

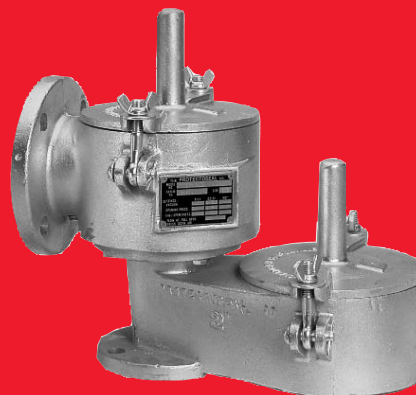
SERIES 18540

Pipe-Away Conservation Pressure / Vacuum Breather Vent



PROTECTOSEAL

- Sizes 2" (DN 50) through 12" (DN 300)
- Settings achieved by weight loading
- Reduces costly evaporation losses
- Leakage rate of less than 1 SCFH of air at 90% of set point
- Patented, FEP film "Air-Cushioned Seating"
- Low-leak pallet design - certified test reports
- Conforms to the latest ATEX Directive
- Factory tested / certified for leakage and correct settings
- Available in Aluminum, Ductile Iron, Stainless Steel, Carbon Steel and Alloy C / C276



SERIES 18540

OBJECTIVE

The Protectoseal Series 18540, Pipe-Away Pressure / Vacuum Conservation Vent provides both pressure and vacuum relief to maintain tank's vapor space within safe operating parameters. Vent settings minimize loss of product. Under pressure venting conditions, tank vapors are piped away, rather than released into the atmosphere.

TECHNIQUE

Pallets in the vent housing allow intake of air and outflow of vapors as the tank normally breathes in and out. Pallets open and close to permit only the intake or outlet relief necessary to remain within permissible working pressures and avoid damage to tank.

Peripheral pallet assembly guides and center pallet stem guides insure proper alignment of pallet assembly on the seat and smooth lifting and reseating action.

Optimized Performance Vents™

Protectoseal's "Optimized Performance Vents" incorporate patented features that provide the optimum overall vent performance with regard to sealing, set point, flow and resealing (blow down).

SPECIAL FEATURES

Fast Inspection, Easy Maintenance. Design and light weight of entire unit permits easy, convenient handling for inspection and maintenance.

Maintains Accurate Pressure Settings. Set points are accurate to within +/- 3% across the entire range of available settings.

Air-Cushioned Seating. A flat, smooth diaphragm of FEP film is supported on both sides of an annular channel to form a floating air seal with the seat. An outer support rim assures proper seating.

Automatic Condensate Drainage. Self-draining housing body and drip rings keep condensate away from seating surfaces. Vent is protected from freezing, binding and clogging.

Low-Leakage. Vent leakage is no more than 1 SCFH at 90% of the set pressure. Pressure tested against leakage through castings and gasketed joints.

Sizes Available. Available in 2" (DN 50) through 12" (DN 300) sizes. Aluminum flanged to mate with 125# ANSI and DIN PN 16 flat face flanges. All other materials mate with 150# ANSI and DIN PN 16 raised face flanges. Other drilling patterns are also available upon special request.

PRO-FLOW® Sizing and Selection Software.

Use PRO-FLOW® to select the correct size unit for pressure and vacuum relief calculated in accordance with API 2000, ISO 28300, NFPA 30 and OSHA 1910.106.

CONSTRUCTION

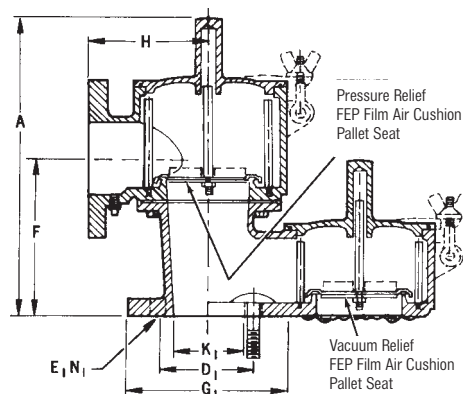
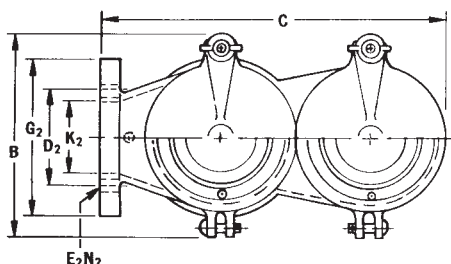
A comprehensive range of materials is offered as shown in the chart below. Non-metallic (thermoplastic resin & FRP) construction available. Other materials and features can be furnished upon request.

