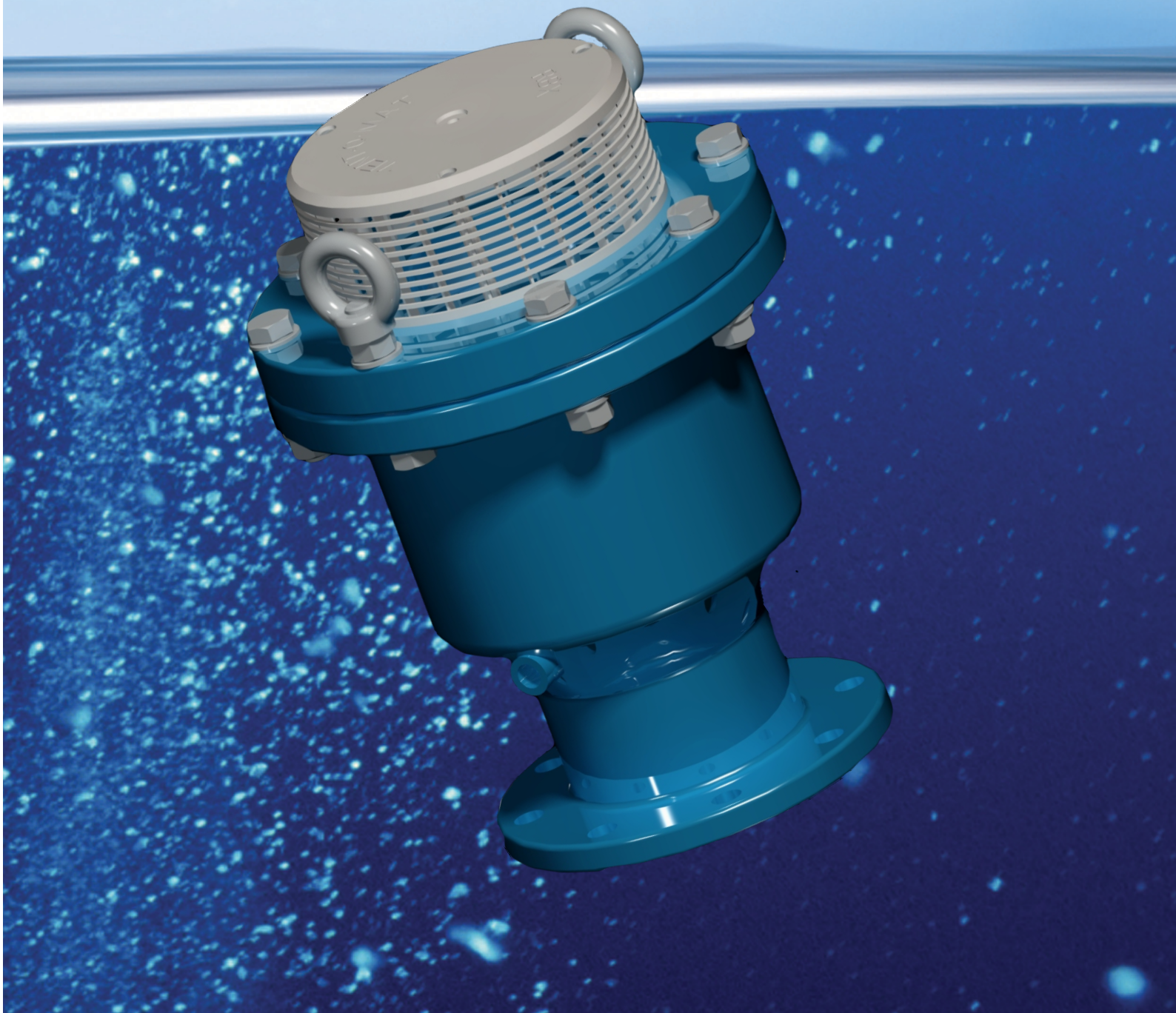
VENT-O-MAT®

SERIES RBXc

"ANTI-SHOCK" AIR RELEASE AND VACUUM BREAK VALVES

FOR EFFECTIVE AIR RELEASE VACUUM PROTECTION AND SURGE ALLEVIATION



VENT-O-MAT®

AVENG MANUFACTURING DFC

CATALOGUE INDEX

Series RBXc

Introduction

- **"ANTI - SHOCK" - "ANTI - SURGE"** - The RBXc is the only air release valve available, that is supplied as standard with a mechanism which operates automatically, to prevent pipeline damage from the high induced pressure transients associated with high velocity air discharge. Surge resulting from liquid column separation and liquid oscillation is dramatically reduced as an automatic function of this mechanism.

- **PERFORMANCE** - The RBXc has been designed and developed to provide the optimum usable and safe performance relative to all functions. Selection data has been substantiated through CSIR* and other testing and can therefore, be confidently referenced.

- **QUALITY** - The RBXc economically offers the highest quality construction and materials available in an air release and vacuum break valve. Stringent manufacturing and test procedures are maintained to ensure the best possible service and reliability is given by every valve produced.

- **SERVICEABILITY** - The RBXc design facilitates extreme ease of service and maintenance. Components are in corrosion free materials to allow problem free disassembly and reassembly even after many years of operation. All maintenance spares are replaceable without special tools or skills.

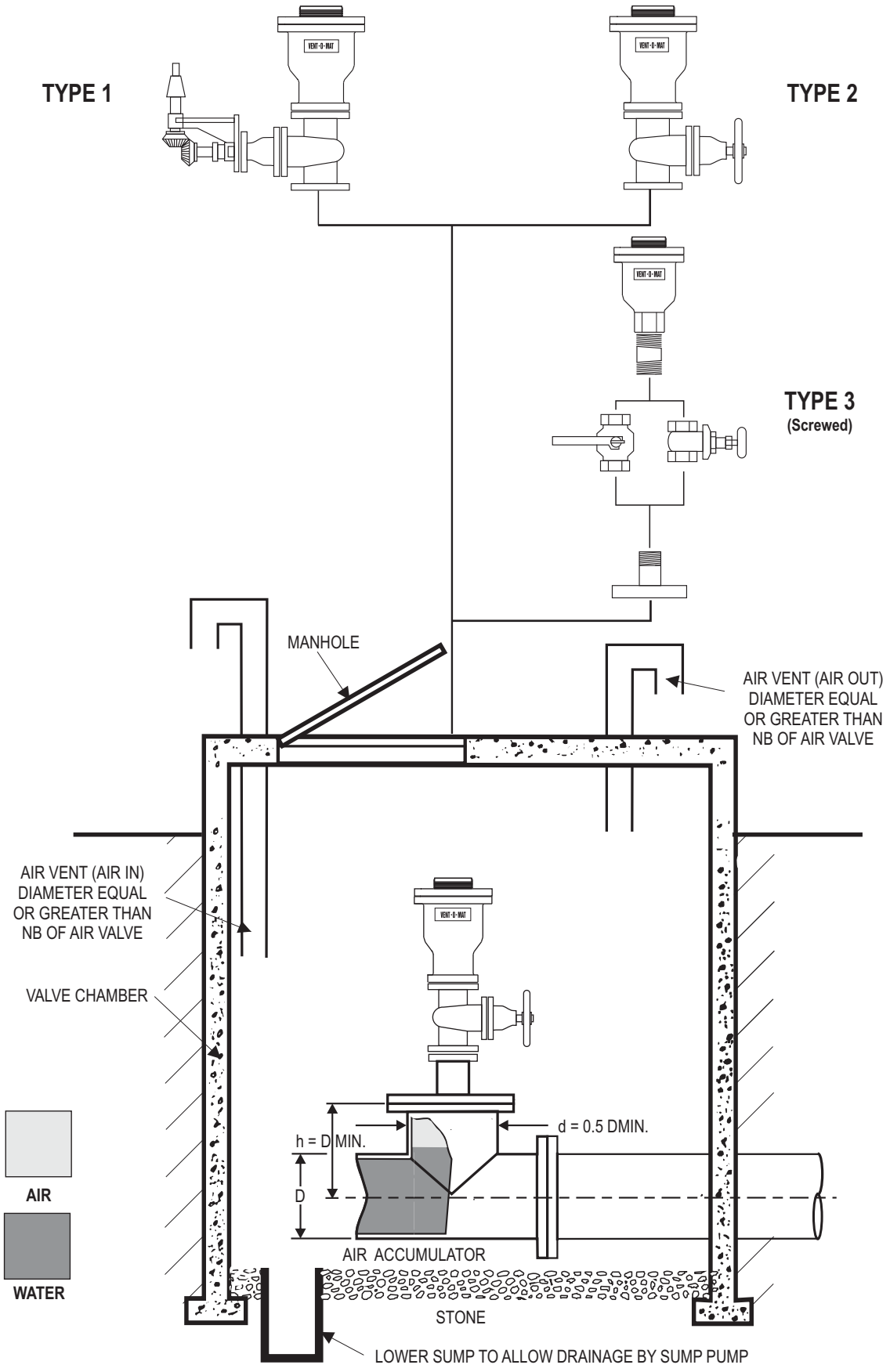
- **VACUUM BREAK** - The RBXc series offers large orifice diameters equal the nominal size of the valve, i.e., a 200mm (8") valve has a 200mm (8") orifice. This ensures the least possible resistance to the intake of air and consequently the least possible negative pressure within a draining pipeline.

