PACIFIC BLOWERS

Full Version Catalog

PACIFIC BLOWERS

Pacific Regenerative Blowers are available in either single stage or double stage configurations. Single stage refers to the blower having one impeller and double stage refers to the blower having two impellers.

Pacific Regenerative Blowers are made with the utmost quality. The impeller is directly connected to the motor shaft, therefore eliminating any need for pulleys and belts.

The following options are also available:

- **E (Explosion Proof) Series -** featuring explosion-proof construction, heavy duty cast aluminum manifolds; spark resistant housings, covers, impellers, muffler towers, and seals; Teflon lip seals; and explosion-proof motors. (IP44, 54, 55/Class 2/ Group B/Div. 1)
- **BS (Bare Shaft) Series -** featuring the same explosion-proof construction as the E series with the added benefit of externally driven operation.
- **CC (Chemical Coated Regenerative) Series -** featuring E explosion-proof designs with chemically corrosion resistant treatments, chemical duty motors.

Advantages:

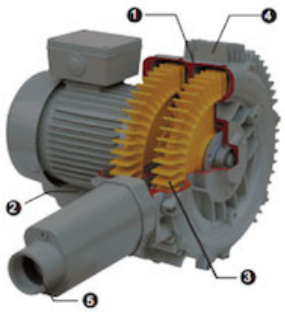
- Oil Free Air
- Low Noise Levels (64 – 88 db)
- Virtually Maintenance Free Operation
- Compact and efficient in electricity usage
- Trouble Free Installation (Can be mounted horizontally and vertically)
- Industrial Duty Bearrings

Operational Performance:
Air Flow: 50 CFM up to 1413 CFM
Pressure: 47” in H2O up to 283” in H2O
Vacuum: 40” in H2O up to 189” in H2O

Operational Principles:
The impeller rotates inside the blower housing pulling in air or gas through the impeller chamber **(1)** through the side channel **(2)** pulling it in through the inlet **(3)**. The impeller accelerates the air or gas **(4)** until it is fully pressurized and discharged through the exhaust outlet **(5)**.

Pacific Blowers has designed and manufactured regenerative blowers for a wide variety of applications, including:

- Wastewater Treatment Aeration
- Tank Aeration (Fish Pond Aeration)
- Soil Vapor Extraction
- Vacuum Lifting
- Gasoline Vapor Recovery
- Pneumatic Transport of Powders and Solids Groundwater Sparing
- Vacuum Hold Down
- Lagoon Gas Recovery
- Landfill Gas Evacuation and
- Collection General Parts Drying
- Material Handling



Technical Specification

60Hz

Single Stage Regenerative Blowers / 1 Phase (110 / 220 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 110 / 220 V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-101	1	0.5	0.40	7.6/ 3.8	50	1.4	84	47	1200	1.7	118	40	1000	1.42	98	64	31	14	1 1/4	4H
PB-201	1	1.0	0.75	12.6/ 6.3	102	2.9	174	47	1200	1.7	118	44	1100	1.56	108	66	45	20	1 1/2	14H
PB-301	1	2.0	1.50	25.0/ 12.5	141	4.0	240	71	1800	2.56	177	63	1600	2.27	157	75	73	33	2	23H
PB-401	1	3.0	2.20	38.0/ 19.0	141	4.0	240	110	2800	3.98	275	79	2000	2.84	196	75	78	35	2	24H
PB-501	1	3.0	2.20	44.0/ 22.0	212	6.0	360	83	2100	2.98	206	79	2000	2.84	196	76	86	39	2	

Single Stage Regenerative Blowers / 3 Phase (220 / 460 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 220 / 380 / 460V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-100	3	0.7	0.50	2.4 / 1.4 / 1.2	50	1.4	84	51	1300	1.84	127	47	1200	1.7	118	64	26	11.5	1 1/4	4H
PB-200	3	1.2	0.93	4.2 / 2.4 /2.1	102	2.9	174	51	1300	1.84	127	47	1200	1.7	118	66	40	18	1 1/2	12H
PB-300	3	2.3	1.75	7.6 / 4.4 / 3.8	141	4.0	240	79	2000	2.84	196	71	1800	2.56	177	75	64	29	2	20H
PB-400	3	3.4	2.55	10.7 / 6.2 / 5.3	141	4.0	240	118	3000	4.2	294	87	2200	3.12	216	75	73	33	2	21H
PB-500	3	3.4	2.55	12.1 / 7.0 /6.0	212	6.0	360	79	2000	2.84	196	87	2200	3.12	216	76	84	38	2	30H
PB-600	3	5.0	3.70	14.0 / 8.1 / 7.0	212	6.0	360	118	3000	4.2	294	110	2800	3.98	275	76	93	42	2	31H
PB-700	3	6.0	4.50	17.0 / 9.8 /8.5	212	6.0	360	134	3400	4.8	333	130	3300	4.69	324	76	102	46	2	32H
PB-750	3	6.0	4.50	17.3 / 10.0 /8.6	353	10.0	600	79	2000	2.84	196	79	2000	2.84	196	78	203	92	2 1/2	
PB-800	3	8.4	6.30	31.2 / 18.0 /15.6	353	10.0	600	118	3000	4.2	294	122	3100	4.4	304	78	309	140	2 1/2	80H
PB-900	3	11.5	8.60	34.0 / 19.6 /17.0	353	10.0	600	177	4500	6.4	441	138	3500	4.97	343	78	331	150	2 1/2	81H
PB-1000	3	16.8	12.60	40.0 / 23.1 /20.0	353	10.0	600	197	5000	7.1	490	138	3500	4.97	343	78	419	190	2 1/2	82H
PB-1100	3	16.8	12.60	40.0 / 23.1 /20.0	706	20.0	1200	83	2100	2.98	206	79	2000	2.84	196	82	574	260	4	100H
PB-1200	3	20.4	15.30	54.0 / 31.2 /27.0	706	20.0	1200	118	3000	4.2	294	114	2900	4.12	284	82	574	260	4	101H
PB-1300	3	30.0	22.70	76.0 / 43.9 /38.0	706	20.0	1200	177	4500	6.4	441	150	3800	5.4	373	82	607	275	4	102H

Technical Specification

60Hz

Double Stage Regenerative Blowers / 1 Phase (110 / 220 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 110 / 220 V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-102/1	1	0.5	0.40	7.6/ 3.8	58	1.6	96	47	1200	1.7	118	40	1000	1.42	98	68	40	18	1 1/4	6H
PB-202/1	1	1.0	0.75	10.6/ 5.3	58	1.6	96	83	2100	2.98	206	67	1700	2.41	167	68	44	20	1 1/4	215H
PB-302/1	1	1.5	1.10	12.0/ 6.0	58	1.6	96	98	2500	3.55	245	79	2000	2.84	196	68	50	23	1 1/4	225H
PB-402/1	1	3.0	2.20	31.0/ 15.5	113	3.2	192	138	3500	4.98	343	102	2600	3.69	255	75	85	39	1 1/2	

Double Stage Regenerative Blowers / 3 Phase (220 / 460 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 220 / 380 / 460V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-102	3	0.7	0.50	2.6 / 1.5 /1.3	58	1.6	96	59	1500	2.13	147	40	1000	1.42	98	68	34	15	1 1/4	37H
PB-202	3	1.2	0.93	4.2 / 2.4 /2.1	58	1.6	96	98	2500	3.55	245	80	2000	2.84	196	68	40	18	1 1/4	40H
PB-302	3	2.0	1.50	5.2 / 3.0 /2.6	58	1.6	96	118	3000	4.26	294	87	2200	3.12	216	68	45	20	1 1/4	41H
PB-402	3	3.4	2.55	10.9 / 6.3 /5.4	113	3.2	192	158	4000	5.68	392	118	3000	4.26	294	75	84	38	1 1/2	50H
PB-502	3	3.4	2.55	11.8 / 6.8 /5.9	145	4.1	246	118	3000	4.26	294	110	2800	3.98	275	78	93	42	2	59H
PB-602	3	5.0	3.70	14.7 / 8.5 /7.3	145	4.1	246	165	4200	5.97	412	158	4000	5.68	392	78	102	46	2	60H
PB-702	3	6.0	4.50	16.5 / 9.5 /8.2	145	4.1	246	197	5000	7.11	490	169	4300	6.11	422	78	108	49	2	61H
PB-802	3	6.0	4.50	17.0 / 9.8 /8.5	215	6.1	366	146	3700	5.26	363	138	3500	4.97	343	80	126	57	2	72H
PB-902	3	8.4	6.30	22.0 / 12.7 /11.0	215	6.1	366	205	5200	7.39	510	169	4300	6.11	422	80	179	81	2	73H
PB-1002	3	11.5	8.60	31.2 / 18.0 /15.6	215	6.1	366	236	6000	8.53	588	177	4500	6.4	441	80	230	104	2	74H
PB-1102	3	16.8	12.60	40.0 / 23.1 /20.0	336	9.5	570	244	6200	8.81	608	169	4300	6.11	422	82	530	240	2 1/2	91H
PB-1202	3	23.0	17.30	56.0 / 32.3 /28.0	336	9.5	570	283	7200	10.24	706	189	4800	6.82	471	82	552	250	2 1/2	92H
PB-1302	3	20.4	15.30	54.0 / 31.2 /27.0	777	22.0	1320	98	2500	3.55	245	106	2700	3.84	265	88	728	330	4	11H
PB-1402	3	24.7	18.50	65.5 / 37.5 /31.7	777	22.0	1320	138	3500	4.98	343	126	3200	4.55	314	88	761	345	4	112H
PB-1502	3	35.7	26.80	82.0 / 47.3 /41.0	777	22.0	1320	189	4800	6.82	471	189	4800	6.82	471	88	783	355	4	113H
PB-1503	3	24.7	15.50	65.5 / 37.8 /32.7	1413	40.0	2400	47	1200	1.7	118	43	1100	1.56	108	88	849	385	5	
PB-1603	3	30.0	22.70	74.3 /42.9 /37.1	1413	40.0	2400	71	1800	2.56	177	71	1800	2.56	177	88	882	400	5	
PB-1703	3	40.0	30.00	91.8 / 53.0 /45.9	1413	40.0	2400	91	2300	3.27	226	98	2500	3.55	245	88	904	410	5	

Technical Specification

50Hz

Single Stage Regenerative Blowers / 1 Phase (110 / 230 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 110 / 220 V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-101	1	0.40	0.33	6.8 / 3.4	46	1.3	78	39	1000	1.42	98	39	1000	1.42	98	64	31	14	1 1/4	
PB-201	1	0.85	0.63	10.4 / 5.2	81	2.3	138	47	1200	1.7	118	47	1200	1.7	118	66	45	20	1 1/2	
PB-301	1	1.50	1.10	23.0 / 11.5	113	3.2	192	71	1800	2.56	177	63	1600	2.27	157	75	73	33	2	
PB-401	1	2.50	1.83	24.0 / 12.0	113	3.2	192	87	2200	3.12	216	71	1800	2.56	177	75	78	35	2	
PB-501	1	2.50	1.83	32.0 / 16.0	177	5.0	300	83	2100	2.98	206	79	2000	2.84	196	76	86	39	2	

Single Stage Regenerative Blowers / 3 Phase (220 / 460 V)

MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 220 / 380 / 440V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-100	3	0.50	0.40	2.5 / 1.45 / 1.2	46	1.3	78	47	1200	1.7	118	39	1000	1.42	98	64	26	11.5	1 1/4	
PB-200	3	1.00	0.75	4.0 / 2.3 / 2.0	81	2.3	138	51	1300	1.84	127	47	1200	1.7	118	66	40	18	1 1/2	
PB-300	3	2.00	1.50	7.0 / 4.0 / 3.5	120	3.4	204	79	2000	2.84	196	67	1700	2.41	167	75	64	29	2	
PB-400	3	3.00	2.20	10.4 / 6.0 / 5.2	120	3.4	204	106	2700	3.84	265	87	2200	3.12	216	75	73	33	2	
PB-500	3	3.00	2.20	13.0 / 7.5 / 6.5	177	5.0	300	87	2200	3.12	216	91	2300	3.27	226	76	84	38	2	
PB-600	3	4.00	3.00	13.5 / 7.8 / 6.7	177	5.0	300	110	2800	3.98	275	102	2600	3.69	255	76	93	42	2	
PB-700	3	5.30	4.00	16.6 / 9.6 / 8.3	177	5.0	300	130	3300	4.69	324	126	3200	4.55	314	76	102	46	2	
PB-750	3	5.30	4.00	14.3 / 8.3 / 7.1	300	8.5	510	79	2000	2.84	196	79	2000	2.84	196	78	203	92	2 1/2	
PB-800	3	7.50	5.50	22.0 / 12.7 / 11.0	297	8.4	504	110	2800	3.98	275	106	2700	3.84	265	78	309	140	2 1/2	
PB-900	3	10.00	7.50	29.0 / 16.7 / 14.5	297	8.4	504	157	4000	5.68	392	118	3000	4.26	294	78	331	150	2 1/2	
PB-1000	3	15.00	11.00	40.0 / 23.1 / 20.0	297	8.4	504	173	4400	6.25	431	138	3500	4.97	343	78	419	190	2 1/2	
PB-1100	3	15.00	11.00	40.0 / 23.1 / 20.0	600	17.0	1020	67	1700	2.41	167	71	1800	2.56	177	82	574	260	4	
PB-1200	3	17.50	13.00	54.0 / 31.2 / 27.0	600	17.0	1020	106	2700	3.84	265	98	2500	3.55	245	82	574	260	4	
PB-1300	3	24.70	18.50	65.0 / 37.5 / 32.5	600	17.0	1020	169	4300	6.11	422	142	3600	5.12	353	82	607	275	4	

Technical Specification

50Hz

Double Stage Regenerative Blowers / 1 Phase (110 / 220 V)

