Blower Engineering

Pneumatic Conveying Above 15 PSIG

Brainerd MN.
August, 8th, 2019
Presented by: Tom Byrnes Jr.

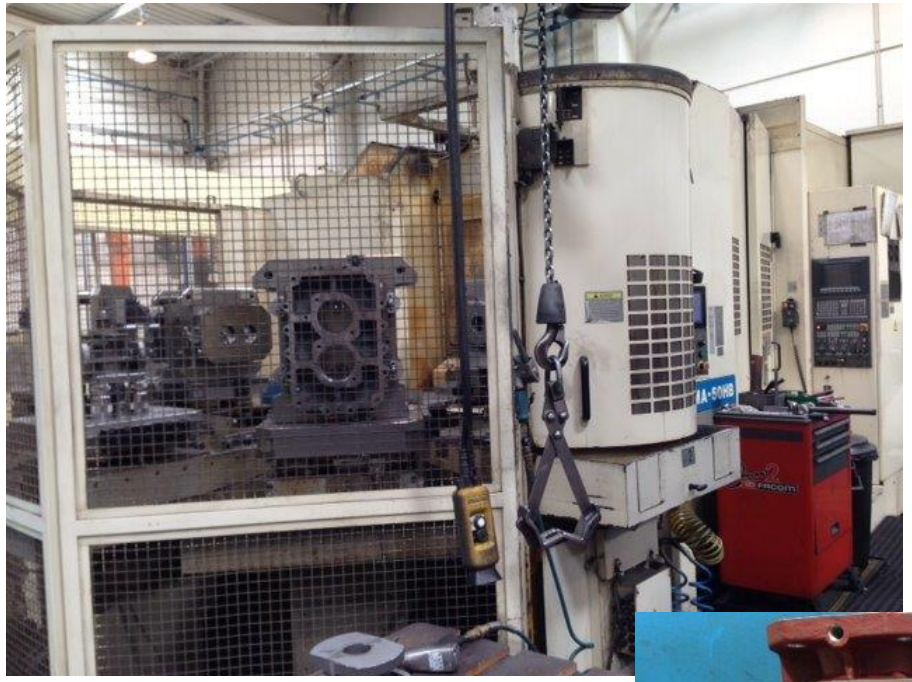
Company Background


FORD

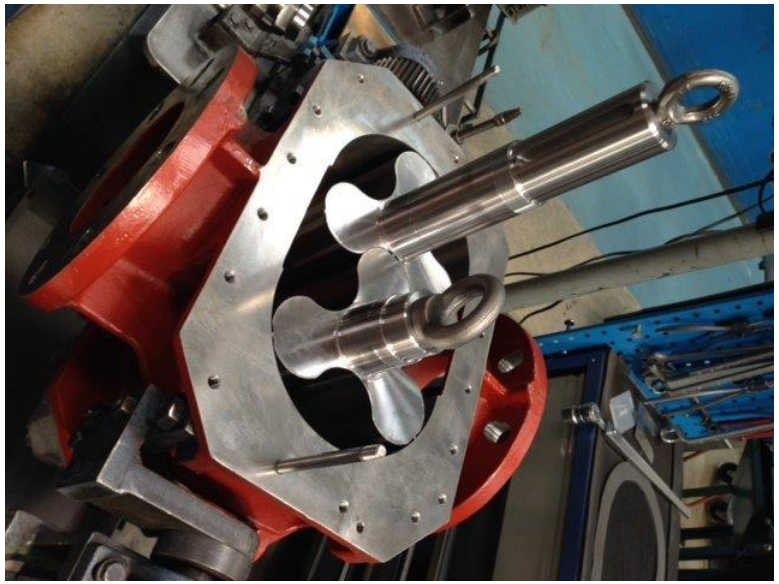
Raw Materials

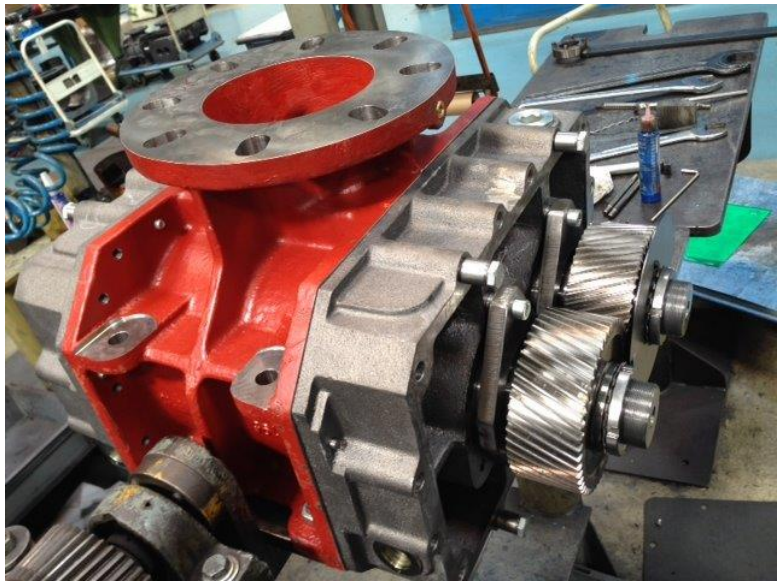
Rotor Machining

Endplate/Cylinder Machining



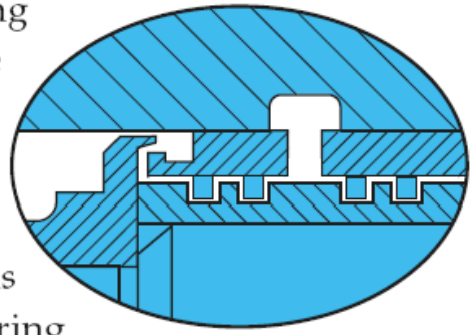
Blower Assembly and Testing





Design Features

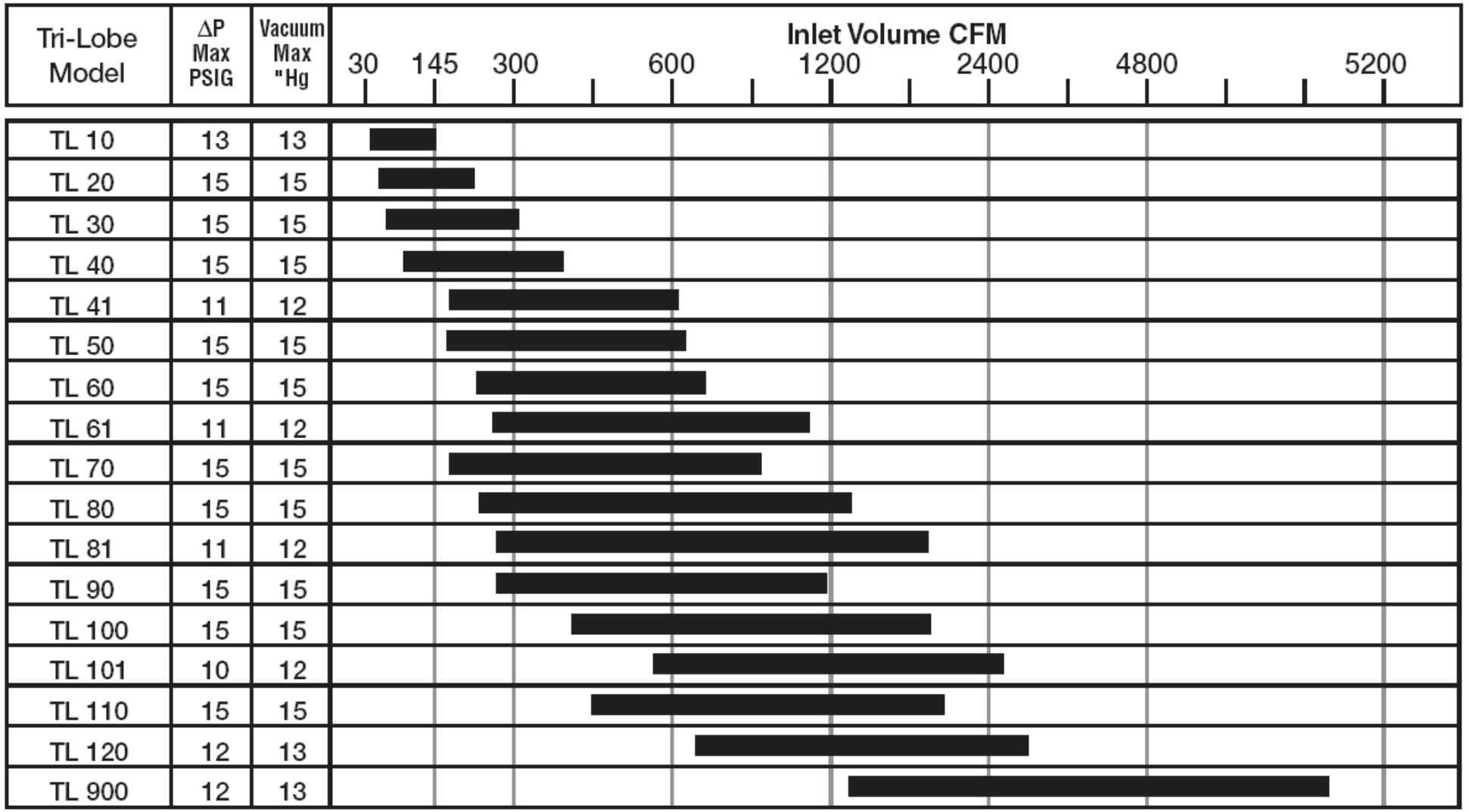
- Bearings: Spherical/cylindrical roller and ball bearing combinations; minimum 100,000 hour design life.
- Tri-Lobe Rotors: Involute contoured impeller profiles for maximum efficiency.
- Impeller/Shaft Rigidity: Reduces mechanical deflection and vibration.
- Oil Seals: Simple non-wearing slinger type oil seals, provide positive sealing in both oil sumps. Unaffected by high temperatures. No shaft wear.
- Air Seals: Piston ring air seals provide dependable non-wearing operation to minimize air leakage past the shafts.



- Heavy-Duty and ribbed cast iron housing and end covers: Reduce noise levels and increase heat dissipation.
- Versatile Mounting: Horizontal or vertical airflow is easily achieved by relocating the removable mounting feet incorporated in all models.
- Splash Oil Lubrication: Assures improved bearing life and operational simplicity.
- Gas or air is delivered in an uncontaminated, oil free state.
- The unit may be coupled directly or driven by V-belts.
- Rotation of the impellers is synchronized by a pair of timing gears having helical, hardened and ground teeth.