- **COMPACTNESS** - Although extremely robust the RBXc valve's lightweight and compact construction offers handling transport and installation advantages.

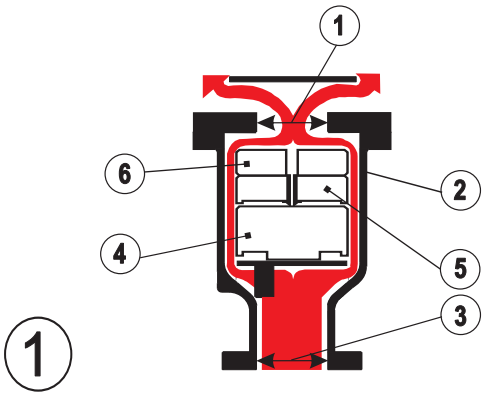
- **BACK UP** - Vent -O- Mat provides highly committed customer orientated sales, service, spares and technical back up - TRY US!!!

* Council for Scientific and Industrial Research

RECOMMENDED INSTALLATION ARRANGEMENTS



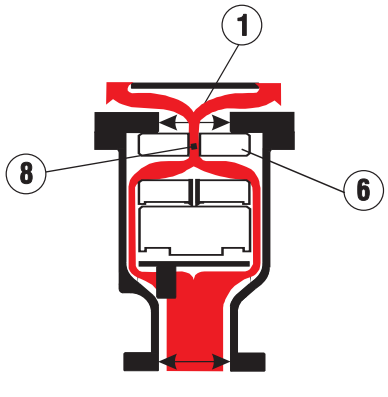
OPERATION



1

VENTING OF A FILLING PIPELINE (SUB CRITICAL WATER APPROACH VELOCITY)

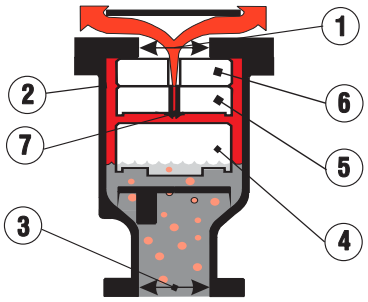
Air enters Orifice (3), travels through the annular space between the cylindrical floats (4), (5), and (6) and the valve Chamber B arrel (2) and discharges from the Large Orifice (1) into atmosphere.



2

VENTING OF A FILLING PIPELINE (EXCESSIVE WATER APPROACH VELOCITY)

In reaction to increased air flow, Float (6) closes Large Oriface (1) and air is forced through the Anti Shock Oriface (8) resulting in deceleration of the approaching water due to the resistance of rising air pressure in the valve.

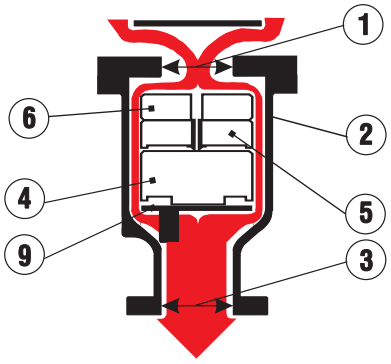


3

PRESSURISED AIR RELEASE FROM A FULL PIPELINE

Subsequent to the filling of a pipeline, liquid enters the valve Barrel Chamber (2) and the Floats (4), (5) and (6) are buoyed so that the Large Orifice (1) is closed by Float (6). The valve will then become internally pressurised. A minimal working pressure of < 0.5 bar (7.3 psi) acting on the relatively large area of the Orifice (1) will lock Float (6) into the closed position across the Large Orifice (1).

Disentrained air rises through the liquid and accumulates in the valve chamber. When the volume of air is sufficient to displace the liquid, Float (4) will no longer be buoyant and will gravitate downwards thereby opening the Small Orifice (7) and allowing accumulated air to be discharged into atmosphere. As air is discharged the liquid raises the Float (4) and re-seals the Small Orifice (7) and prevents the escape of liquid.