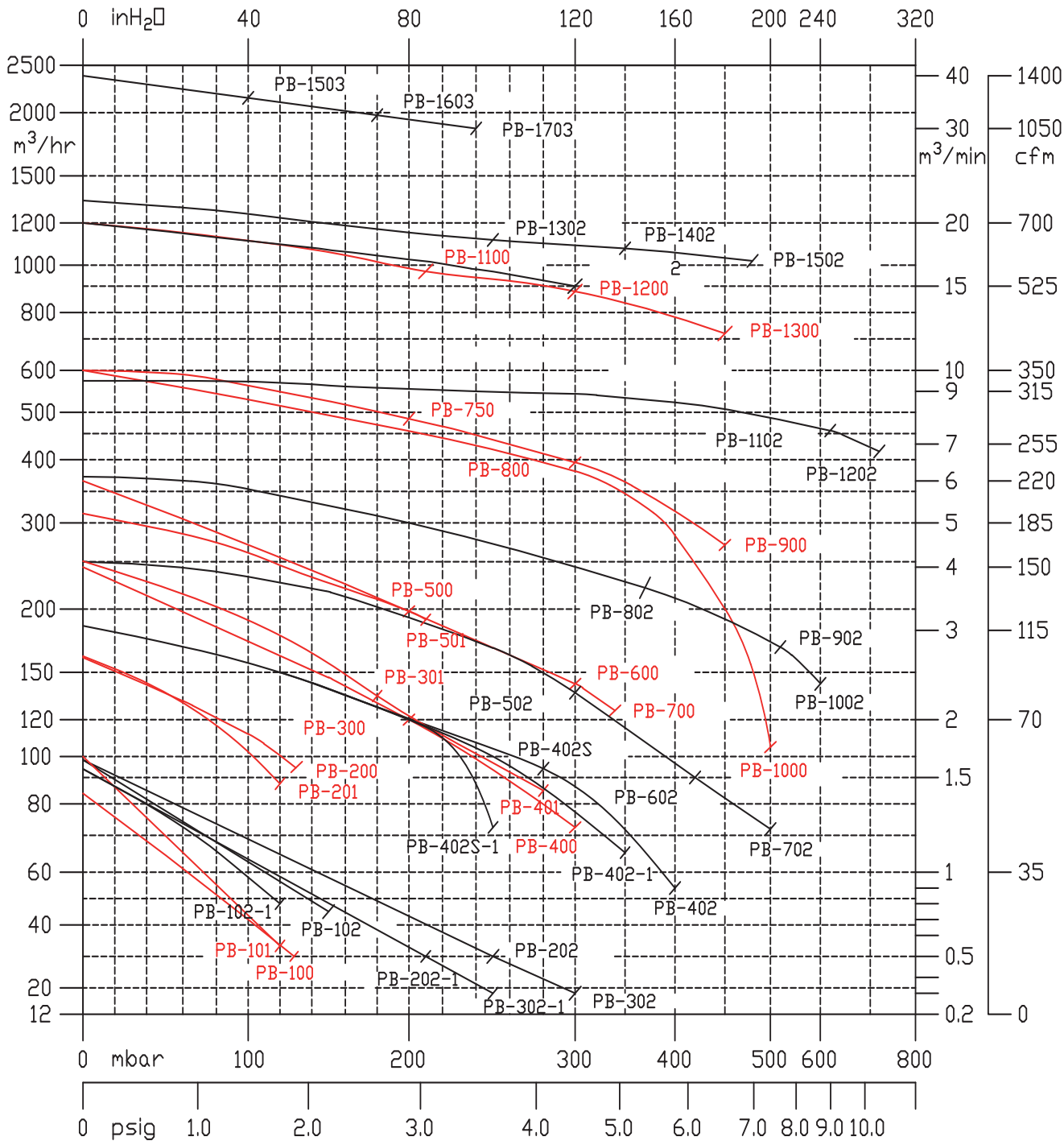
MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 110 / 220 V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-102/1	1	0.40	0.33	7.2 / 3.6	49	1.4	84	47	1200	1.7	118	39	1000	1.42	98	68	40	18	1 1/4	
PB-202/1	1	0.85	0.63	8.8 / 4.4	49	1.4	84	83	2100	2.98	206	67	1700	2.41	167	68	44	20	1 1/4	
PB-302/1	1	1.20	0.90	9.6 / 4.8	49	1.4	84	83	2100	2.98	206	79	2000	2.84	196	68	50	23	1 1/4	
PB-402/1	1	2.50	1.83	25.6 / 12.8	88	2.5	150	138	3500	4.97	343	98	2500	3.55	245	75	85	39	1 1/2	

Double Stage Regenerative Blowers / 3 Phase (220 / 460 V)

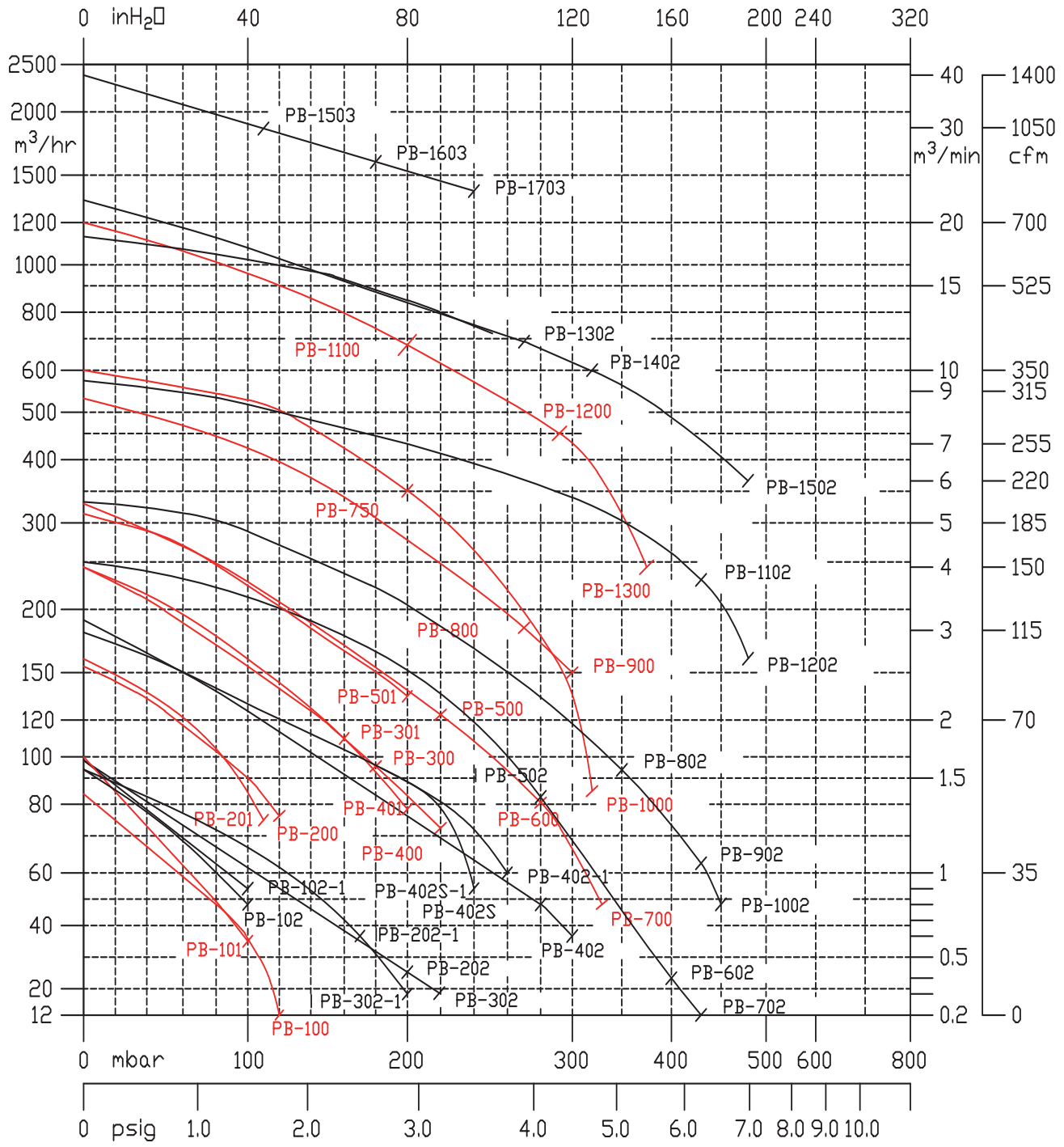
MODEL	PHASE	MOTOR		CURRENT	MAX. AIR FLOW			MAX. PRESSURE				MAX VACUUM				S. LEVEL	WEIGHT NET		DIAMETER	CURVE
Model (HRB)	Phase	Motor (HP)	Motor (Kw)	Current (A) 220 / 380 / 440V	Flow (cfm)	Flow (m3/min)	Flow (m3/hr)	Max Pressure (in H2O)	Max Pressure (mmAq)	Max Pressure (psig)	Max Pressure (mbar)	Max Vacuum (in H2O)	Max Vacuum (mmAq)	Max Vacuum (psig)	Max Vacuum (mbar)	Sound Level (dB/A)	Weight (lbs.)	Weight (Kg)	Diameter (INLET/OUTLET) inch	Curve Nº
PB-102	3	0.50	0.40	2.4 / 1.4 / 1.2	49	1.4	84	47	1200	1.7	118	39	1000	1.42	98	68	34	15	1 1/4	
PB-202	3	1.00	0.75	4.0 / 2.3 / 2.0	49	1.4	84	79	2000	2.84	196	59	1500	2.13	147	68	40	18	1 1/4	
PB-302	3	1.50	1.10	4.8 / 2.8 / 2.4	49	1.4	84	106	2700	3.84	265	79	2000	2.84	196	68	45	20	1 1/4	
PB-402	3	3.00	2.20	9.5 / 5.6 / 4.7	88	2.5	150	138	3500	4.97	343	102	2600	3.69	255	75	84	38	1 1/2	
PB-502	3	3.00	2.20	10.4 / 6.0 / 5.2	120	3.4	204	106	2700	3.84	265	87	2200	3.12	216	78	93	42	2	
PB-602	3	4.00	3.00	14.0 / 8.1 / 7.0	120	3.4	204	150	3800	5.4	373	130	3300	4.69	324	78	102	46	2	
PB-702	3	5.30	4.00	16.5 / 9.5 / 8.2	120	3.4	204	177	4500	6.4	441	146	3700	5.26	363	78	108	49	2	
PB-802	3	5.30	4.00	17.0 / 9.8 / 8.5	184	5.2	312	138	3500	4.97	343	118	3000	4.26	294	80	126	57	2	
PB-902	3	7.50	5.50	22.0 / 12.7 / 11.0	184	5.2	312	197	5000	7.11	490	157	4000	5.68	392	80	179	81	2	
PB-1002	3	10.00	7.50	31.2 / 18.0 / 15.6	184	5.2	312	217	5500	7.82	539	169	4300	6.11	422	80	230	104	2	
PB-1102	3	15.00	11.00	40.0 / 23.1 / 20.0	283	8.0	480	217	5500	7.82	539	157	4000	5.68	392	82	530	240	2 1/2	
PB-1202	3	20.00	15.00	54.0 / 31.2 / 27.0	283	8.0	480	276	7000	9.95	686	177	4500	6.4	441	82	552	250	2 1/2	
PB-1302	3	17.50	13.00	54.0 / 31.2 / 27.0	618	17.5	1050	87	2200	3.12	216	98	2500	3.55	245	88	728	330	4	
PB-1402	3	20.70	15.50	65.5 / 37.5 / 32.7	618	17.5	1050	118	3000	4.26	294	118	3000	4.26	294	88	761	345	4	
PB-1502	3	29.30	22.00	76.0 / 43.9 / 38.0	618	17.5	1050	189	4800	6.82	471	177	4500	6.4	441	88	783	355	4	
PB-1503	3	20.70	15.00	50.0 / 28.8 / 25.0	1165	33.0	1980	51	1300	1.84	127	59	1500	2.13	147	88	849	385	5	
PB-1603	3	24.70	18.50	65.0 / 37.5 / 32.5	1165	33.0	1980	79	2000	2.84	196	94	2400	3.41	235	88	882	400	5	
PB-1703	3	33.50	25.00	75.0 / 43.3 / 37.5	1165	33.0	1980	102	2600	3.69	255	110	2800	3.98	275	88	904	410	5	

The electric motors used in these blowers are AC motor equipped with self-cooling fans and rated as "F" class with IP54 protection. The above specifications may be changed without notice for improved product performance.

