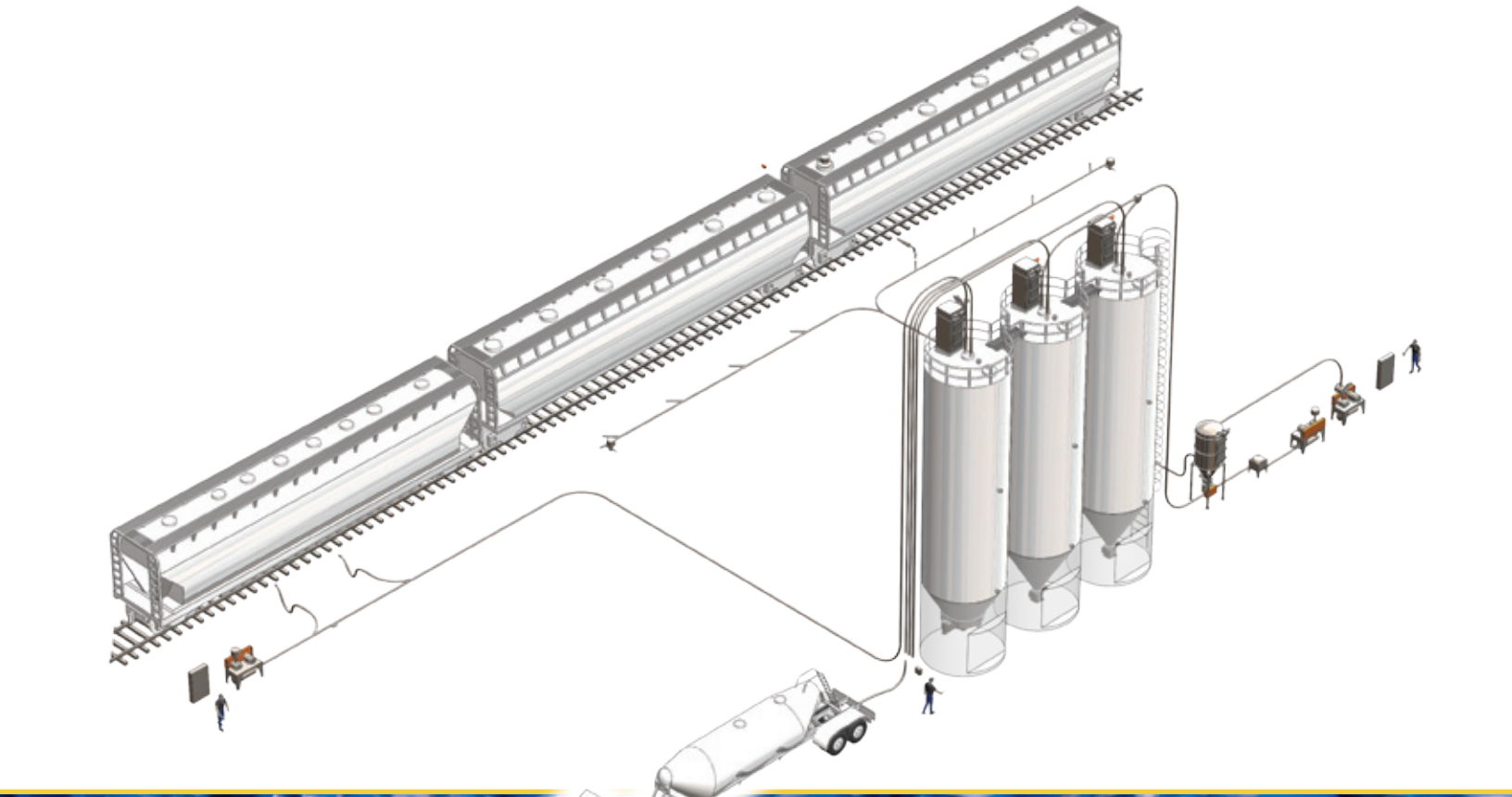


THE LINK TO YOUR BULK MATERIAL HANDLING SUCCESS

HORIZON SYSTEMS

PLASTIC PROCESSING SOLUTIONS ON THE HORIZON

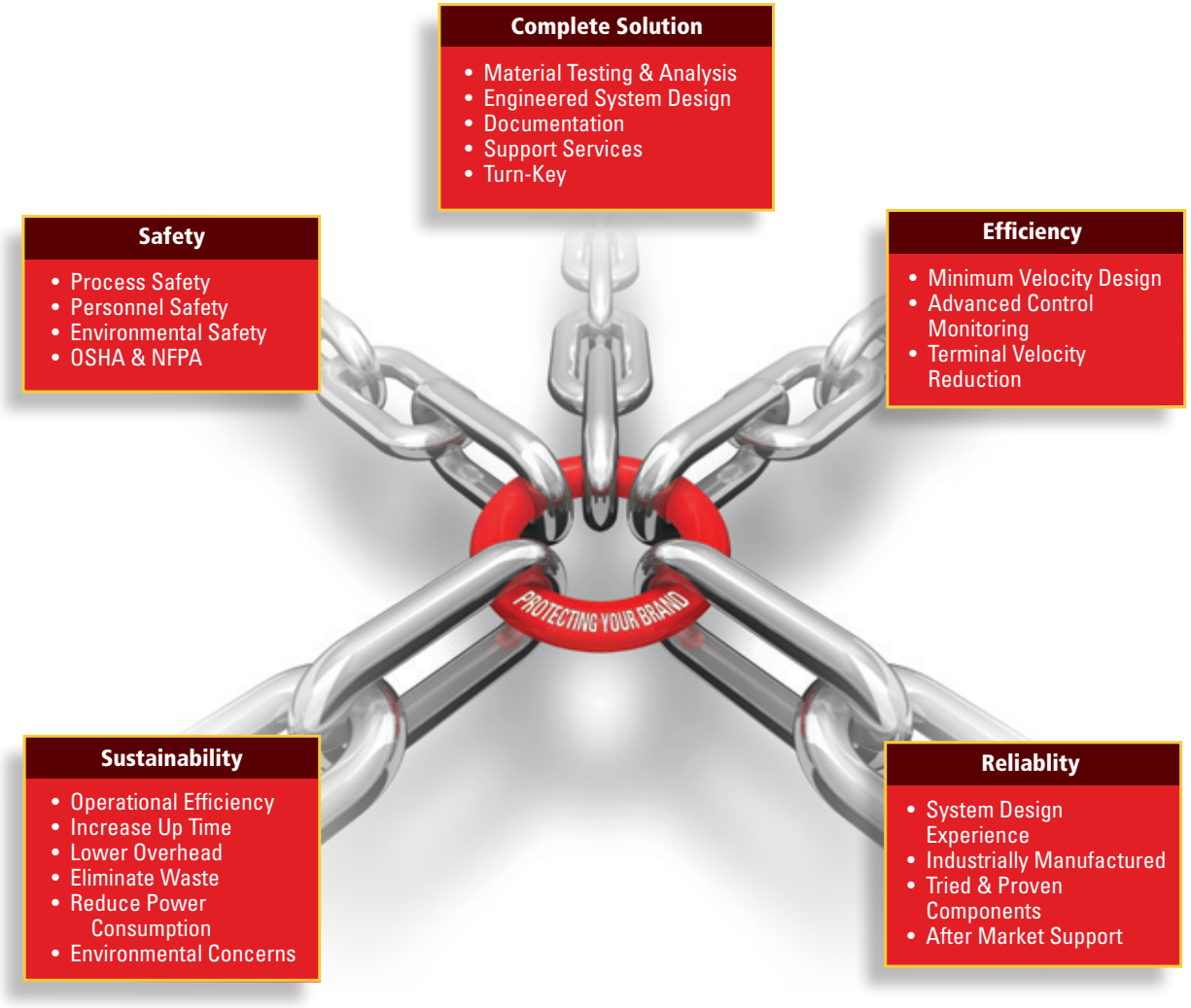
At Horizon Systems, we understand the challenges you face from process requirements, quality control and customer specifications ... and the essential role we fill in being the strong link in your process line.

Our company culture has always been one of an engineering company that manufactures. This "engineering first" focus has made us the industry leader in innovation and engineering improvements, offering system technology to increase the efficiency and performance of your process.