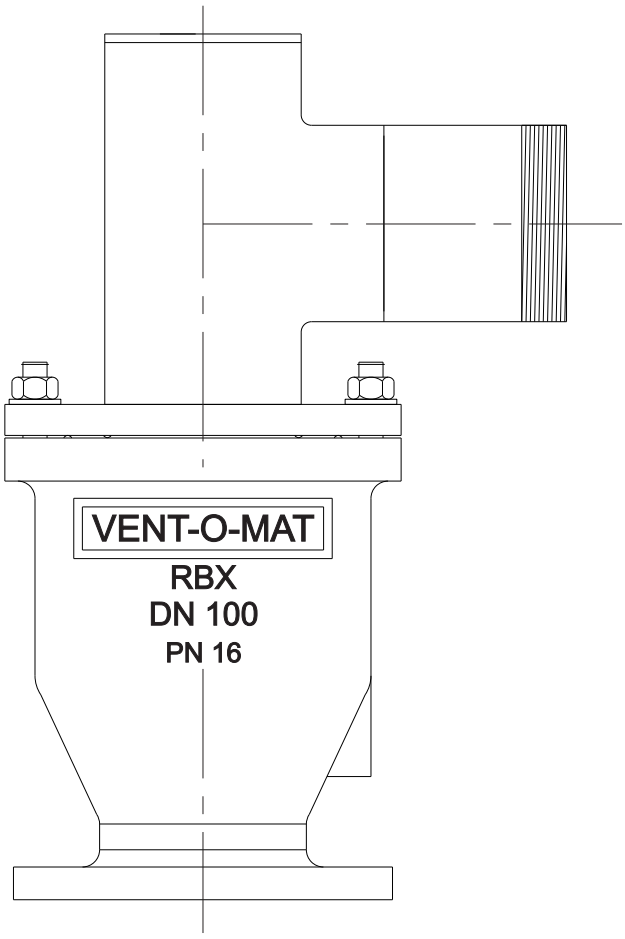
4

VACUUM RELIEF (AIR INTAKE) OF A DRAINING PIPELINE

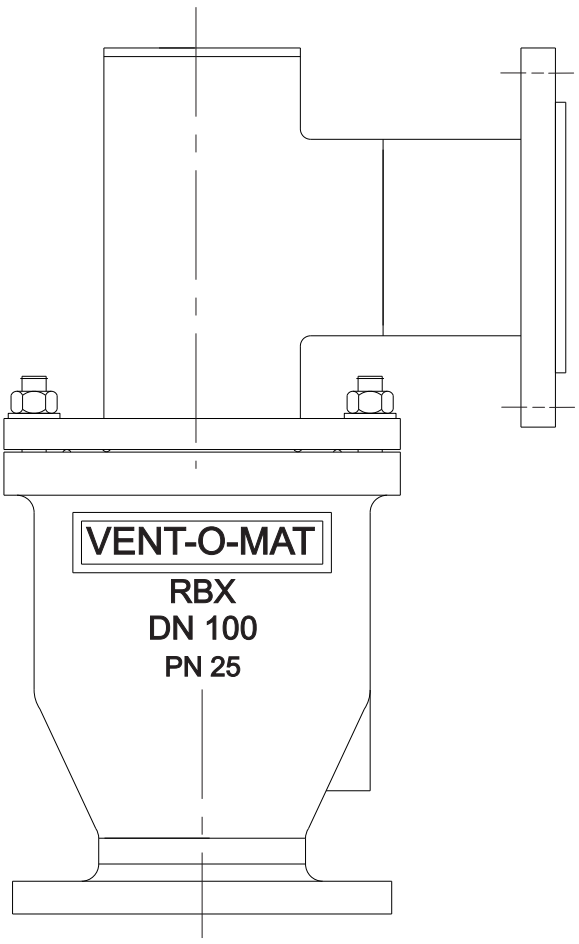
Simultaneous drainage of liquid from Valve Chamber (2) causes Floats (4), (5) and (6) to gravitate downwards into the Baffle Plate (9), thereby allowing atmospheric air through the valve to rapidly displace draining liquid in the pipeline and prevent potentially damaging internal negative pressure.

AVAILABLE DISCHARGE CONNECTIONS
1" TO 12"

Screwed NPT
Discharge
25mm (1") to 100mm (4")



Swivel Discharge
25mm (1") to 300mm (12")



*NOTE
Discharge Connections Are Equal to Valve Pressure Rating

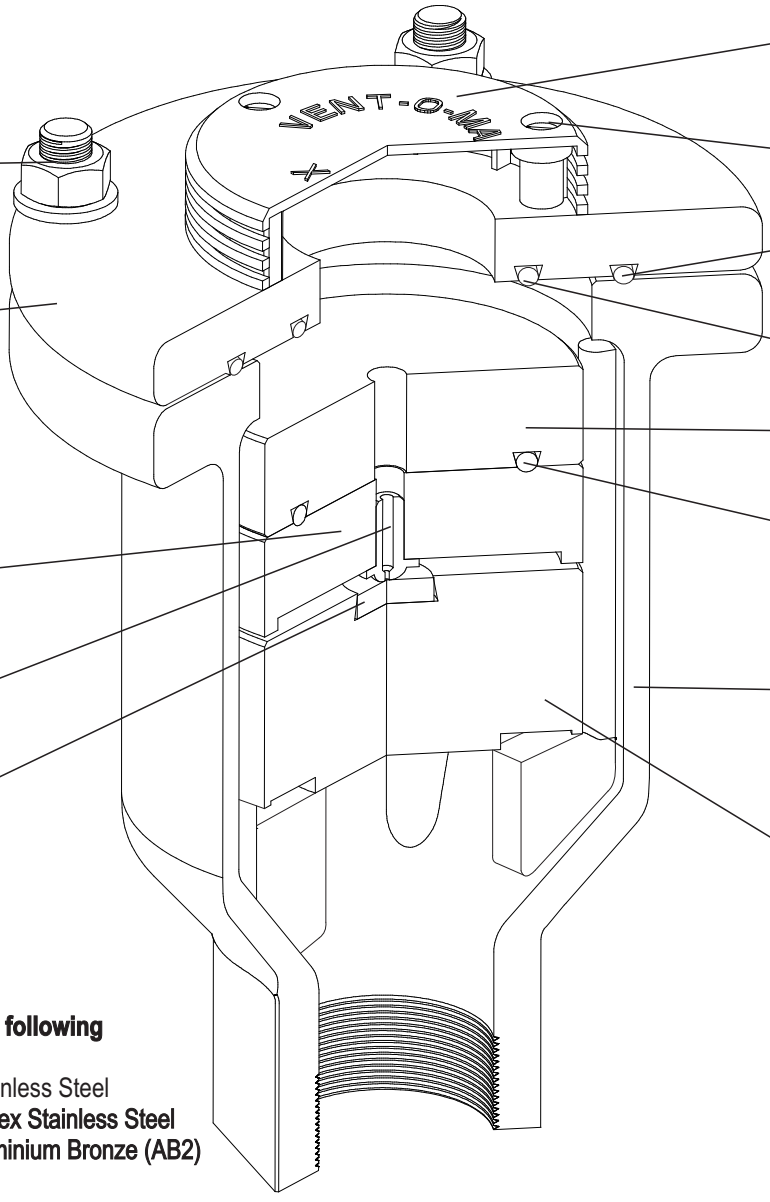
COMPONENT DESCRIPTION & MATERIAL SPECIFICATION

SCREWED - 1" & 2"

Type:
Series RBXc - Double Orifice (Small & Large Orifice) with Anti Shock Orifice Mechanism

End Connection:
Screwed NPT Female ASME B1.20.1

Nominal Sizes:	Model No's:	Pressure Ratings:
1"	RBXc 1621	275 psi
2"	RBXc 2521	363 psi



Top Cover
ABS plastic
Polylac PA 737
OR Stainless Steel
304 or 316
available on request

Studs, Nuts and Washers
Stainless Steel
AISI 304 Alternatively
Stailess Steel AISI 316

Top Cover Screws
Cheesehead
Stainless Steel
AISI 304 or 316

Top Flange
Fusion Bonded Epoxy
Power coated
Ductile Cast Iron
ASTM A536 Gr65-45-12

O-Ring Seal
EPDM Rubber

O-Ring Seal
EPDM Rubber

Anti - Shock Orifice
High Density
Polyethylene

O-Ring Seal
EPDM Rubber

Top Float
High Density
Polyethylene

Nozzle
Stainless Steel AISI 316

Valve Body
Fusion Bonded Epoxy
Power coated
Ductile Cast Iron
ASTM A536 Gr65-45-12

Nozzle Seat
EPDM Rubber

Lower Float
High Density Polythylene

Valves are available in the following materials on request:
ASTM A 890 4A Duplex Stainless Steel
ASTM A 890 5A Super Duplex Stainless Steel
EN1982:2008 CB333G Aluminium Bronze (AB2)
ASTM A 494 Hastelloy C

COMPONENT DESCRIPTION & MATERIAL SPECIFICATION

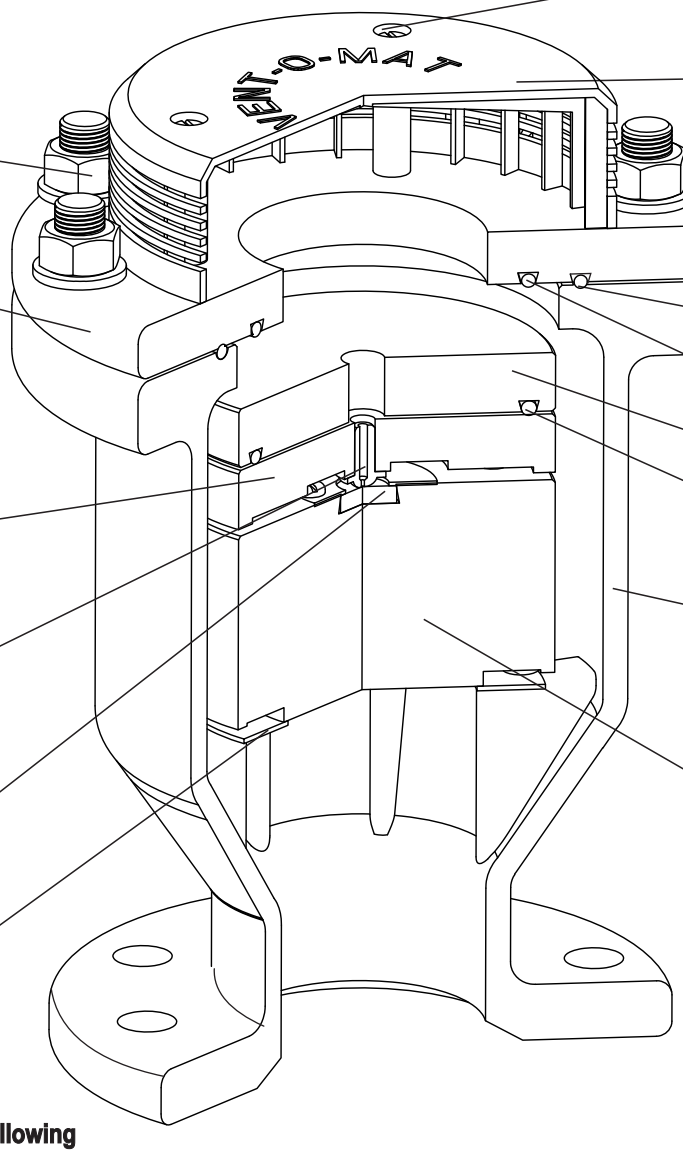
FLANGED -1" TO 12"