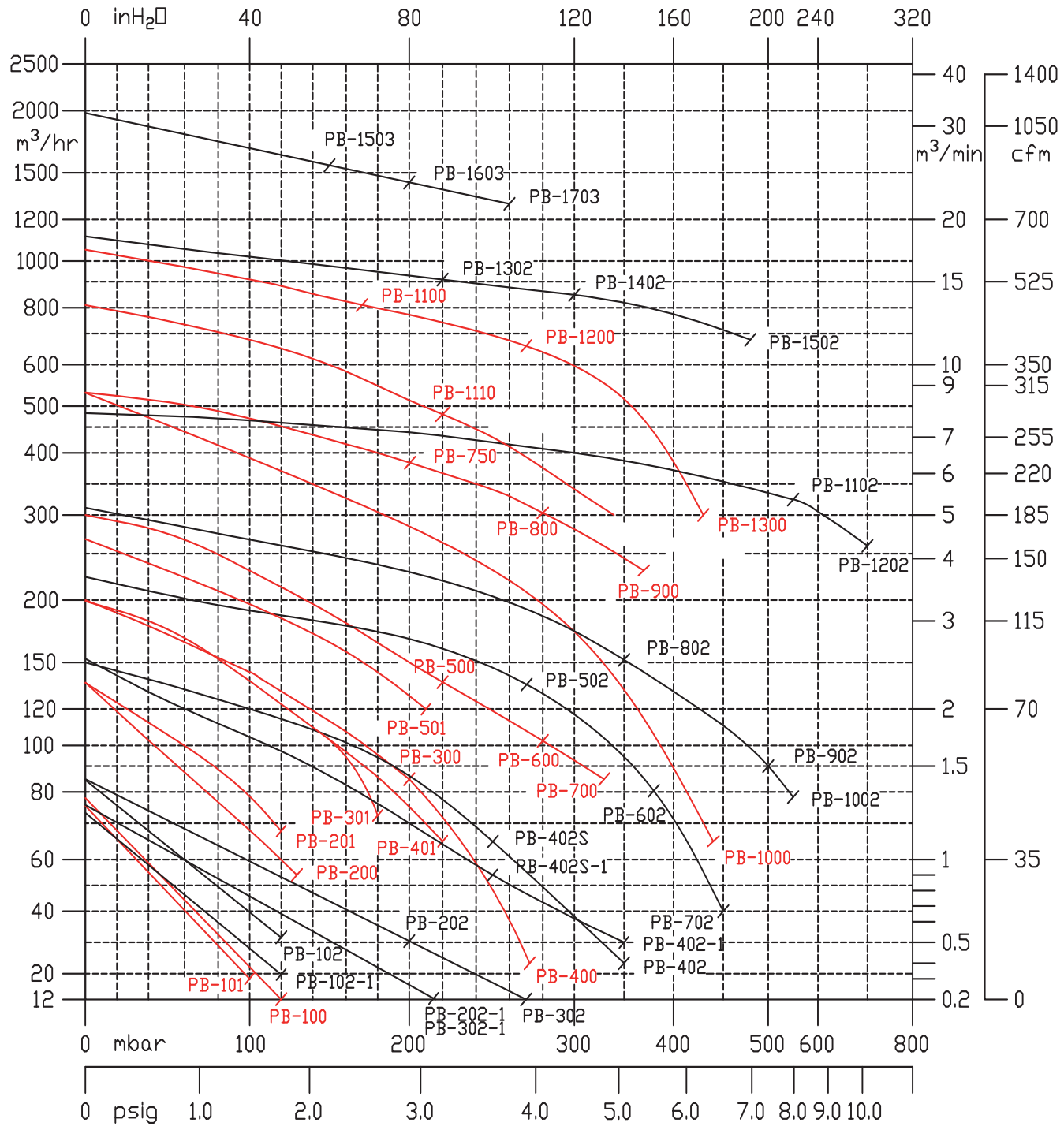
Pressure Performance Curve 60Hz



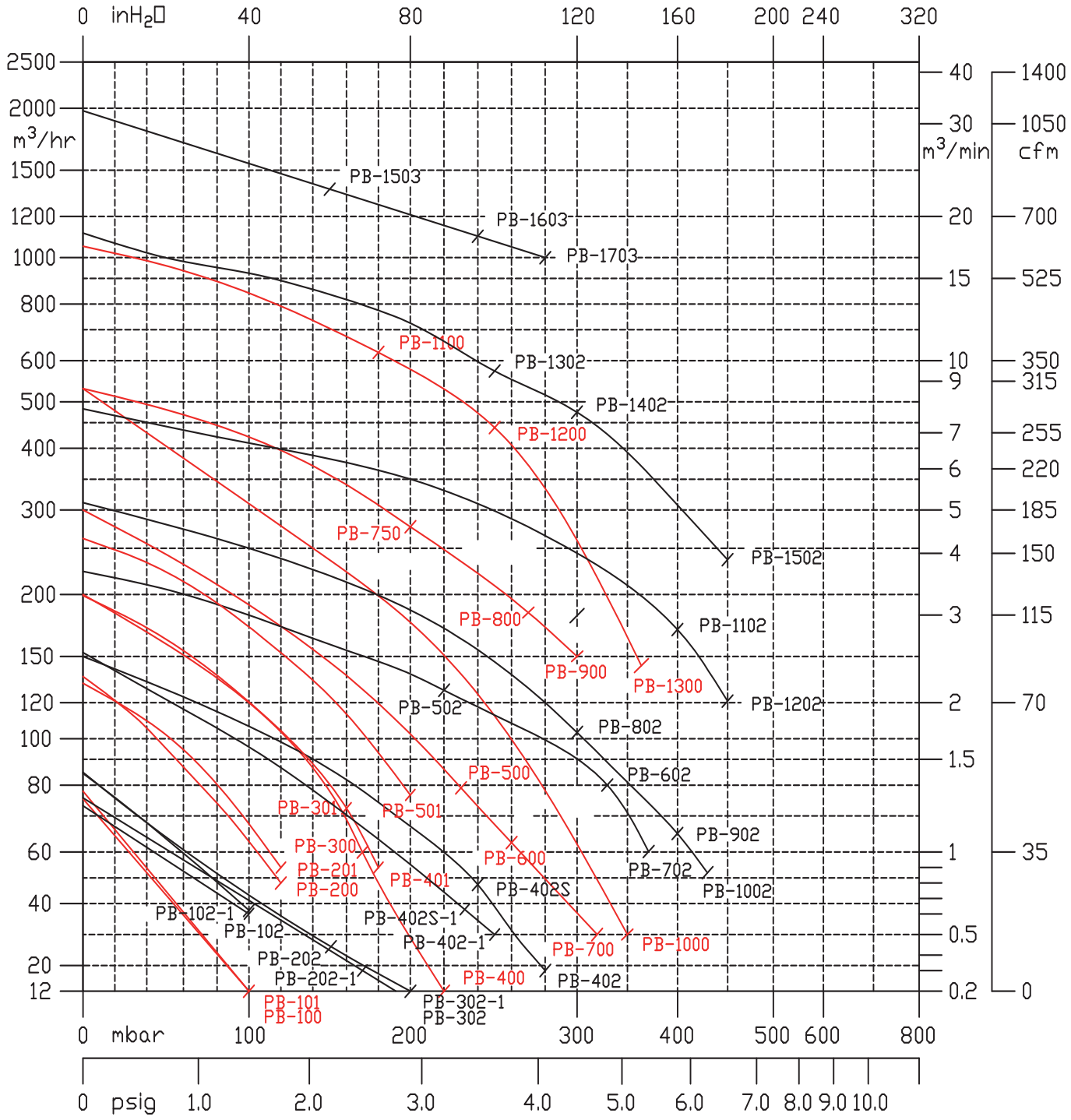
Vacuum Performance Curve 60Hz



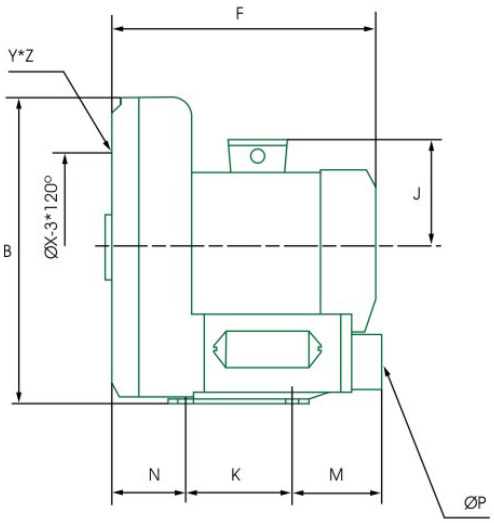
Pressure Performance Curve 50Hz

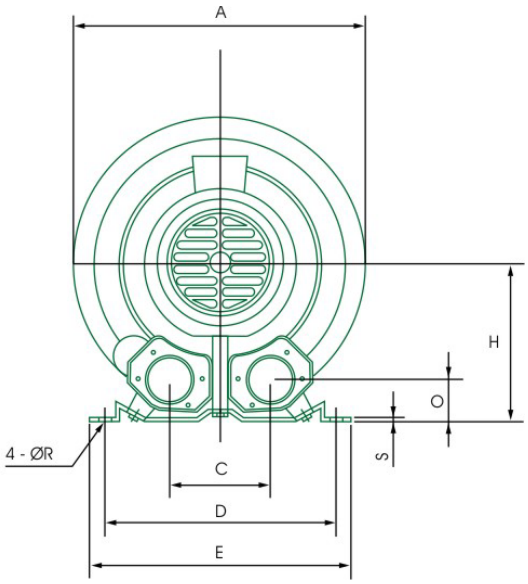


Vacuum Performance Curve 50Hz



Single Stage



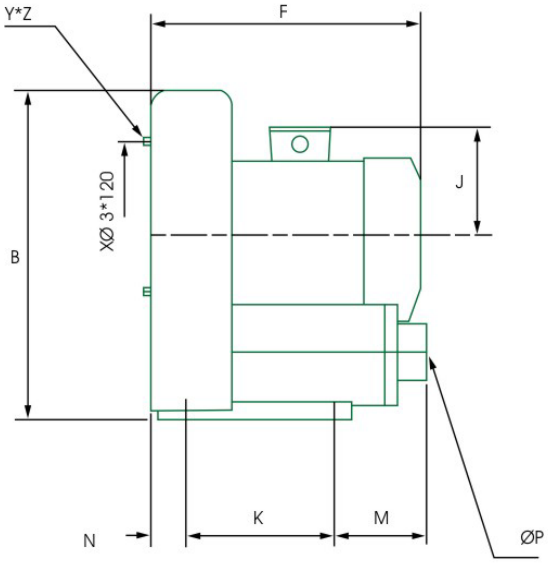


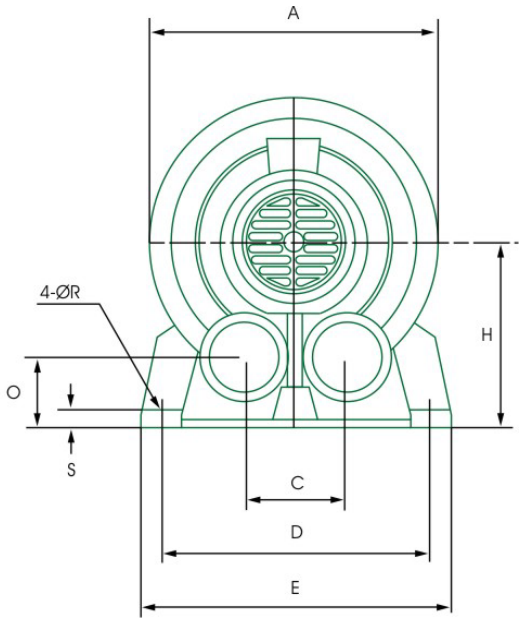
Model	KW	HP	A	B	C	D	E	F	H
PB-101	0.4	0.50	9.69	9.72	3.54	8.07	9.06	9.84	5.04
PB-201	0.75	1.00	11.22	11.89	4.53	8.86	10.04	11.45	6.1
PB-301	1.5	2.00	13.19	13.27	4.72	10.24	11.62	13.31	6.89
PB-401	2.2	3.00	13.19	13.27	4.72	10.24	11.62	14.09	6.89
PB-100	0.5	0.67	9.69	9.72	3.54	8.07	9.06	9.33	5.04
PB-200	0.93	1.25	11.22	11.89	4.53	8.86	10.04	10.63	6.1
PB-300	1.75	2.35	13.19	13.27	4.72	10.24	11.62	12.51	6.89
PB-400	2.55	3.50	13.19	13.27	4.72	10.24	11.62	13.31	6.89
PB-500	2.55	3.50	15.04	15.12	4.82	11.42	12.8	14.17	7.83
PB-600	3.7	5.00	15.04	15.12	4.82	11.42	12.8	14.96	7.83
PB-700	4.6	6.00	15.04	15.12	4.82	11.42	12.8	15.76	7.83

Model	J	K	M	N	O	ØP	ØR	S	X	Y*Z
PB-101	4.92	3.27	4.13	2.54	1.54	1.25	0.39	0.1	5.51	M6
PB-201	4.92	3.74	4.21	2.83	1.81	1.5	0.47	0.1	6.85	M6
PB-301	5.43	4.53	5	3.35	1.89	2	0.59	0.16	7.87	M8
PB-401	5.43	4.53	5	3.35	1.89	2	0.59	0.16	7.87	M8
PB-100	4.92	3.27	4.13	2.52	1.54	1.25	0.39	0.1	5.51	M6
PB-200	4.92	3.74	4.21	2.83	1.81	1.5	0.47	0.1	6.85	M6
PB-300	5.43	4.53	5	3.35	1.89	2	0.59	0.16	7.87	M8
PB-400	5.43	4.53	5	3.35	1.89	2	0.59	0.16	7.87	M8
PB-500	5.43	5.51	4.53	4.25	2.13	2	0.59	0.16	9.48	M10
PB-600	6.38	5.51	4.53	4.25	2.13	2	0.59	0.16	9.48	M10
PB-700	6.38	5.51	4.53	4.25	2.13	2	0.59	0.16	9.48	M10

All units in inches.