Our system solution approach will enhance your process, whether you work with pelletized materials (PE, PP, LLDPE, HDPE, PET, Nylon, etc.) or coarse to fine powders (PVC resin, PVC compound, Calcium carbonate, etc.). Horizon Systems can deliver a comprehensive system to meet the needs of your entire process.

ENGINEERED FOR SUCCESS

Our engineered systems are specifically designed to unload railcars or trucks into bulk storage. Complete system packages include components, electrical controls, piping and/or tubing, as well as general dimension drawings, operations manuals, and a recommended spare parts quotation. Additional services offered include project management, installation or installation supervision, start-up and operations training services.



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TECHNOLOGY, SERVICE AND TESTING CENTER

The Horizon Technology, Service and Testing Center leads and supports our engineering capabilities by developing innovative bulk material handling solutions. As a leader in the industry, we are continually innovating our products to enhance your bulk material handling process. Extensive testing is performed to assure the functionality, safety and performance of each new product. This on-site facility enables us to conduct product research & development and offer services including:

SMALL SCALE MATERIAL TESTING

To conduct small scale testing a minimum of one gallon of product is required along with material safety data sheets. Small scale testing includes:

- Bulk densities
- Horizontal and vertical conveying velocity
- Repose angles
- Sieve analysis and material flow characteristics

LARGE SCALE MATERIAL TESTING

Our large scale testing offers three different conveying line size configurations, full instrumentation monitoring and trending, and automatic sampling for archiving. Large scale testing includes:

- System functionality
- Conveying capacities
- Dilute phase vacuum and pressure systems
- Continuous dense phase (ConTran™) vacuum and pressure systems
- Conveying parameters
- Degradation testing

TECHNICAL TRAINING

We offer technical training to engineering, manufacturing and maintenance personnel in:

- Preventive maintenance procedures
- Troubleshooting guidelines
- Proper operational sequence
- Product specific maintenance
- Operator training

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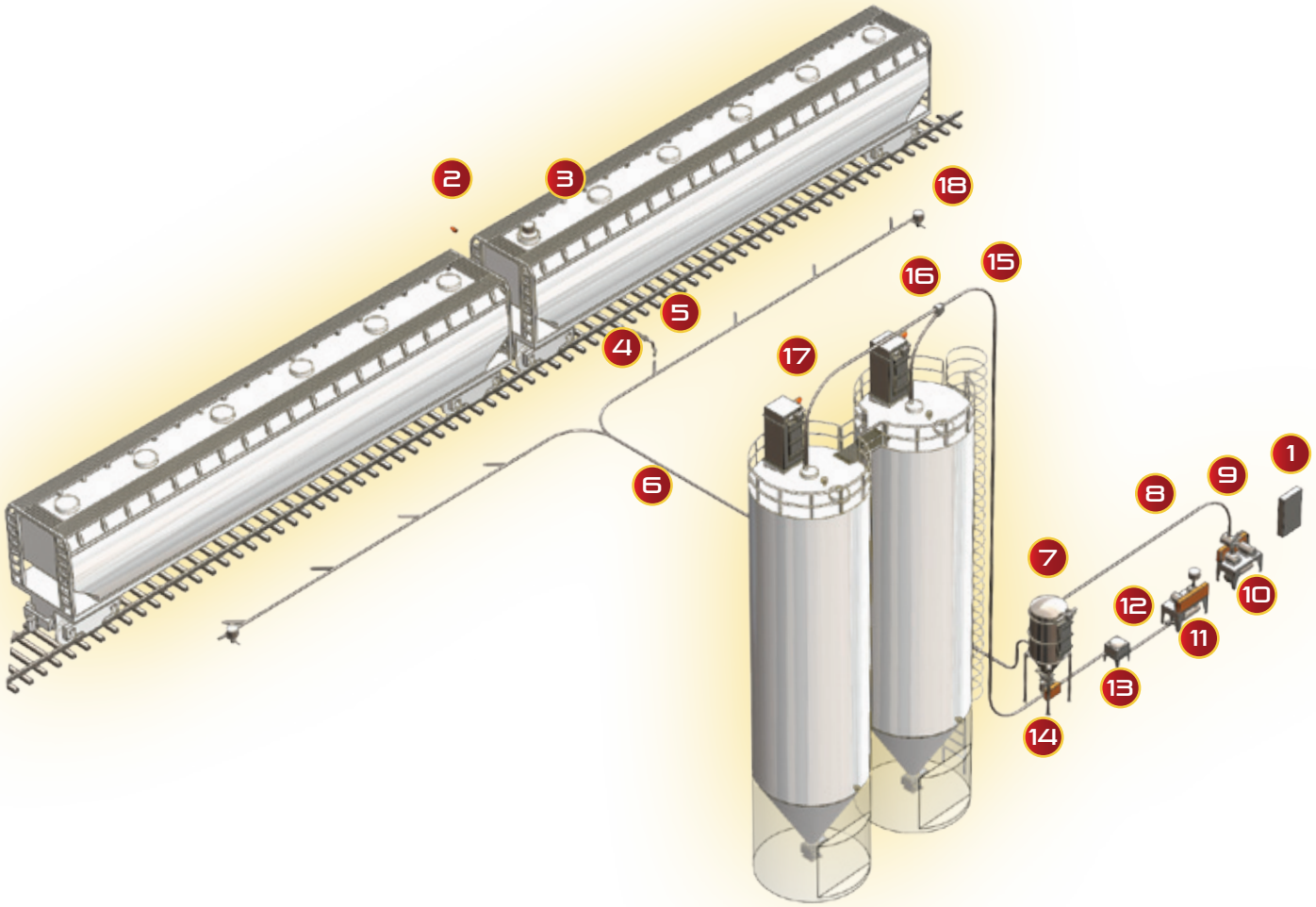
VACUUM/PRESSURE RAILCAR UNLOADING SYSTEM