Type:
Series RBXc - Double Orifice (Small & Large Orifice) with Anti Shock Orifice Mechanism

End Connection:
Flanged to ASME B16.5

Nominal Sizes:
1"
2"
3"
4"
6"
8"
10"
12"

Model No's:	Pressure Ratings:
RBXc 1631	276 psi ASME #150
RBXc 2531	363 psi ASME #300



Top Cover Screws
Cheesehead
Stainless Steel
AISI 304 or 316

Top Cover
ABS plastic
Polylac PA 737
OR Stainless Steel
AISI 304 or 316
available on request

Studs, Nuts and Washers
Stainless Steel
AISI 304 Alternatively
Stainless Steel AISI 316

Top Flange
Fusion Bonded Epoxy
Power coated
Ductile Cast Iron
ASTM A536 Gr65-45-12

O-Ring Seal
EPDM Rubber

O-Ring Seal
EPDM Rubber

Anti - Shock Orifice
High Density
Polyethylene

O-Ring Seal
EPDM Rubber

Top Float
High Density
Polyethylene

Valve Body
Fusion Bonded Epoxy
Power coated
Ductile Cast Iron
ASTM A536 Gr65-45-12

Nozzle
Stainless Steel AISI 316

Lower Float
High Density Polythylene

Nozzle Seat
EPDM Rubber

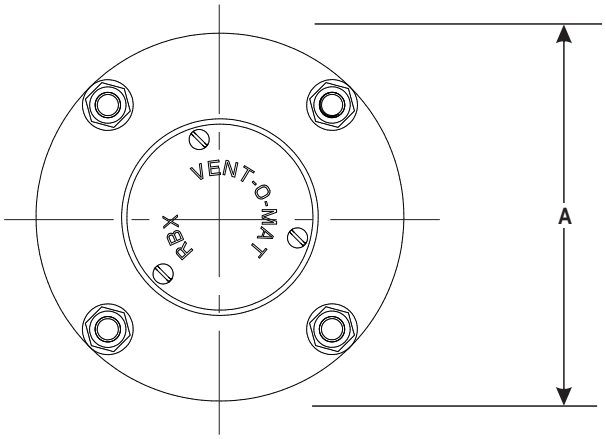
Baffle Plate
Stainless Steel AISI 316
(Not available in 1", 2" and 3")

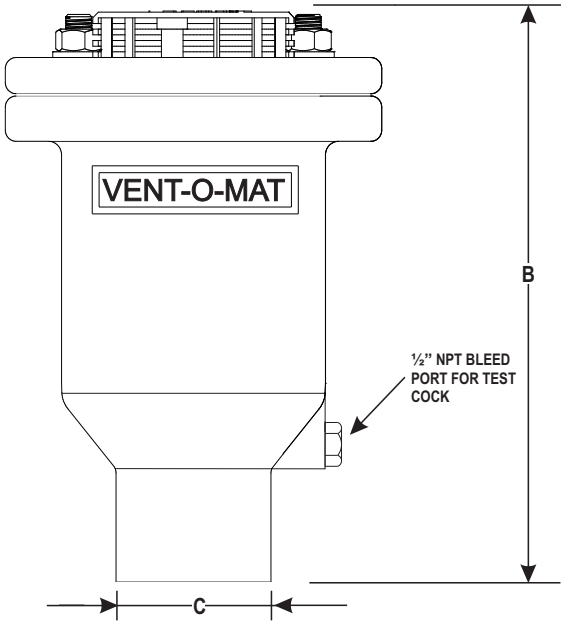
Valves are available in the following materials on request:
ASTM A 890 4A Duplex Stainless Steel
ASTM A 890 5A Super Duplex Stainless Steel
EN1982:2008 CB333G Aluminium Bronze (AB2)
ASTM A 494 Hastelloy C

Information subject to change without prior notice

GENERAL SPECIFICATIONS

SCREWED - 1" & 2"





Type:
Double Orifice (Small & Large Orifice) with Anti Shock Orifice mechanism.

End Connection:
Screwed NPT female (ASME B1.20.1)

Nominal Sizes:
1" & 2"

Model No's:	**Pressure Ratings bar (psi):**
RBXc 1621	276 psi
RBXc 2521	363 psi

Operating Pressure Range - psi:

	Min	Max.
276 psi	7.2	276
363 psi	7.2	363

Operating Temperature Range:
35 ^{0}F to 185 ^{0}F

Acceptable Media:
Potable or strained raw water.

Function:
i) High volume air discharge - pipeline filling.
ii) High volume air intake - pipeline draining
iii) Pressurized air discharge - pipeline filled.
iv) Surge dampening - high velocity air discharge, water column separation & liquid oscillation.

Materials of Construction: - see page 5
Installation: - see page 2

Standard Factory Tests:
i) Hydrostatic - 1.5 x max. rated working pressure
ii) Low head leak - 7.2 psi
iii) Small orifice function at max. rated working pressure (minimum 1 valve in 10).

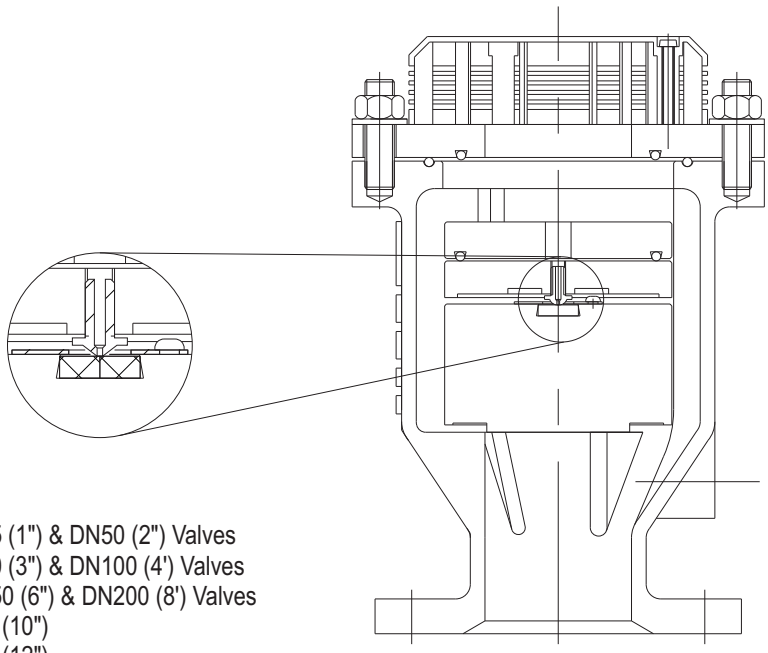
OVERALL DIMENSIONS & WEIGHTS

DN		MODEL No.	A		B		C	WEIGHT	
mm	in.		mm	in.	mm	in.		kg.	lbs.
025	1"	025RBXc1621 & 2521	154	6.06	235	9.25	1"NPT	10	22
050	2"	050RBXc1621 & 2521	174	6.85	249	9.79	2"NPT	13	29

