

THC Air / Dirt Separators

flow rates

up to **1200 m³/h**
(5415 US gpm)

minimum operating pressure

1,5 bar (22 psi)

Best solutions for heating & cooling systems
with "Air / Dirt Separators"



features:

- Prevent your heating boiler from dirt and scales coming from the system
- Protects your chiller from blocking by particles / dirt
- Increase efficiency to the boiler
- Automatic remove all microbubbles
- Save energy, remove all rust scales, no maintenance, protects your pumps
- Remove particles down to 5 microns
- Constant pressure drop

INTRODUCTION

Air in heating and air conditioning systems

The presence of it in heating and cooling water systems causes the following problems :

- Noise
- Increased energy consumption
- Higher maintenance costs
- Corrosion
- Damage of pumps
- Loss of efficiency
- Reduce heat transfer

Causes of air occurrence in heating / air conditioning systems

- Air is present before filling the system
- Air is trapped in the system when filled
- Air is entrained in main water when filling the system
- Air is dissolved in water when the system is filled

The presence of air dissolved in water can be explained by reference to **Henry's Law**

Henry's Law states that **$C = K \times P$**

C = Concentration of dissolved air

K = Absorption factor (dependent on temperature)

P = Pressure



Air separator and Coalescence effect

The operation of TIMEX separators is based on the concept of coalescence. This means in practice that small bubbles tend to adhere to a surface, and then grow together to form larger bubbles.

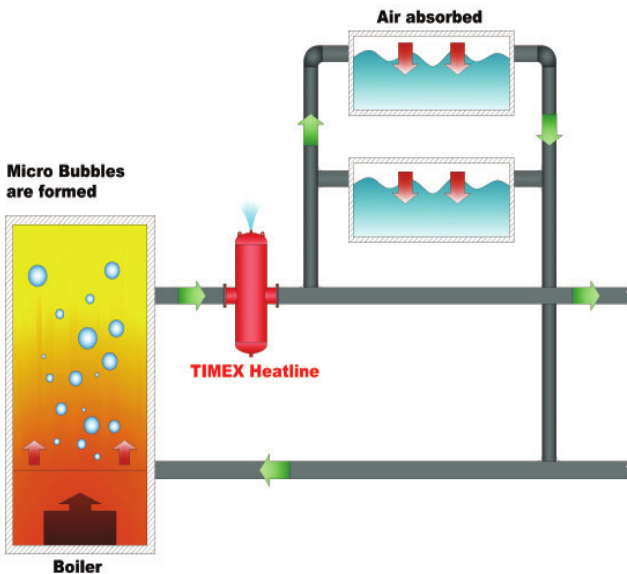
When a stream of water flows past and through the "Spiral wound candle tubes", the microscopically small air bubbles present in water attach themselves to the contact surface of the "Spiral tubes". Once these micro bubbles have grown to form larger bubbles, they can be separated from water.

The adhesion of air bubbles after which they grow and become separable is known as "Coalescence".

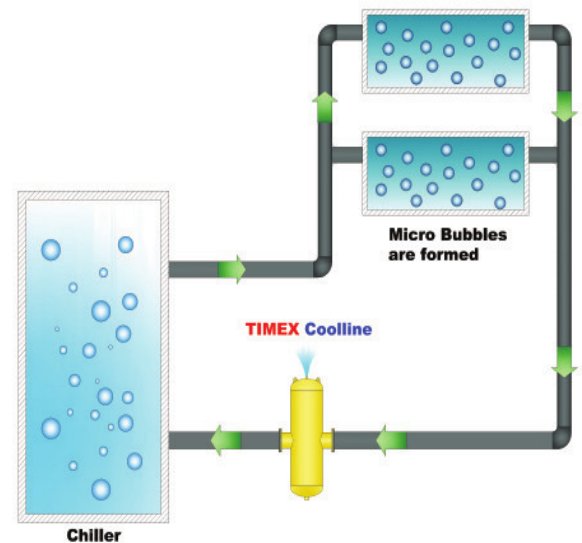
The velocity with which water flows into the separator will be greatly reduced as result of enlargement of flow passage. The larger air bubbles are thus given time and opportunity to rise upwards to air chamber. As the same time, the stream of water collides with the Times spiral tube present. As a result, all gas containing water particles are brought into contact with the entire Timex spiral tube contact surface. Even the smallest micro bubbles present in water will adhere to the surface of the Timex spiral tubes. By Coalescence effect as mentioned before, the micro bubbles will then adhere to the standstill Timex spiral tubes surface and then get larger and larger to separate, and eventually rise to the upper air chamber. The air vent on the top will then expel air to outside.