SYSTEM DESCRIPTION:

The system is designed to vacuum convey material from a pneumatic tube railcar then pressure convey the product to a destination storage tank using two blower packages simultaneously. The use of two independent blowers, one dedicated to the vacuum service while the other is dedicated to the pressure service, permits a balanced system design by allowing the vacuum and pressure portions of the system to be designed separately with the appropriate convey line size and airflows given the capacity and conveying distances required by each. In addition, using two blower packages will reduce differential pressure resulting in lower conveying air temperatures. The system is manually started and will continue to operate until either the operator stops the system or a high level is detected at the destination storage tank.

Conveying line sizes from 2" thru 6" in both pipe or tube are available.



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THE BASE SYSTEM COMPONENTS INCLUDE THE FOLLOWING:

1. **SYSTEM CONTROL PACKAGE:**
A railcar unloading system control package, utilizing a programmable logic controller, is provided with a push-button operator interface (PB) or a human machine interface (HMI), motor staters, disconnect and appropriate devices all housed in a NEMA rated enclosure.

2. **RAILCAR FAR-SIDE FILTER SCREEN:**
The filter screen allows free air flow into the railcar's far side pneumatic tube while providing protection from debris entering the system.

3. **RAILCAR HATCH VENT:**
The railcar hatch vent allows free air flow into the railcar's compartment, serves as a rain cover, and eliminates foreign particles from entering the railcar.

4. **RAILCAR OUTLET ADAPTER:**
The railcar outlet adapter controls material flow into the vacuum system with an adjustable air-flow sleeve to increase or reduce material flow.

5. **FLEXIBLE HOSE GROUP:**
Flexible hose can be provided in stainless steel or rubber, depending on the application, with appropriate cam lock fittings.

6. **VACUUM CONVEYING LINE - MANIFOLD (RAILCAR SPUR):**
The vacuum manifold conveying line is made up of the appropriate piping, line wyes, elbows, couplings and cam lock fittings.

7. **RECEIVER/FILTER:**
The Receiver/Filter is a preferred separator when handling pellets, powders or granular materials with cleaning on-line by utilizing compressed air jet pulses. Many filter media options are available for specific application requirements. An optional cyclone may be included as a primary separator, when handling plastic pellets, to promote fine separation.

8. **VACUUM AIR-ONLY LINE:**
Adequate vacuum air line is included with the system utilizing light-wall thickness tubing for air-only service.

