



PATENT #: 5,160,222

PHONE: (913)677-5777

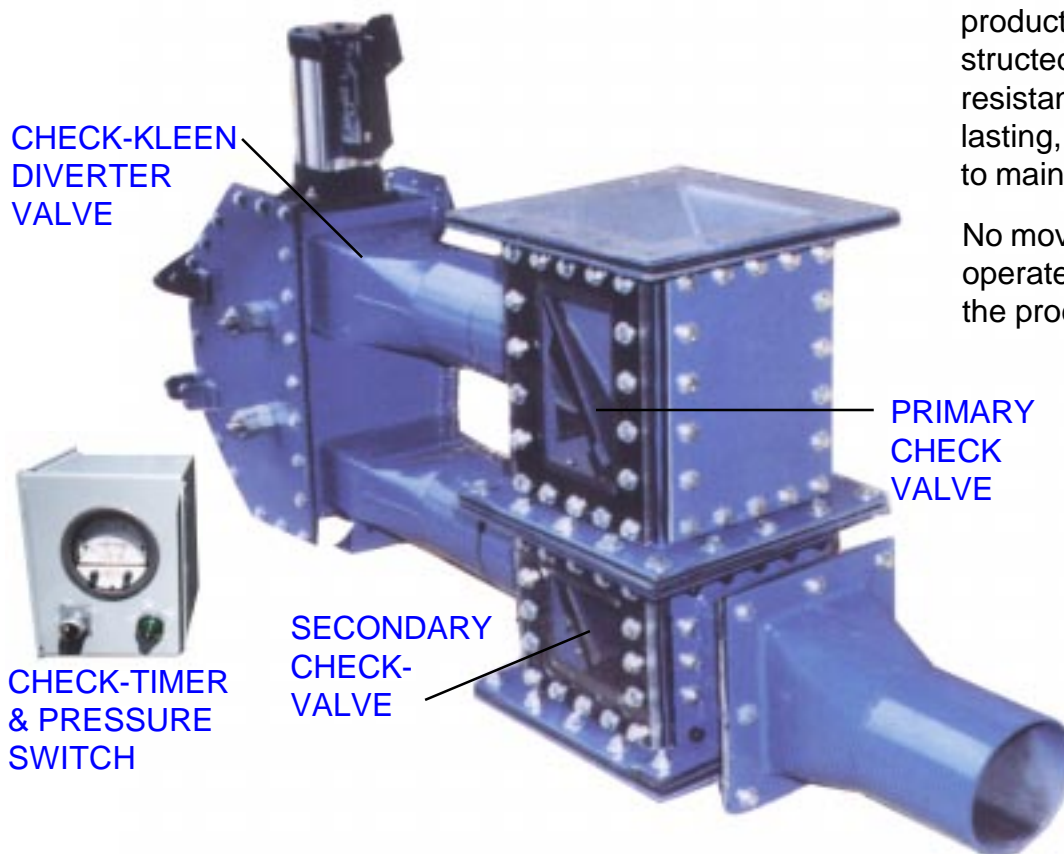
FAX: (913)677-0674

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CHECK VALVE

A PNEUMATIC CONVEYING SYSTEM



FLAP-CHECKS exposed to product air stream are constructed of flexible abrasion resistant materials. Long lasting, economical, and easy to maintain.

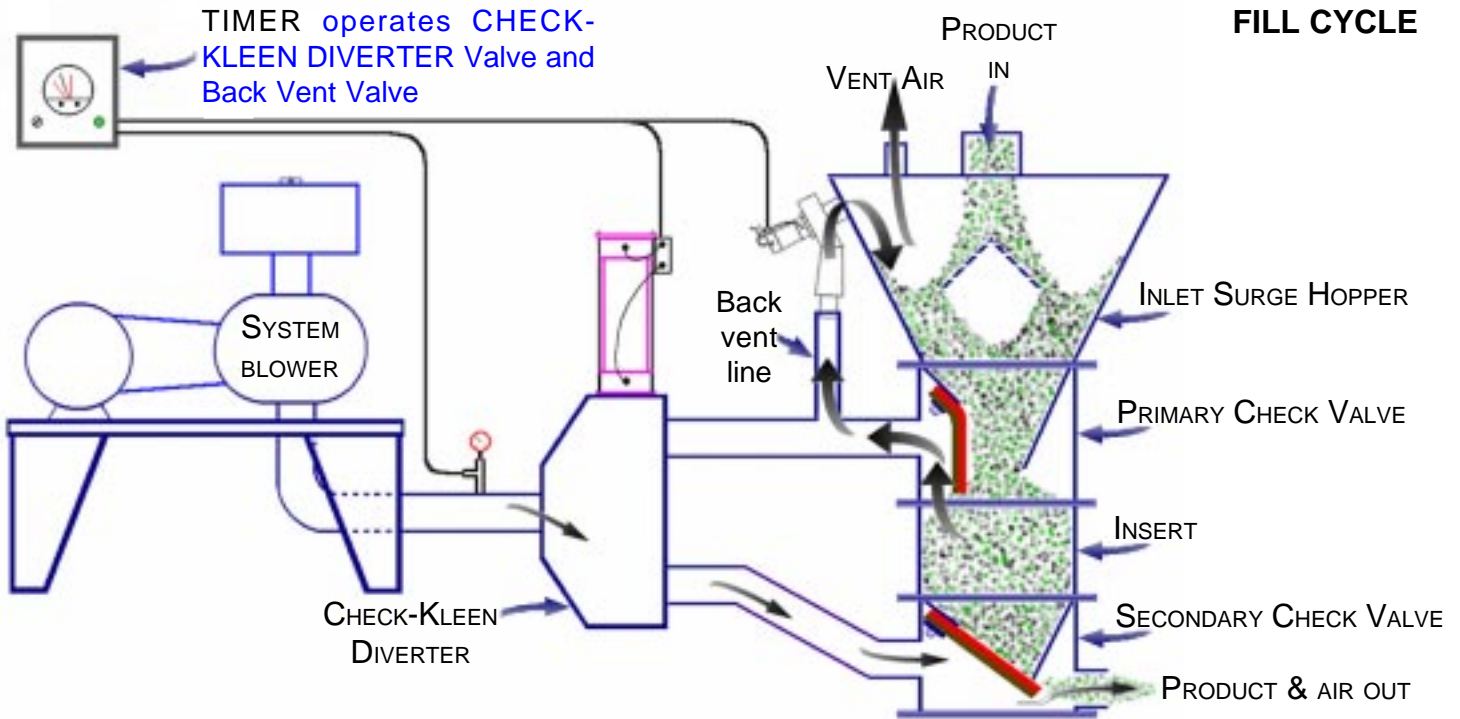
No moving mechanically operated or machined parts in the product air stream.