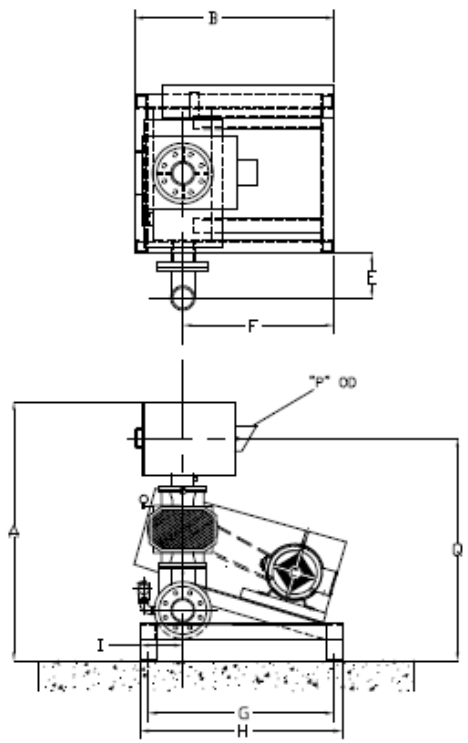
18 Blower Models

TRI-LOBE BLOWER PERFORMANCE

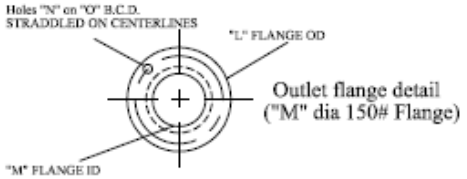


Blower
Engineering Sales and Service

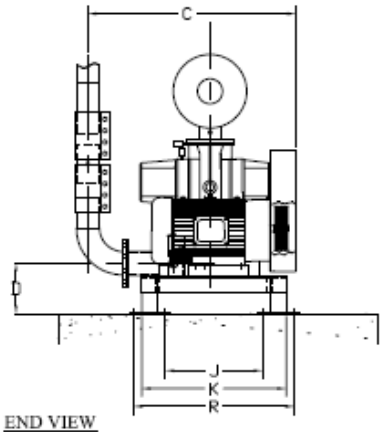
Overall Dimension Sheet (Vertical Outlet)		
Drawn: Sam Byrnes	Scale: NTS	Date: Apr. 29 2014
Checked:	Drawing: ODS-RFS	Revision:



ELEVATION



Outlet flange detail
("M" dia 150# Flange)



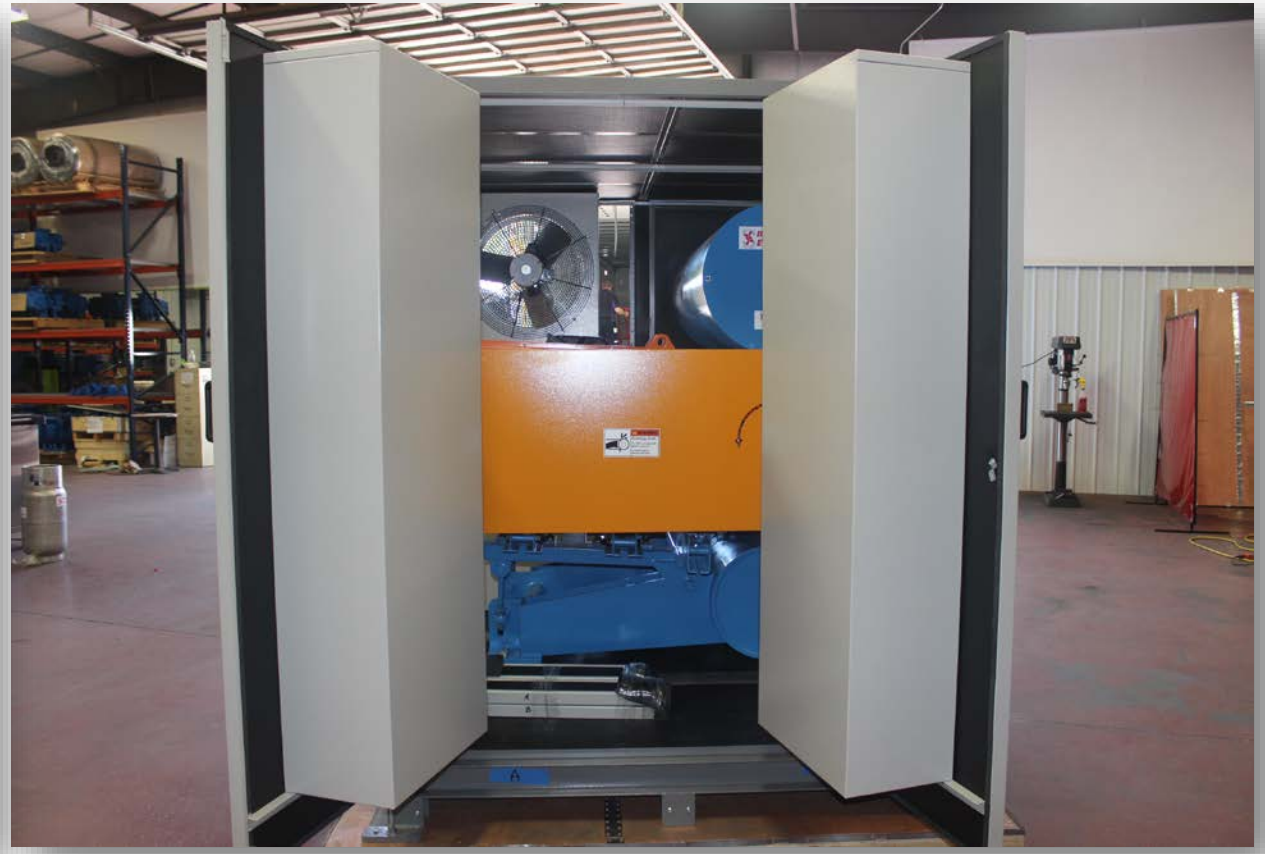
END VIEW

NOTE: DIMENSIONS IN INCHES

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
TL10	48.5	32	29.5	9	6.5	22	27	29	7	17	23	7.5	3	.75	6	3	38	25
TL20	48	32	29.5	9	6.5	22	27	29	7	17	23	7.5	3	.75	6	4	37.5	25
TL30	50	32	29.5	9	6.5	22	27	29	7	17	23	7.5	3	.75	6	4	39.25	25
TL40	50	32	29.5	9	6.5	22	27	29	7	17	23	7.5	3	.75	6	4	39.25	25
TL41	60	40	36	9.5	8	30	35	38	8	17.75	27.25	9	4	.75	7.5	6	47.125	30.75
TL50	53	40	35.25	9.5	8	30	35	38	8	17.75	27.25	9	4	.75	7.5	5	43	30.75
TL60	61.5	40	35.25	9.5	8	30	35	38	8	17.75	27.25	9	4	.75	7.5	6	48.625	30.75
TL61	64	49	45	11	9.5	35	42	46	11	22.5	34	10	5	.875	8.5	8	50.75	37.5
TL70	68	49	43	11	9.5	35	42	46	11	22.5	34	10	5	.875	8.5	8	54.75	37.5
TL80	68	49	46	11	9.5	35	42	46	11	22.5	34	10	5	.875	8.5	8	54.75	37.5
TL81	68	49	47.25	11	9.5	35	42	46	11	22.5	34	10	5	.875	8.5	8	54.75	37.5
TL90	70	49	46	11	9.5	35	42	46	11	22.5	34	10	5	.875	8.5	8	56.75	37.5
TL100	79	60	53	12.25	10.5	43	51	56	13	27	40	11	6	.875	9.5	10	62.75	43.5
TL101	79	60	56.625	12.25	10.5	43	51	56	13	27	40	11	6	.875	9.5	10	62.75	43.5
TL110	84	60	52.5	12.25	10.5	43	51	56	13	27	40	11	6	.875	9.5	10	67.75	43.5
TL120	88.5	68	66.25	15	13.5	46	55	60	14	31	45	13.5	8	.875	11.75	12	72	48
TL900	117	86	72	17	14.25	54	66	72	18	32.75	48.75	13.5	8	.88	11.75	14	91.75	56.75

Weather Proof Acoustic Enclosure

- Removable panels for oil changes, replacing parts.



- Double doors for easy access

Key Benefits

- < 75 dba. @ 15 psig (3ft. field conditions)
- Weather proof
- Residential areas
- Outdoor applications