9. **IN-LINE FILTER:**
The inline filter assembly protects the vacuum blower by separating carry-over product from the airflow prior to entry into the blower and provides an easy access point for the operator to remove any unwanted fines.

10. **VACUUM BLOWER PACKAGE:**
The vacuum blower package is equipped with an air operated vacuum-breaker valve, mechanical vacuum relief, vacuum switch and gauge, discharge silencer and blower base, motor and positive displacement pump, all pre-assembled.

11. **PRESSURE BLOWER PACKAGE:**
The pressure blower package is equipped with an inlet filter, a mechanical pressure relief valve, pressure switch and gauge, discharge silencer, check-valve, blower base, motor and positive displacement pump, all pre-assembled.

12. **PRESSURE AIR-ONLY LINE:**
Adequate pressure air line is included with the system utilizing light-wall thickness tubing for air-only service.

13. **HEAT EXCHANGER:**
An optional heat exchanger can be provided to lower the pressure blower's discharge air temperature which has been elevated due to back pressure in the convey line. This option should be utilized when conveying heat sensitive material (i.e., plastic pellets) to help reduce the formation of angel hair.

14. **ROTARY AIRLOCK:**
The airlock group provides isolation of differential pressure between the vacuum and pressure portions of the system while metering the correct flow of material into the pressure conveying system. The airlock includes a blow-thru adapter and may be fitted with a shear protector or bypass air vent adaptor depending on the application.

15. **PRESSURE CONVEYING LINE:**
The pressure transfer conveying line is made up of the appropriate piping, elbows and couplings required to convey the material from the airlock group to the destination bin(s) or silo(s).

16. **DESTINATION DIVERSION GROUP:**
If multiple bin(s) or silo(s) are being filled, a diversion method will be required. This may be accomplished with an in-line diverter(s) or manual hose selection group depending on your preference.

17. **VENT FILTER:**
The vent filter, mounted on each destination bin or silo provides clean air filtration at the end of the system. Vent filters may include exhaust fans to promote air flow depending on the application.

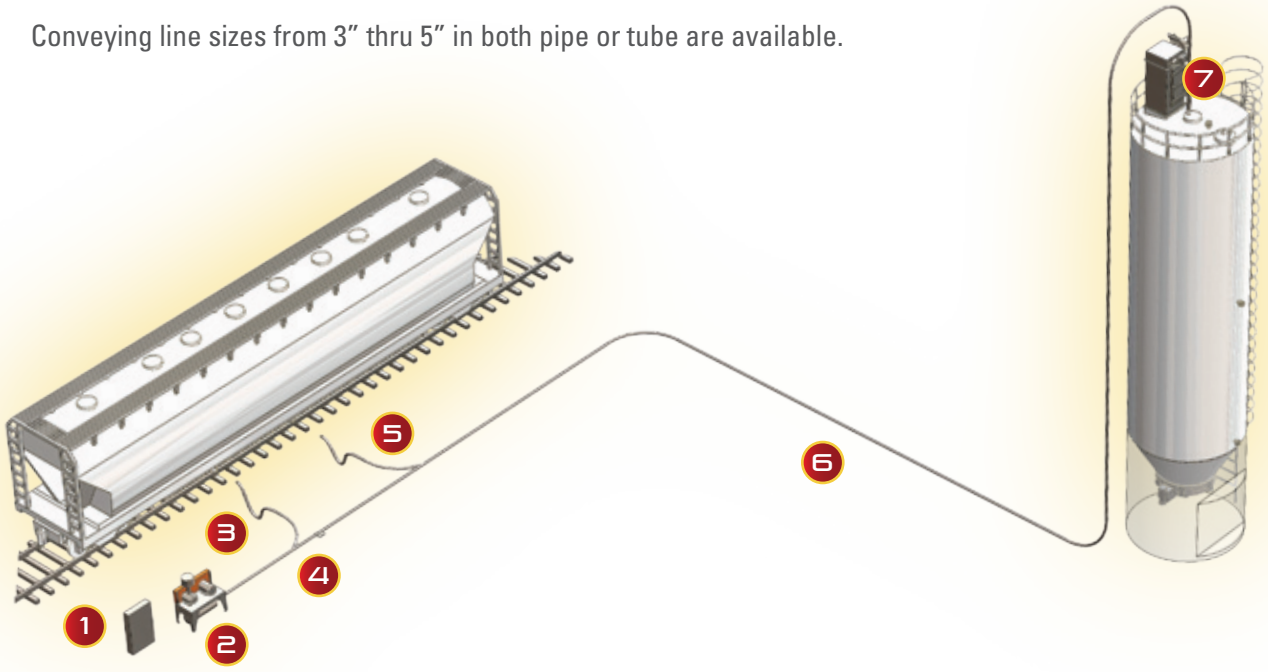
18. **VACUUM BREAKER PURGE VALVE(S):**
These optional valves allow purging of the vacuum convey line, if desired.