TIMEX Micro Bubbles Deaerator and Dirt Separator of “HEATLINE / COOLLINE” are ONLY way for removing micro bubbles & particles / dirt from your systems.

- For Heating System



- For Cooling System



- ***Prevent your heating boiler from dirt and scales coming from the system***
- ***Protect your chiller from blocking by particles / dirt***
- ***Increase efficiency to the boiler***
- ***Automatic remove all micro bubbles***
- ***Save energy, remove all rust scales, no maintenance, protects your pumps***
- ***Remove particles down to 5 microns***
- ***Constant pressure drop***

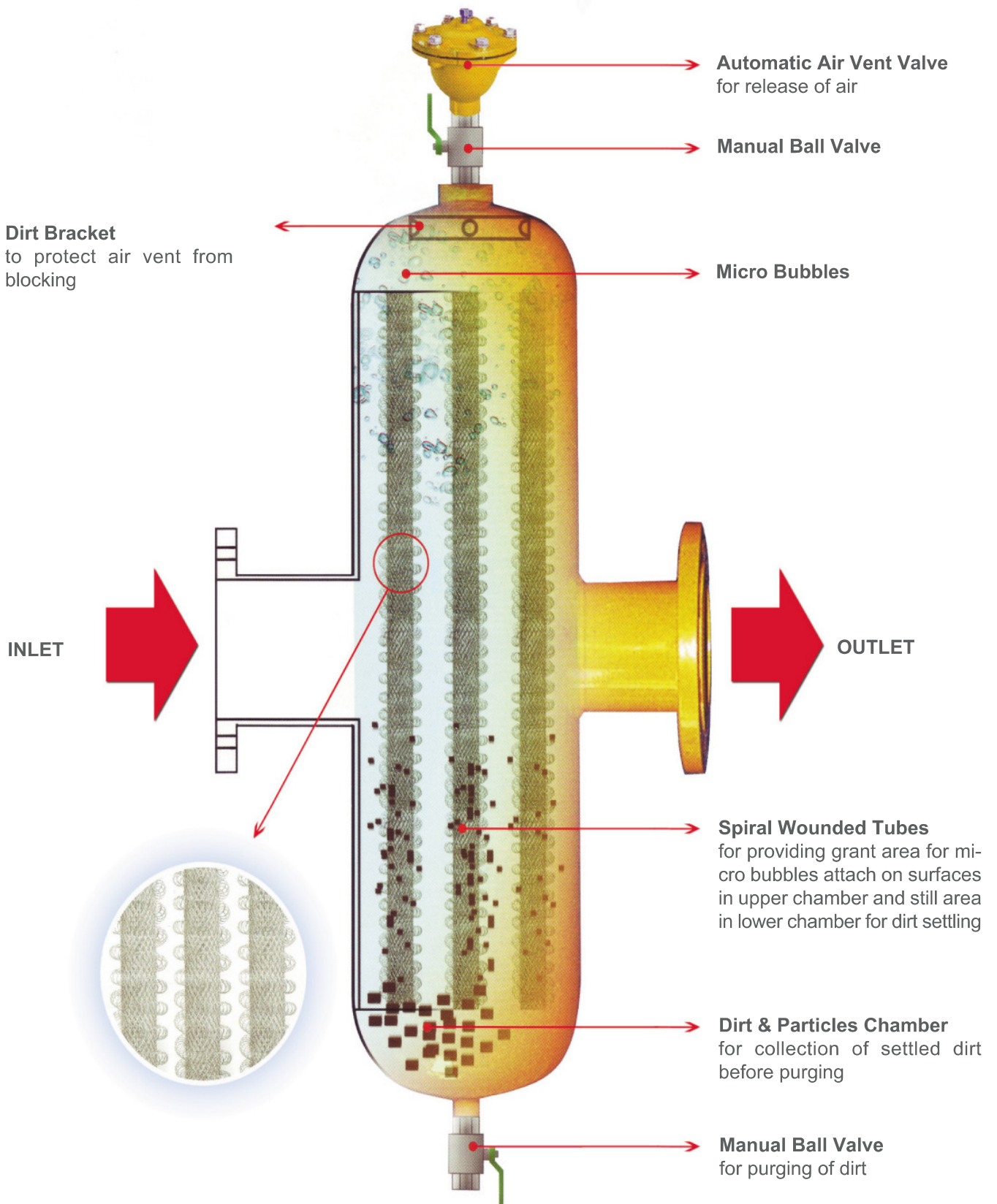
Normally, release the micro bubbles or gas, it is based on Henry's Law. This physical law states the solubility of gases in water usually decrease with temperature with increasing and/or pressure decreasing. Therefore, air is most easily liberated from the water as the temperature increases or the temperature decreases. TIMEX Micro Bubble Deaerator and Dirt Separator makes use of this theory to develop an advance equipment applicable in deaeration and dirt separator system.