TWO VALVE SERIES-FLO CONTINUOUS RUN SYSTEM

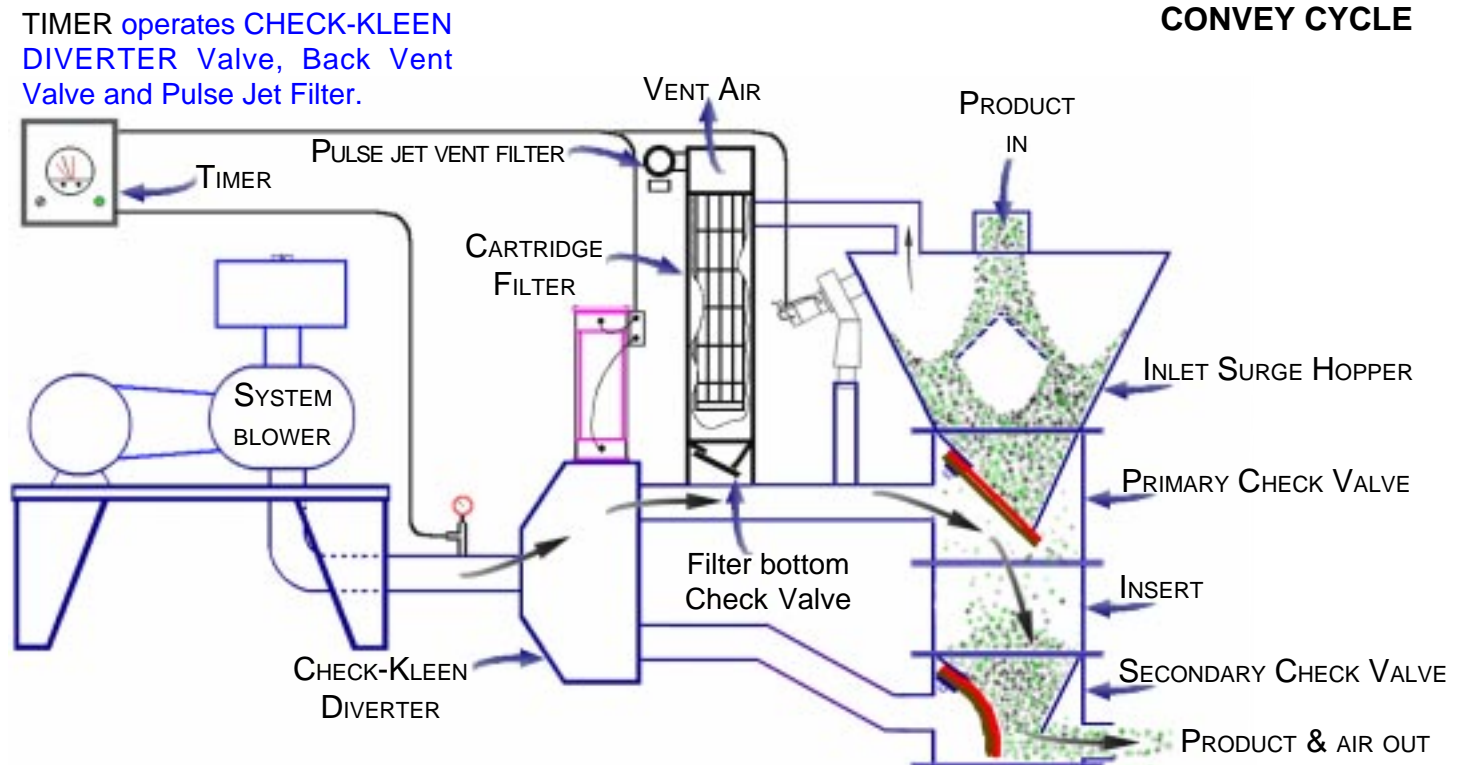
CHECK-VALVES *Automatically Position Themselves by the Natural Forces of the Conveying Air.*

SERIES FLO / HOW IT WORKS

CHECK-KLEEN DIVERTER causes PRIMARY and SECONDARY FLAP-CHECKS to alternately open and close by creating differential pressures. This causes product to be fed into the valve while simultaneously conveying material from the previous fill. A typical timing cycle is two seconds fill and two seconds convey, these vary according to the material being conveyed.