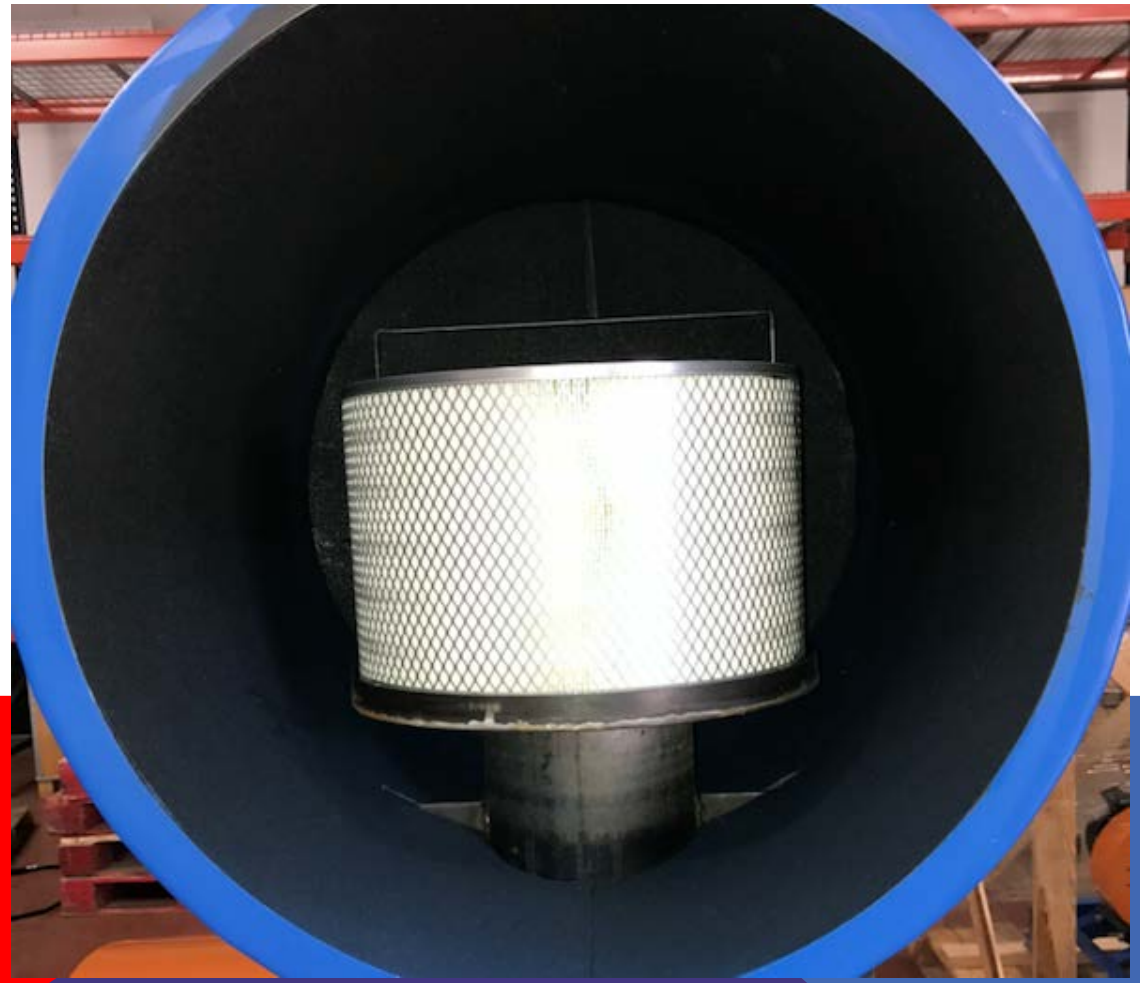
Knock Down Acoustic Enclosure

- Alternative to acoustic enclosure
- Easily erected around existing equipment

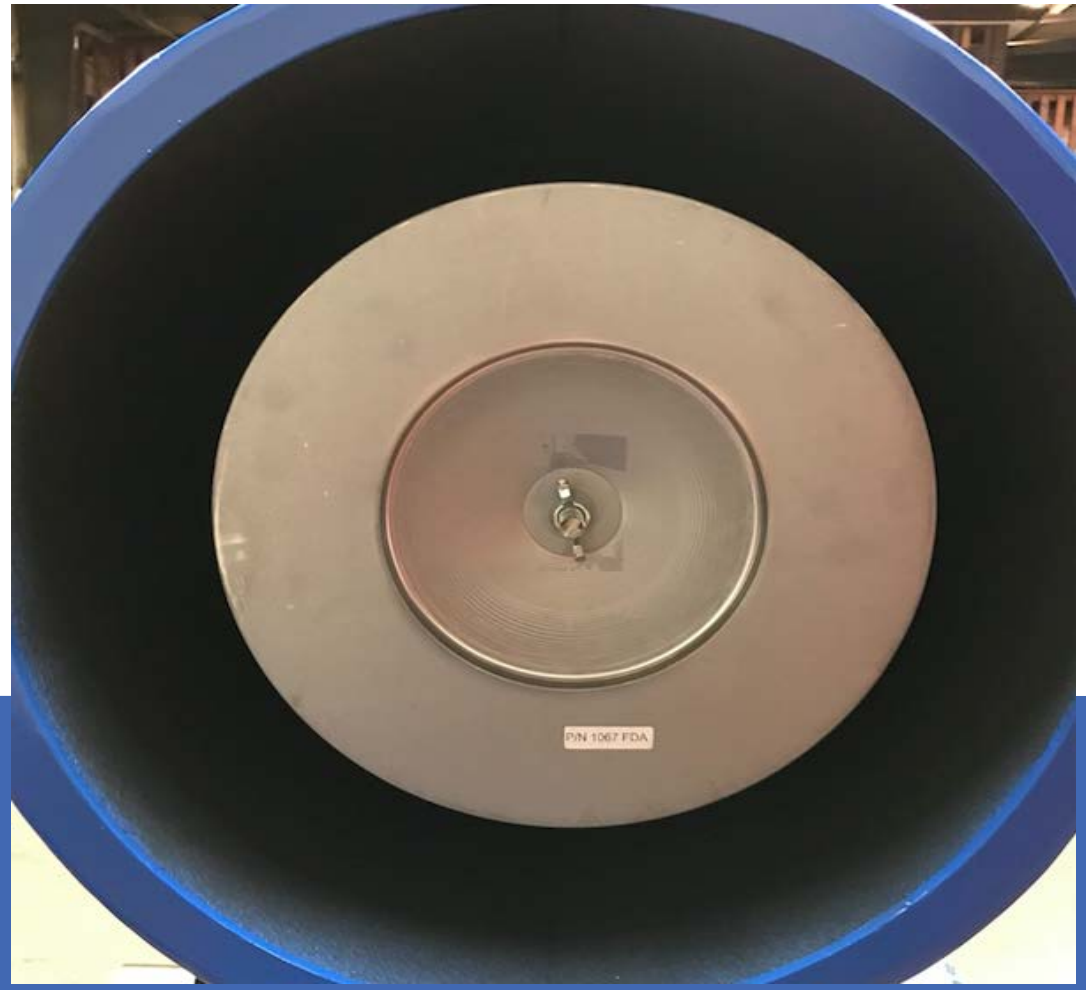
Intake Filter Silencer

New Filter Silencer Design

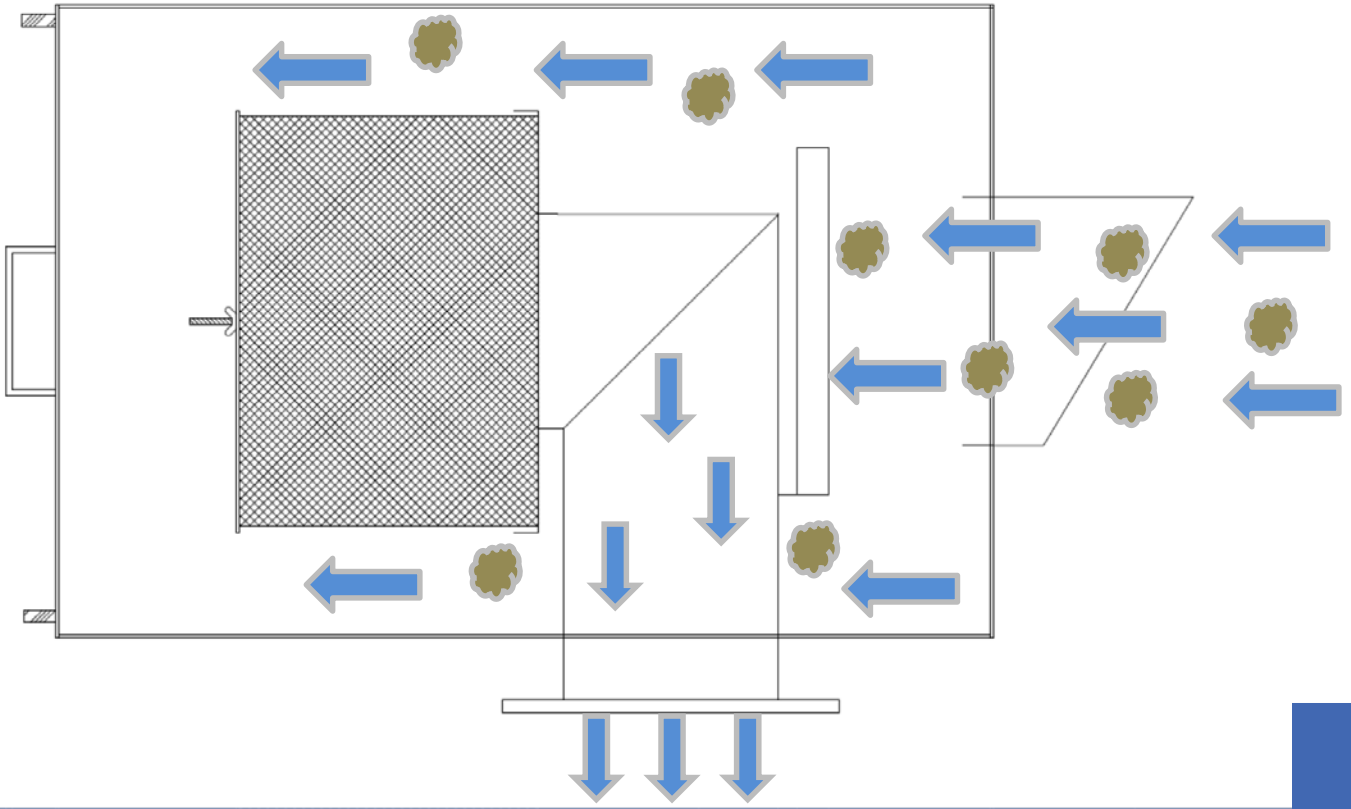
Old Design