The TIMEX Micro Bubble Deaerator and Separator must be installed at the hottest point in the system. As the micro bubbles are most easily liberated at the hottest point in the system. In order to obtain the optimal efficiency, the HEATLINE / COOLLINE deaerator and separator must be positioned where the static head is minimal in the system, as well.

The Advantages Of TIMEX Spiral Wounded Tubes

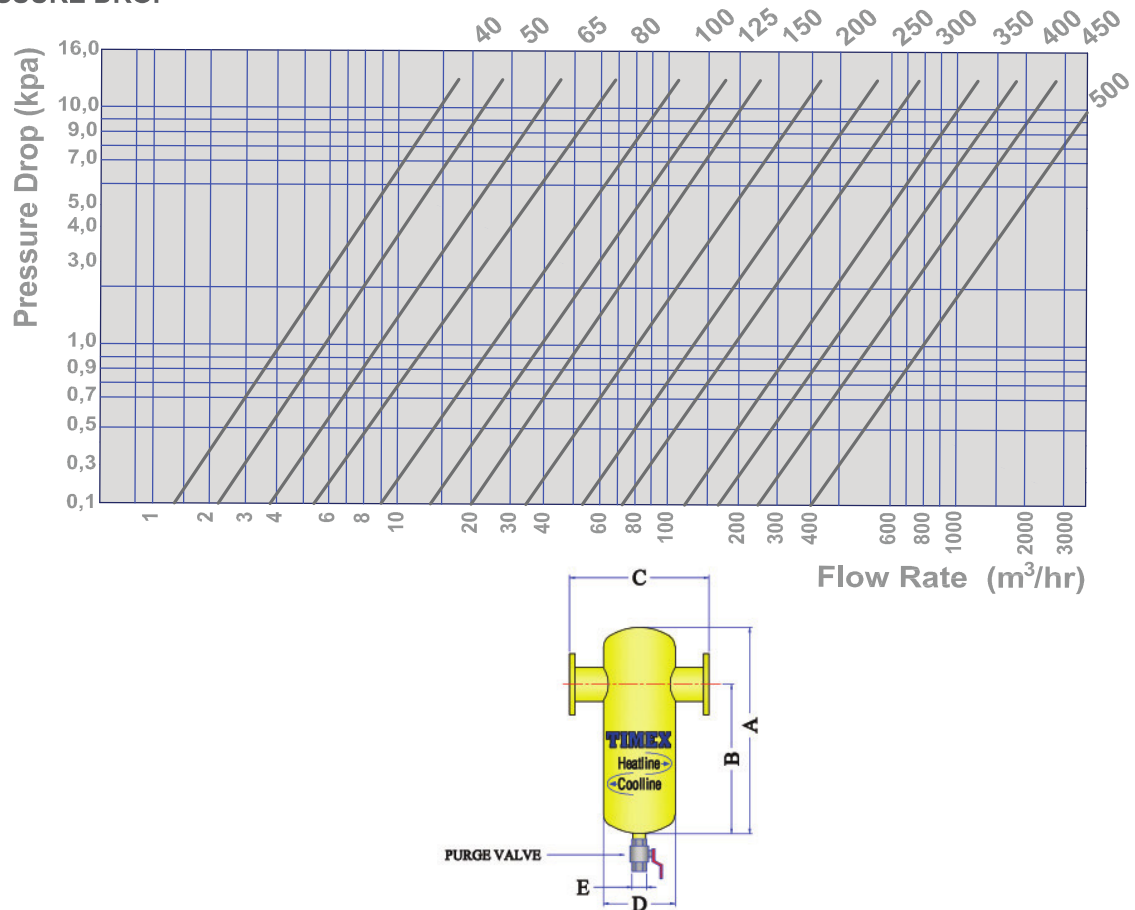
- It is the most important component in the unit. It allows the micro bubbles to attach on the surface of candles with the coalescence effect, micro bubbles will form larger & larger eventually separates from water to vent.
- It is made from stainless steel mesh and spiral type design, to provide a very grant and still area to incoming water from ease of separation.