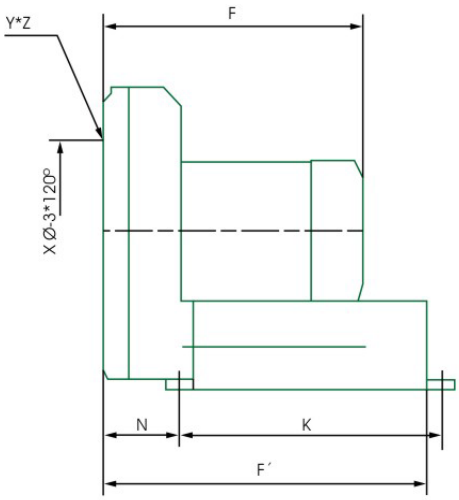
Single Stage

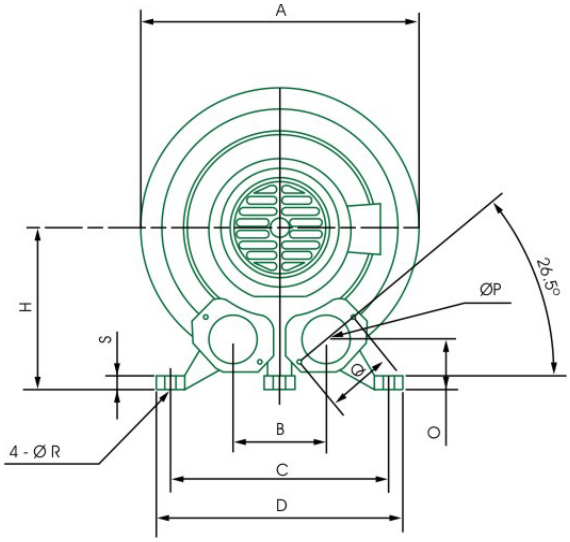




Model	KW	HP	A	B	C	D	E	F	H
PB-800	6.3	8.50	19.88	20.47	5.9	14.37	16.73	20.47	10.8
PB-900	8.6	11.50	19.88	20.47	5.9	14.37	16.73	20.87	10.8
PB-1000	11	15	19.88	20.47	7.5	14.37	16.63	24.61	10.75

Model	J	K	M	N	O	ØP	R	S	X	Y*Z
PB-800	7.08	11.41	7.28	0.67	3.54	2.5	0.59	1.02	10.06	M12
PB-900	7.08	11.41	7.28	0.67	3.54	2.5	0.59	1.02	10.06	M12
PB-1000	9.94	11.41	7.28	0.67	19.75	2.5/3	0.31	1.02	10.06	M12

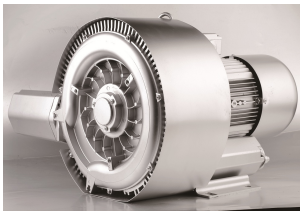


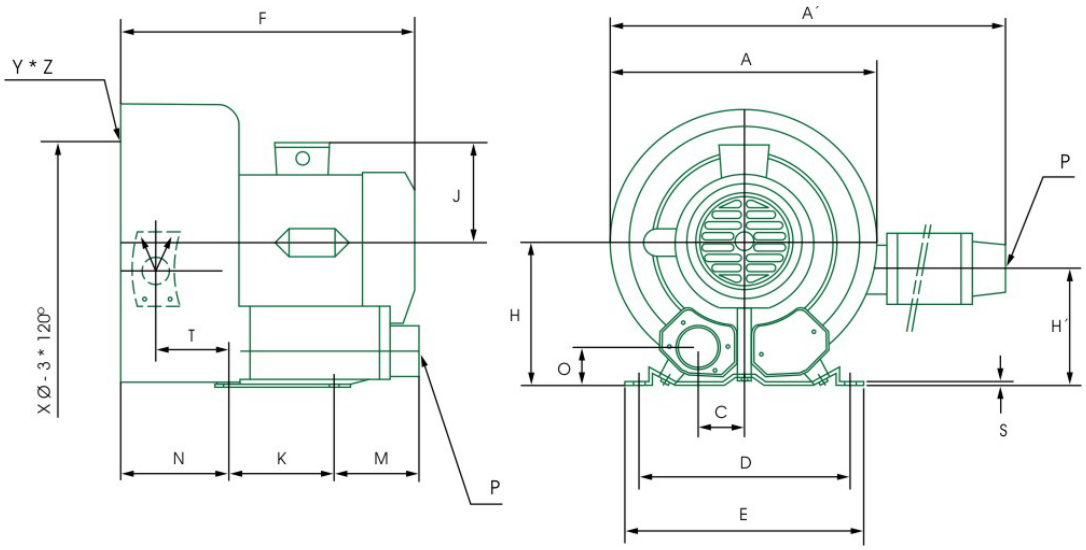


Model	KW	HP	A	B	C	D	F	F´	H
PB-1100	11	15.00	21.65	8.35	14.17	16.34	20.08	27.17	11.81
PB-1200	15.3	20.00	21.65	8.35	14.17	16.34	22.05	27.17	11.81
PB-1300	22.7	30.00	21.65	8.35	14.17	16.34	22.05	27.17	11.81

Model	K	N	O	ØP	Q	ØR	S	X	Y*Z
PB-1100	24.02	4.17	3.58	4	5.91	0.59	0.98	19.29	M12
PB-1200	24.02	4.17	3.58	4	5.91	0.59	0.98	19.29	M12
PB-1300	24.02	4.17	3.58	4	5.91	0.59	0.98	19.29	M12

Double Stage



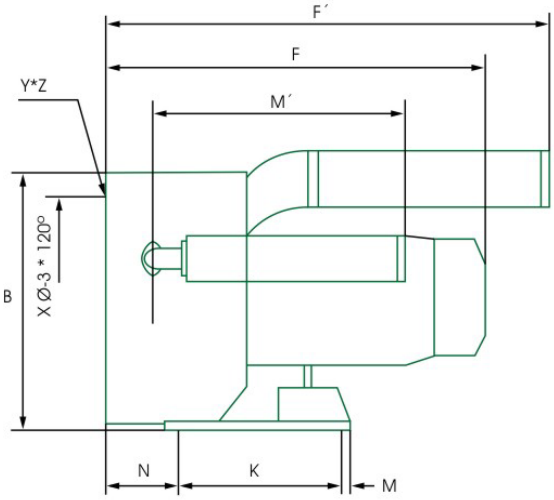


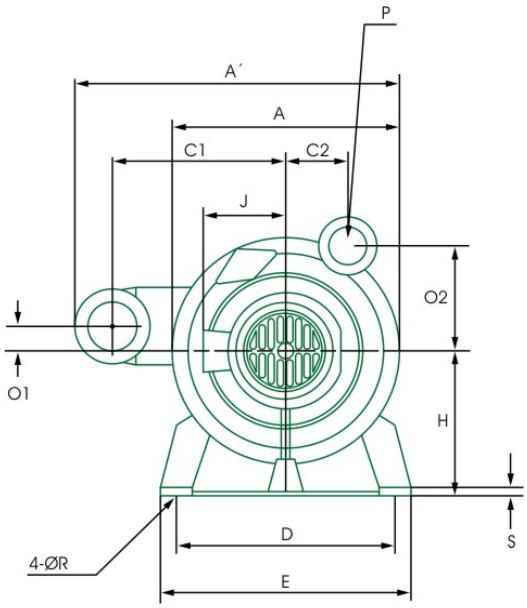
Model	KW	HP	A	A´	C	D	E	F	H	H´
PB-102/1	0.4	0.50	11.18	19.49	1.77	8.07	9.06	12.6	5.04	4.17
PB-202/1	0.75	1.00	11.18	19.49	1.77	8.07	9.06	14.06	5.04	4.17
PB-302/1	1.1	1.50	11.18	19.49	1.77	8.07	9.06	14.06	5.04	4.17
PB-102	0.5	0.67	11.18	19.49	1.77	8.07	9.06	12.09	5.04	4.17
PB-202	0.89	1.20	11.18	19.49	1.77	8.07	9.06	12.61	5.04	4.17
PB-302	1.5	2.00	11.18	19.49	1.77	8.07	9.06	14.06	5.04	4.17
PB-402S	1.75	2.35	12.64	20.39	2.26	8.86	10.04	16.3	6.06	6.06
PB-402	2.55	3.50	12.64	20.39	2.26	8.86	10.04	17.09	6.06	6.06
PB-502	2.55	3.50	14.57	24.56	2.36	10.24	11.61	16.93	6.89	5.79
PB-602	3.7	5.00	14.57	24.56	2.36	10.24	11.61	17.72	6.89	5.79
PB-702	4.6	6.00	14.57	24.56	2.36	10.24	11.61	18.5	6.89	5.79
PB-802	4.6	6.00	16.73	26.14	2.42	11.42	12.8	20.35	7.76	6.58
PB-902	6.3	8.50	16.73	26.14	2.42	11.42	12.8	22.05	7.76	6.58
PB-1002	8.6	11.50	16.73	26.14	2.42	11.42	12.8	22.83	7.76	6.58

Model	J	K	M	N	O	ØP	ØR	S	T	X	Y*Z
PB-102/1	4.92	3.27	4.21	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-202/1	4.92	3.27	4.21	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-302/1	4.92	3.27	4.21	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-102	4.92	3.27	4.22	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-202	4.92	3.27	4.22	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-302	4.92	3.27	4.22	5.12	3.5	1.25	0.39	0.1	3.46	5.51	M6
PB-402S	5.43	3.74	4.21	5.59	1.81	1.5	0.47	0.1	3.82	6.85	M6
PB-402	5.43	3.74	4.21	5.59	1.81	1.5	0.47	0.1	3.82	6.85	M6
PB-502	5.43	4.53	4.92	6.69	1.81	2	0.59	0.16	4.61	7.87	M8
PB-602	5.43	4.53	4.92	6.69	1.81	2	0.59	0.16	4.61	7.87	M8
PB-702	5.43	4.53	4.92	6.69	1.81	2	0.59	0.16	4.61	7.87	M8
PB-802	6.3	5.5	4.53	8.27	2.01	2	0.59	0.18	5.08	9.45	M10
PB-902	7.64	5.5	4.53	8.27	2.01	2	0.59	0.18	5.08	9.45	M10
PB-1002	7.64	5.5	4.53	8.27	2.01	2	0.59	0.18	5.08	9.45	M10

All units in inches.

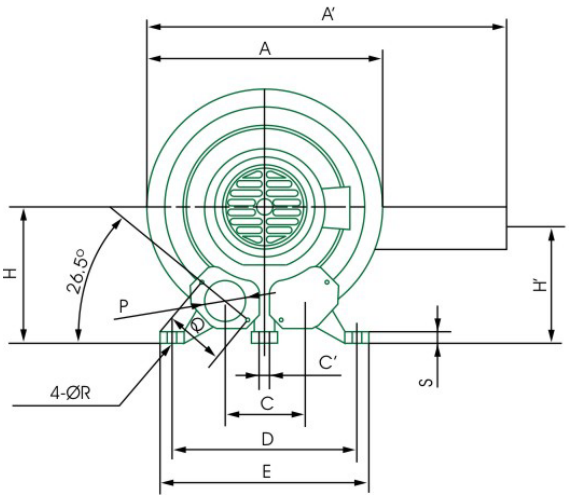
Double Stage

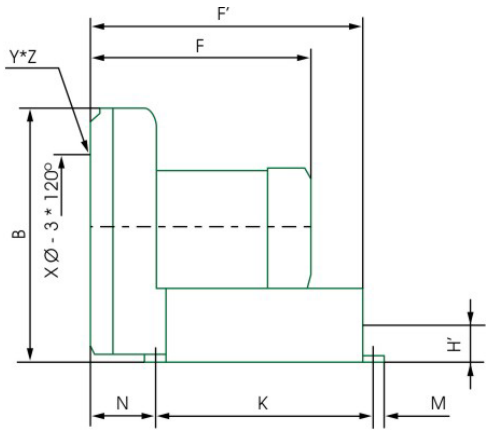




Model	KW	HP	A	A´	B	C	C´	C1	C2	D	E	F	F´	H	H´
PB-1102	12.6	16.90	19.88	25.2	20.47			12.52	2.87	14.37	16.54	24.02	23.43	10.43	
PB-1202	17.3	23.20	19.88	25.2	20.47			12.52	2.87	14.37	16.54	25.98	23.43	10.43	
PB-1302	15.5	20.00	21.65	42.13		8.35	0.59			14.17	16.33	27.36	33.07	11.81	9.65

Model	J	K	M	M´	N	O	O1	O2	ØP	Q	ØR	S	X	Y*Z
PB-1102	10.04	11.42	6.69	15.83			2.6	7.24	2.5		0.59	1.02	16.06	M12
PB-1202	10.04	11.42	6.69	15.83			2.6	7.24	2.5		0.59	1.02	16.06	M12
PB-1302	10.04	14.17	0.79		9.45	3.58			4	5.91	0.59	0.98	19.29	M12





Model	KW	HP	A	A´	C	C´	D	E	F	F´	H	H´
PB-1402	18.5	25.00	21.65	42.13	8.35	0.59	14.17	16.33	29.33	33.07	11.81	9.65
PB-1502	26.8	35.00	21.65	42.13	8.35	0.59	14.17	16.33	29.33	33.07	11.81	9.65
PB-1602	37	50.00	21.65	42.13	8.35	0.59	14.17	16.33	33.46	33.07	11.81	9.65

Model	J	K	M	N	O	ØP	Q	ØR	S	X	Y*Z
PB-1402	10.04	14.17	0.79	9.45	3.58	4	5.91	0.59	0.98	19.29	M12
PB-1502	10.04	14.17	0.79	9.45	3.58	4	5.91	0.59	0.98	19.29	M12
PB-1602	10.04	14.17	0.79	9.45	3.58	4	5.91	0.59	0.98	19.29	M12

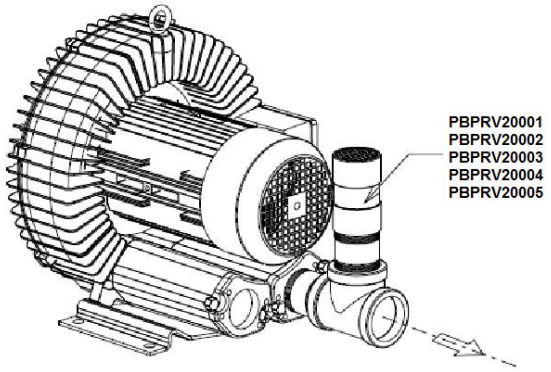
PRESSURE/ VACUUM RELIEF VALVE

PRV/VRV SERIES:

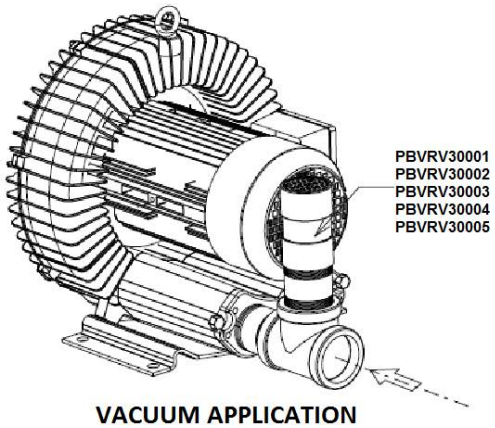
A relief valve functions to protect the blower motor from excessive system pressure that can result from line restriction. Positioning is at the blower outlet for use in pressure systems and blower inlet for vacuum service.