PRESSURE (PD) RAILCAR UNLOADING SYSTEM

SYSTEM DESCRIPTION:

The system is designed to pressure convey material from the PD railcar to a destination storage tank using a high pressure positive displacement blower package. The system is manually started and will continue to operate until either the operator stops the system or a high level is detected at the destination storage tank.

Conveying line sizes from 3" thru 5" in both pipe or tube are available.



THE BASE SYSTEM COMPONENTS INCLUDE THE FOLLOWING:

1 SYSTEM CONTROL PACKAGE:
A PD railcar unloading system control package, utilizing a programmable logic controller, is provided with a push-button operator interface (PB) or a human machine interface (HMI), motor staters, disconnect and appropriate devices all housed in a NEMA rated enclosure.

2 PRESSURE BLOWER PACKAGE:
The high pressure blower package is equipped with an inlet filter, a mechanical pressure relief valve, pressure switch and gauge, discharge silencer, check-valve, blower base, motor and positive displacement pump, all pre-assembled.

3 AIR SUPPLY FLEXIBLE HOSE GROUP:
Flexible hose can be provided in stainless steel or rubber, depending on the application, with appropriate cam lock fittings.

4 EXTERIOR BYPASS VALVE:
In addition to the railcar's integrated bypass valve, our system includes an exterior bypass that is manually operated, to offer additional material-to-air ratio control. To further enhance this feature, we offer an automatic bypass that is logic controlled. This includes pressure transmitters with an infinite adjustable valve to automatically regulate the system pressure within the desired parameters.

5 CONVEY LINE FLEXIBLE HOSE GROUP:
Flexible hose can be provided in stainless steel or rubber, depending on the application, with appropriate cam lock fittings.

6 PRESSURE CONVEYING LINE:
The pressure transfer conveying line is made up of the appropriate piping, elbows and couplings required to convey the material from the PD railcar to the destination silo(s) or bin(s).

7 VENT FILTER:
The vent filter, mounted on the destination bin or silo provides clean air filtration at the end of the system. Vent filters may include exhaust fans to promote air flow depending on the application.

8 DESTINATION DIVERSION GROUP (Not Shown):
If multiple storage silos or bins are being filled, a diversion method will be required. This may be accomplished with an in-line diverter(s) or a manual hose selection group depending on your preference.

PRESSURE (PD) TRUCK UNLOADING SYSTEM

SYSTEM DESCRIPTION:

The system is designed to pressure convey material from the PD truck to a destination storage tank using an integrated truck positive displacement blower. The system is manually started utilizing the truck controls and will continue to operate until the operator stops the system. If a high level is detected at the destination storage tank the truck operator will be notified to stop unloading.