Available Options.

- Alternate diaphragm materials
- Material certifications for castings
- Lower than standard minimum pressure and vacuum settings
- Higher than standard maximum vacuum settings
- Mounting connections added to vacuum port
- Steam jacketing available
- Manual or electronic indication of vent opening
- FEP coating
- Kynar® coating (Kynar® is a Registered Trademark of Arkema, Inc.)
- Special cleaning/package for the storage of ultrapure liquids

Series	Housing	Pallet	Pallet Diaphragm	Weight Material
18540	Aluminum 356	Aluminum	FEP Film	Steel or Lead
C18540	Ductile Iron	316 S.S.	FEP Film	Steel or Lead
CS18540	Cast Steel	316 S.S.	FEP Film	Steel or Lead
F18540	S.S. 316	316 S.S.	FEP Film	S.S. or Lead
RE18540	Aluminum 356	316 S.S.	FEP Film	Steel or Lead
M18540	Alloy C	C276	FEP Film	C276 or Lead

Note: Aluminum flanged to mate with 125# ANSI and DIN PN 16 flat face flanges. All other materials mate with 150# ANSI and DIN PN 16 raised face flanges.



DIMENSIONS & ORDERING INFORMATION

Dimensions shown are for reference only, contact Factory for certified drawings

Cat. No.*	Flange Size K1	Flange Size K2	Ht A	Width B	Length C	F	H	B.C. D1	B.C. D2	Dia. G1	Dia. G2	Dia. E1	Dia. E2	Holes N1	Holes N2
18542D2	2"	2"	16"	9 1/8"	16"	7 1/8"	5 1/8"	4 3/4"	4 3/4"	6"	6"	3/4"	3/4"	4	4
18542DN2	DN50	DN50	406mm	251mm	406mm	181mm	175mm	125mm	125mm	165mm	165mm	18mm	18mm	4	4
18542D3	2"	3"	14 1/4"	9 1/8"	16 1/8"	7 1/2"	5 1/2"	4 3/4"	6"	6"	7 1/2"	3/4"	3/4"	4	4
18542DN3	DN50	DN80	362mm	251mm	410mm	191mm	140mm	125mm	160mm	165mm	200mm	18mm	18mm	4	8
18543D3	3"	3"	15"	9 1/8"	16"	7 1/4"	5 1/4"	6"	6"	7 1/2"	7 1/2"	3/4"	3/4"	4	4
18543DN3	DN80	DN80	381mm	251mm	406mm	184mm	140mm	160mm	160mm	200mm	200mm	18mm	18mm	8	8
18543D4	3"	4"	15 1/2"	9 1/8"	16 1/8"	8"	5 1/8"	6"	7 1/2"	7 1/2"	9"	3/4"	3/4"	4	8
18543DN4	DN80	DN100	394mm	251mm	410mm	203mm	143mm	160mm	180mm	200mm	220mm	18mm	18mm	8	8
18544D4	4"	4"	19 3/4"	9 1/8"	20 1/2"	9 1/8"	6 1/2"	7 1/2"	7 1/2"	9"	9"	3/4"	3/4"	8	8
18544DN4	DN100	DN100	502mm	251mm	521mm	232mm	165mm	180mm	180mm	220mm	220mm	18mm	18mm	8	8
18544D6	4"	6"	18"	11"	20 1/2"	9 1/2"	6 1/2"	7 1/2"	9 1/2"	9"	11"	3/4"	7/8"	8	8
18544DN6	DN100	DN150	457mm	279mm	521mm	241mm	165mm	180mm	240mm	220mm	285mm	18mm	22mm	8	8
18546D6	6"	6"	22 1/4"	11"	25 1/2"	12"	8 1/8"	9 1/2"	9 1/2"	11"	11"	7/8"	7/8"	8	8
18546DN6	DN150	DN150	565mm	279mm	654mm	305mm	213mm	240mm	240mm	285mm	285mm	22mm	22mm	8	8
18546D8	6"	8"	23 1/4"	13 1/2"	26 1/2"	13"	8 1/2"	9 1/2"	11 3/4"	11"	13 1/2"	7/8"	7/8"	8	8
18546DN8	DN150	DN200	591mm	343mm	673mm	330mm	216mm	240mm	295mm	285mm	340mm	22mm	22mm	8	12
18548D10	8"	10"	23 3/4"	16"	31 1/4"	13 3/4"	10 1/2"	11 3/4"	14 1/4"	13 1/2"	16"	7/8"	1"	8	12
18548DN10	DN200	DN 50	591mm	406mm	806mm	349mm	267mm	295mm	355mm	340mm	405mm	22mm	26mm	12	12
18550D12	10"	12"	25 3/8"	19"	37 1/8"	15 1/4"	12"	14 1/4"	17"	16"	19"	1"	1"	12	12
18550DN12	DN250	DN300	645mm	483mm	956mm	387mm	305mm	355mm	410mm	405mm	460mm	26mm	26mm	12	12
18552D14	12"	14"	28 1/4"	21"	39 3/4"	16 1/2"	12"	17"	18 3/4"	19"	21"	1"	1 1/8"	12	12
18552DN14	DN300	DN350	718mm	533mm	1010mm	419mm	305mm	410mm	470mm	460mm	520mm	26mm	26mm	12	16