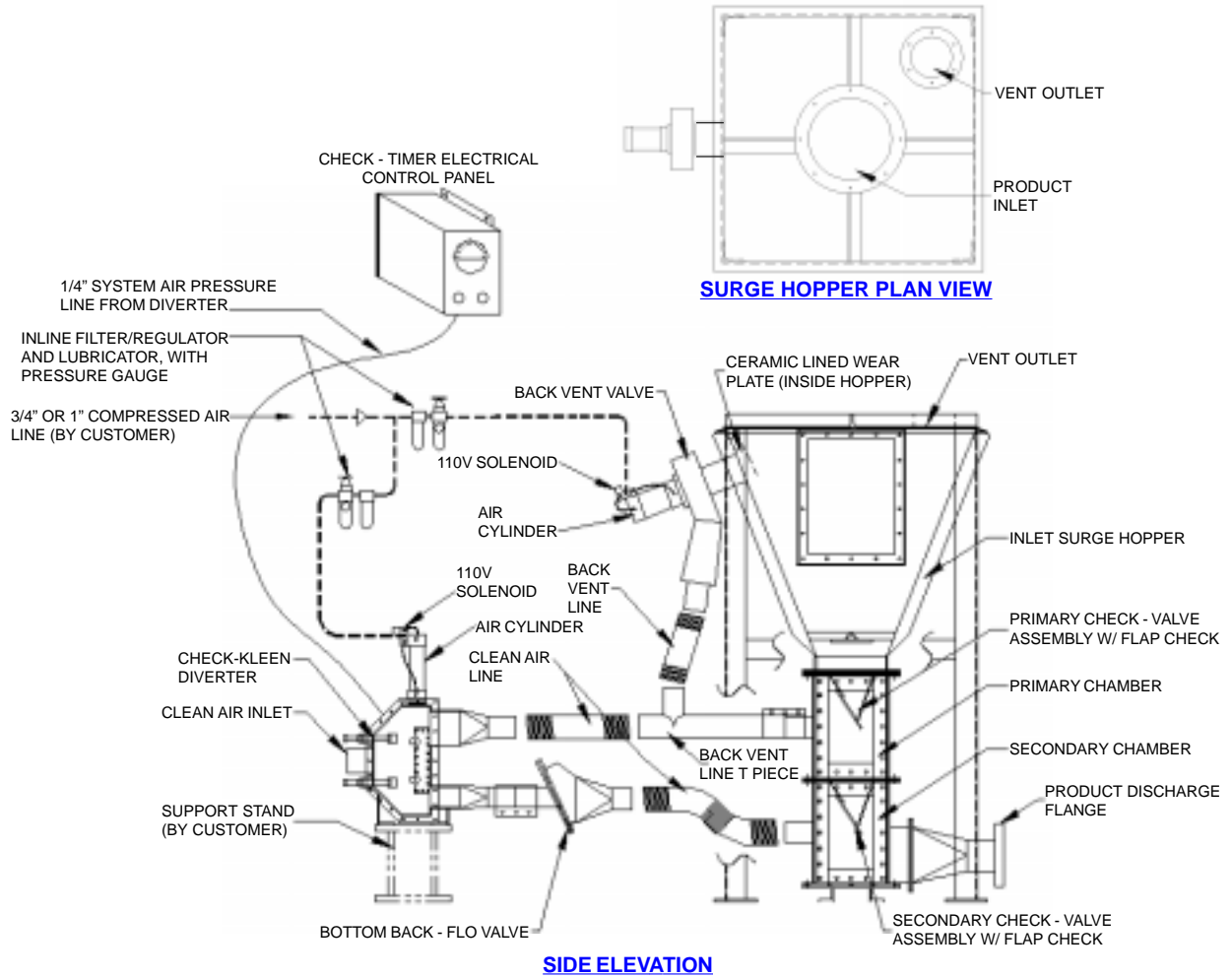


SYSTEM ARRANGEMENT WHERE PRODUCT FLOW THAT FEEDS PRIMARY CHECK VALVE IS VENTED OR HAS A SELF-VENTING SOURCE



SYSTEM ARRANGEMENT WHERE PRODUCT FLOW THAT FEEDS PRIMARY CHECK VALVE REQUIRES SINGLE PULSE JET VENT FILTER.

TYPICAL CHECK-VEYOR ARRANGEMENT



COMPRESSED AIR REQUIREMENTS

CLEAN, DRY, REGULATED COMPRESSED AIR IS REQUIRED TO OPERATE THE AIR CYLINDERS ON THE CHECK-KLEEN DIVERTER AND BACK VENT VALVE.

THE VOLUME OF COMPRESSED AIR NECESSARY TO OPERATE BOTH VALVES IS APPROXIMATELY 3 CFM AT 60 PSI

MATERIALS OF CONSTRUCTION

CHECK-VALVE ASSEMBLY LINING

- CARBON STEEL
- CHROME
- CERAMIC

FLAP CHECK MATERIAL

- KRYPTANE
- HI TEMP

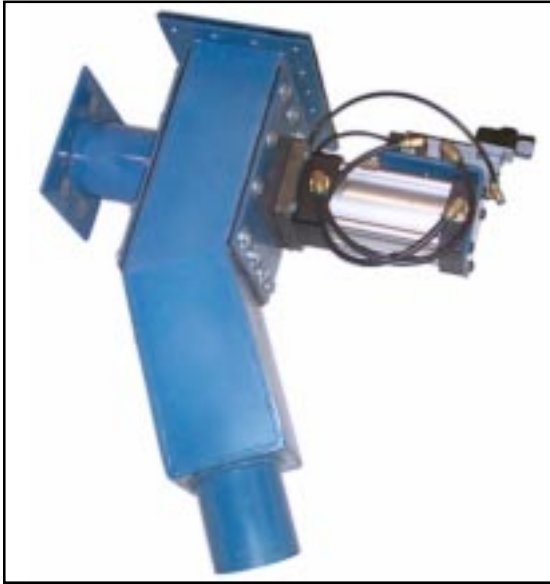
BACK VENT LINE CONNECTIONS

- CLEAR FLEX
- SEVERE DUTY FLEX
- #11 ga. CS TUBING
- SCHEDULE 40 PIPE

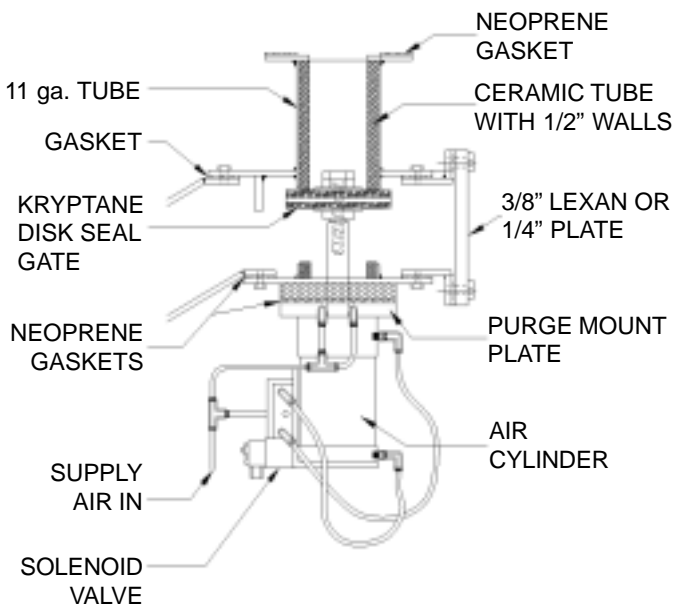
CLEAN AIR CONNECTIONS

- CLEAR FLEX
- SEVERE DUTY FLEX
- #11 ga. CS TUBING
- SCHEDULE 40 PIPE

BACK VENT VALVE



VALVE COMPONENTS



Venting pressurized air from the chambers is the key component in creating the differential pressures that operate the gates and provide the airtight seals for the Check-veyor. Tech-Air has developed a Back Vent Valve that is able to perform in the toughest environments and maximizes the service life of the valve. This plunger type valve uses the same abrasive resistant Kryptane material used on the Flap Checks as a gate material and seals against a ceramic cylinder with 1/2" thick walls.

