or Water Cooled

Either the Air-to-air heat exchanger with fan and TEFC motor or the Water Cooled Aftercooler is recommended for SVP or CPP systems with soft material (PE) and high ambient temperatures. For temperatures below 250ºF (121ºC), discharge temperature is reduced to approximately 30ºF (17ºC) of ambient.

Control System

NEMA 12 control panel, 115/1/60 includes starter for one rotary valve and one or two power units. Optional selector switch for high level receiver cut-off has up to 10 positions. Starters are available for additional rotary valves.

Cyclone Receivers

Pellet systems only. All cyclone receivers include 3108-A mounted in sidewall of throw-out cone for high level cutoff.

Model	Motor Power HP (kW)	Line Size in. dia. OD	Airflow cfm (cmh)
WSC3	7.5 (5.6)	2.5	150 (255)
WSC4	10 (7.5)	3	225 (382)
WSC5	15 (11.2)	3, 3.5 (3 SCH. 5)	225, 303 (382, 515)
WSC6	20 (14.9)	4	408 (693)
WSC7	25 (18.6)	4.5 (4 SCH. 10)	495 (841)
WSC8	30 (22.4)	5	646 (1098)

Continuous Self-Cleaning Filter/Receivers

Self-cleaning filter/receivers include enamel exterior, primed interior, legs with adequate clearance for airlock with discharge adapter, NEMA 4 control panel, 3108-A mounted in receiver side wall for high level cutoff, and 115/1/60 voltage.

Model	Vacuum Power Unit HP (kW)	Filter Area sq. ft. (sq. m)	Compressed Air scfm @ 90-100 psi	Compressed Air slpm @ 620-690 kPa
SCF-51/7.5	7.5 (5.6)	51 (4.7)	3.3	93.4
SCF-74/10	10 (7.5)	74 (6.9)	3.5	99.1
SCF-106/15	15 (11.2)	106 (9.8)	5.1	144.4
SCF-127/20	20 (14.9)	127 (11.8)	5.9	167.1
SCF-191/25	25 (18.6)	191 (17.8)	6.5	184.1
SCF-229/30	30 (22.4)	229 (21.3	6.8	192.5
SCF-255/40	40 (29.8)	255 (23.7)	6.9	195.4
SCF-305/50	50 (37.3)	305 (28.4)	7.2	203.9

Self-Cleaning Bin Vent Filters for Mounting to Silos

Self-cleaning bin vent filters the exhausted conveying air and includes mild steel construction, weather hood, primed interior, enamel exterior, NEMA 4 control panel, 16 oz. polyester bags, safety grid, and 115/1/60 voltage.

Model	Max. Flow, 5-1 Ratio cfm (cmh)	Filter Area sq. ft. (sq. m)	Weight lbs. (kg)	Inlet sq. opening sq. in. (sq. cm)	Compressed Air scfm @ 90-100 psi	Compressed Air slpm @ 620-690 kPa
BB-16-58	585 (994)	117 (10.9)	610 (277)	32 (81.3)	5.9	167
BB-16-84	850 (1444)	170 (15.8)	720 (327)	32 (81.3)	6.2	176
BB-25-84	1325 (2251)	265 (24.6)	940 (427)	40 (101.6)	7.5	212

Central Filters: Self-Cleaning

Self-cleaning central filters (CFQ Series) include primed interior, enamel exterior, 115/1/60 voltage, 24" clearance, NEMA 4 control panel, and manual dump valve on filter discharge flange.

Model	Vacuum Power Unit HP (kW)	Filter Area sq. ft. (sq. m)	Airflow cfm (cmh)	Compressed Air scfm @ 90-100 psi	Compressed Air slpm @ 620-690 kPa
CFQ-51	25, 30, SVP50 (18.6, 22.4, 37.3)	51 (4.7)	612 (1039)	3.3	93.4
CFQ-74	40 (29.8)	74 (6.9)	962 (1634)	3.5	99.1
CFQ-106	50 (37.3)	106 (9.8)	1378 (2341)	5.1	144.4

Central Filters: Cartridge Style

Self-cleaning central filters (VFC Series) includes Painted Exterior, Cartridge Style Filter Element, 115/1/60 voltage, Floor Stand with Removable Dust Canister, and Stand Alone NEMA 12 Blowback control panel.

Model	Power Unit HP (kW)	Filter Area sq. ft. (sq. m)	Line Size in. dia. OD	Length in. (cm)	Height in. (cm)	Width in. (cm)	Shipping Weight lbs. (kg)
VFC225	5, 7.5, 10, 15 (3.7, 5.6, 7.5, 11.2)	35 (225.8)	2, 2.5, 3, 3.5 (3 SCH. 5)	20 (51)	73 (186)	20 (51)	160 (73)
VFC1000	15, 20, 25, 30, 40, 50 (11.2, 14.9, 18.7, 22.4, 29.8, 37.3)	55 (354.9)	3.5 (3 SCH. 5) 4, 4.5 (4 SCH. 10) 5, 5 SCH. 10, 6 SCH. 10	26 (66)	90 (229)	26 (66)	200 (91)

Diverter Valves

Diverter valve options include aluminum valve construction, stainless steel valve construction, single or double solenoid, proof switches, and pre-wired terminal box.