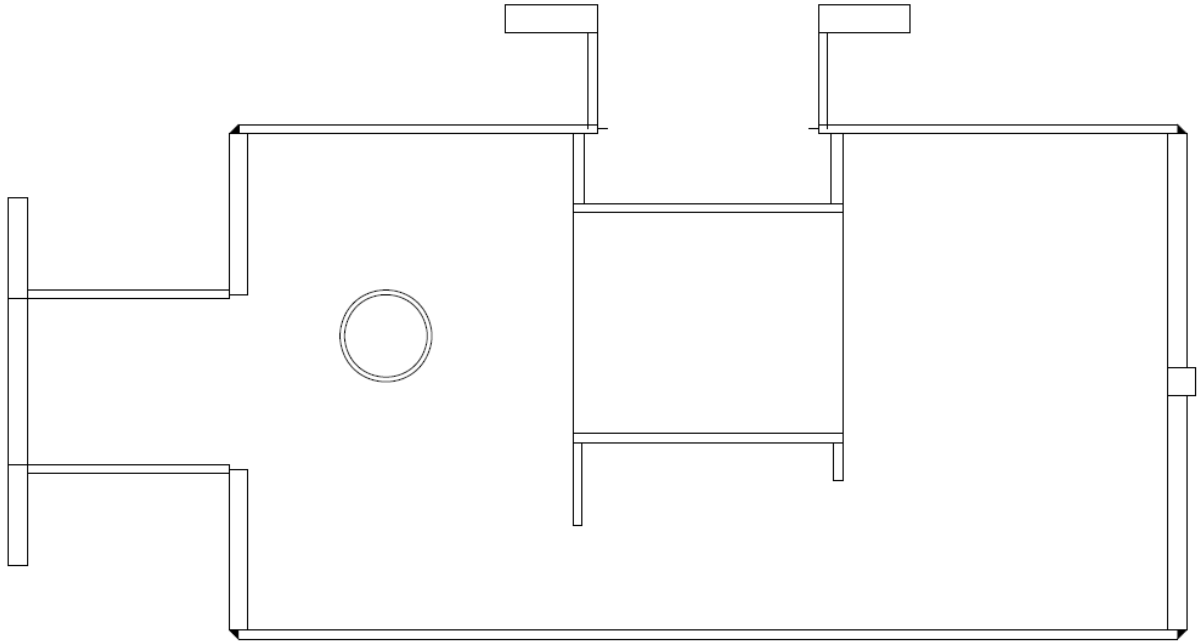
New Design



Intake Filter Silencer

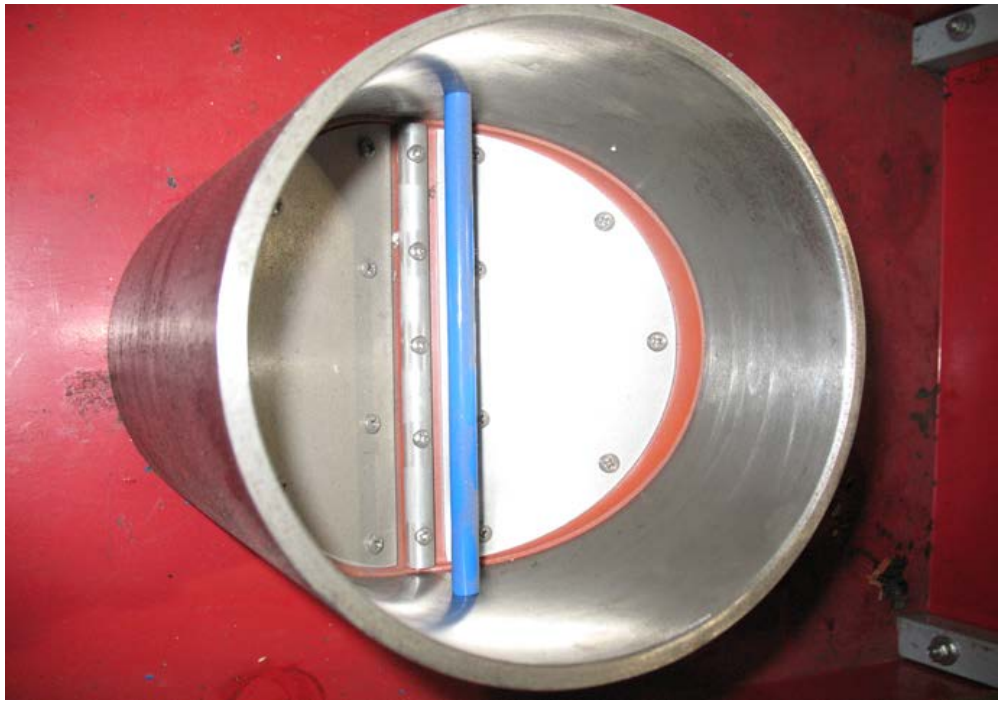


Filter Restriction Indicator



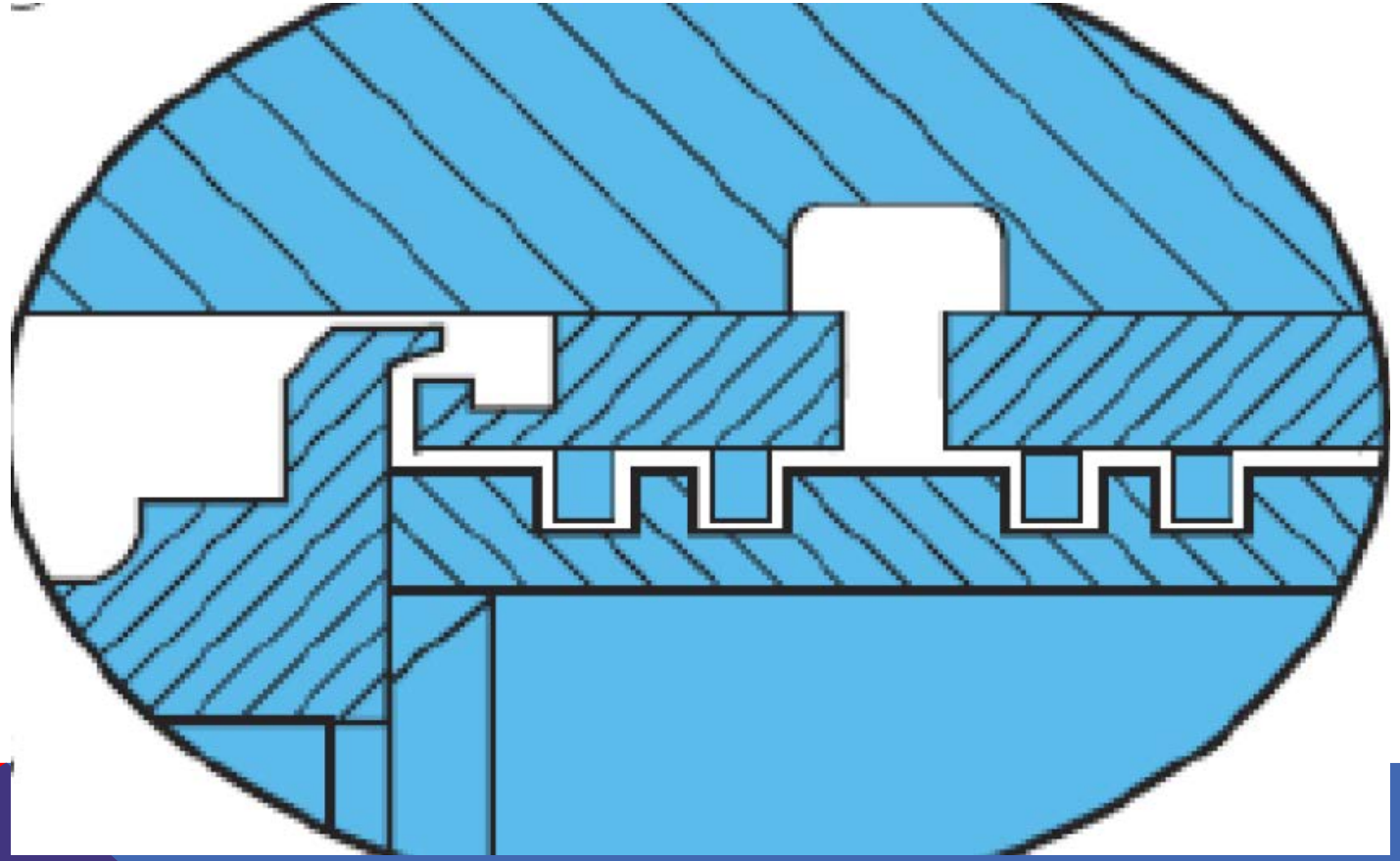
Discharge Silencer

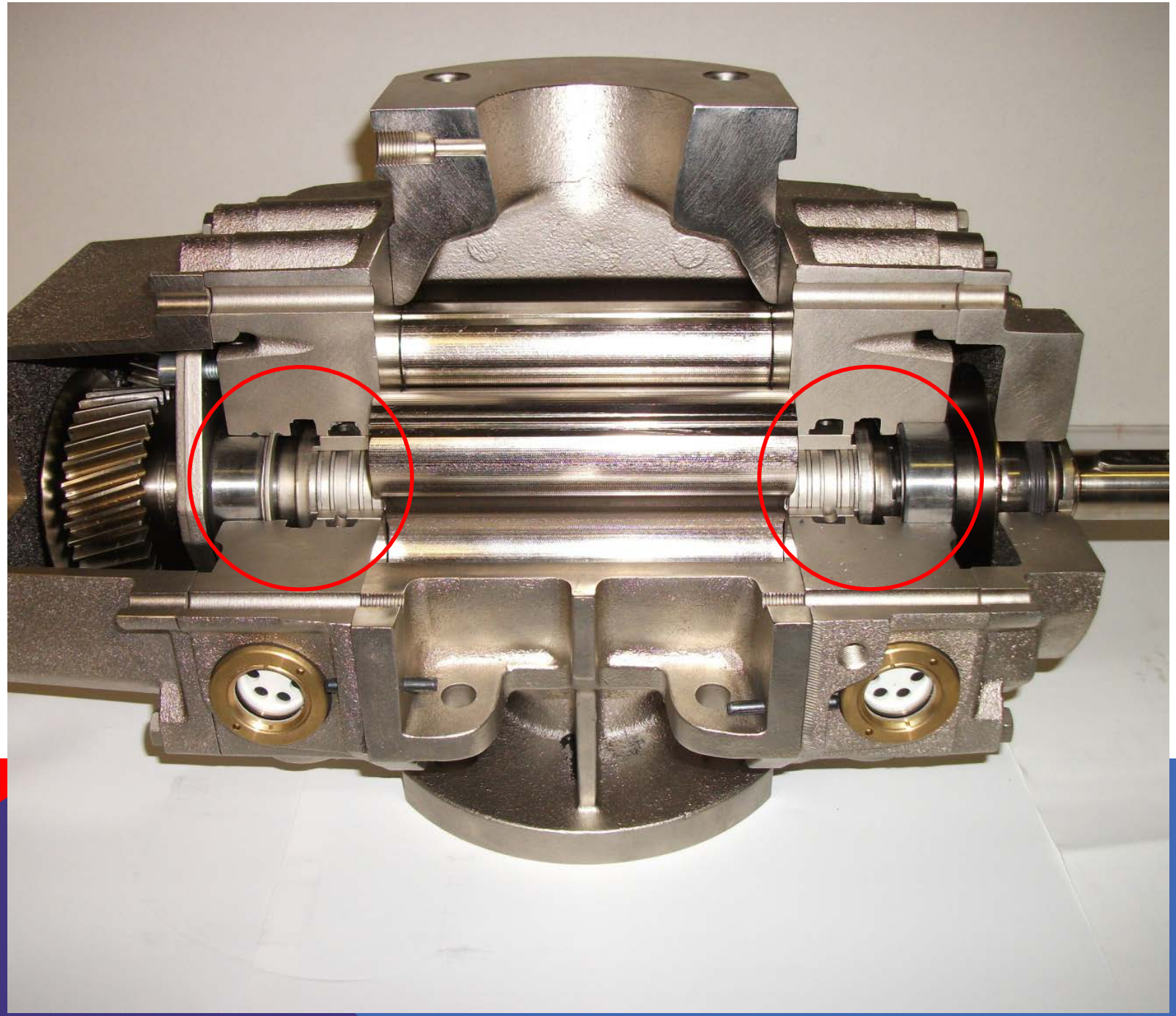
PACKING

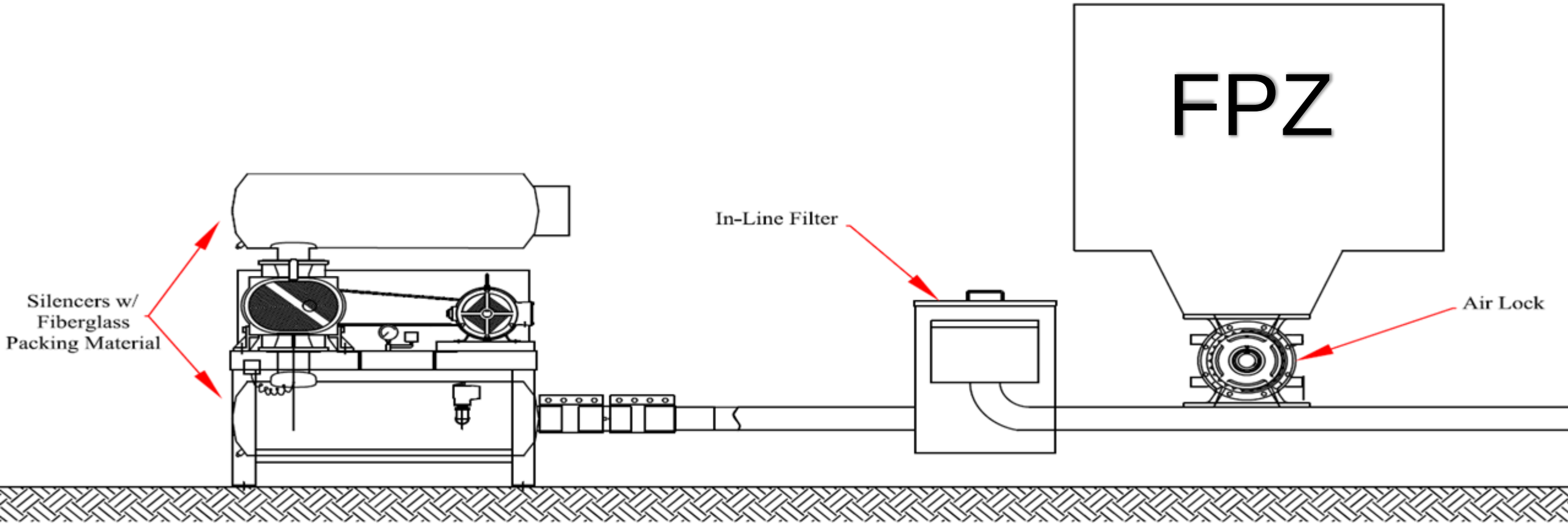


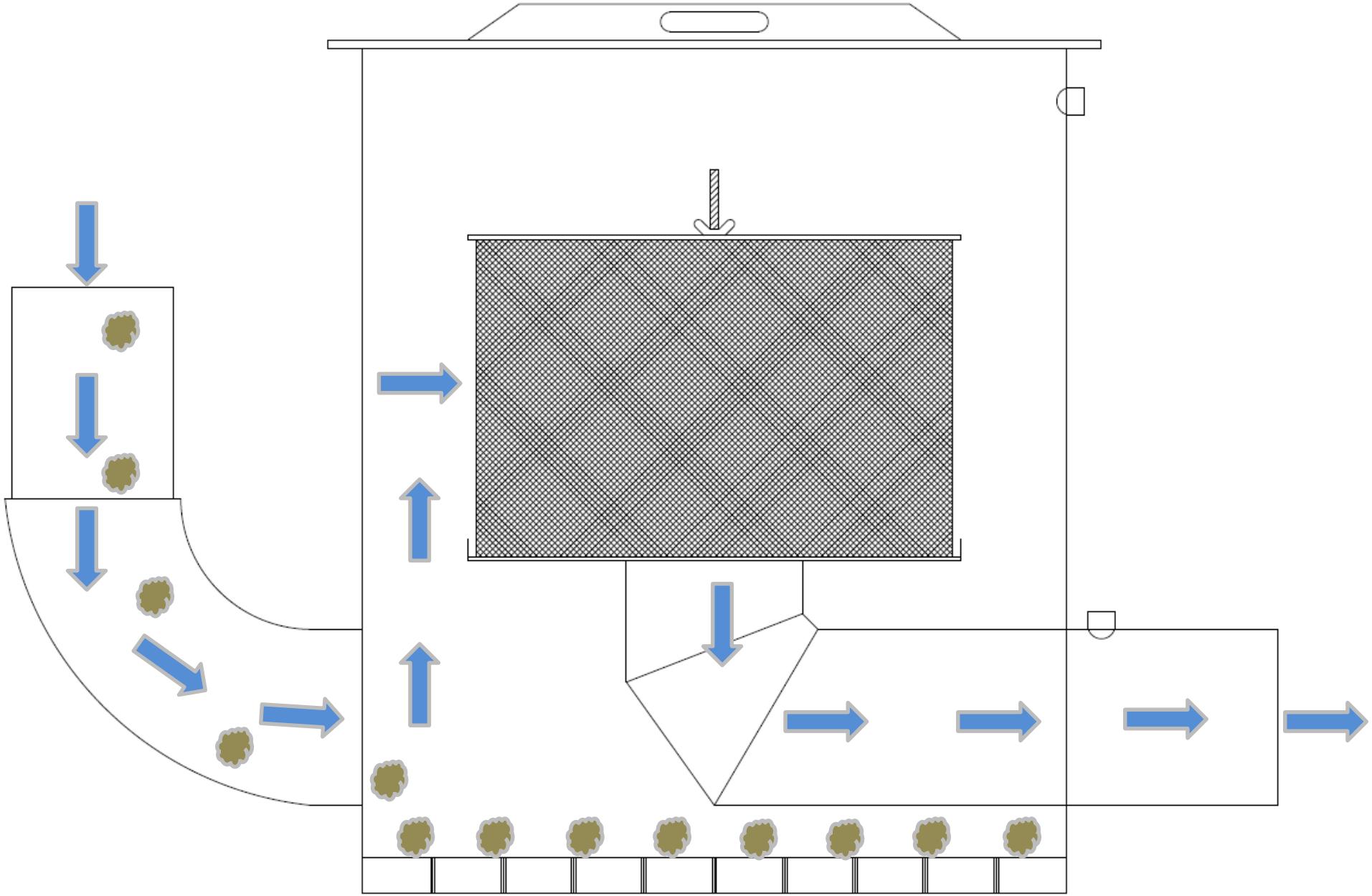