The design features a stainless steel spring that is tensioned to set actuation. Valves can be factory set or customer field adjusted based on the maximum operating pressure or vacuum level of the selected blower.

Material of construction is durable carbon steel with protective zinc plated finish. These valves are suitable for air and other non-corrosive services.



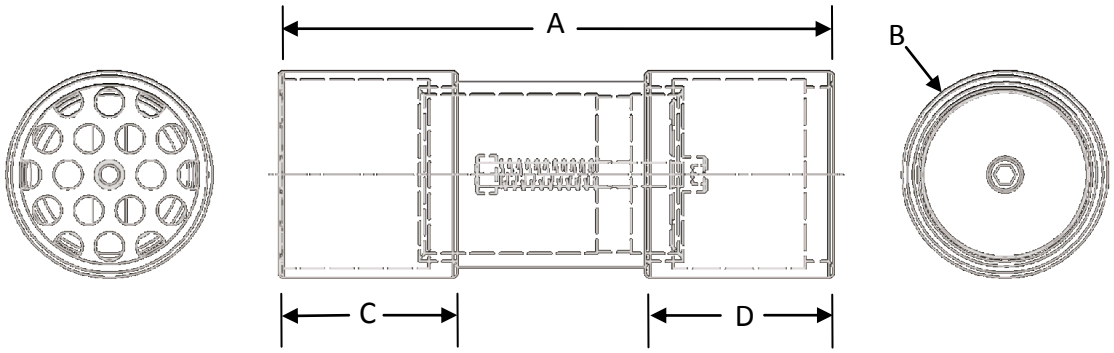
PRESSURE APPLICATION

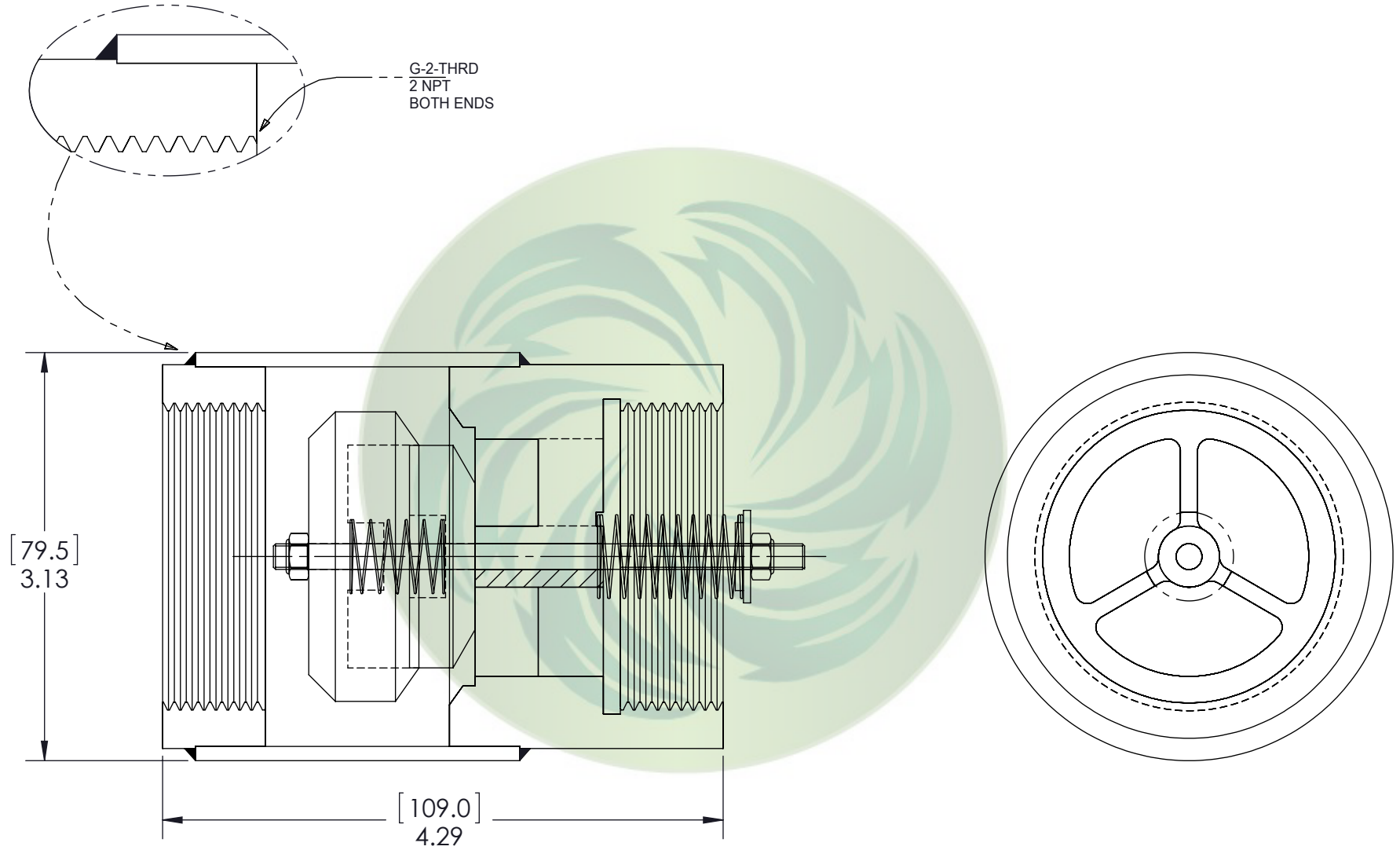


VACUUM APPLICATION

Model No. (Pressure)	Model No. (Vacuum)	Connection FNPT	Dimensions - inches A	B	C	D	Blower Model Reference	Capacity SCFM
PBPRV20001	PBVRV30001	1 1/4"	6 1/8	2 1/8	2	2 1/16	PB 100,101,102,102/1,202, 202/1,302,302/1	0-60
PBPRV20002	PBVRV30002	1 1/2"	6 1/8	2 1/8	2	2 1/16	PB 200,201,300,301,400,401,402,402/1,502,602,702	60-200
PBPRV20003	PBVRV30003	2"	7 3/8	2 3/4	2 3/8	2 1/2	PB 500,501,600,700,802,902,1002,1102,1202	200-350
PBPRV20004	PBVRV30004	3”	7 3/8	3 1/4	2 1/2	2 1/2	PB 750,800,900,1000,1100,1200,1300	350-750
PBPRV20005	PBVRV30005	4”	6 1/2	3 11/16	2 7/16	2 1/2	PB 1302,1402,1502,1503,1603,1703	750-1500

Dimension tolerance ± 1/4"




G-2-THRD
2 NPT
BOTH ENDS
[79.5]
3.13
[109.0]
4.29

RELIEF VALVE SETTING INSTRUCTIONS

SETTING VACUUM/PRESSURE RELIEF:

1. Remove the screen end and FNPT threaded end to allow access to the spring held in the center piece.
2. (Relief Valves Smaller Than 4" Size) Use open end wrench to tighten or loosen the lock nut on the spring side of the valve while immobilizing the plunger nut with an Allen wrench on the plunger side of the relief valve. (See Figure A Below).

   a.)Tightening the spring lock nut will increase relief pressure/vacuum setting, and loosening the spring lock nut will decrease the pressure/vacuum setting. Make sure lock nut threads remain fully engaged if loosened.

3. (Relief Valves 4" Size and Larger) Secure the lock nut with a wrench or socket driver, and tighten/loosen the plunger shaft on the spring side of the relief valve using an open end wrench. (See Figure B Below)

   a.)Tightening the plunger shaft will increase relief pressure/vacuum setting, and loosening the spring lock nut will decrease the pressure/vacuum setting. Make sure lock nut threads remain fully engaged if loosened.

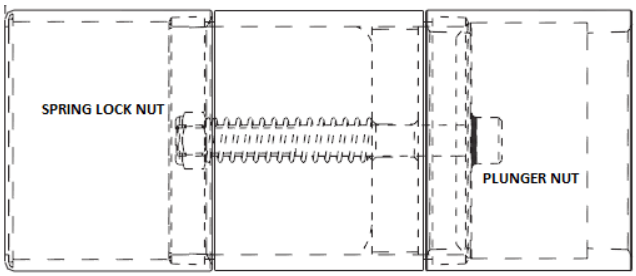


FIGURE A

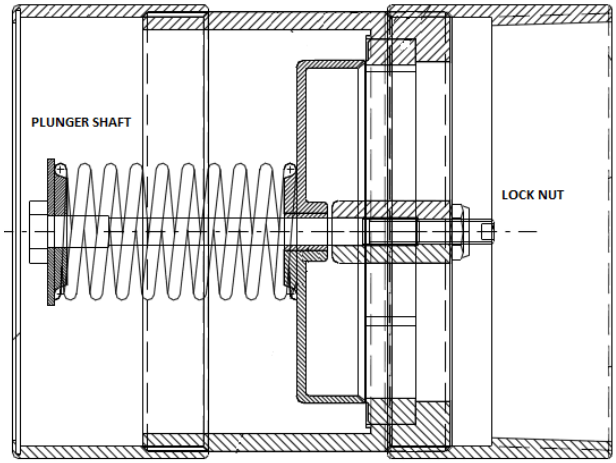
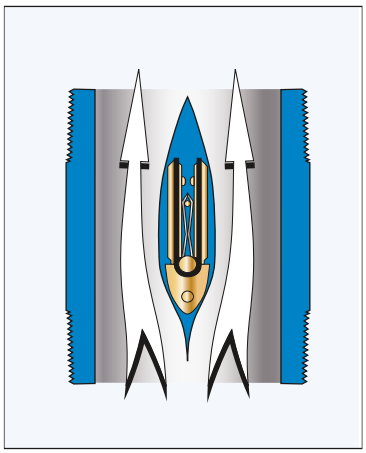


FIGURE B

Full Port, Lowest Pressure Drop

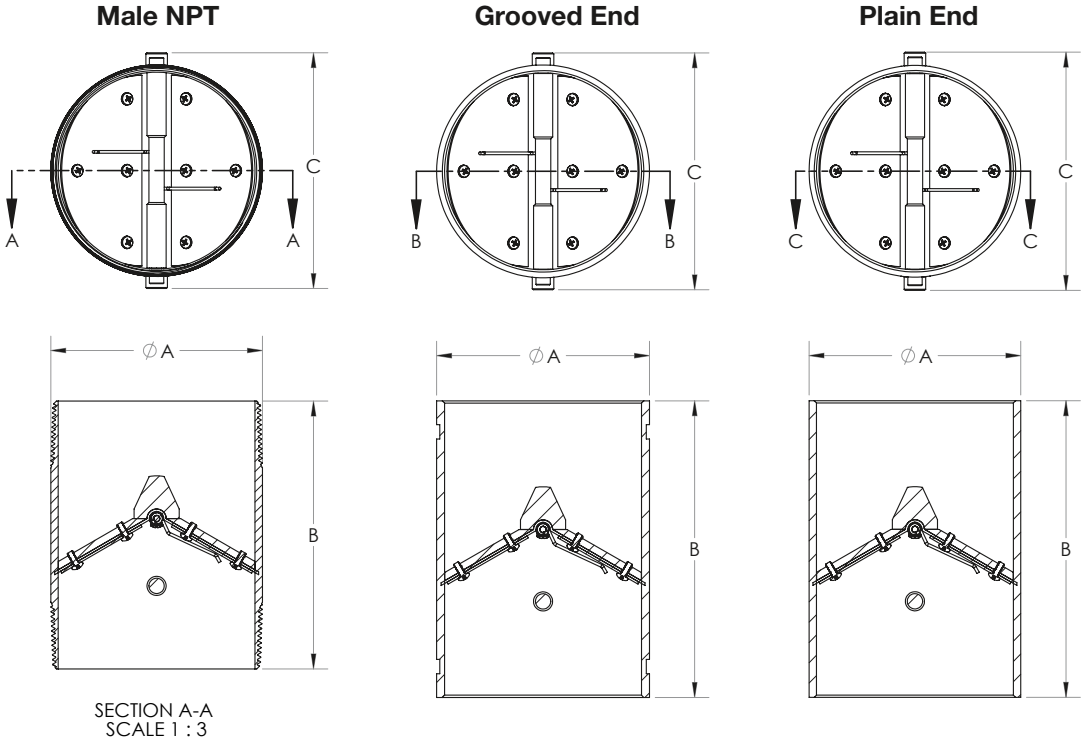
Full Port Check Valves provide more flow and lower pressure drops than conventional check valves. Our elastomer hinge check valve design takes performance to an entirely new level by eliminating the restrictive valve seat and substantially increasing the valve's open area and flow coefficient (Cv). The resulting flow is more laminar, with lower pressure loss and reduced turbulence. It also improves valve life and reliability. Keeping pressure loss low is always important, but particularly so when handling low pressure air and gases.

Dual disc check valves are the clear choice for many piping engi-neers because of their proven reliability, ease of installation and low ΔP. Now, they are available in a full port design that dramatically improves performance. They are ideal for application in vacuum pumps, compressed air and gas systems as well as in water systems where low head loss and elimination of water hammer are desirable.