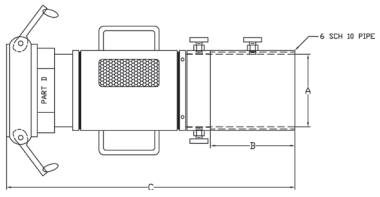
Control interconnects for diverter valves are available in 2, 3, 4, 5, or 6 position models. Control interconnects work in conjunction with selector for high level cut-off and include input provisions for proof-switches on the diverter valves.

Model	Size, in. dia. OD
D2.5-2ALY	2.5
D3-2ALY	3
D3-2ALY-P.5	3.5 (3 SCH. 5)
D4-2ALY	3.5 (3 SCH. 10)
D4-2ALY	4
D5-2ALY	5
D5-2ALY-P1	5 SCH. 10
D6-2ALY-P1	6 SCH. 10

Railcar Adapter & Filter

Railcar kits include components that are required to unload a railcar with an Sterling conveying system. The hatch filter (model RHF-1) is required to properly vent the railcar during the unloading process. Probes are not required or included with 3.5" to 6" kits. Tubing is aluminum.

Model	A	B	C
RCA-2AA	2" OD	5.25 (13.3)	32.5 (82.5)
RCA-25AA	2-1/2" OD	5.25 (13.3)	32.5 (82.5)
RCA-3AA	3" OD	5.25 (13.3)	32.5 (82.5)
RCA-35AA	3-1/2" OD	5.25 (13.3)	32.5 (82.5)
RCA-4AA	4" OD	5.25 (13.3)	22.5 (57.1)
RCA-4PAA	4" SCH. 5	5.25 (13.3)	22.5 (57.1)
RCA-5AA	5" OD	5.25 (13.3)	24 (60.9)
RCA-5PAA	5" SCH. 10	7 (17.8)	24 (60.9)
RCA-6PAA	6" SCH. 10	7 (17.8)	24 (60.9)



Rail Car Adapter

Rail Car
Farside Filter

Rotary Valves

All standard rotary valves include an 8-vane, open-end rotor, TEFC motor, roller chain, sprockets, guard, and 230 or 460/3/60 voltage.

Sizing formula is lbs./hr = bulk density: (lbs./cu. ft.) x capacity: (cu. ft./rev.) x rpm: (rev./min) x 60 min./hr. x 0.75

kg/hr = bulk density: (kg/liter) x capacity: (liter/rev) x rpm: (rev./min.) x 60 min./hr. x 0.75

Applications						
Valve Type	Applications	Examples	Housing	Rotor	Rotor Tips	Shaft Air Purge
1	Non-abrasive, non-critical pellets	PE, PP, Nylon, LLDPE, non-FDA	Cast iron	8-vane open end, carbon steel	Relieved	Optional
2	Abrasive, dusty, or powdered material, non-critical	PVC powders, PET, pellets, non-FDA	Cast iron, chrome plated	8-vane closed end, carbon steel	Replaceable	Standard
3	Abrasive pellets, critical applications	Pharmaceuticals, food containers, FDA	Cast iron, chrome plated	8-vane open end, stainless steel	Relieved	Optional

All pellet applications require a shear protector (pellet valve) above the rotary valve.

Specifications				
Model	Capacities, open rotor, per rev, cu. ft (l)	Capacities, closed rotor, per rev, cu. ft. (l)	Motor @ 20 rpm, hp (kW)	Valve Type (Model)
FT-7	0.12 (3.4)	N/A	0.33 (0.25)	1 (FT-7/1), 2 (FT-7/2), 3 (FT-7/3)
FT-9	0.27 (7.6)	0.21 (5.9)	0.50 (0.37)	1 (FT-9/1), 2 (FT-9/2), 3 (FT-9/3)
FT-11	0.47 (13.3)	0.41 (11.6)	0.75 (0.56)	1 (FT-11/1), 2 (FT-11/2), 3 (FT-11/3)
FT-12	0.75 (21.2)	0.645 (18.1)	1 (0.75)	1 (FT-12/1), 2 (FT-12/2), 3 (FT-12/3)
FT-14	1.10 (31.1)	0.96 (27.2)	1.5 (1.12)	1 (FT-14/1), 2 (FT-14/2), 3 (FT-14/3)
FT-16	1.60 (45.3)	1.40 (39.6)	2 (1.49)	1 (FT-16/1), 2 (FT-16/2), 3 (FT-16/3)

Available options include CS open-end rotor with relieved tips (Type 1), CS closed end rotor with relieved tips (Type 2), SS open end rotor with relieved tips (Type 3), high temperature package, and shaft air purge with NEMA 4*, 7, or 9 solenoids.
*standard with Type 2 valves

Pressure Take-Off Adapters

PTO Series pressure take-off adapters are available in mild or stainless steel. PTO models F7 through F16 are available for rotary valve models FT7 through FT16.