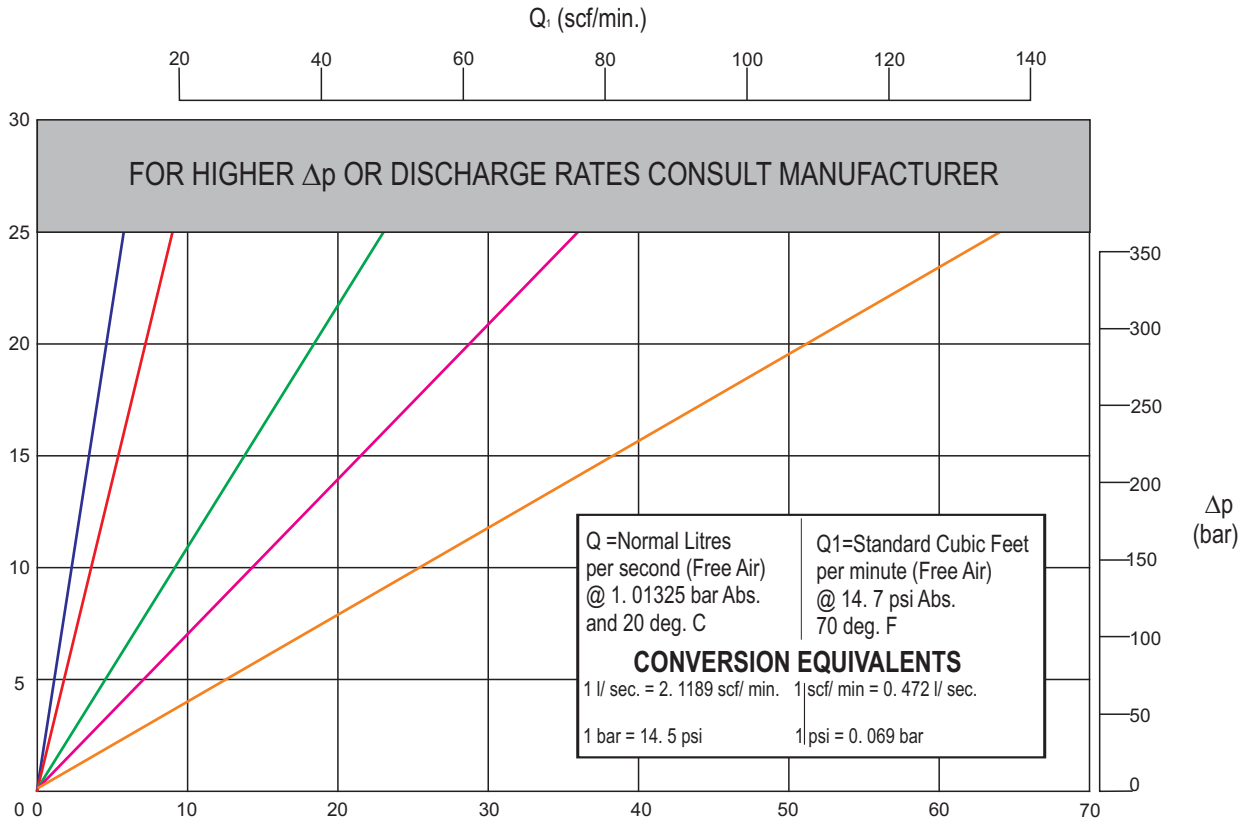
SMALL ORIFICE DISCHARGE PERFORMANCE

Type:
Series RBXc - Double Orifice (Small & Large Orifice)
with 'Anti Shock Orifice' Mechanism

Model No's:
RBXc 1621/1631
RBXc 2521/2531



- ø 1.2 mm (ø 0. 047") small orifice - DN25 (1") & DN50 (2") Valves
- ø 1.5 mm (ø 0. 059") small orifice - DN80 (3") & DN100 (4') Valves
- ø 2.4 mm (ø 0. 094") small orifice - DN150 (6") & DN200 (8') Valves
- ø 3 mm (ø 0. 125") small orifice - DN250 (10")
- ø 4 mm (ø 0. 157") small orifice - DN300 (12")



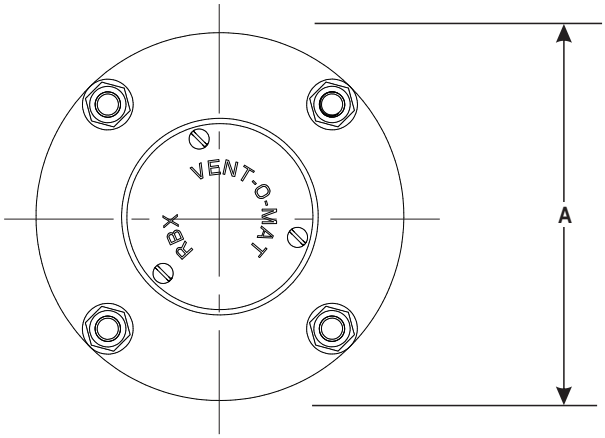
VENT-O-MAT®

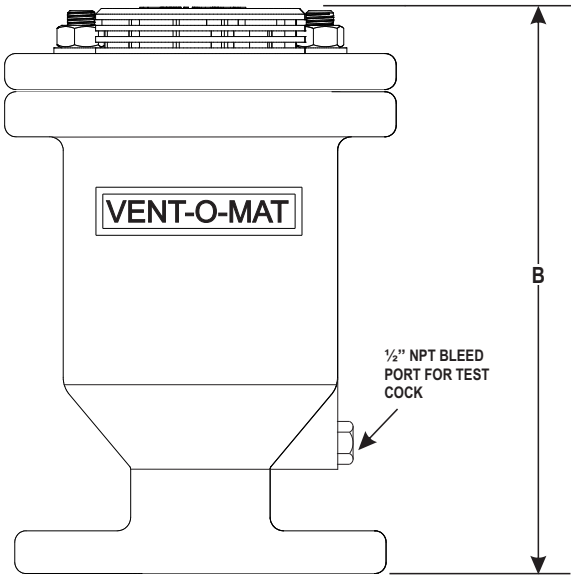
Series RBXc

AVENG MANUFACTURING DFC

GENERAL SPECIFICATIONS

FLANGED - 1" TO 12"





Type:
Double Orifice (Small & Large Orifice) with Anti Shock Orifice mechanism.

End Connection:
Flanged - ASME B16.5 Class 150 or Class 300

Nominal Sizes:
1" to 12"

Model No's:	**Pressure Ratings bar (psi):**
RBXc 1631	276 psi
RBXc 2531	363 psi

Operating Pressure Range - psi:

	Min		Max.
276 psi	7.2	____	276
363 psi	7.2	____	363

Operating Temperature Range:
35 ^{0}F to 85 ^{0}F

Acceptable Media:
Potable or strained raw water.

Function:
i) High volume air discharge - pipeline filling.
ii) High volume air intake - pipeline draining
iii) Pressurized air discharge - pipeline filled.
iv) Surge dampening - high velocity air discharge, water column separation & liquid oscillation.

Materials of Construction: **- see page 6**
Installation: **- see page 3**

Standard Factory Tests:
i) Hydrostatic - 1.5 x max. rated working pressure
ii) Low head leak - 7.2 psi
iii) Small orifice function at max. rated working pressure (min. 1 valve in 10).

OVERALL DIMENSIONS & WEIGHTS

DN		MODEL No.	A		B		WEIGHT CAST	
mm	in.		mm	in.	mm	in.	kg.	lbs.
025	1"	025RBXc1631	154	6.06	249	9.79	11	24
025	1"	025RBXc2531	154	6.06	252	9.92	13	29
050	2"	050RBXc1631	174	6.85	253	9.96	16	35
050	2"	050RBXc2531	174	6.85	265	10.09	18	40
080	3"	080RBXc1631	225	8.86	331	13.02	24	53
080	3"	080RBXc2531	225	8.86	336	13.23	29	64
100	4"	100RBXc1631	230	9.06	341	13.43	30	66
100	4"	100RBXc2531	230	9.06	349	13.74	33	73
150	6"	150RBXc1631	340	13.39	469	18.46	62	137
150	6"	150RBXc2531	340	13.39	480	18.90	68	150
200	8"	200RBXc1631	355	13.98	523	20.58	72	159
200	8"	200RBXc2531	355	13.98	535	21.06	80	176
250	10"	250RBXc1631	550	21.65	559	22.01	146	322
250	10"	250RBXc2531	550	21.65	565	22.24	156	344
300	12"	300RBXc1631	646	25.43	715	28.13	250	550
300	12"	300RBXc2531	646	25.43	723	28.46	267	588

VALVE SELECTION FROM GRAPH

All the relevant information has been condensed into one graph to enable valve selection to be simple and easy and at the same time to allow flexibility to the designer to move within certain parameters which eventually allows the most suited and economically viable valve to be selected.