The Back Vent Valve operates off of the same timer as the Check-Kleen Diverter. When the Diverter is energized and directs air to the Bottom Chamber (closing the bottom gate), the Back Vent Valve opens, allowing any remaining pressurized air in the Top Chamber to be immediately vented. With the Bottom Chamber pressurized and the Top Chamber at essentially atmospheric pressure, a pressure differential has been created that provides an airtight seal.

The Back Vent Valve forces the pressurized air and any product that may be remaining in the Top Chamber to be vented as far away from the Check-Kleen Diverter as possible, extending the life of the diverter. The Kryptane gate and ceramic cylinder enables the valve to handle the relatively high air velocities and abrasive products it will see. A specially designed high-pressure purge system protects the air cylinder from any product that may be vented with the air.



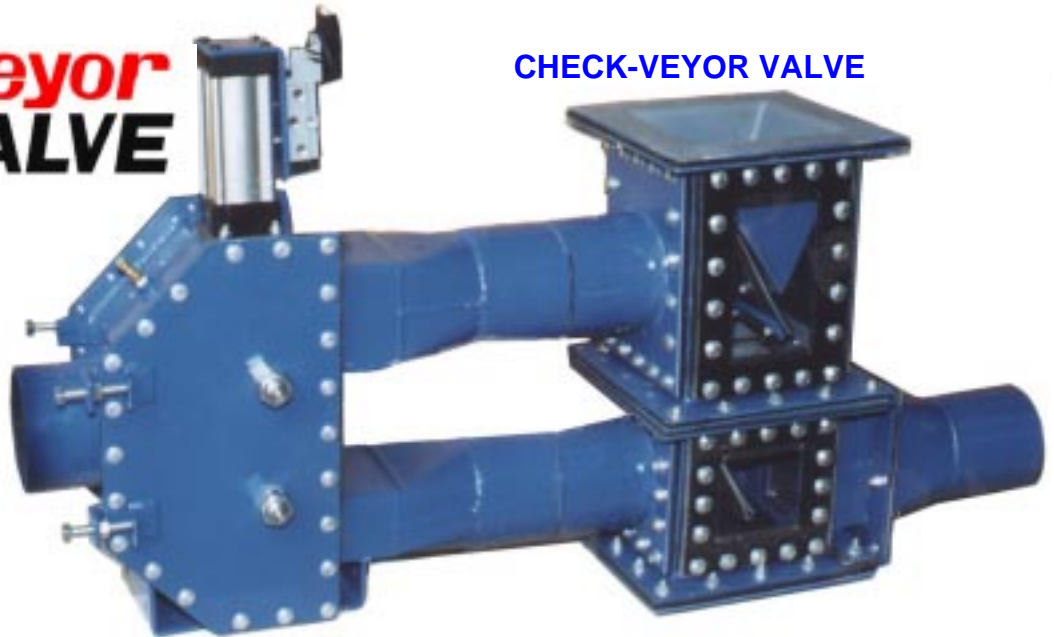
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CHECK *veyor* **VALVE**

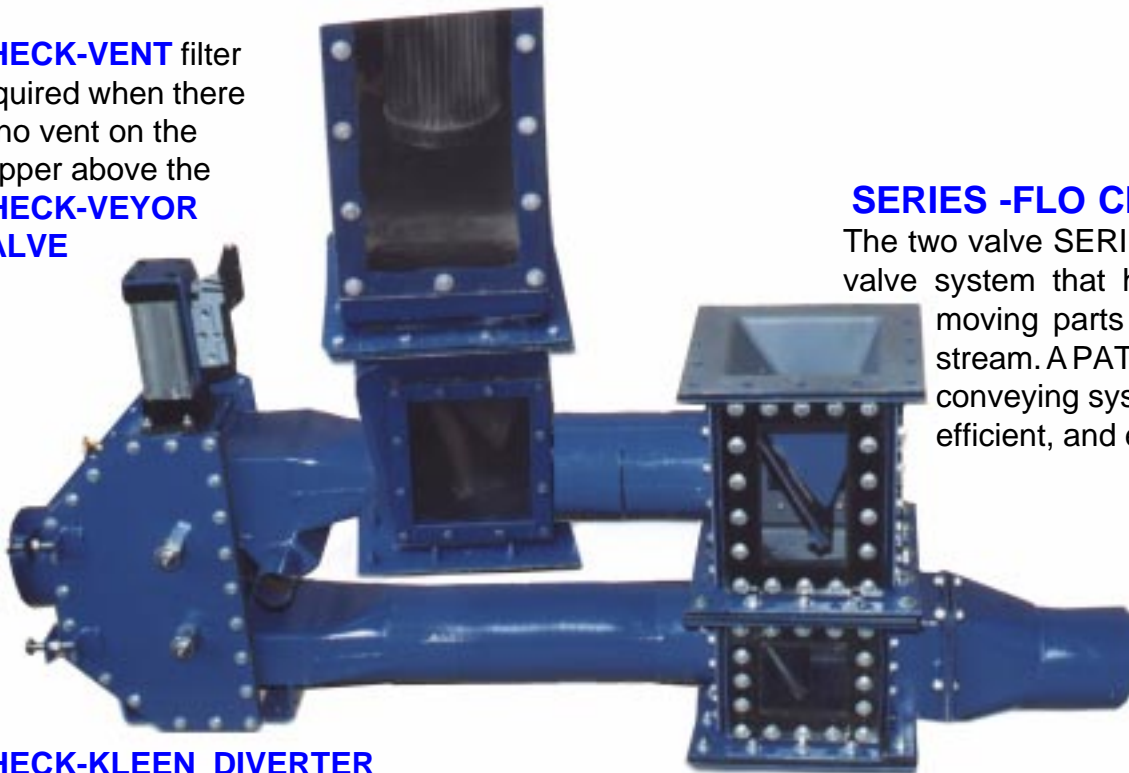
The **SERIES-FLO** arrangement utilized on systems that have vented hoppers feeding the **CHECK-VEYOR VALVE**