Check Valve

Non contacting, Air / Oil Seal



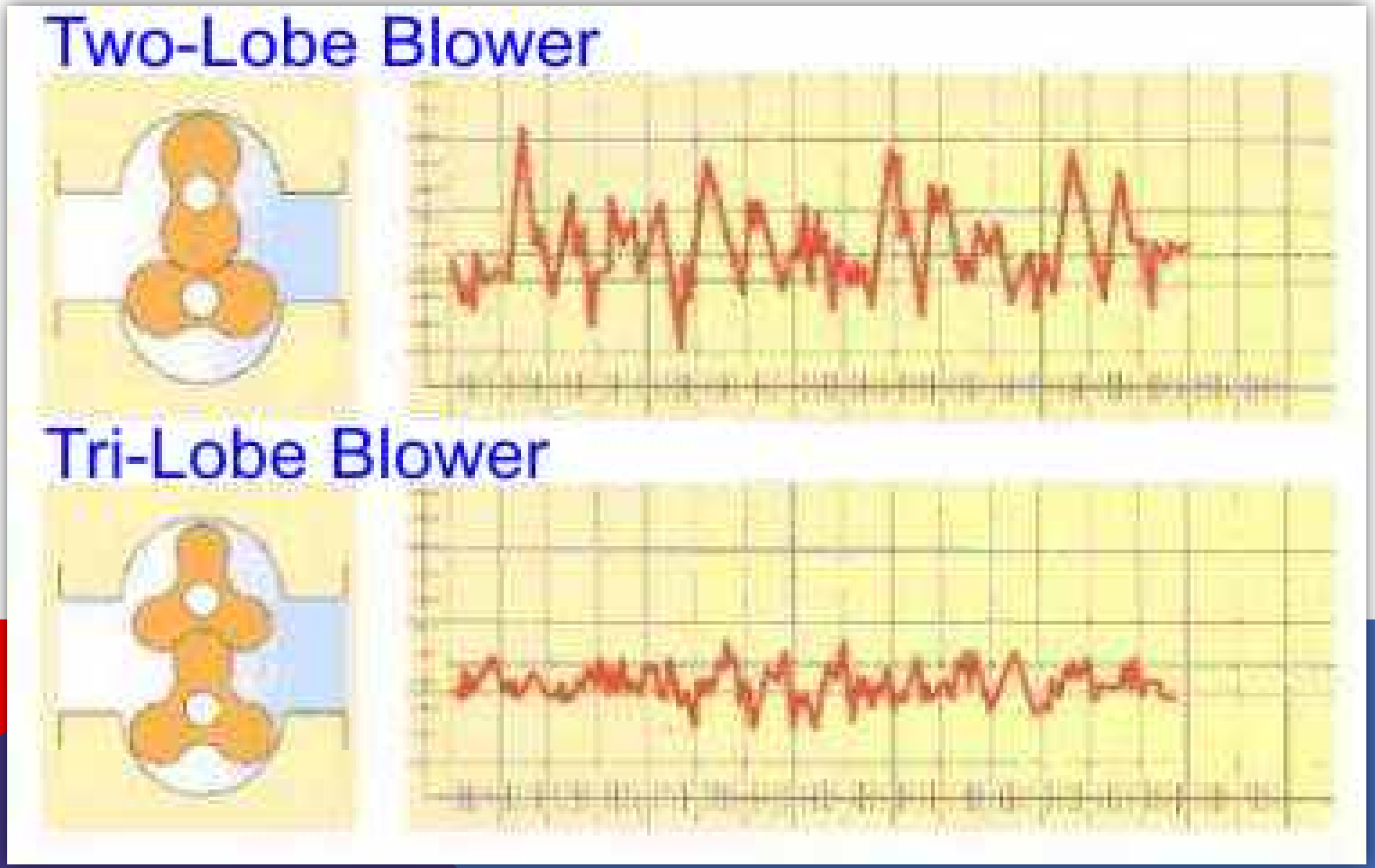



FPZ
In-Line Filter
Silencers w/
Fiberglass
Packing Material
Air Lock



Standard or “Exotic” micron or HEPA elements available

Two Lobe vs Tri-Lobe



Tri-Lobe Blower Limited to 15 psig