HEATLINE & COOLLINE WORKING PRINCIPLE



DIRT SEPARATOR TECHNICAL SPECIFICATIONS

PRESSURE DROP



Standart Unit rated at 1.5 m/sec

THC Size (DN) mm		40	50	65	80	100	125	150	200	250	300	350	400	450	500
Flow Rate @ 1.5 m/sec	m ³ /h	8	12	20	30	47	72	105	175	275	390	470	615	860	1290
Overall Height mm.	A	380	400	400	520	520	700	700	920	1160	1400	1750	1980	2100	2500
Bottom To Center mm.	B	260	280	280	385	385	510	510	660	845	1025	1250	1450	1470	1750
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	25	25	25	25	25	40	40	40	40	40	40	40	40	50
Weight	kg	14	16	18	30	32	66	70	128	240	410	530	655	000	000

High Capacity Unit rated at 3 m/sec

THC Size (DN) mm		40	50	65	80	100	125	150	200	250	300	350	400	450	500
Flow Rate @ 3 m/sec	m ³ /h	15	24	42	60	96	144	210	345	555	780	940	1230	1722	2583
Overall Height mm.	A	530	560	560	720	720	980	980	1260	1670	2000	2460	2780	2966	3520
Bottom To Center mm.	B	420	440	440	570	570	800	800	1010	1350	1630	1980	2250	2076	2464
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	25	25	25	25	25	40	40	40	40	40	40	40	40	50
Weight	kg	16	18	20	36	38	80	83	153	295	525	660	820	000	000

Remarks :

Demountable flange version for cleaning of internal spiro tubes in lower part of body not shown. Overall size is same as above.