IMPORTANT NOTE: The graph is based on vacuum breaking and limiting vacuum to 0.34 bar (5 psi) below atmospheric. It is not good practice to go below 0.69 bar (10 psi) absolute (0.303bar (4.4 psi) differential in pipeline at sea level). The graph allows for change in altitude and hence change in atmospheric pressure and is based on the assumption that more than one valve per section is used for vacuum protection and venting

ACTUAL SELECTION (GRAVITY OR PUMPED PIPELINES)

Selection is based on the premise that pipelines are generally filled at a slower rate than they are drained, scoured or at which separation occurs (a maximum fill/ drain ratio of 1:1).

1. Determine the maximum drainage rate in m/s either for scouring, pipe rupture or column separation for a particular pipeline section.
2. Move vertically on the graph from the m/s point and move horizontally from the pipe size finding the intersecting point.
3. This point should fall within the operating band of a particular valve size. Consideration must be given to the fact that the upper portion of the band approaches - 0.34 bar (5 psi) and the lower portion - 0.1 bar (1.45 psi) for each valve size, this allows the designer to see at a glance if the valve is too close to It's operating limits and to select the next valve size.

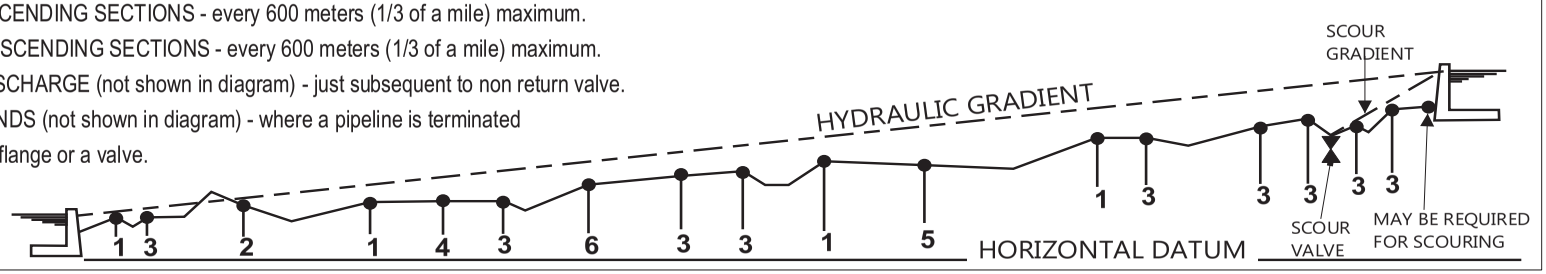
EXAMPLE OF VALVE SIZING (ASSUMMING AN INDIVIDUAL SECTION)

A ⌀ 400mm (16") pipeline draining at 377l/sec which equates to 3m/sec (10ft/s) what valve size should be selected?

From the 3m/sec (10ft/s) point, move vertically until the ⌀ 400mm (16") pipe size horizontal line is intersected. This places the intersection point squarely in the centre of the operating band of a DN80 (3") Vent -O- Mat RBXc valve. But, if for example, the drainage rate is 503l/sec which equates to 4m/sec (13.2ft/s), the valve would be operating on it's limit and it may be prudent to change to a DN100 (4") Vent -O- Mat RBXc.

VALVE POSITIONING

1. ON APEX POINTS (relative to hydraulic gradient).
2. 5 METERS (16 FEET) BELOW APEX POINTS FORMED BY INTERSECTION OF PIPELINE AND HYDRAULIC GRADIENT - i.e. where pipeline siphoning over gradient a air release valve positioned on the apex would break the siphon. If positioning on apex is required a modified VENT -O- MAT Series RBXc can be supplied.
3. NEGATIVE BREAKS (increase in downward slope or decrease in upward slope).
4. LONG HORIZONTAL SECTIONS - every 600 meters (1/3 of a mile) maximum.
5. LONG ASCENDING SECTIONS - every 600 meters (1/3 of a mile) maximum.
6. LONG DESCENDING SECTIONS - every 600 meters (1/3 of a mile) maximum.
7. PUMP DISCHARGE (not shown in diagram) - just subsequent to non return valve.
8. BLANK ENDS (not shown in diagram) - where a pipeline is terminated by a blind flange or a valve.