Open flow path, low ΔP, more laminar flow

Valve Dimensions



Male NPT Body (MNPT)

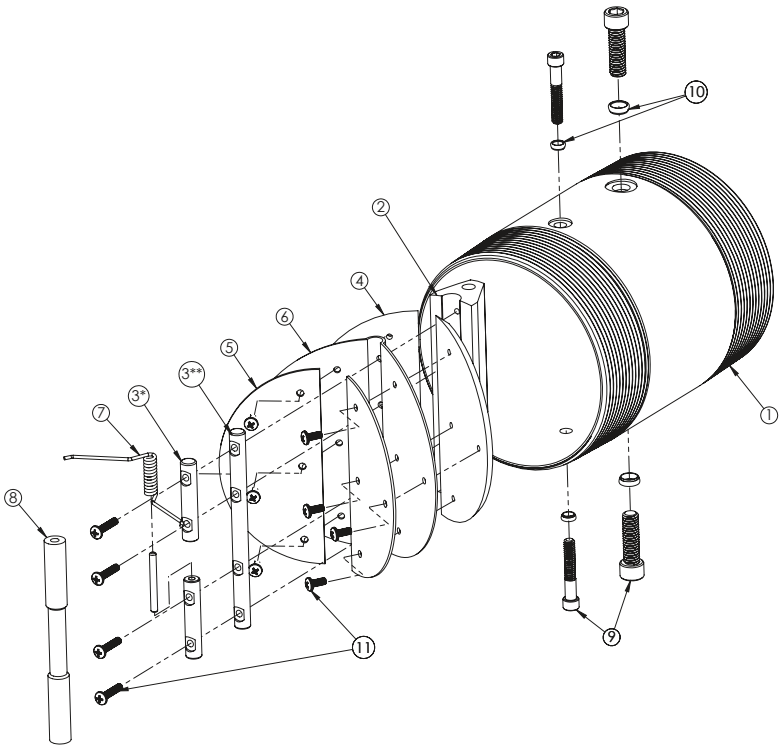
Size	A	B	C
1	1.30	3.50	1.60
1 ¼	1.65	3.50	2.00
1 ½	1.90	4.00	2.30
2	2.35	4.00	2.80
2 ½	2.85	5.00	3.30
3	3.45	5.50	3.90
4	4.45	6.00	4.90
5	5.55	7.00	6.10
6	6.60	8.00	7.10
8	8.60	10.00	9.50
10	10.75	12.00	11.50
12	12.75	14.00	13.80

Grooved & Plain End Body

Size	A	B	C
1	1.30	5.75	1.60
1 ¼	1.65	5.75	2.00
1 ½	1.90	5.75	2.30
2	2.35	5.75	2.80
2 ½	2.85	5.75	3.30
3	3.45	5.75	3.90
4	4.45	6.75	4.90
5	5.55	7.75	6.10
6	6.60	8.75	7.10
8	8.60	10.75	9.50
10	10.75	12.75	11.50
12	12.75	14.75	13.80

All dimensions in inches

Exploded View



Part No.	Part Description
1	Body (MNPT Shown)
2	Wing Support
3*	Spring Pin
3**	Wing Pin
4	Disc
5	Back-up Disc
6	Elastomer Seal
7	Spring
8	Limiter
9	WS/LM Fastener
10	Sealing Washer
11	Internal Fasteners

Note: If valve is supplied with optional spring, use part number 3 (Spring Pin), otherwise use 3** (Wing Pin).*

Compact Inlet Pressure Filters
1 1/4" - 6" MPT, Flange

Features

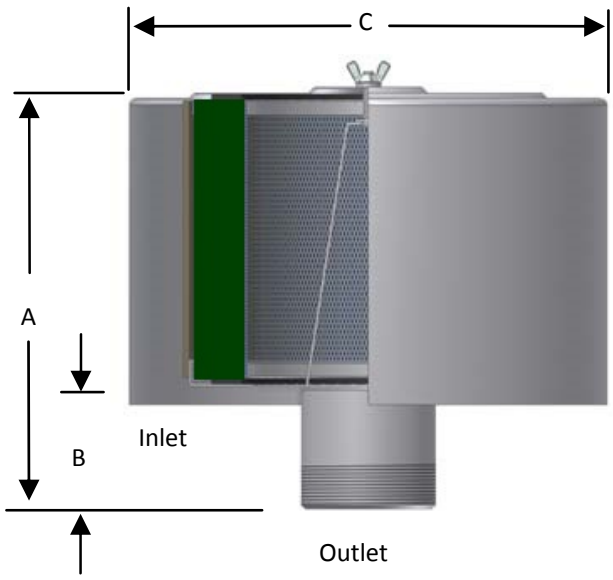
- Fully drawn weatherhood - no welds to rust or vibrate apart
- Low entry velocity air gap between base and cover
- Heavy gauge base with low pressure drop outlet pipe and center bracket design
- Durable carbon steel construction with powder coat finish

Technical Specifications

- Temp (continuous): min -15°F (-26°C) max 220° F (104°C)
- Filter change out differential: 15-20” H2O over initial Δ P
- Pressure drop graphs available upon request
- Polyester: 99%+ removal efficiency standard to 5 micron
- Paper: 99%+ removal efficiency standard to 2 micron

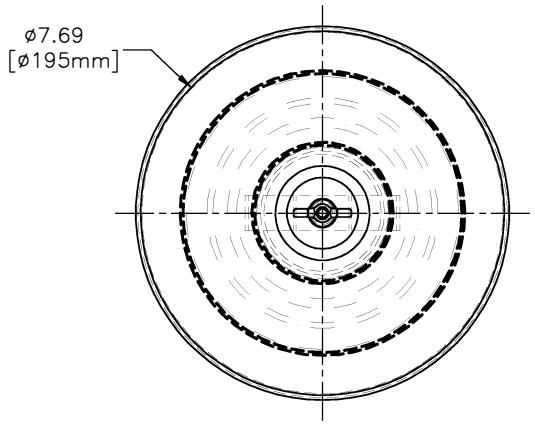
Options

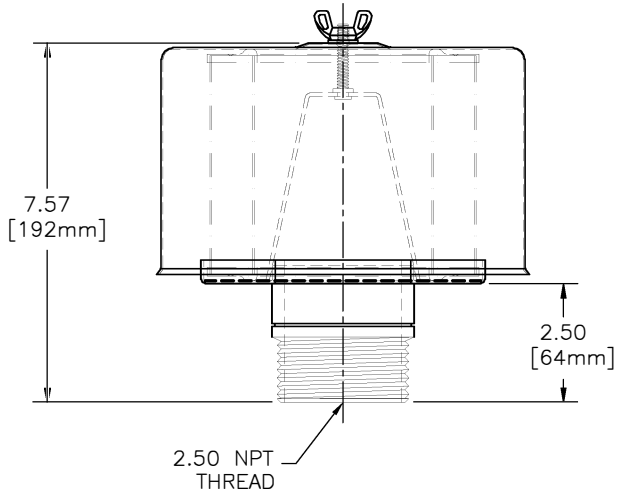
- 1/8” tap holes available for 3” and larger connections
- Pressure drop indicator
- Various media for different environments
- Stainless steel construction
- Epoxy coated finish
- Special connections



MPT Outlet Connections

MPT Outlet	Assembly SCFM Rating	Assembly Part Number Element	Canister	Dimensions - inches A	B	C	Approx. Wt. lbs	Replacement Element Part No. Polyester	Paper	Element SCFM Rating
1 1/4"	70	PBEP10001	PBCP11001	6 5/8	1 5/8	6	3	19P	18P	100
1 1/2"	85	PBEP10002	PBCP11002	6 5/8	1 5/8	6	3	19P	18P	100
2"	135	PBEP10003	PBCP11003	7 1/4	2 1/4	7 3/4	5	31P	30P	195
2 1/2"	195	PBEP10004	PBCP11004	7 1/2	2 1/2	7 3/4	6	31P	30P	195
4"	520	PBEP10005	PBCP11005	14	4	16	26	275P	274P	1100


ø7.69
[ø195mm]


7.57
[192mm]
2.50
[64mm]
2.50 NPT
THREAD

"L" Style Vacuum Filters

3/8" - 3", 3" - 6" MPT, 4" - 12" FLG

4"

Features

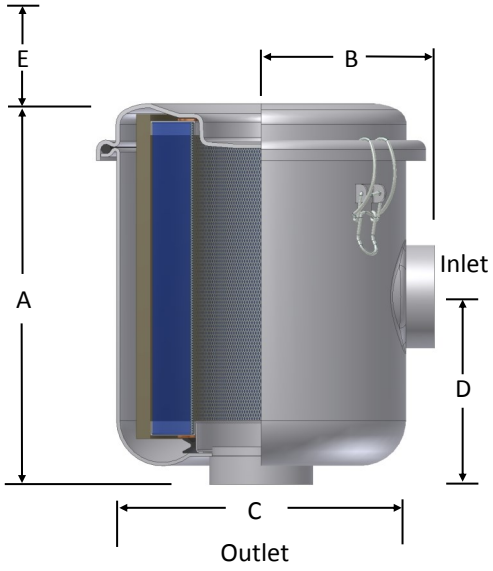
- Seamless drawn housings
- O-ring seal
- Corrosion resistant carbon steel construction
- Powder coat finish
- Stainless steel torsion clips for durability

Technical Specifications

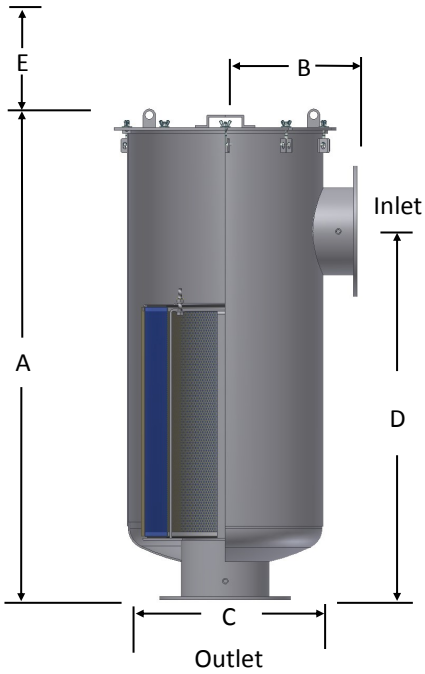
- Vacuum Rating: Medium vacuum service**
- Temp (continuous): min -15°F (-26°C) max 220°F (104°C)
- Filter change out differential: 15-20" H2O over initial Δ P
- Polyester: 99%+ removal efficiency standard to 5 micron
- Paper: 99%+ removal efficiency standard to 2 micron

Options

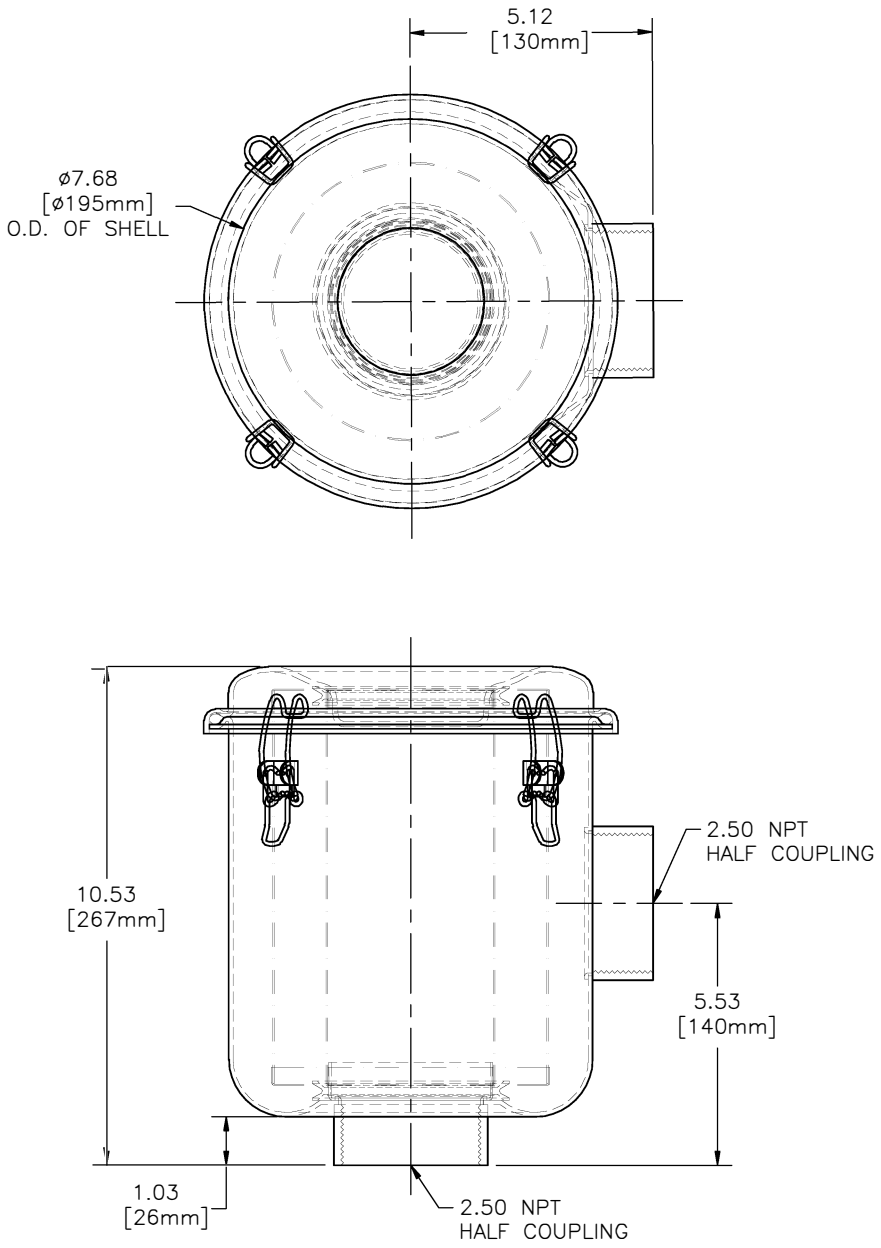
- Vacuum gauge
- Higher holding capacity configurations available (select models)
- Material/Finishes: stainless steel, epoxy coating
- Support brackets
- Alternative top-to-canister fastening system for low pressure or pulsating systems
- Stainless steel (select models)