CHECK-VEYOR VALVE

CHECK-KLEEN DIVERTER

CHECK-VENT filter required when there is no vent on the hopper above the **CHECK-VEYOR VALVE**



CHECK-KLEEN DIVERTER

CHECK-VEYOR VALVE

SERIES -FLO CHECK-VEYOR

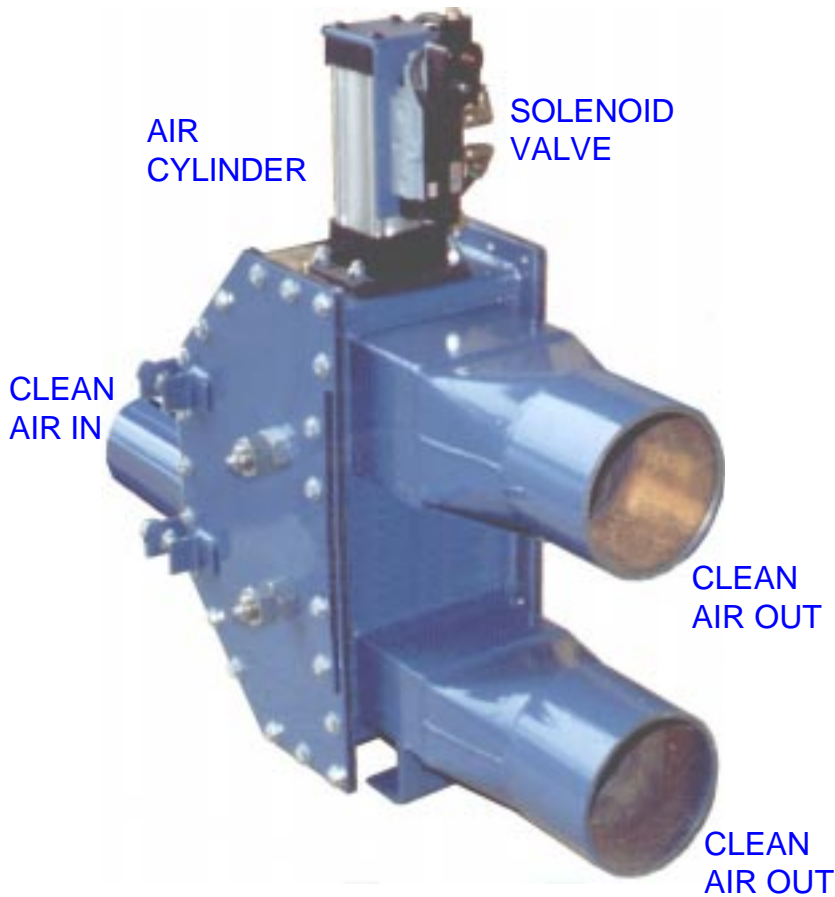
The two valve SERIES-FLOW check - valve system that has no mechanical moving parts in the product air stream. A **PATENTED** pneumatic conveying system that is simple, efficient, and easy to maintain.

The **SERIES-FLO** arrangement utilized on systems that do **not** have vented hoppers feeding the **CHECK-VEYOR VALVE**

*Solve your **ROTARY AIR-LOCK** problems with **CHECK-VEYOR!***

CHECK-KLEEN DIVERTER & TIMER

The Unique System of Pneumatic Conveying That Only Handles Clean Air Where Mechanical Moving Parts are Involved.



CHECK-KLEEN DIVERTER

The **CHECK-KLEEN DIVERTER** is equipped with an adjustable timer that allows the air to switch from top to bottom, thus cycling the **FLAP-CHECKS**. The adjustable timer allows the operator to control the system convey rate. The PHOTOHELIC pressure switch, with HIGH and LOW adjustable settings, allows the system to self-purge in the event of partial pluggage. This control system allows for the same flexibility that a variable speed drive provides in a conventional system.

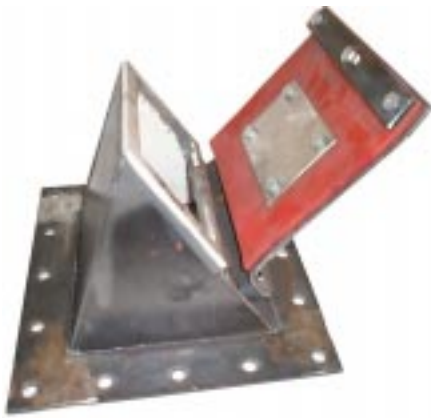
Both **PROTECTION** and **FLEXIBILITY** are designed into this unique system.