VENT-O-MAT®

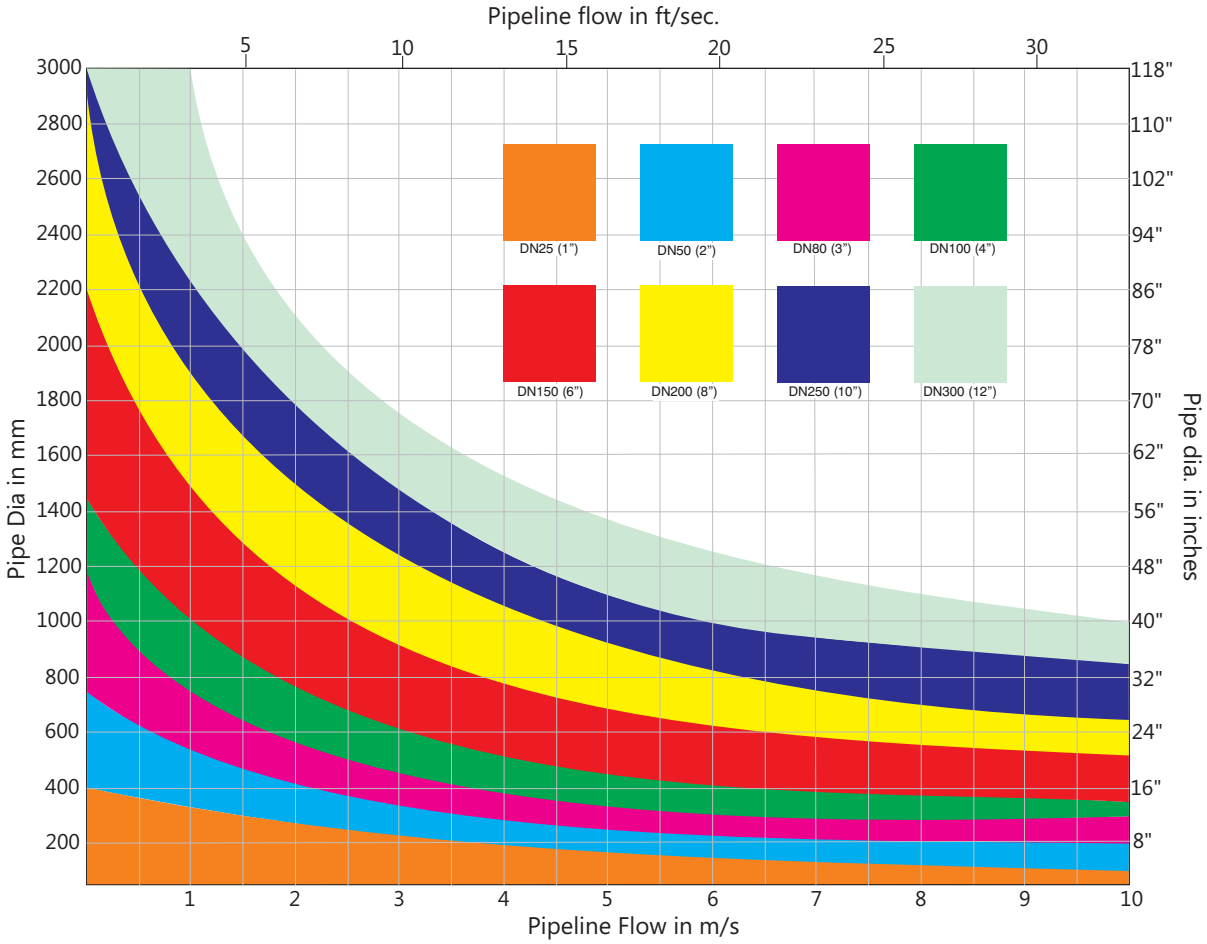
Series RBXc

SELECTION & POSITIONING

AVENG MANUFACTURING DFC

Revision Date: April 2014

SELECTION & POSITIONING



Pipe Dia	Pipeline Velocity in Metres per sec																			
mm	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
100	4	8	12	16	20	24	27	31	35	39	43	47	51	55	59	63	67	71	75	79
150	9	18	27	35	44	53	62	71	80	88	97	106	115	124	133	141	150	159	168	177
200	16	31	47	63	79	94	110	126	141	157	173	188	204	220	236	251	267	283	298	314
250	25	49	74	98	123	147	172	196	221	245	270	295	319	344	368	393	417	442	466	491
300	35	71	106	141	177	212	247	283	318	353	389	424	459	495	530	565	601	636	672	707
350	48	96	144	192	241	289	337	385	433	481	529	577	625	673	722	770	818	866	914	962
400	63	126	188	251	314	377	440	503	565	628	691	754	817	880	942	1005	1068	1131	1194	1257
450	80	159	239	318	398	477	557	636	716	795	875	954	1034	1113	1193	1272	1352	1431	1511	1590
500	98	196	295	393	491	589	687	785	884	982	1080	1178	1276	1374	1473	1571	1669	1767	1865	1963
550	119	238	356	475	594	713	832	950	1069	1188	1307	1425	1544	1663	1782	1901	2019	2138	2257	2376
600	141	283	424	565	707	848	990	1131	1272	1414	1555	1696	1838	1979	2121	2262	2403	2545	2686	2827
650	166	332	498	664	830	995	1161	1327	1493	1659	1825	1991	2157	2323	2489	2655	2821	2986	3152	3318
700	192	385	577	770	962	1155	1347	1539	1732	1924	2117	2309	2501	2694	2886	3079	3271	3464	3656	3848
750	221	442	663	884	1104	1325	1546	1767	1988	2209	2430	2651	2872	3093	3313	3534	3755	3976	4197	4418
800	251	503	754	1005	1257	1508	1759	2011	2262	2513	2765	3016	3267	3519	3770	4021	4273	4524	4775	5027
850	284	567	851	1135	1419	1702	1986	2270	2554	2837	3121	3405	3688	3972	4256	4540	4823	5107	5391	5675
900	318	636	954	1272	1590	1909	2227	2545	2863	3181	3499	3817	4135	4453	4771	5089	5407	5726	6044	6362
950	354	709	1063	1418	1772	2126	2481	2835	3190	3544	3899	4253	4607	4962	5316	5671	6025	6379	6734	7088
1000	393	785	1178	1571	1963	2356	2749	3142	3534	3927	4320	4712	5105	5498	5890	6283	6676	7069	7461	7854
1100	475	950	1425	1901	2376	2851	3326	3801	4276	4752	5227	5702	6177	6652	7127	7603	8078	8553	9028	9503
1200	565	1131	1696	2262	2827	3393	3958	4524	5089	5655	6220	6786	7351	7917	8482	9048	9613	10179	10744	11310
1300	664	1327	1991	2655	3318	3982	4646	5309	5973	6637	7300	7964	8628	9291	9955	10619	11282	11946	12610	13273
1400	770	1539	2309	3079	3848	4618	5388	6158	6927	7697	8467	9236	10006	10776	11545	12315	13085	13854	14624	15394
1500	884	1767	2651	3534	4418	5301	6185	7069	7952	8836	9719	10603	11486	12370	13254	14137	15021	15904	16788	17671
1600	1005	2011	3016	4021	5027	6032	7037	8042	9048	10053	11058	12064	13069	14074	15080	16085	17090	18096	19101	20106
1700	1135	2270	3405	4540	5675	6809	7944	9079	10214	11349	12484	13619	14754	15889	17024	18158	19293	20428	21563	22698
1800	1272	2545	3817	5089	6362	7634	8906	10179	11451	12723	13996	15268	16540	17813	19085	20358	21630	22902	24175	25447
1900	1418	2835	4253	5671	7088	8506	9924	11341	12759	14176	15594	17012	18429	19847	21265	22682	24100	25518	26935	28353
2000	1571	3142	4712	6283	7854	9425	10996	12566	14137	15708	17279	18850	20420	21991	23562	25133	26704	28274	29845	31416
2100	1732	3464	5195	6927	8659	10391	12123	13854	15586	17318	19050	20782	22513	24245	25977	27709	29441	31172	32904	34636
2200	1901	3801	5702	7603	9503	11404	13305	15205	17106	19007	20907	22808	24709	26609	28510	30411	32311	34212	36113	38013
2300	2077	4155	6232	8310	10387	12464	14542	16619	18696	20774	22851	24929	27006	29083	31161	33238	35315	37393	39470	41548
2400	2262	4524	6786	9048	11310	13572	15834	18096	20358	22619	24881	27143	29405	31667	33929	36191	38453	40715	42977	45239
2500	2454	4909	7363	9817	12272	14726	17181	19635	22089	24544	26998	29452	31907	34361	36816	39270	41724	44179	46633	49087
2600	2655	5309	7964	10619	13273	15928	18583	21237	23892	26546	29201	31856	34510	37165	39820	42474	45129	47784	50438	53093
2700	2863	5726	8588	11451	14314	17177	20039	22902	25765	28628	31491	34353	37216	40079	42942	45804	48667	51530	54393	57256
2800	3079	6158	9236	12315	15394	18473	21551	24630	27709	30788	33866	36945	40024	43103	46181	49260	52339	55418	58496	61575
2900	3303	6605	9908	13210	16513	19816	23118	26421	29723	33026	36329	39631	42934	46236	49539	52842	56144	59447	62749	66052
3000	3534	7069	10603	14137	17671	21206	24740	28274	31809	35343	38877	42412	45946	49480	53014	56549	60083	63617	67152	70686

Conversion Table l/sec. to m/sec. of Pipeline Velocity

SURGE & WATERHAMMER PROTECTION

Introduction

The Vent-O-Mat Series RBXc "Anti-Surge" air release and vacuum break valve, is an evolution of market feedback and the incorporation of the already proven Vent-O-Mat technology which itself resulted from years of extensive research. The valve unlike many others is not just an adaption of an air valve to handle sewage, but the result of over 30 years of dealing with water and seeing what works and adapting it to the needs of the end user.

Surge Protection - Initial Filling

The RBXc is always biased in the "Anti-Surge" mode meaning all air release is controlled through the “Anti-Surge” Orifice which is aerodynamically engineered to throttle air discharge when liquid approach velocity would otherwise become too great and induce an unacceptable pressure rise. The air throttling action increases resistance to the flow of the approaching liquid which consequently decelerates to a velocity which reduces the pressure rise when the valve closes (see operation of valve on pages 3). Vent-O-Mat series RBXc is an essential precaution for pipeline priming.

Surge Protection - Pump Trip Conditions

In instances where a pipeline experiences liquid column separation due to pump stoppage, high shock pressures can be generated when the separated liquid column rejoins.

The Vent-O-Mat series RBXc takes in air through the unobstructed large orifice when liquid column separation occurs, but controls the discharge of air through the "Anti-Surge" Orifice as the separated column commences to rejoin. The rejoining impact velocity is thereby considerably reduced to alleviate high surge pressures in the system (see operation of valve on page 3).

Other surge control measures may, dependant on pipeline profile, diameter and operating conditions, be needed to provide the primary surge alleviation function with the Vent-O-Mat air-valves forming an integral and valuable addition in a combined strategy for further reducing surge pressures. The benefit of the "Anti-Surge" Orifice can be readily demonstrated by suitable surge modelling software.