* Cat. No. designates Aluminum Housing & Pallets, please refer to chart on the reverse for other materials of construction.

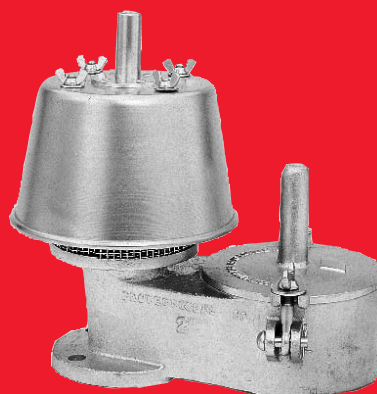
PRESSURE AND/OR VACUUM SETTINGS

(Consult factory for settings outside of STANDARD range.)

Flange Size	STANDARD MINIMUM SETTINGS						STANDARD MAXIMUM SETTINGS					
	PRESSURE & VACUUM						PRESSURE			VACUUM		
	Aluminum			Other Materials			All Materials			All Materials		
	oz./in. ²	in.W.C.	kPa	oz./in. ²	in.W.C.	kPa	oz./in. ²	in.W.C.	kPa	oz./in. ²	in.W.C.	kPa
2" x 2" / DN 50 x 50	0.50	0.87	0.22	0.75	1.30	0.32	45.00	77.85	19.39	11.00	19.03	4.74
2" x 3" / DN 50 x 80	0.50	0.87	0.22	0.75	1.30	0.32	17.00	29.41	7.32	11.00	19.03	4.74
3" x 3" / DN 80 x 80	0.50	0.87	0.22	0.75	1.30	0.32	36.00	62.28	15.51	11.00	19.03	4.74
3" x 4" / DN 80 x 100	0.50	0.87	0.22	0.75	1.30	0.32	23.00	39.79	9.91	11.00	19.03	4.74
4" x 4" / DN 100 x 100	0.50	0.87	0.22	0.75	1.30	0.32	47.00	81.31	20.25	7.40	12.80	3.19
4" x 6" / DN 100 x 150	0.50	0.87	0.22	0.75	1.30	0.32	31.00	53.63	13.31	7.40	12.80	3.19
6" x 6" / DN 150 x 150	0.50	0.87	0.22	0.75	1.30	0.32	32.00	55.36	13.79	18.00	31.14	7.76
6" x 8" / DN 150 x 200	0.50	0.87	0.22	0.75	1.30	0.32	32.00	55.36	13.79	18.00	31.14	7.76
8" x 10" / DN 200 x 250	0.50	0.87	0.22	0.75	1.30	0.32	27.00	46.71	11.63	18.00	31.14	7.76
10" x 12" / DN 250 x 300	0.50	0.87	0.22	0.75	1.30	0.32	29.00	50.17	12.49	19.00	32.87	8.19
12" x 14" / DN 300 x 350	0.50	0.87	0.22	0.75	1.30	0.32	23.00	39.79	9.91	23.00	39.79	9.91