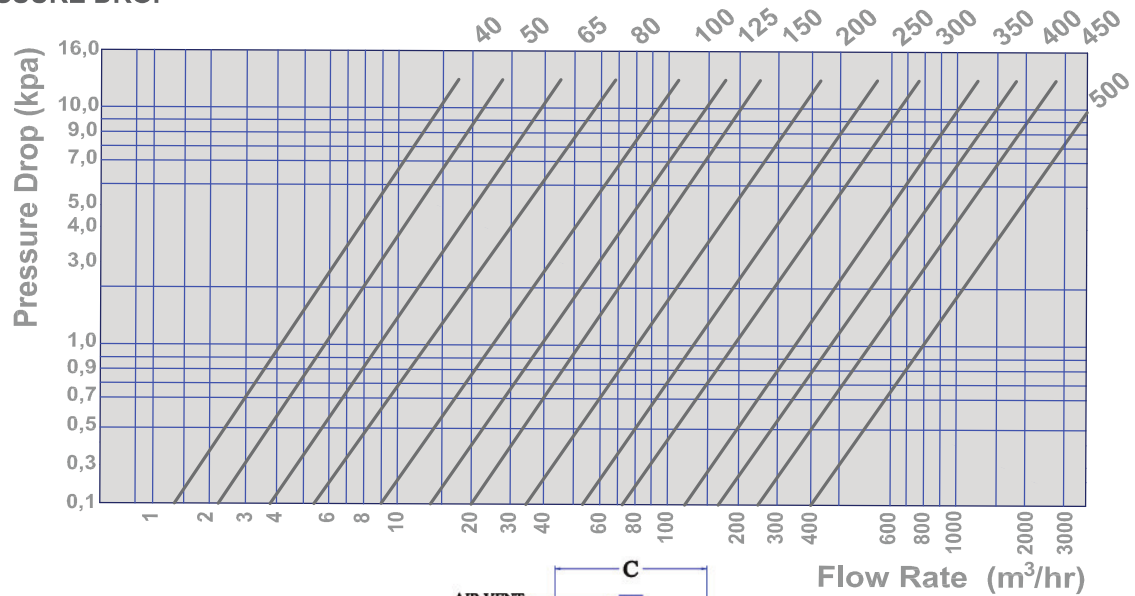
Operating pressure is designed at 10 bar. Higher operating pressure is available on request.

Body made of carbon steel, external surface is sand blasted and coated with epoxy coating. Other materials available on request. Internal spiro tube made of SS316 in standart, other materials available on request. Flange connection comply to PN 10/16, other standart such as JIS and ANSI available on request.

Supporting legs, lifting lugs available on request.

AIR SEPARATOR TECHNICAL SPECIFICATIONS

PRESSURE DROP



Standart Unit rated at 1.5 m/sec

THC Size (DN) mm		40	50	65	80	100	125	150	200	250	300	350	400	450	500
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Flow Rate @ 1.5 m/sec	m³/h	8	12	20	30	47	72	105	175	275	390	470	615	860	1290
Overall Height mm.	A	380	400	400	520	520	700	700	920	1160	1400	1750	1980	2100	2500
Bottom To Center mm.	B	120	120	130	165	165	225	225	290	345	400	460	510	630	750
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	20	20	20	20	20	25	25	25	25	25	40	40	40	50
Weight	kg	14	16	18	30	32	66	70	128	240	410	530	655	000	000

High Capacity Unit rated at 3 m/sec

THC Size (DN) mm		40	50	65	80	100	125	150	200	250	300	350	400	450	500
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Flow Rate @ 3 m/sec	m³/h	15	24	42	60	96	144	210	345	555	780	940	1230	1722	2583
Overall Height mm.	A	530	560	560	720	720	980	980	1260	1670	2000	2460	2780	2966	3520
Bottom To Center mm.	B	120	120	130	165	165	225	225	290	345	400	460	510	890	1056
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	20	20	20	20	20	25	25	25	25	25	40	40	40	50
Weight	kg	16	18	20	36	38	80	83	153	295	525	660	820	000	000

Remarks :

Demountable flange version for cleaning of internal spiro tubes in upper part of body not shown. Overall size is same as above.