Surge Protection - Pipeline Operating

The operation of valves and similar flow control devices can cause high-pressure transients in an operating pipeline.

The unique, single chamber design of the Vent-O-Mat series RBXc valve enables a pocket of air to be trapped in the valve chamber. Automatic operation of the small orifice contrpol float regulates the volume of air entrapped.

The volume maintained in the valve will provide a cushioning benefit to the pipeline for short duration transient pressure "spikes". This effect can be modelled by the design engineer using suitable surge software.

Computer Modelling

The effectiveness of Vent-O-Mat “Anti-Surge” technology has been substantiated by independent third party testing and by thousands of applications globally. Effective computer modelling, based on practical tests, has been ensured in the well-known and respected commercially available surge analysis software programmes such as AFT impulse, FLOWMASTER, Watham and SURGE 2000.

Technical and Financial Benefits

1. Improved alleviation of surge behaviour including reduction of:
   - Surge pressure magnitudes by slowing surge velocities
   - Duration of oscillation following a pump trip, as the air-valve continuously absorbs and dissipates the energies of the surge.
2. Potential for reduction in size and/or quantity of conventional surge protection devices such as surge vessels etc.
3. Automatic protection during initial filling when most surge protection devices are not operational.
4. Holistic protection as each sewage air valve installed has design features to automatically damp surges.
5. The valve is virtually maintenance free.

PURCHASE SPECIFICATION

VENT -O- MAT MODEL NO.
Page 7 - Series RBXc - DN25 (1") or DN50 (2") with NPT, Screwed Female Connection
Page 8 - Series RBXc - DN80 (3") or DN300 (8") Flanged Connection

CONSTRUCTION & DESIGN
The air release & vacuum break valve shall be of the compact single chamber design with solid cylindrical H.D.P.E. control floats housed in a tubular ductile cast iron body, epoxy powder coated to 300 microns, secured by means of stainless steel 304 or 316 fasteners.

The valve shall have an integral 'Anti - Shock' Orifice mechanism which shall operate automatically to limit transient pressure rise or shock induced by closure to 1.5 x valve rated working pressure.
The intake orifice area shall be equal to the nominal size of the valve i.e., a 150mm (6") valve shall have a 150mm (6") intake orifice.

Large orifice sealing shall be effected by the flat face of the control float seating against a EPDM rubber 'O' ring housed in a dovetail groove circumferentially surrounding the orifice.

Discharge of pressurized air shall be controlled by the seating & unseating of a small orifice nozzle on a EDPM rubber seal affixed into the control float. The nozzle shall have a flat seating land surrounding the orifice so that the damage to the rubber seal is prevented.

The valve construction shall be proportioned with regard to material strength characteristics, so that deformation, leaking or damage of any kind does not occur by submission to twice the designed working pressure.

Connection to the valve inlet shall be facilitated by a screwed BSP (ISO R7) or NPT female end (DN25 (1") & DN50 (2") only) or a flanged end conforming to PN10, 16 & 25 ratings of BS 4504 or SABS 1123 Standards or, ANSI B16. 1 Class 150 & 300. **Nuts, bolts, washers, or jointing gaskets shall be excluded.**

The valve construction shall be proportioned with regard to material strength characteristics, so that deformation, leaking or damage of any kind does not occur by submission to 1.5 times the designed working pressure.

Provision of ½'' NPT Test/Bleed Port is included.

OPERATION
1. Prior to the ingress of liquid into the valve chamber, as when the pipeline is being filled, valves shall vent through the"Anti-Surge" orifice at all times.

2. Valves shall be tested and not exhibit leaks or weeping of liquid past the large orifice seal at operating pressures of 0,5 bar (7.2 psi) to 1.5 x valve rated working pressure.

3. When the pipeline is fully charged valves shall respond to the presence of air/gas by discharging it through the small orifice at the pressures within the specified design range, and shall remain leak tight in the absence of air.

4. Valves shall react immediately to pipeline drainage or liquid column separation by the full opening of the large orifice so as to allow unobstructed air intake at the lowest possible negative internal pipeline pressure.

ORDERING GUIDE

050 RB X c 25 3 1

VALVE SIZE:
DN25 (1") - 025
DN50 (2") - 050
DN80 (3") - 080
DN100 (4") - 100
DN150 (6") - 150
DN200 (8") - 200
DN250 (10") - 250
DN300 (12") - 300

VALVE SERIES No:

ANTI SHOCK ORIFICE:

CAST BODY:

VALVE TYPE:
DOUBLE ACTING 1

VALVE END CONNECTION:
SCREWED - BSP 1
SCREWED - NPT 2
FLANGED - BS 4504 OR SABS 1123 0
FLANGED - ANSI B16. 5 3

VALVE PRESSURE RATING:
276 psi, ANSI#150 16
363 psi, ANSI#300 25

TEST SPECIFICATION

All air release valves supplied shall be subjected to the following testing procedures in the order laid down:
(A) A high pressure strength and leak test whereby the valve is filled with water and pressurized to 1.5 times the rated working pressure which shall be held for a period of 2 minutes. Any leaking, weeping or sweating shall be reason for rejection.

(B) A low head leak test whereby the valve is filled with water and pressurized to a maximum of 0.5 bar (7.3 psi) using a visible water column connected to the test rig. The valve shall be rejected if leak tightness is not maintained for 2 minutes

(C) Every tenth air release valve of the same size and pressure rating must be subjected to a small orifice function test - "DROP TEST" - whereby the valve is filled with water, pressurized to above rated working pressure and isolated from the test rig by closure of an isolating valve. A chamber in the test rig immediately prior to the isolating valve must be filled with compressed air at a pressure equal to that being maintained in the air release valve. The isolating valve is then opened so as to allow the air to rise in the air release valve without the pressure dropping lower than 2 - 3 bar (29 - 44 psi) above rated working pressure of the air release valve. The "DROP TEST" is then carried out by slowly bleeding off the pressure through a suitable cock until rated working pressure is reached and the float drops away from the orifice to allow discharge. Failure of the air release valve to function in the manner described will be reason for rejection.

On request the manufacturer shall provide batch certificates of test compliance which shall be cross referenced to serial numbers indelibly marked onto the identity label of each valve.

IMPORTANT NOTE: It is impossible to inject air into an incompressible liquid, air injection can only be achieved if the liquid can be displaced which implies that the pressure in the test rig must be reduced to atmospheric, and absolutely nothing is proven by discharge through the small orifice of the air release valve at atmospheric pressure. "DROP TESTING" in this manner is not acceptable.

VENT-O-MAT®

Series RBXc

AVENG MANUFACTURING DFC

Complete the form below for any additional information and fax/post to:

Vent-O-Mat USA
1342-A Charwood Road
Hanover
MD
21076
USA

Tel: +1-410-850-4404 **Fax: +1-410-850-4464**

E Mail: ventomat@rfvalve.com **Web site: www.ventomat.us**

Company Name: _____

Postal Address: _____

_____

Postal Code: _____ **Country:** _____

Tel: _____ **Fax:** _____

Contact Name: _____ **Title:** _____

Comments:

_____

_____

Products you are interested in:

VENT-O-MAT® Series RBX Air Release & Vacuum Break Valves ☐
compact single chamber design with integral "Anti-Shock" surge dampening mechanism in a choice of other materials

VENT-O-MAT® Series RGX Series Air Release & Vacuum Break Valves ☐
compact Stainless Steel or Ductile Iron single chamber design with integral "Anti-Shock" surge dampening mechanism for sewage applications

VENT-O-MAT® Series RC Air Release & Vacuum Break Valves ☐
Ductile Iron air valve for irrigation and small reticulation systems.

VENT-O-MAT® Series RPS Air Release & Vacuum Break Valves ☐
glass reinforced polypropylene CATT air valve for industrial, irrigation and small reticulation systems.

LevelDex® **High Performance Endline Level Control Valves** ☐
end line valve with cushioned closing characteristics for level control in tanks and reservoirs.