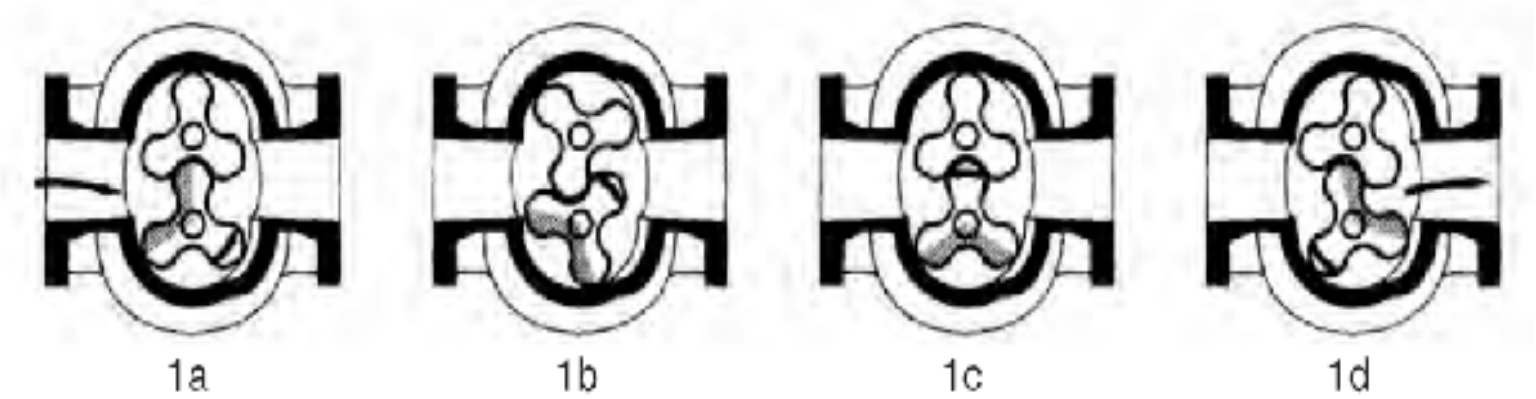


Fig. 1

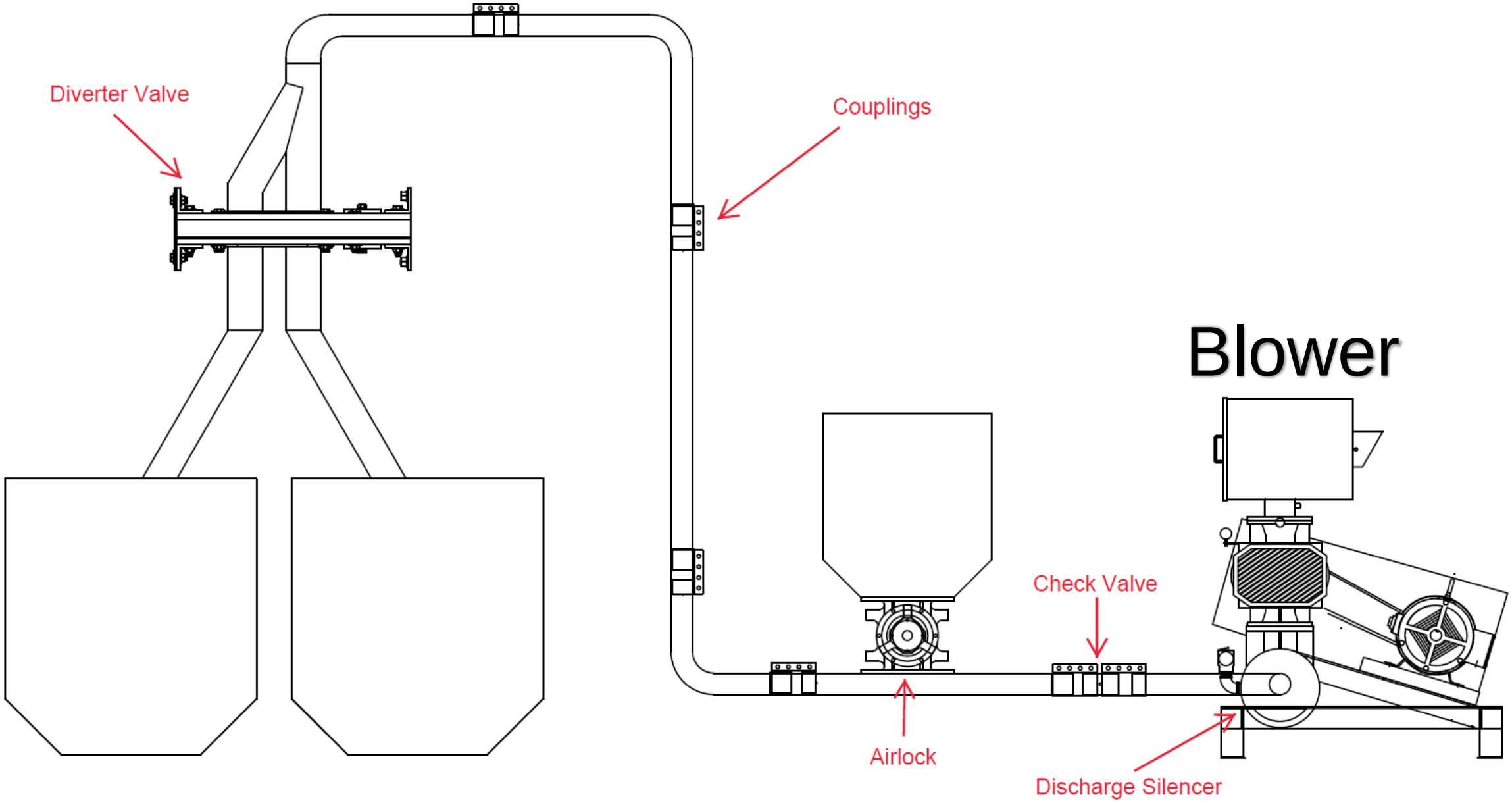
1a - Gas enters inlet port

1b – Gas is trapped between rotor tips

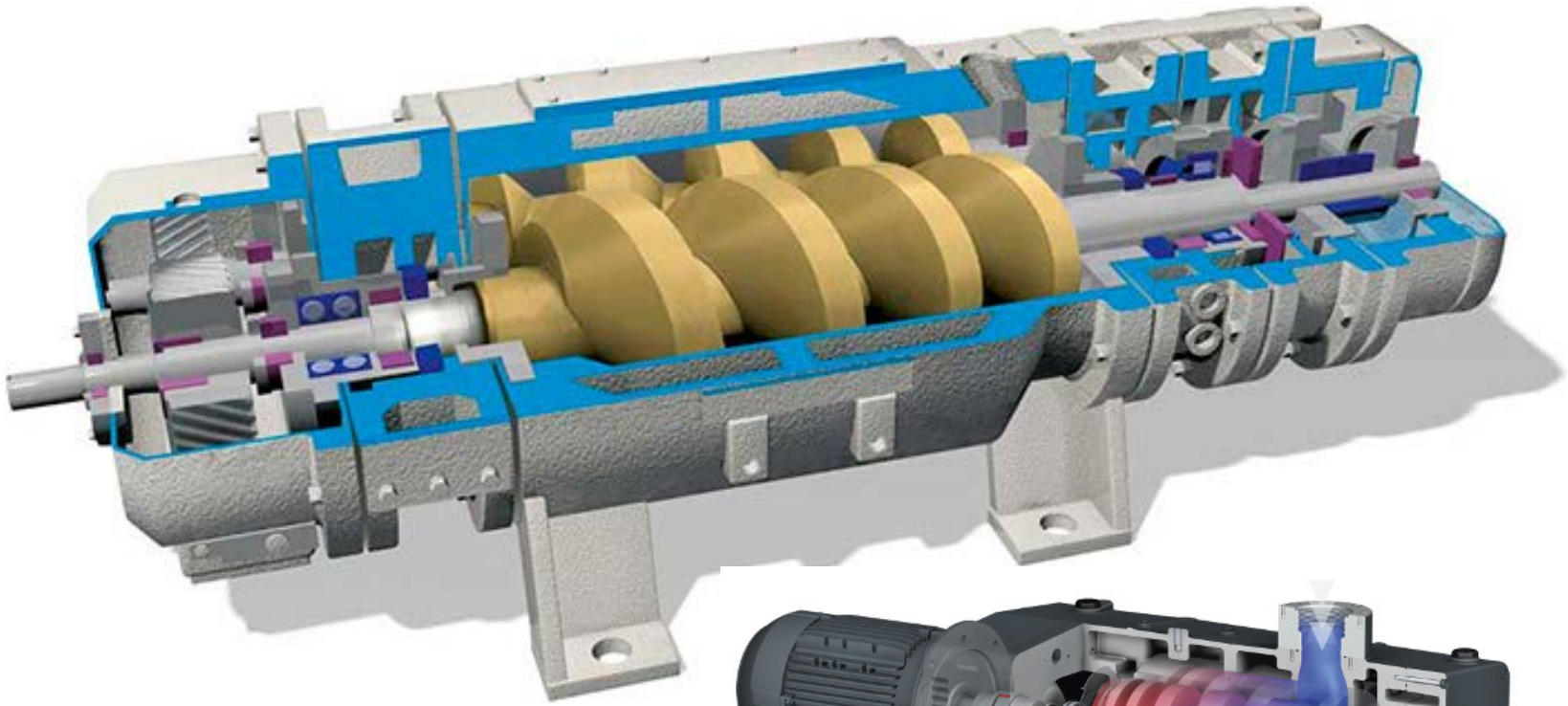
1c – Gas pressure is equalized gradually

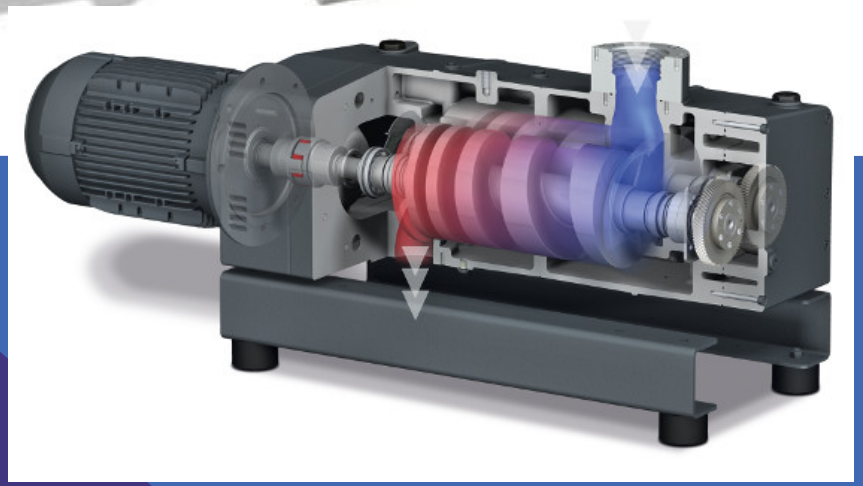
1d – Gas exits discharge port at system pressure