CONTROL PANEL WITH ADJUSTABLE TIMERS AND PRESSURE SWITCHES

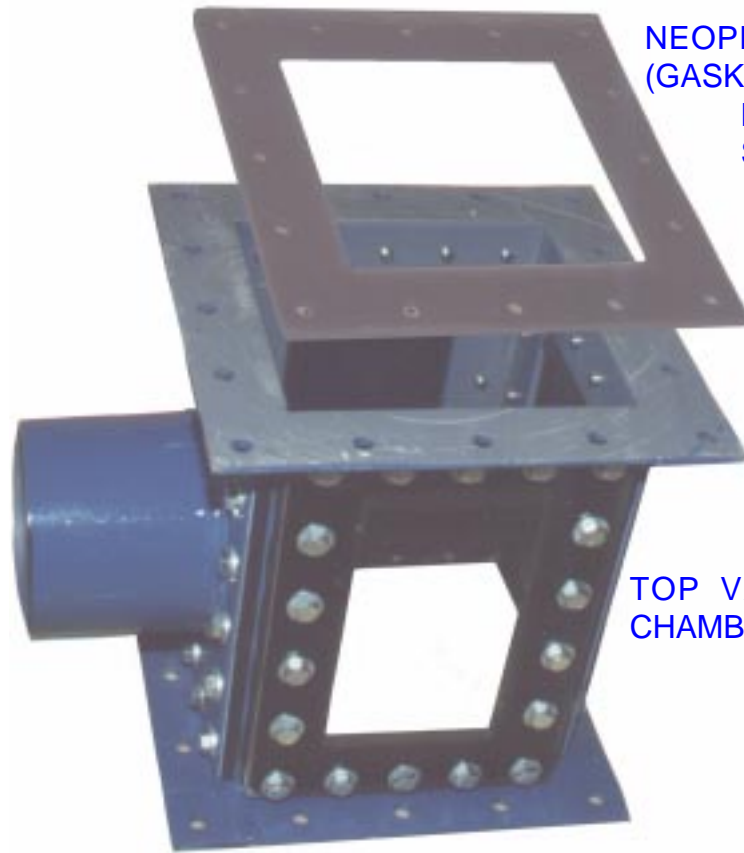
CHECK-KLEEN CONTROLS

CHECK-VEYOR VALVE BREAKDOWN



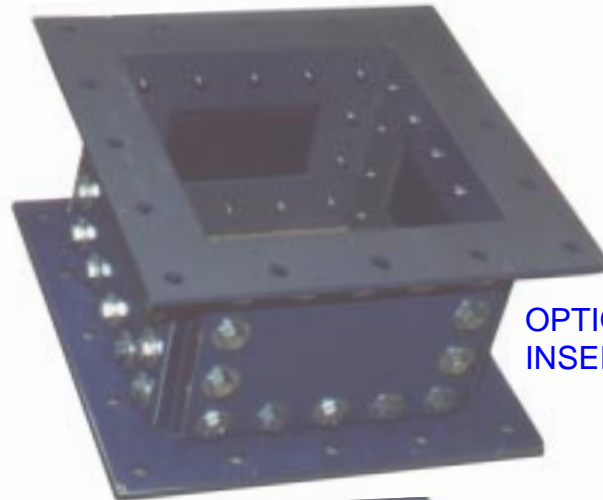
TOP CHECK-
VALVE ASSEMBLY

The **SERIES-FLO CHECK-VEYOR VALVE** . Rugged modular construction provides long life and an excellent design for maintainence. No machined parts in the product stream to allow for inexpensive replacement parts when service is necessary.



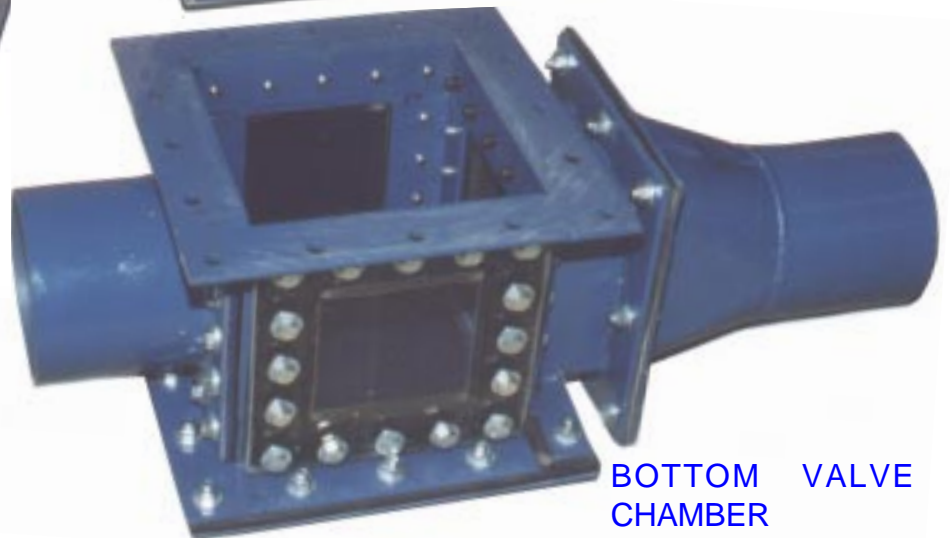
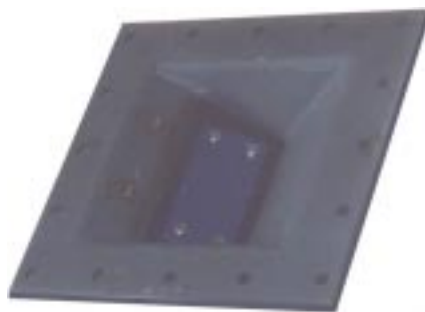
NEOPRENE GASKET
(GASKET PROVIDED
BETWEEN ALL
SURFACES)

TOP VALVE
CHAMBER



OPTIONAL
INSERT

BOTTOM CHECK-
VALVE ASSEMBLY



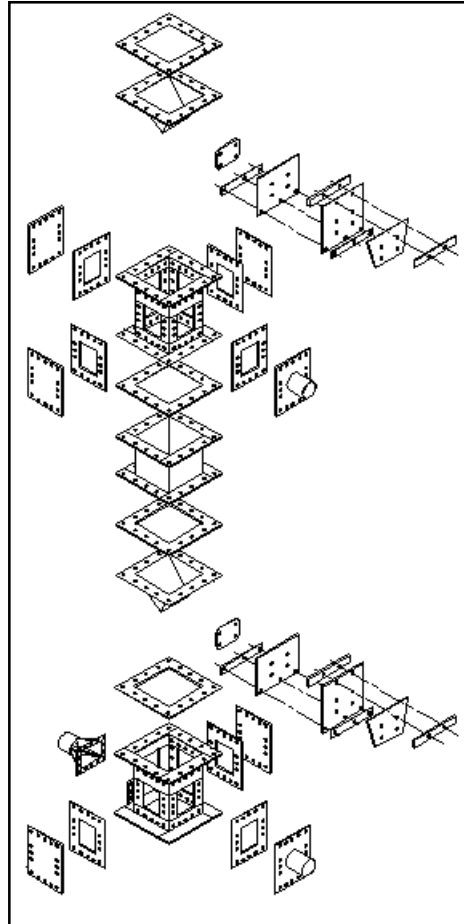
BOTTOM VALVE
CHAMBER

OPTIONS AND ACCESSORIES

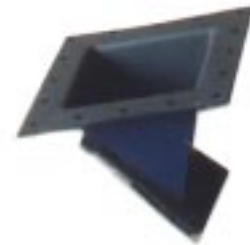


OPTIONAL CHECK-VENT FILTER (TO VENT SURGE HOPPER)