Inlet/ Outlet Size	Inlet/ Outlet Type	Assembly SCFM Rating	Housing Config.	Assembly Part Number Element	Assembly Part Number Canister	Dimensions - inches A	B	C	D	Suggested Service HT. E	Approx. Wt. lbs	Replacement Element Part No. Polyester	Replacement Element Part No. Paper	Element SCFM Rating
1 1/4"	NPSC	60	C	PBEV12001	PBCV13001	6 11/16	4 1/8	7 3/8	4 1/2	5	5	849	848	115
1 1/2"	NPSC	80	C	PBEV12002	PBCV13002	6 3/4	4 1/8	7 3/8	4 1/2	5	5	849	848	115
2"	NPSC	175	D	PBEV12003	PBCV13003	10 1/4	4 1/2	8 3/4	5	9	15	851	850	290
2 1/2"	FPT	210	D	PBEV12004	PBCV13004	10 11/16	5 1/8	8 3/4	5 1/2	9	15	851	850	290



Inlet/ Outlet Size	Assembly SCFM Rating	Housing Config.	Assembly Part Number Element	Assembly Part Number Canister	Dimensions - inches A	B	C	D	Suggested Service HT. E	Approx. Wt. lbs	Replacement Element Part No. Polyester	Replacement Element Part No. Paper	Element SCFM Rating
4"	520	C	PBEV12005	PBCV13005	27 3/8	9	14	18 1/2	15	55	335P	334P	800


5.12
[130mm]
ø7.68
[ø195mm]
O.D. OF SHELL
2.50 NPT
HALF COUPLING
10.53
[267mm]
5.53
[140mm]
1.03
[26mm]
2.50 NPT
HALF COUPLING

Side Channel Blower Silencer
1 1/4" - 4"

Features

- Layered sound absorbent media
- Designed for minimal pressure drop; baffles, internal tubes, and other restrictive devices are unnecessary
- For inlet and discharge inline air service
- Corrosion resistant carbon steel construction
- Powder coat finish: 1/2” to 1-1/2”
- Epoxy coat finish: 2” to 4”

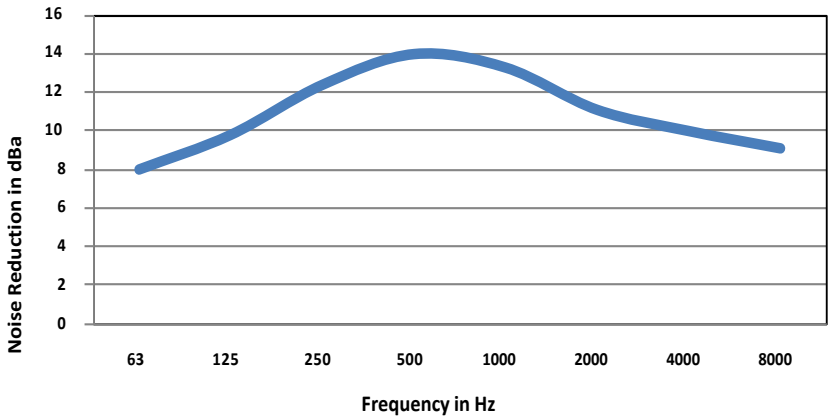
Technical Specifications

- Max. temperature (continuous): 225°F (107°C)
- Due to the wide range of equipment and environments; please contact factory for typical noise attenuation for your application.

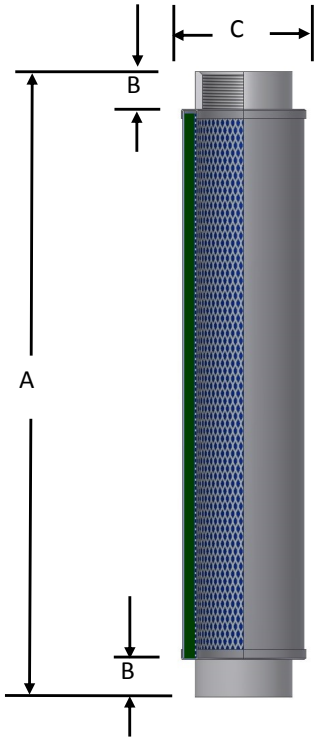
Options

- Flange adapters
- Larger sizes
- Special connections
- Hi-temp models

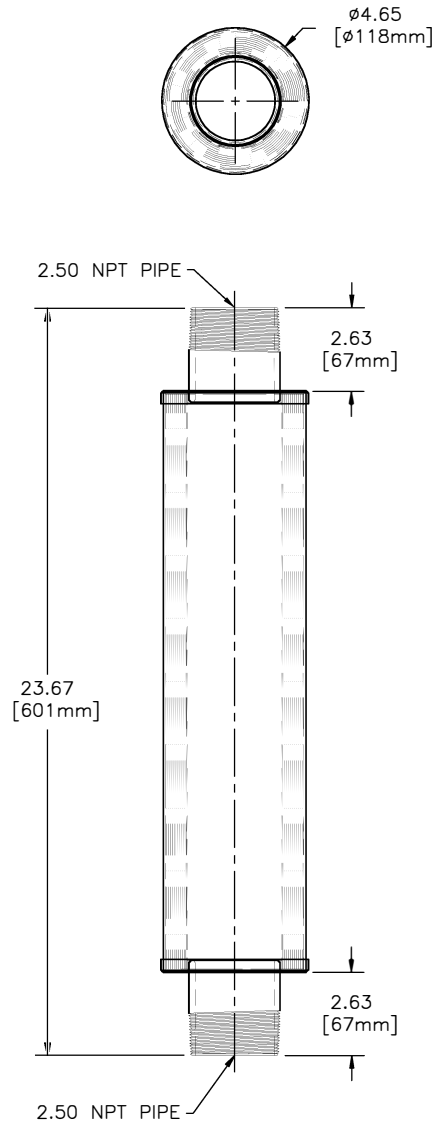
Typical Noise Attenuation



- Noise attenuation may vary due to the wide range of applications and machines



Inlet/ Outlet Size	Type	Assembly SCFM Rating	Part Number	Dimensions - inches A	B	C	Approx. Wt. lbs.
1 1/4"	NPSC	55	**PBSL40001**	12	3/4	2 5/8	2
1 1/2"	NPSC	155	**PBSL40002**	12	3/4	2 5/8	3
2"	NPSC	270	**PBSL40003**	15 3/4	3/4	3 5/8	4
2 1/2"	FPT	385	**PBSL40004**	20 7/8	1 1/4	4 5/8	6
3"	FPT	575	**PBSL40005**	26	1 9/16	5 3/16	7
4"	FPT	575	**PBSL40006**	24 11/16	1 3/4	10	10


ø4.65
[ø118mm]
2.50 NPT PIPE
2.63
[67mm]
23.67
[601mm]
2.63
[67mm]
2.50 NPT PIPE

Pop Up Style Pressure Drop Gauge
Inlet Filter Assemblies

Features & Specifications

Our Pop Up style pressure drop gauge shows the amount of filter element restriction and how much life the element has left. This is a convenient and inexpensive solution to receiving the maximum usage from every element.

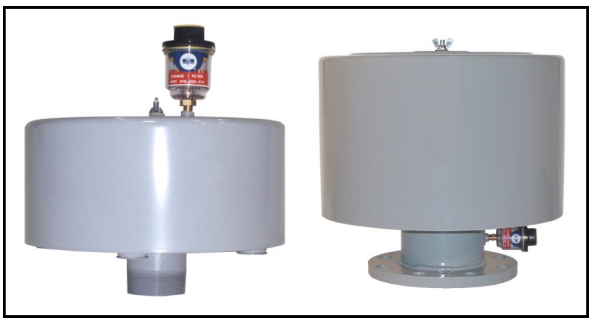
The yellow indicator in the filter monitor gauge drops as the dirt accumulates on the filter element. The element is ready for change out or servicing when the yellow indicator reaches the red zone. This allows you to determine the condition of the filter element even after the equipment has been shut down.

The element should be serviced or replaced at the maximum noted pressure drop or at the manufacturer's recommended level.

For use on inlet filter silencer and inlet filters. Contact Solberg to add 1/8" tap hole to the appropriate location. See mounting photo for placement.

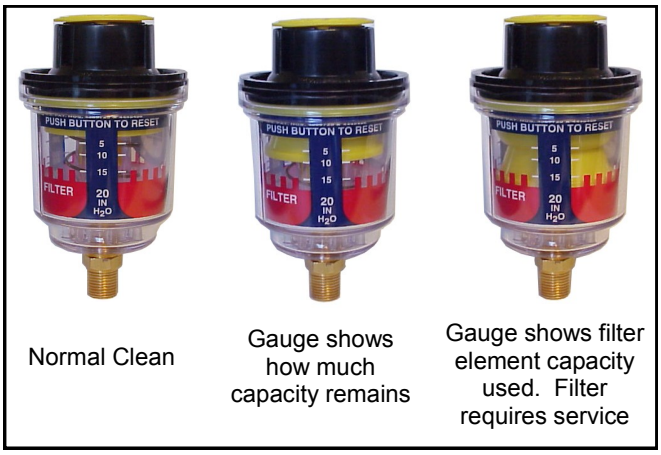
Benefits

- Monitors Filter Continuously
- Easy Filter Maintenance
- Filter Element Life Maximized
- Downtime Reduced
- Graduated Restriction Readings



Note: The monitor gauge has a 1/8" connection. It is mounted either on the weatherhood or on the outlet pipe depending on the filter assembly.

Gauge Status:



Normal Clean

Gauge shows how much capacity remains

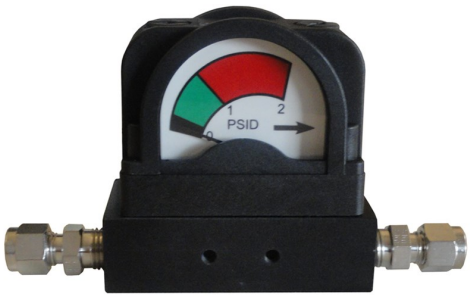
Gauge shows filter element capacity used. Filter requires service

MPT Outlet	Pressure Drop Rating - "H2O	Part Number
1/8"	20	VG-020-013

Pressure Drop Gauges
For Vacuum Filters

Differential Vacuum Gauge

- Indicates pressure drop across the filter assembly or filter element
- Shock and vibration resistant



EZ Read Pressure Drop Gauge

- Gauge Kit includes: gauge, connectors, mounting hardware

Vacuum Gauges

- Monitor amount of restriction across the filter assembly or element, when installed on the inlet and outlet
- Convenient and inexpensive way to assure maximum usage from filter element
- 1/4” connection
- 0-30” Hg (0-760mm Hg)

SOLBERG®

Applicable Gases
Specialized Ring Blowers

A: Good B: Acceptable C: Questionable D: Cannot Use E: Not Tested	Aluminium	Cast Iron	Carbon Steel	Teflon	SUS 304	Hastelloyc
Acetaldehyde	B	E	C	A	A	A
Acetate Solv	B	B	A	A	B	E
Acetic Acid	B	D	C	A	B	A
Acetic Anhydride	B	B	D	A	A	A
Acetylene	A	A	A	E	A	E
Acrylonitrile	B	C	E	E	A	B
Alcohols-Amyl	C	C	C	A	A	A
Alcohols-Benzyl	B	E	E	E	A	A
Alcohols-Butyl	C	C	C	A	A	A
Alcohols-Diacetone	A	E	A	E	A	A
Alcohols-Ethyl	B	A	A	E	A	A
Alcohols-Hexyl	A	E	A	E	A	A
Alcohols-Isopropyl	B	C	A	E	A	A
Alcohols-Methyl	B	A	A	A	A	A
Alcohols-Octyl	A	E	A	E	A	A
Alcohols-Propyl	A	E	A	A	A	A
Aluminium Chloride	D	D	B	A	D	A
Aluminium Hydroxide	A	D	A	A	A	E
Aluminium Sulfate	A	D	A	A	C	A
Amines	A	A	B	A	A	A
Ammonia ,Anhydrous	B	D	B	A	B	A
Ammonia ,Liquids	D	A	A	A	A	B
Ammonia ,Nitrate	C	E	A	E	A	E
Ammonium ,Carbonate	C	C	B	A	A	B
Ammonium Hydroxide	C	A	C	A	A	A
Ammonium nitrate	B	A	D	A	A	A
Ammonium Persulfate	C	D	A	A	A	A
Ammonium Phosphate, Monobasic	B	E	A	A	A	A
Ammonium Sulfate	B	C	C	A	A	A
Amyl-Acetate	B	E	C	A	A	A
Amyl Alcohol	B	E	A	A	A	A
Amyl Chloride	D	E	A	A	E	A
Aniline	C	E	C	A	A	B
Anti-Freeze	A	B	C	A	A	A
Antimony Trichloride	B	E	E	A	A	A
Aromatic Hydrocarbons	A	A	A	E	A	E
Arsenic Acid	D	D	D	A	A	E
Barium Carbonate	B	B	B	A	A	A
Barium Chloride	D	D	C	A	A	A
Barium Hydroxide	C	D	D	A	A	B
Barium Sulfide	D	C	C	A	A	E
Benzaldehyde	B	B	A	A	A	A
Benzoic Acid	B	D	E	A	A	A
Benzol	B	E	E	A	A	A
Borax(Sodium Borate)	C	A	C	A	A	A
Boric Acid	B	D	E	A	A	A
Bromine (Wet)	D	D	D	A	A	A
Butadiene	A	C	C	A	A	E
Butane	A	C	C	A	A	E
Butanol	A	E	E	A	A	A
Butylene	A	A	A	A	A	E
Butyric Acid	B	D	E	A	A	A
Calcium Bisulfate	D	D	E	A	A	E
Calcium Bisulfite	C	E	E	A	A	A
Calcium Carbonate	C	D	E	A	A	A
Calcium Chloride	C	C	E	A	A	A
Calcium Hydroxide	C	E	E	A	A	A
Calcium Hypochlorite	C	D	E	A	A	B