- Sizes 2" (DN 50) through 12" (DN 300)
- Unique design allows for quick lift of the pallet and higher flows at lower overpressures
- Settings achieved by weight loading
- Reduces costly evaporation losses
- Leakage rate of less than 1 SCFH of air at 90% of set point
- Patented, FEP Film "Air-Cushioned Seating"
- Low-leak pallet design - certified test reports
- Conforms to the latest ATEX Directive
- Factory tested / certified for leakage and correct settings
- Available in Aluminum only



SERIES
8540G

OBJECTIVE

The Protectoseal Series 8540G Improved Performance, End-of-Line Pressure / Vacuum Conservation Vent provides both pressure and vacuum relief to maintain tank's vapor space within safe operating parameters. Vent settings minimize loss of product. Under pressure venting conditions, tank vapors are expelled to atmosphere.

The new Series 8540G provides quicker pressure pallet lift and improved flow performance at low overpressures just above the relief set point. This provides the benefit of higher flows at lower overpressures which can be beneficial in storage tank vapor control schemes requiring tight operating bands with the tank's emergency relief vents, tank blanketing valves and other associated devices in the vapor control system.

TECHNIQUE

Pallets in the vent housing allow intake of air and outflow of vapors as the tank normally breathes in and out. Pallets open and close to permit only the intake or outlet relief necessary to remain within permissible working pressures and avoid damage to tank

Peripheral pallet assembly guides and center pallet stem guides insure proper alignment of pallet assembly on the seat and smooth lifting and reseating action.

Optimized Performance Vents™

Protectoseal's "Optimized Performance Vents" incorporate patented features that provide the optimum overall vent performance with regard to sealing, set point, flow and resealing (blow down).

SPECIAL FEATURES

Enhanced Flow Design. A redesigned pallet assembly allows for quicker lift of the pallet at lower overpressure resulting in higher flows.

Quick Inspection, Easy Maintenance. Design and light weight of entire unit permits easy, convenient handling for inspection and maintenance.

Maintains Accurate Pressure Settings. Set points are accurate to within +/- 3% across the entire range of available settings.

Air-Cushioned Seating. A flat, smooth diaphragm of FEP film is supported on both sides of an annular channel to form a floating air seal with the seat. An outer support rim assures proper seating.

Automatic Condensate Drainage. Self-draining housing body and drip rings keep condensate away from seating surfaces. Vent is protected from freezing, binding and clogging.

Low-Leakage. Vent leakage is no more than 1 SCFH at 90% of the set pressure. Pressure tested against leakage through castings and gasketed joints.

Sizes Available. 2" (DN 50) through 12" (DN 300) sizes. Aluminum flanged to mate with 125# ANSI and DIN PN 16 flat face flanges. Other drilling patterns are also available upon special request.

PRO-FLOW® Sizing and Selection Software.

Use PRO-FLOW® to select the correct size unit for pressure and vacuum relief calculated in accordance with API 2000, ISO 28300, NFPA 30 and OSHA 1910.106.

CONSTRUCTION

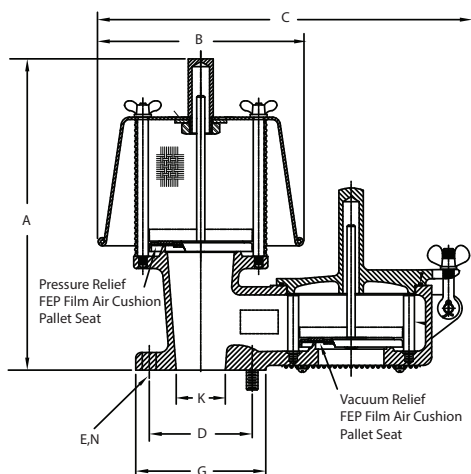
Cast aluminum housing / cover with aluminum pallet assemblies. A number of available options are shown below.

Available Options.

- Alternate diaphragm materials
- Material certifications for castings
- Lower than standard minimum pressure and vacuum settings
- Higher than standard maximum vacuum settings
- Mounting connections added to vacuum port
- Steam jacketing available
- Electronic or mechanical indication of vent opening
- FEP coating
- Kynar® coating (*Kynar® is a Registered Trademark of Arkema, Inc.*)
- Consult factory for special requests.