CHECK-VENT FILTER



EXPLODED VIEW



REPLACEMENT TOP & BOTTOM CHECK-VALVE ASSEMBLIES
Carbon or Stainless Steel
Chromed
Ceramic



REPLACEMENT BARE FLAP-CHECKS
Kryptane
High-Temp Belting up to 700 F



OPTIONAL INSERT



Replaceable 1/4" panels



Replaceable top 1/2" Lexan panel



Replaceable Bottom 1/2" Lexan panel



Replaceable Clean air inlet panel

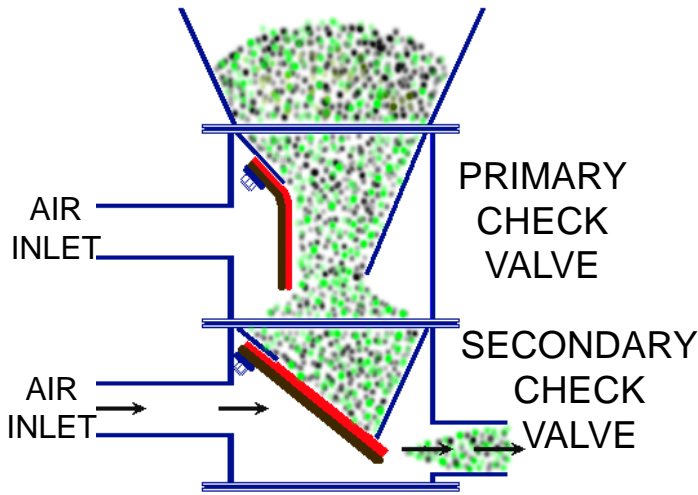


Replaceable Product and air discharge panel

REPLACEMENT PANELS

NOTE: To replace bottom panels, inlet size must be specified to determine height

SIZING AND CAPACITY



PRODUCT INLET SIZE	CUBIC FT. DISPLACEMENT PER CYCLE	INSERT CU. FT. DISPLACEMENT PER INCH OF HEIGHT
#6	.054	.0208
#8	.10	.035
#10	.195	.057
#12	.337	.082
#14	.553	.113
#16	.80	.148

SIZE DESIGNATION

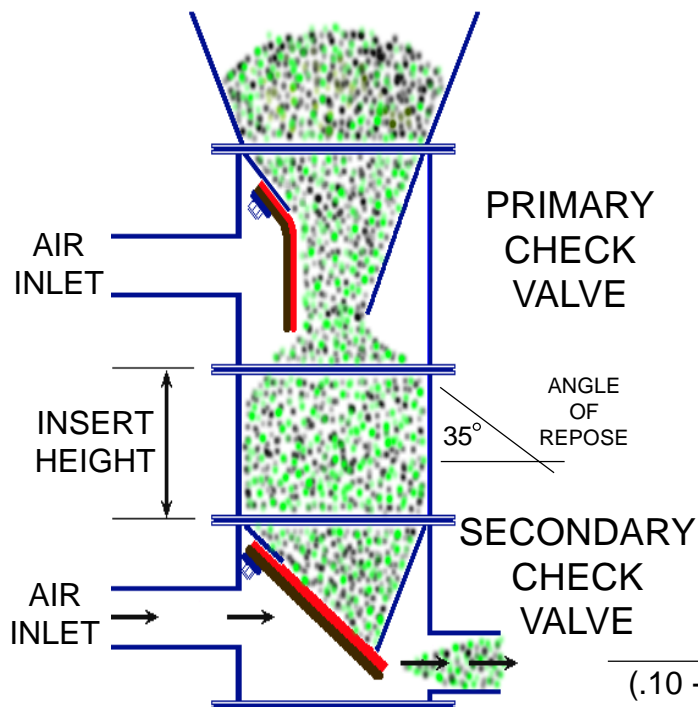
8" X 8" PRODUCT INLET 3" AIR OUTLET

#8CV3

CHECK-VEYOR VALVE WITH NO INSERT

#8CV3-4

CHECK-VEYOR VALVE WITH 4" INSERT



VALVE CAPACITY is determined by the product cu. ft. displacement capacity times the number of cycles.

TOTAL VOLUME = DISPLACEMENT X CYCLES

PROBLEM - Assume we have a 5" tube system to convey 253 lbs./min. of 50 lbs./cu. ft. material = 5.06 cu.ft./min.

THEREFORE - $\frac{5.06}{.337} = 15$ Cycles/min/top valve selected from #12 size.

UNIT SIZE: #12CV5 (assumes a 5" convey line)

ALTERNATE SELECTION if there are no height restrictions or flow problems.

$$\frac{5.06 \text{ Cu. Ft./Min.}}{(.10 - \#8 \text{ Unit}) + (.245 - 7" \text{ Insert})} = 14.67 \text{ Cycles/Min.}$$

UNIT SIZE: #8CV5-7 (assumes a 5" line w/ 7" insert)

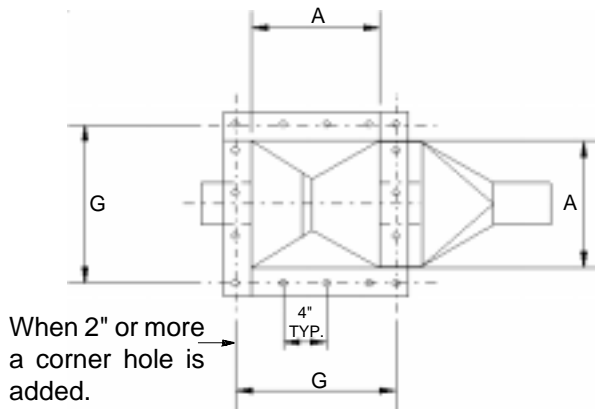
NOTE: Normal top valve cycles per minute range from 10-20 dependent upon product and rate.