A: Good B: Acceptable C: Questionable D: Cannot Use E: Not Tested	Aluminium	Cast Iron	Carbon Steel	Teflon	SUS 304	Hastelloyc
Calcium Sulfate	B	E	E	A	A	B
Carbon Bisulfide	A	B	E	E	E	E
Carbon Dioxide	C	C	E	A	A	A
Carbon Disulfide	C	B	C	A	B	A
Carbon Monoxide	A	E	E	E	A	E
Carbon Tetrachloride	C	C	D	A	C	A
Carbonated Water	A	C	E	E	A	E
Carbonic Acid	A	D	E	A	A	A
Chloracetic Acid	C	D	E	A	D	A
Chlorinated Glue	D	D	E	E	A	E
Chlorine (Dry)	D	A	E	A	D	A
Chlorobenzene (Mono)	B	B	C	A	A	A
Chloroform	D	D	C	A	A	A
Chlorosulfonic Acid	D	E	D	A	D	B
Chlorox (Bleach)	C	D	C	A	A	A
Chromic Acid	C	D	E	E	A	A
Citric Acid	C	D	E	A	A	A
Citric Oils	C	E	E	E	A	E
Copper Chloride	D	D	E	A	D	A
Copper Cyanide	D	D	E	A	A	A
Copper Nitrate	D	E	E	A	A	A
Copper Sulfate (5% Solution)	D	D	E	A	A	A
Cresols	B	E	E	E	A	E
Cresylic Acid	C	E	E	A	A	B
Cyclohexane	A	E	A	E	A	E
Detergents	A	E	A	E	A	E
Diesel Fuel	A	A	A	E	A	E
Diethylamine	A	E	E	A	A	E
Dyes	B	E	E	E	A	E
Epsom Salts (Magnesium Sulfate)	A	E	E	E	A	B
Ethane	A	E	E	E	A	E
Ether	A	E	B	E	A	B
Ethyl Acetate	B	E	C	A	A	B
Ethyl Chloride	B	C	D	A	A	B
Ethylene Glycol	A	B	C	A	A	A
Ethyene Oxide	A	E	E	A	E	E
Fatty Acids	B	D	E	A	A	A
Ferric chloride	D	D	E	A	D	B
Ferric Sulfate	D	D	E	A	A	A
Fluorine	D	D	D	C	D	A
Fluosilicic Acid	D	D	E	A	E	B
Formaldehyde	A	D	A	A	A	B
Formic Acid	D	D	D	A	A	A
Freon 11	B	C	B	A	E	E
Freon 22	B	E	E	E	E	E
Freon T.F.	B	E	E	E	E	E
Fuel Oils	A	C	B	A	A	A
Furan Resin	A	A	A	A	A	E
Furfural	A	E	A	A	A	E
Gallic Acid	A	D	D	A	A	A
Gasoline	A	A	A	A	A	A
Glycerine	A	B	B	A	A	A
Heptane	A	E	B	A	E	A
Hexane	A	E	B	A	A	A
Hydraulic oils (Synthetic)	A	A	E	E	A	E
Hydrobromic Acid	D	D	D	A	D	A
Hydrobromic Acid (Dry Gas)	D	E	D	A	C	A
Hydrofluoric Acid 100%	D	D	E	A	D	C

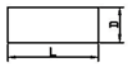
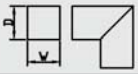
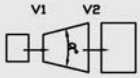
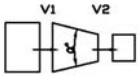
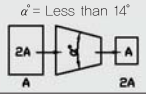
A: Good B: Acceptable C: Questionable D: Cannot Use E: Not Tested	Aluminium	Cast Iron	Carbon Steel	Teflon	SUS 304	Hastelloyc
Hydrofluosilicic Acid	C	E	E	A	D	C
Hydrogen Gas	A	B	B	A	A	E
Hydrogen Peroxide	A	D	D	A	A	A
Hydrogen Sulfide (Dryu)	D	B	B	A	C	A
Ink	C	D	D	E	A	E
Iodine	D	D	E	A	D	B
Iodoform	A	C	B	A	D	E
Isotne	A	C	B	A	D	E
Isopropyl Acetate	C	E	E	E	E	E
Isopropyl Ether	A	E	A	A	E	E
Jet Fuel (Jp3, Jp4, JP5)	A	A	A	A	A	E
Kerosene	A	A	B	A	A	A
Ketones	B	A	A	A	A	A
Lacquers	A	C	C	E	A	E
Lactic Acid	C	D	D	A	A	A
Lubricants	A	E	E	A	A	A
Magnesium Hydroxide	D	B	B	A	A	A
Magnesium Sulfate	B	C	B	A	B	B
Maleic Acid	B	E	B	A	A	A
Malic Acid	C	E	D	A	A	A
Mercuric Chloride (Dilute Solution)	D	D	D	A	D	B
Mercuric Cyanide	D	E	D	A	A	E
Mercury	C	A	A	A	A	A
Methane	A	A	A	A	A	A
Methyl Acetate	A	E	B	A	E	A
Methyl Alcohol 10%	C	E	B	A	E	A
Methyl Butyl Ketone	A	E	E	E	E	E
Methyl Cellosolve	A	E	E	E	E	E
Methyl Chloride	D	E	E	A	C	A
Methyl Ethy ketone	A	E	E	A	A	A
Methylamine	A	B	B	E	E	E
Methylene Chloride	A	E	B	A	A	A
Methyl Ethy ketone	A	E	E	A	A	A
Methylamine	A	B	B	E	E	E
Methylene Chloride	A	E	B	A	A	A
Naptha	A	B	B	A	A	A
Napthalene	B	B	A	A	A	A
Nickel Chloride	D	D	E	A	A	A
Nickel Sulfate	D	D	D	A	A	B
Nitric Acid (Concentrated Solution)	B	D	E	A	D	B
Nitrobenzende	C	B	B	A	A	B
Oleum	B	E	B	A	E	E
Oxalic Acid (cold)	C	D	D	A	A	B
Pentane	A	B	B	A	C	B
Perchloroethylene	A	B	B	A	A	E
Petrolatum	B	C	C	A	E	E
Phenol 10%	A	B	D	A	A	B
Phosphoric Acid (to 40% Solution)	D	D	E	A	B	A
Phosphoric Acid (40%–100% solultion)	D	D	E	A	C	A
Phosphoric Acid (Crude)	D	D	D	A	D	A
Phosphoric Anhydride (Molten)	D	E	E	A	A	E
Photofraphic (Developer)	C	D	E	E	C	A
Phthalic Anhydride	B	C	C	A	A	A
Picric Acid	C	D	D	A	A	A
Potash	C	B	E	E	A	A
Potasium Bicarbonate	C	D	E	A	A	B
Potasium Bromide	C	D	D	A	A	B
Potasium Carbonate	C	B	B	A	A	A
Potasium Chloride	B	B	B	A	A	A
Potasium Chromate	A	A	E	E	E	B

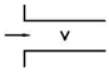
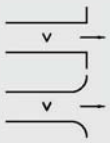
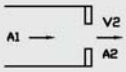
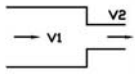
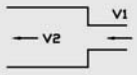
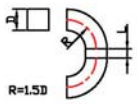
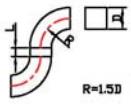
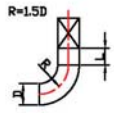
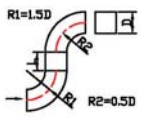
A: Good B: Acceptable C: Questionable D: Cannot Use E: Not Tested	Aluminium	Cast Iron	Carbon Steel	Teflon	SUS 304	Hastelloyc
Potasium Cyanide Solutions	D	B	B	A	A	A
Potasium Dichromate	A	B	C	A	A	B
Potasium Ferrocyanide	C	E	C	A	A	B
Potasium Hydroxide (50%)	D	C	A	A	B	A
Potasium Nitrate	B	E	B	A	A	B
Potasium Permanganate	B	B	B	A	A	B
Potasium Sulfate	A	B	B	A	A	A
Potasium Sulfide	B	B	B	A	A	B
Propane (Liquified)	A	E	B	A	A	E
Propylene Glycol	A	B	B	A	B	E
Pyridine	B	B	A	A	C	E
Pyrogallic Acid	B	B	B	A	A	A
Silver Bromide	D	E	E	E	C	E
Silver Nitrate	D	D	D	A	A	A
Sodium Acetate	B	C	C	A	A	A
Sodium Aluminate	C	E	C	A	E	B
Sodium Bicarbonate	A	C	C	A	A	E
Sodium Bisulfate	D	D	D	A	A	B
Sodium Borate	C	C	C	A	A	A
Sodium Carbonate	C	B	B	A	A	A
Sodium Chlorate	B	E	C	A	A	B
Sodium Chromate	D	B	B	A	A	B
Sodium Cyanide	D	B	B	A	A	E
Sodium Fluoride	C	D	D	A	C	A
Sodium Hydrosulfite	A	E	E	A	E	A
Sodium Hydroxide (20%)	D	A	E	A	A	A
Sodium Hypochlorite (to 20%)	C	D	E	A	C	A
Sodium Hypochlorite	D	D	D	A	E	A
Sodium Hyposulfate	D	E	E	A	A	E
Sodium Metaphosphate	A	B	B	A	E	E
Sodium Metasilicate	B	C	C	A	E	E
Sodium Nitrate	A	A	B	A	A	B
Sodium Perborate	B	B	B	A	E	E
Sodium Peroxide	C	D	C	A	A	B
Sodium Polyphosphate	D	E	E	A	A	A
Sodium Silicate	C	E	B	A	A	B
Sodium Sulfide	D	A	B	A	A	B
Stannic Chloride	D	D	D	A	D	B
Stannous Chloride	D	D	D	A	D	A
Stearic Acid	B	C	C	A	A	A
Stoddard Solvent	A	B	B	A	A	A
Styrene	A	E	A	A	A	E
Sulfate Liquors	B	E	E	E	C	A
Sulfur Chloride	D	E	E	A	D	E
Sulfur Dioxide	A	E	E	A	A	B
Sulfurous Acid	C	D	D	A	C	B
Tannic Acid	C	C	C	A	A	B
Tanning Liquors	C	E	E	A	A	A
Tartaric Acid	C	D	D	A	A	B
Tetrahydrofuran	D	D	A	A	A	E
Toluene, Toluol	A	A	A	A	A	A
Trichlorethylene	B	C	B	A	A	A
Water, Acid, Mine	C	C	E	E	A	E
Water, Fresh	A	B	D	A	A	E
Water,Salt	B	D	E	E	A	E
Weed Killers	C	E	E	E	A	E
Whiskey and Wines	D	D	D	A	A	E
Xylene	A	A	B	A	A	A
Zinc Chloride	D	D	D	A	A	B
Zinc Sulfate	D	C	D	A	A	B

Calculating System Friction Loss

Friction causes pressure loss in all systems. Plumbing design and length affect this loss in air flow

$$P = \zeta \cdot \gamma \cdot \frac{V^2}{2g}$$

Classification	Shape	Counter		
Right Angle				$0.02 \times \frac{L}{D}$
Right Angle		R/D = 0.5 = 0.75 = 1.0 = 1.5 = 2.0		0.75 0.38 0.26 0.17 0.15
Rectangular		W/D	R/D	
		0.5	0.5 0.75 1.0 1.5	1.30 0.47 0.28 0.18
		1~3	0.5 0.75 1.0 1.5	0.95 0.33 0.20 0.13
Rectangular		W/D	R/D	
		0.5	0.5 0.75 1.0 1.5	0.70 0.16 0.13 0.12
		2	0.5 0.75 1.0 1.5	0.45 0.12 0.10 0.15
Circle				0.87
Rectangular				1.25
				90 $\frac{1}{2}$
Expanding		a = 5 = 10 = 20 = 30 = 40		0.17 0.28 0.45 0.59 0.73
		S는 $\gamma \frac{1}{2g}(V_1^2 - V_1^2)$에 대한 식		
Contraction		a = 30 = 45 = 60		0.02 0.04 0.07
		S는 $\gamma \frac{V_2^2}{2g}$		
Strain				0.15

Classification	Shape	Counter	
Pipe Inlet			0.50
Pipe Outlet			1.0
Pipe Inlet			0.03
Pipe Outlet		A_2/A_1 = 0 = 0.25 = 0.50 = 0.75 = 1.0	2.8 2.4 1.9 1.5 1.0
		S는 $\gamma \frac{V_2^2}{2g}$	
Sudden Reduction		V_1/V_2 = 0 = 0.25 = 0.50 = 0.75	0.50 0.45 0.32 0.18
		S는 $\gamma \frac{V_2^2}{2g}$	
Sudden Expansion		V_2/V_1 = 0 = 0.20 = 0.40 = 0.60 = 0.80	1.0 0.64 0.36 0.16 0.04
		S는 $\gamma \frac{V^2}{2g}$	
Continual Band		L = O L = D Vein	0.43 0.31 0.15
		L = O L = D Vein	0.62 0.68 0.19
		L = O L = D Vein	0.42 0.46 0.21
		Normal Direction Reverse Direction	1.15 1.03