Pneumatic Conveying System



Dry Screw Compressor, above 15 psig

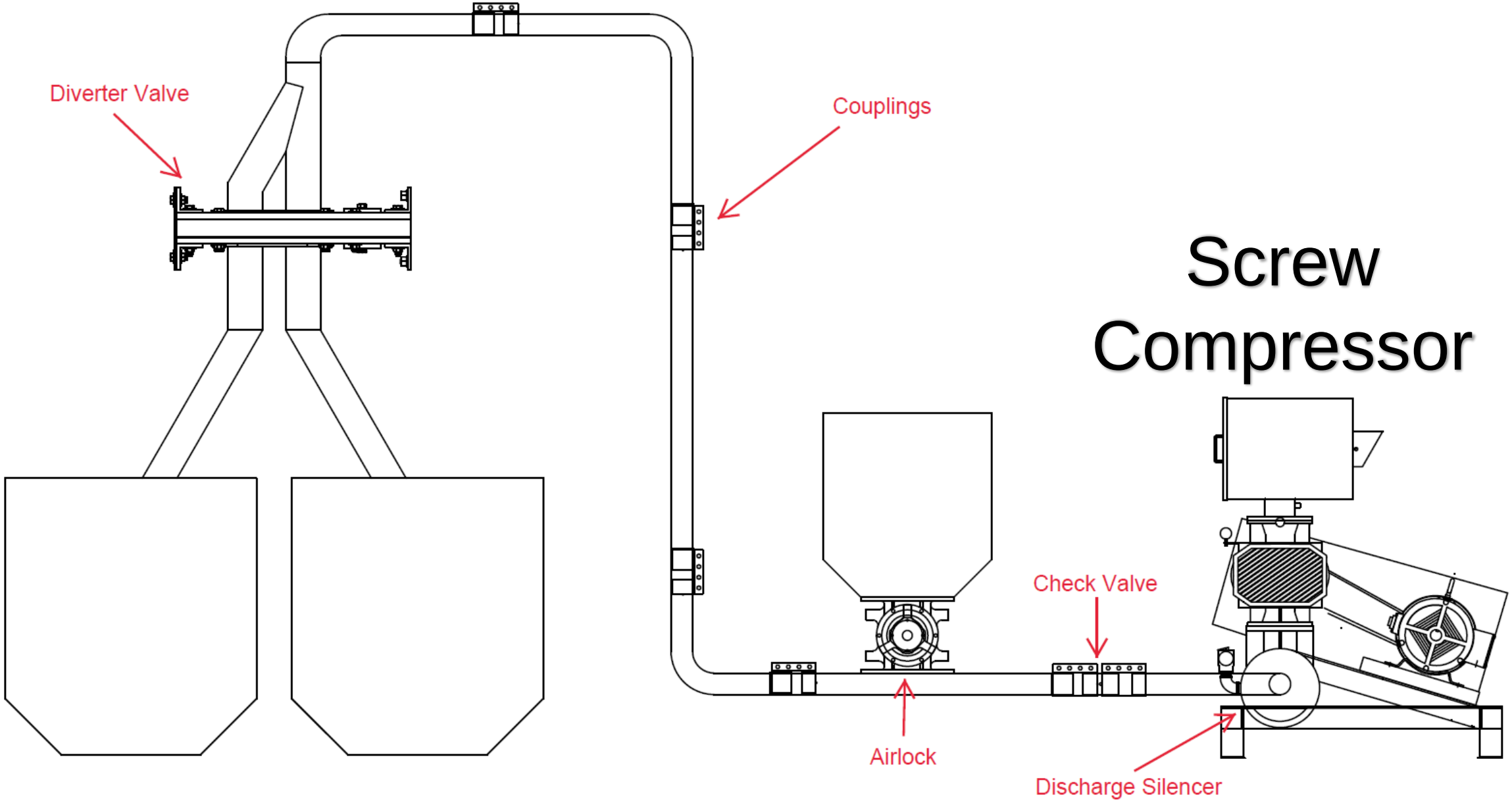


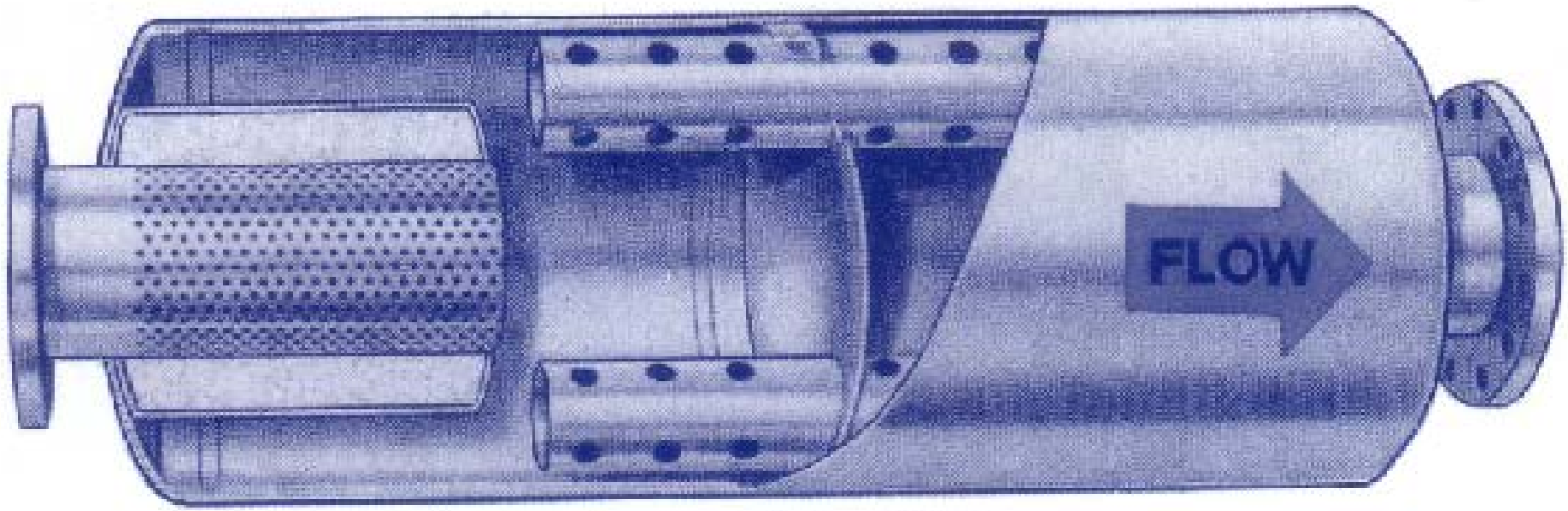


American Society of Mechanical Engineers Boiler & Pressure Vessel Code

- First edition written in 1914 after several boiler explosions in early 1900's.
- **Pressure Vessels:** containers which are designed to hold liquids, vapors, or gases above **15 psig**
- Must be built to BPVC Code, signed off by Authorized Inspector, Insured, yearly inspections etc.
- All Components must be certified pressure vessel rated.
- Certified pressure vessel welder required to fabricate components.

Pneumatic Conveying System





SILENCER

Pressure Relief Valve

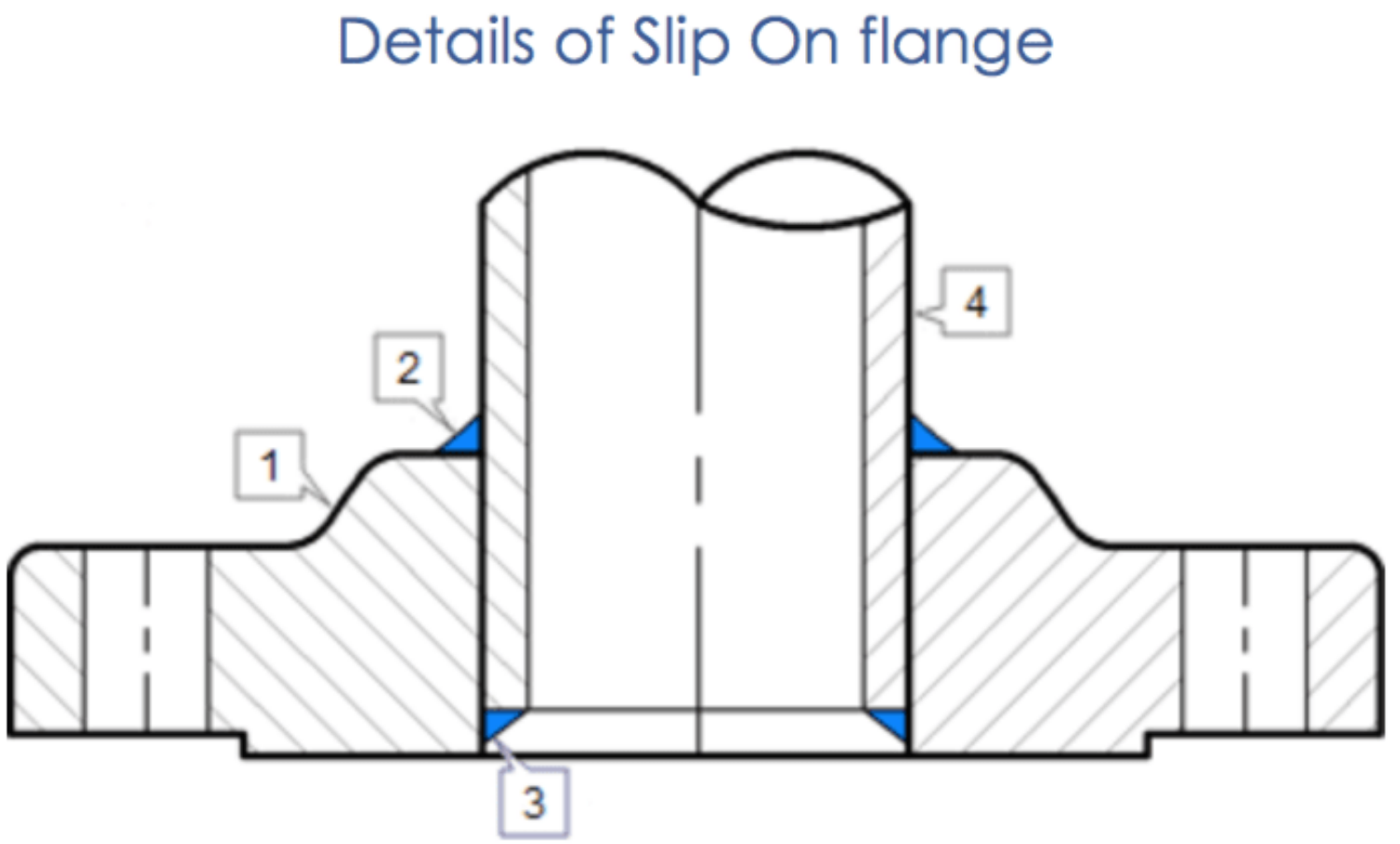
Check Valve

Morris Coupling Pressure Rating

- Designed for Vacuum and Pressure applications up to **15 PSIG/15” HG** in pneumatic conveying or IVAC systems.

- Exceeding max pressure rating can result in coupling blowing off; unexpected downtime, injury, etc.

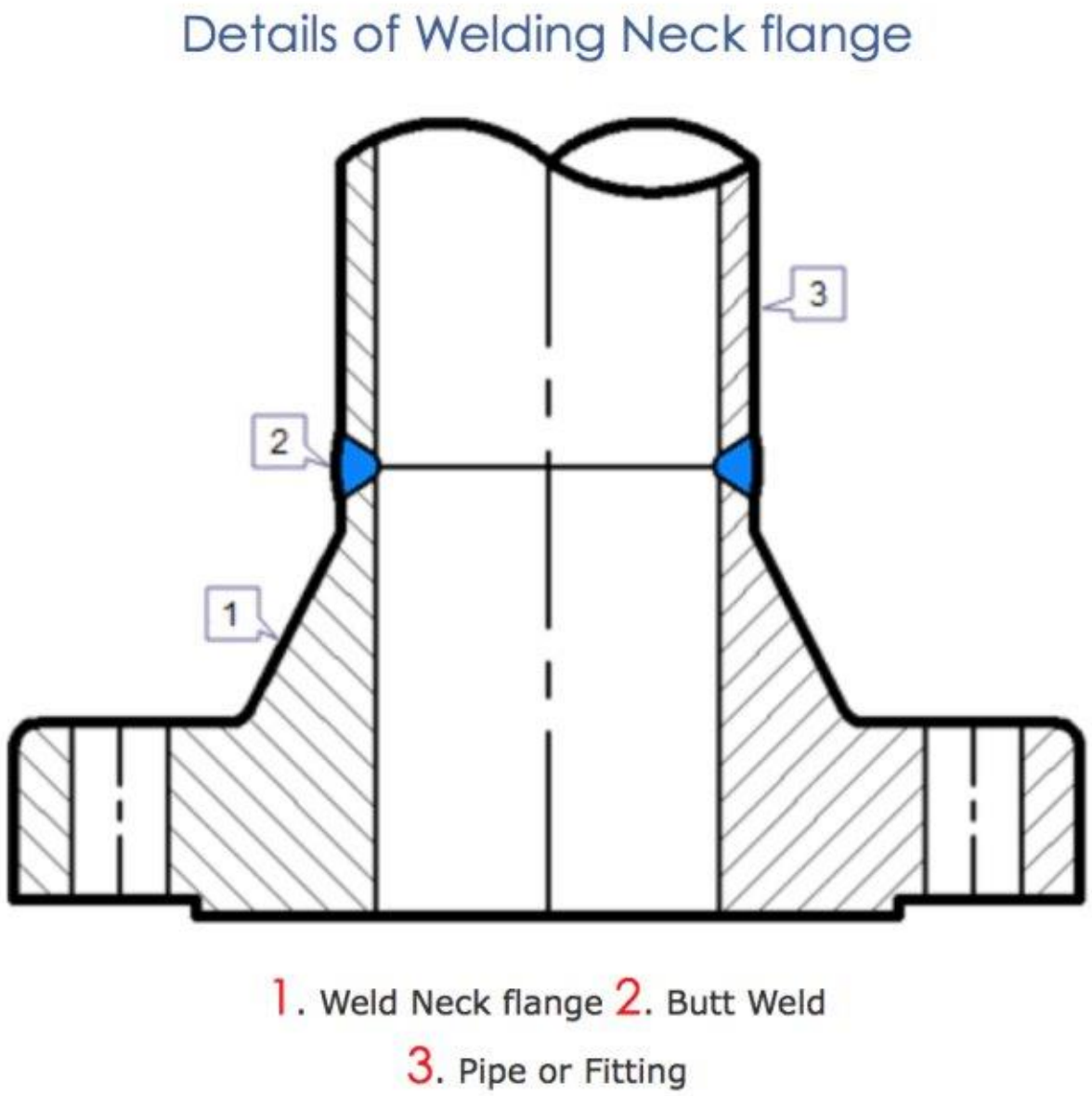
Flanged Connection, Root and Filler Weld