Conveying line sizes from 4" thru 5" in both pipe or tube are available

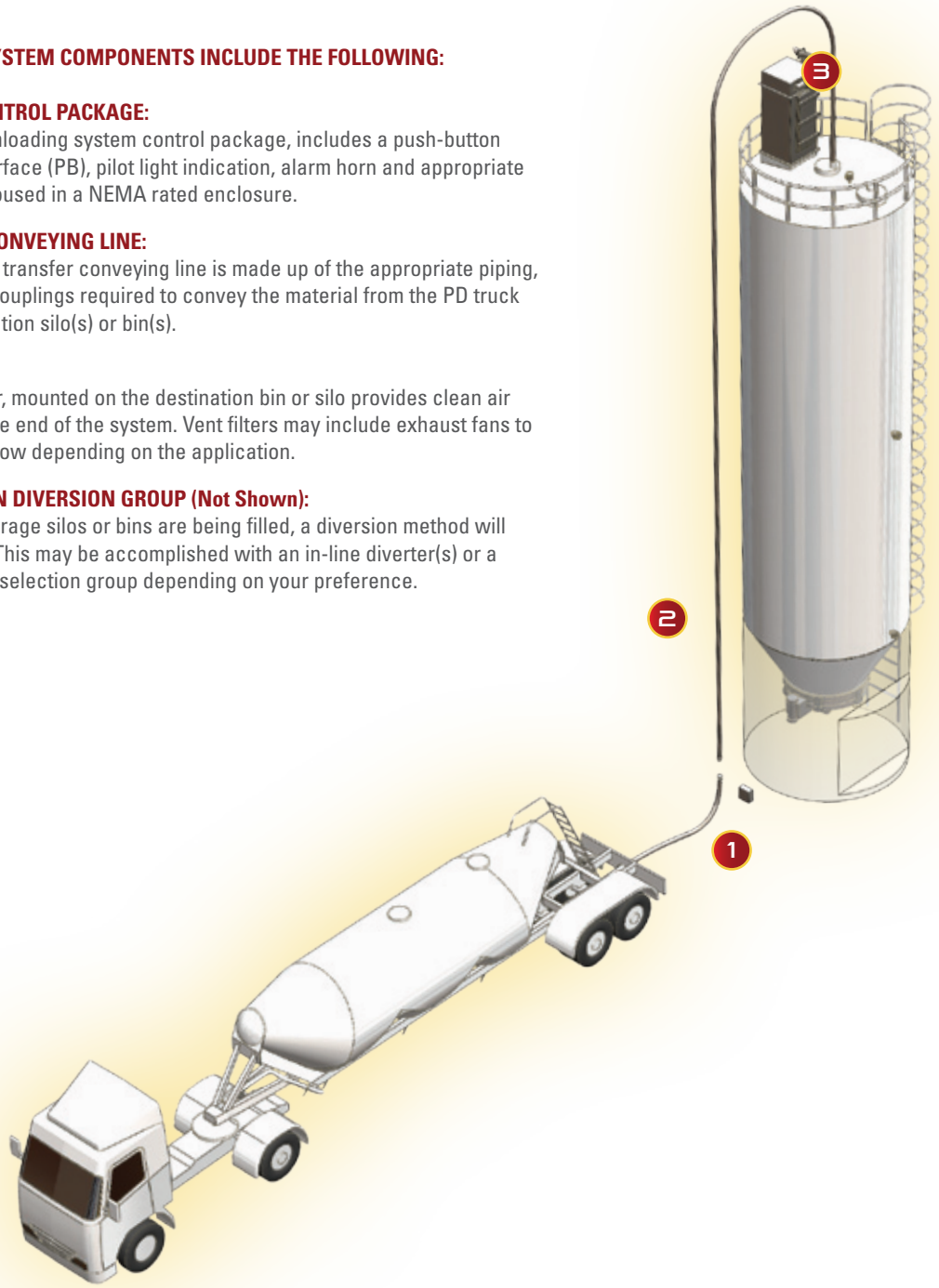
THE BASE SYSTEM COMPONENTS INCLUDE THE FOLLOWING:

1. **SYSTEM CONTROL PACKAGE:**
   A PD truck unloading system control package, includes a push-button operator interface (PB), pilot light indication, alarm horn and appropriate devices all housed in a NEMA rated enclosure.

2. **PRESSURE CONVEYING LINE:**
   The pressure transfer conveying line is made up of the appropriate piping, elbows and couplings required to convey the material from the PD truck to the destination silo(s) or bin(s).

3. **VENT FILTER:**
   The vent filter, mounted on the destination bin or silo provides clean air filtration at the end of the system. Vent filters may include exhaust fans to promote air flow depending on the application.

4. **DESTINATION DIVERSION GROUP (Not Shown):**
   If multiple storage silos or bins are being filled, a diversion method will be required. This may be accomplished with an in-line diverter(s) or a manual hose selection group depending on your preference.



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