TOTAL CYCLES of unit for both valves is DOUBLE top valve cycles.

CYCLES are ALWAYS stated in terms of TOTAL CYCLES.

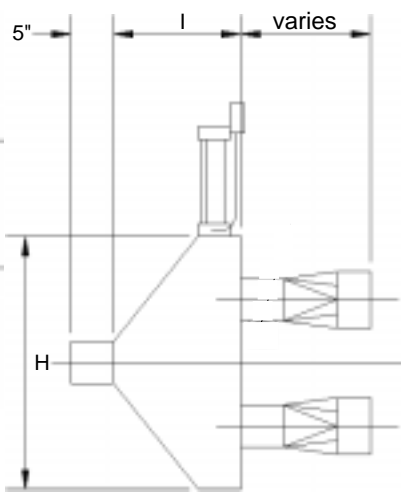
NOTE: ALL CAPACITIES AND CYCLE RATES ARE SUBJECT TO CHANGE DEPENDENT UPON PRODUCT FLOW CHARACTERISTICS OF MATERIAL BEING HANDLED, CYCLES ARE ADJUSTABLE.

DIMENSIONS BASIC CHECK-VEYOR



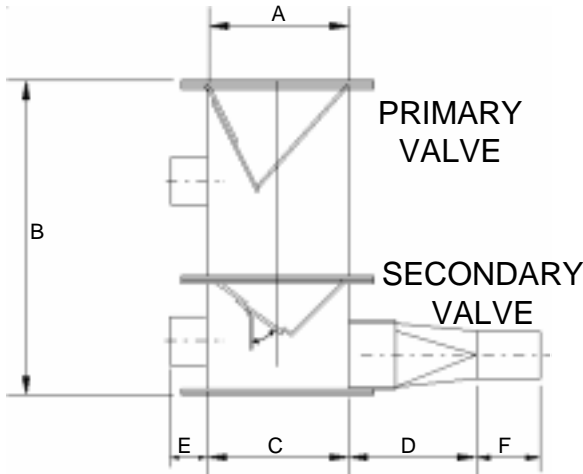
**CHECK VALVE
PLAN**

Neoprene gaskets are provided between all joints and flanges.

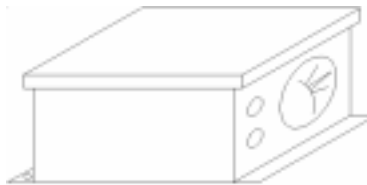


**CHECK-KLEEN
DIVERTER VALVE**

Solenoid, rated non-hazardous electrical enclosure.



**CHECK - VALVE
ELEVATION**



CHECK - TIMER

Equipped with PHOTOHELIC pressure switch. Both timer & Pressure switch are adjustable. NEMA 12 enclosure is standard, specific enclosures available.

*NOTE: SIZES OF ALL INLETS & OUTLETS VARY ACCORDING TO SYSTEM

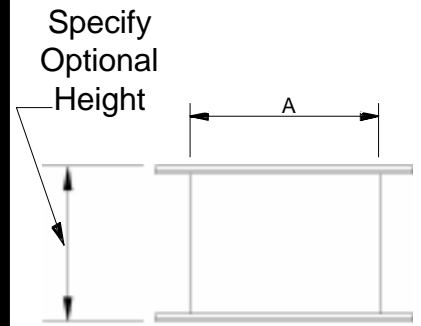
STANDARD CHECK - VALVE CONSTRUCTION IS 1/4" PL. CARBON STEEL

SIZE	A	B	C	D	E	F	G	H	I
#6	6	16 1/8	6	9	4	4	8 3/8	18	11
#8	8	20 1/8	8	10	5	4	10 3/8	18	11
#10	10	24 5/8	10	11 1/2	5 1/2	4	12 3/8	18	11
#12	12	29 5/8	12	12	6	4	14 3/8	18	11
#14	14	34 1/8	14	12	6 1/2	4	16 3/8	18	11
#16	16	39 1/8	16	12	7	4	18 3/8	18	11

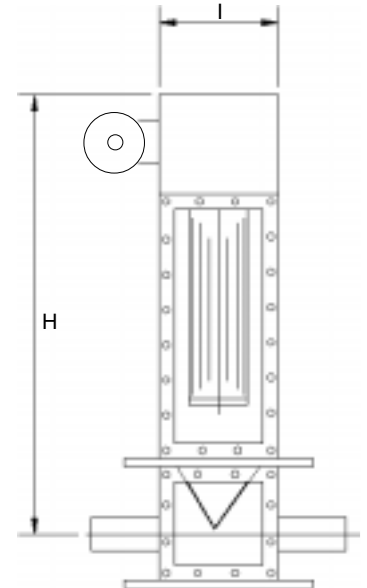
DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE
ALL DIMENSIONS IN INCHES

*Dimension " B" is a minimum height and is subject to increase for larger inlet tube diameter systems. Check with factory to confirm "B" dimension.

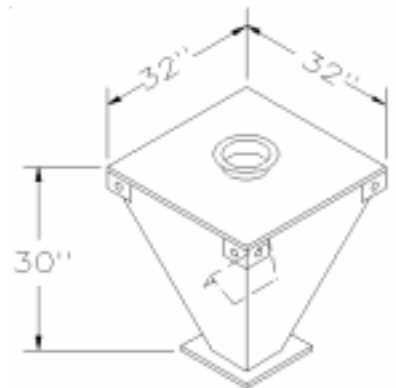
OPTIONS



INSERT



**CHECK - VENT
FILTER**



**INLET SURGE
HOPPER**

- CARBON STEEL
- CHROME
- CERAMIC

CHUTE LINERS