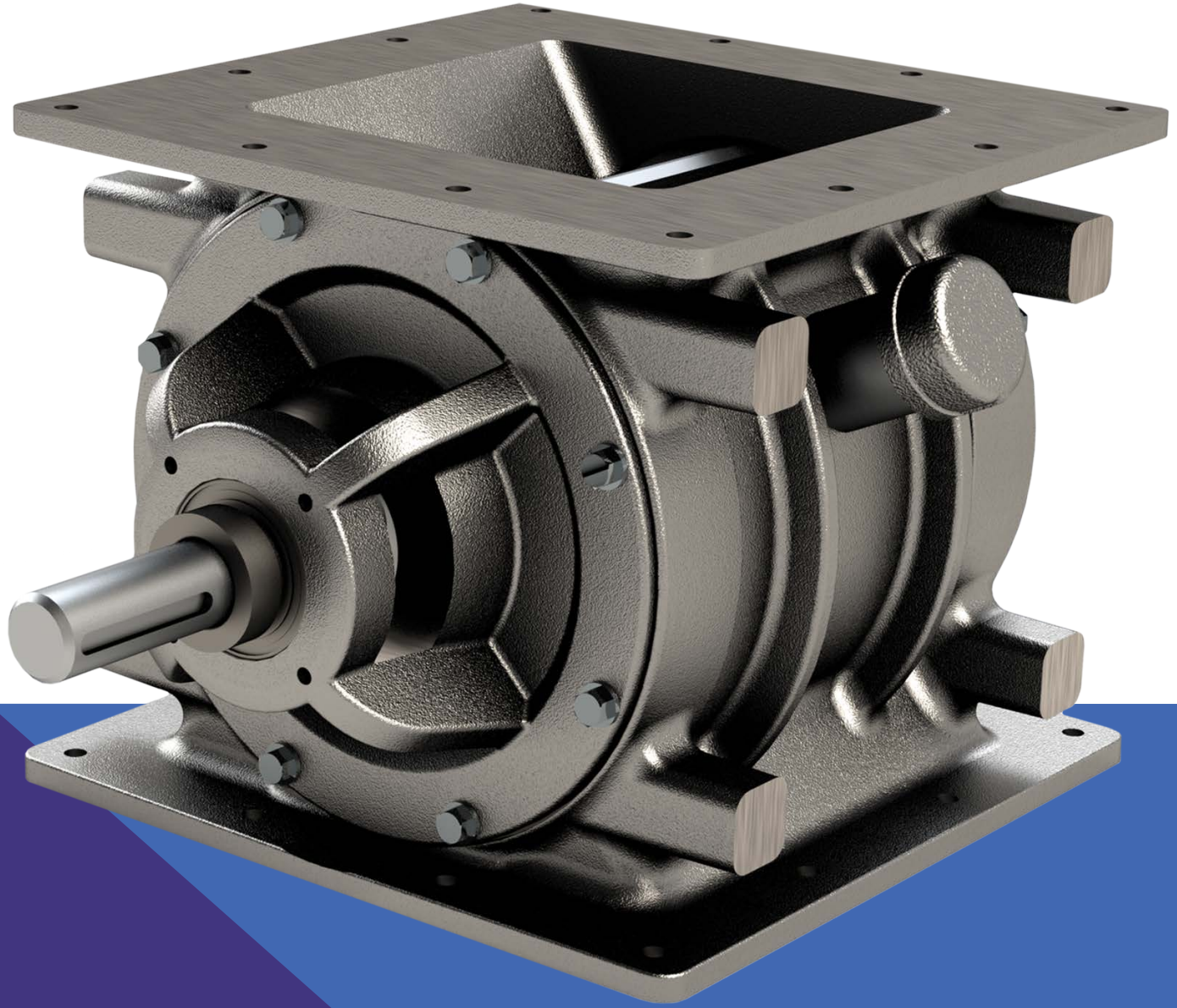
1. Slip On flange 2. Filled weld outside

3. Filled weld inside 4. Pipe

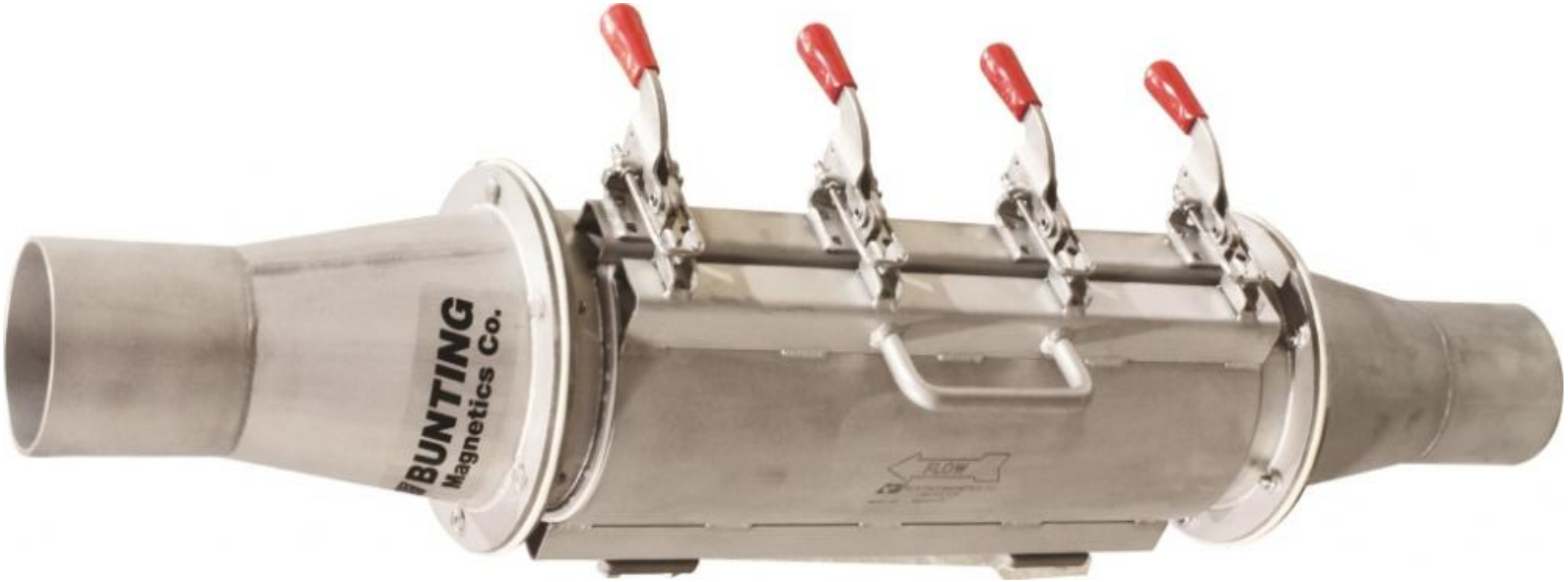
Weld Neck Flanged Connection



Air Lock



Magnet

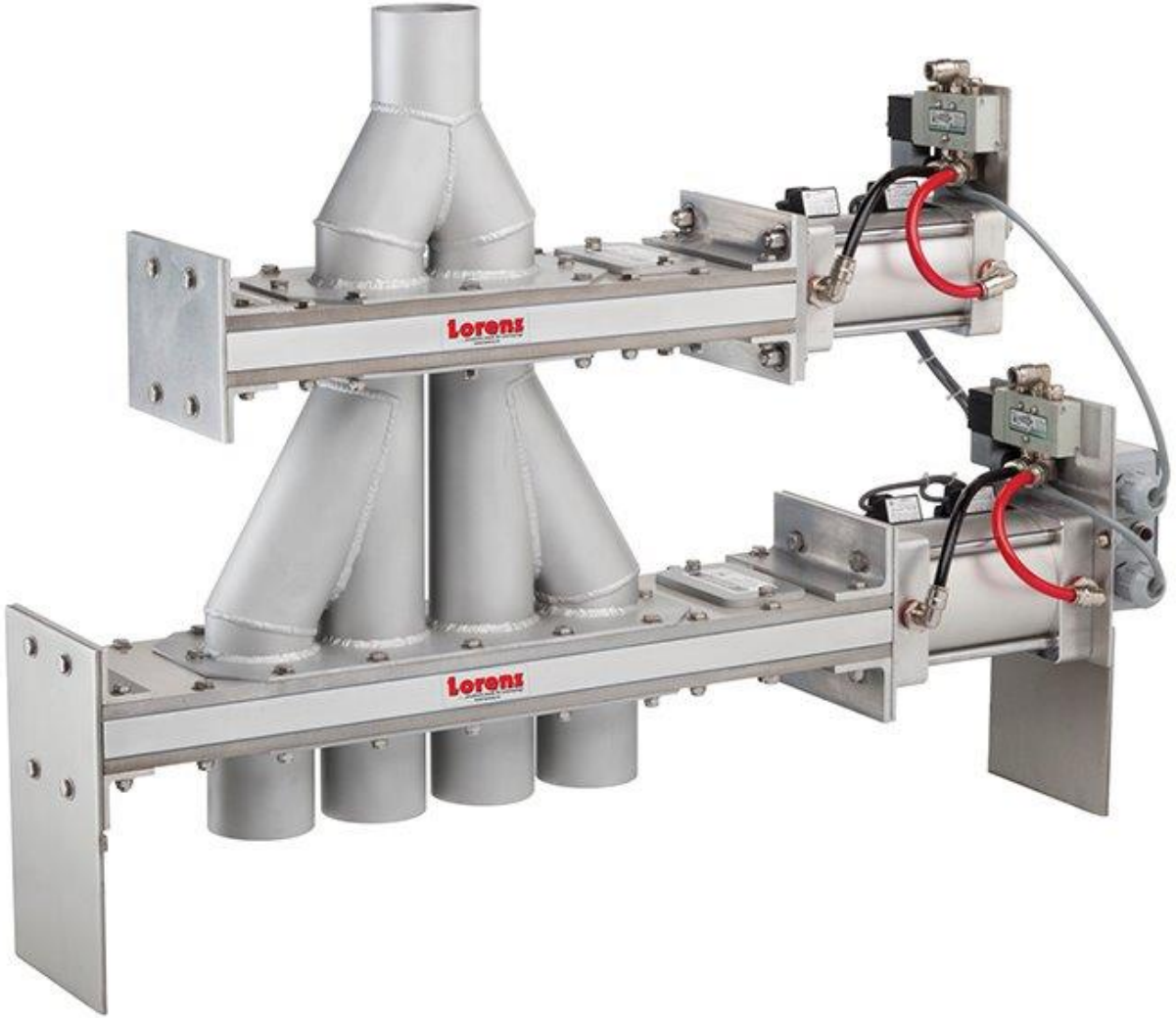


In-Line Sifter

Diverters

Diverters

Diverters



Recap

- **Pressure Vessels:** containers which are designed to hold liquids, vapors, or gases above **15 psig**
- Must be built to BPVC Code, certified for pressure vessel application, signed off by Authorized Inspector, Insured, yearly inspections etc.
- All Components must be certified pressure vessel rated, including, all piping, silencers, check valve, air lock, diverter, magnet etc.
- Certified pressure vessel welder required to fabricate components; all joints needed to be welded
- Increased cost for installation and operation

Blower Engineering

THANK YOU!

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