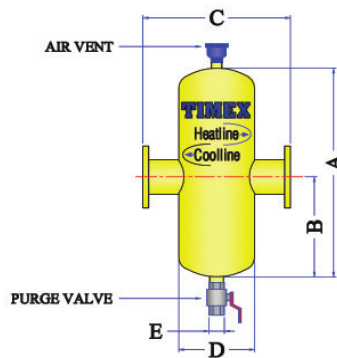
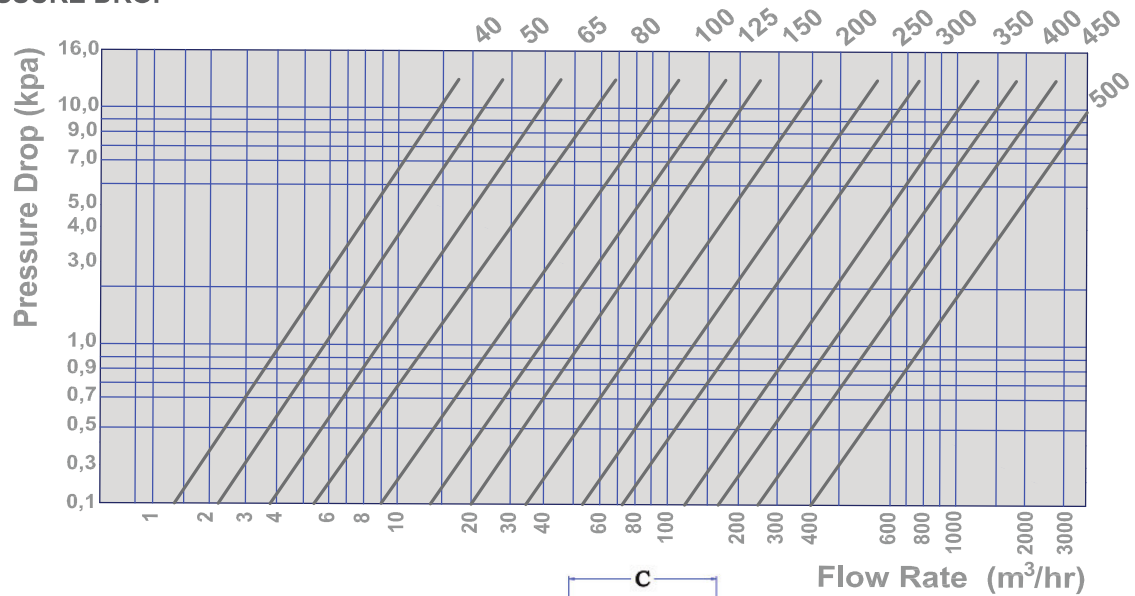
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Supporting legs, lifting lugs available on request.

AIR & DIRT SEPARATOR TECHNICAL SPECIFICATIONS

PRESSURE DROP



Standart Unit rated at 1.5 m/sec

THC Size (DN) mm	40	50	65	80	100	125	150	200	250	300	350	400	450	500
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Flow Rate @ 1.5 m/sec	m³/h	8	12	20	30	47	72	105	175	275	390	470	615	860	1290
Overall Height mm.	A	520	560	560	770	770	1020	1020	1320	1690	2050	2250	2500	2625	3125
Bottom To Center mm.	B	260	280	280	385	385	510	510	660	845	1025	1225	1250	1313	1563
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	25	25	25	25	25	40	40	40	40	40	40	40	40	50
Weight	kg	18	20	22	40	45	90	92	150	308	465	576	720	000	000

High Capacity Unit rated at 3 m/sec

THC Size (DN) mm	40	50	65	80	100	125	150	200	250	300	350	400	450	500
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Flow Rate @ 3 m/sec	m³/h	15	24	42	60	96	144	210	345	555	780	940	1230	1722	2583
Overall Height mm.	A	840	900	900	1140	1140	1600	1600	2020	2700	3260	3560	3900	3708	4400
Bottom To Center mm.	B	420	450	450	570	570	800	800	1010	1350	1630	1780	1980	1854	2200
Lenght mm.	C	320	320	320	440	440	600	600	720	810	920	1005	1100	0000	0000
Body Diameter mm.	D	168	168	168	219	219	324	324	406	508	610	660	710	813	914
Purge / Drain mm.	E	25	25	25	25	25	40	40	40	40	40	40	40	40	50
Weight	kg	16	18	20	36	38	80	83	153	295	525	660	820	000	000

Remarks :

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