Series	Housing	Pallet	Pallet Diaphragm	Weight Material
8540G	Aluminum 356	Aluminum	FEP Film	Steel or Lead

Note: Aluminum flanged to mate with 125# ANSI and DIN PN 16 flat face flanges.



Dimensions shown are for reference only,
contact Factory for certified drawings.

DIMENSIONS & ORDERING INFORMATION

Cat. No.*	Flange K	Ht. A	Width B	Length C	B.C. D	Dia. G	Dia. E	Holes N
8542G	2"	14"	9 $\frac{3}{4}$ "	15 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	6	$\frac{3}{4}$ "	4
8542DNG	DN 50	356mm	238mm	394mm	125mm	165mm	18mm	4
8543G	3"	16 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	17 $\frac{1}{2}$ "	6"	7 $\frac{1}{2}$ "	$\frac{3}{4}$ "	4
8543DNG	DN 80	425mm	292mm	445mm	160mm	200mm	18mm	8
8544G	4"	17 $\frac{11}{16}$ "	13"	20 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	9"	$\frac{3}{4}$ "	8
8544DNG	DN100	449mm	330mm	514mm	180mm	220mm	18mm	8
8546G	6"	24 $\frac{1}{2}$ "	16 $\frac{3}{4}$ "	26 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	11"	$\frac{7}{8}$ "	8
8546DNG	DN 150	662mm	425mm	673mm	240mm	285mm	22mm	8
8548G	8"	27 $\frac{1}{8}$ "	19 $\frac{1}{2}$ "	31 $\frac{1}{4}$ "	11 $\frac{1}{4}$ "	13 $\frac{1}{2}$ "	$\frac{7}{8}$ "	8
8548DNG	DN 200	689mm	495mm	794mm	295mm	340mm	22mm	12
8550G	10"	29 $\frac{1}{4}$ "	23 $\frac{3}{4}$ "	37 $\frac{1}{6}$ "	14 $\frac{1}{4}$ "	16"	1"	12
8550DNG	DN 250	743mm	600mm	954mm	355mm	405mm	26mm	12
8552G	12"	31"	25 $\frac{3}{8}$ "	40 $\frac{1}{8}$ "	17"	19"	1"	12
8552DNG	DN 300	787mm	645mm	1038mm	410mm	460mm	26mm	12

* Cat. No. designates Aluminum Housing & Pallets.

PRESSURE AND/OR VACUUM SETTINGS (Consult factory for settings outside of STANDARD range.)

Flange Size	STANDARD MINIMUM SETTINGS			STANDARD MAXIMUM SETTINGS					
	PRESSURE & VACUUM			PRESSURE			VACUUM		
	oz./in. ²	in.W.C.	kPa	oz./in. ²	in.W.C.	kPa	oz./in. ²	in.W.C.	kPa
2" / DN 50	0.50	0.87	0.22	48.00	83.04	20.68	11.00	19.03	4.74
3" / DN 80	0.50	0.87	0.22	48.00	83.04	20.68	11.00	19.03	4.74
4" / DN 100	0.50	0.87	0.22	48.00	83.04	20.68	7.40	12.80	3.19
6" / DN 150	0.50	0.87	0.22	48.00	83.04	20.68	18.00	31.14	7.76
8" / DN 200	0.50	0.87	0.22	48.00	83.04	20.68	18.00	31.14	7.76
10" / DN 250	0.50	0.87	0.22	48.00	83.04	20.68	19.00	32.87	8.19
12" / DN 300	0.50	0.87	0.22	48.00	83.04	20.68	23.00	39.79	9.91

ADDITIONAL PRODUCTS FROM PROTECTOSEAL

Series 18540



Pipe-Away Pressure Vacuum Relief Vent for applications that require hazardous vapors be processed into manifolded piping and not released into the atmosphere.

Series 7800



Emergency Vent protects tanks against rupture or explosion resulting from excessive internal pressure caused by exposure to fires.

Series 4950



Vent Line / In-Line Parallel Plate Flame Arrester is designed for installation in open vent pipe or bleed lines from storage or processing tanks. Suitable for NEC Group D (IEC Group IIA) vapors.

Series 830



Combination Pressure / Vacuum Relief Vent & Flame Arrester provides pressure and vacuum relief as well as protection from propagation of externally introduced flames. Suitable for NEC Group D (IEC Group IIA) vapors.