Climate
Control

IMI Pneumatex

Zeparo Cyclone Max Stainless Steel

Automatic air vents and separators

Dirt and magnetite separators in stainless steel with Cyclonic technology, DN50 - DN300

Breakthrough
engineering for
a better world

Zeparo Cyclone Max Stainless Steel

Comprehensive range of products for sludge and magnetite separation in heating and cooling water systems. The number of potential applications as well as their modular construction is unique. Thanks to the cyclonic technology dirt separation efficiency is taken to the next level.

Key features

High efficiency independent of dimension

Separation efficiency increases together with flow velocity. The pressure drop remains stable regardless of the amount of dirt collected. Even higher protection for higher flows, e.g. in cooling applications. Suitable for heating and cooling installations.

Cleans and protects the installation

Protects critical investments such as boilers, pumps, valves, chillers, and calorie meters, from dirt-related malfunction and failure. No risk of clogging - the dirt collected can be easily and quickly flushed out with the help of the drain valve. Reduces maintenance and associated costs over entire system lifetime.

Stainless steel

Stainless steel is highly resistant against micro bacteria attacks, and ensures lower rates of bacterial buildup.
The smooth surfaces are more hygienic and easier to clean both internally and externally, while also reducing the adhesion of internal deposits.
Sludge and magnetite are washed and removed from the collection chamber far easier than in the case of the inferior iron/carbon steel version.

Technical description

Application:
Heating-, chilled-, and groundwater systems.

Media:
Demineralised water.
Ethylene or propylene glycol-based antifreeze up to 50%.

Pressure:
Max. admissible pressure, PS: 16 bar
Min. admissible pressure, PSmin: 0 bar

Temperature:
Max. admissible temperature, t_{Smax}: 110 °C
Min. admissible temperature, t_{Smin}: -10 °C

Material:
Stainless Steel AISI 316(L) - 1.4404.

Marking:
Body: flow direction arrow.
Label: DN, PN, t_{Smax} and t_{Smin}.

Connection:
Flanges PN16 according to EN 1092-1.

Transportation and storage:
In dry places.

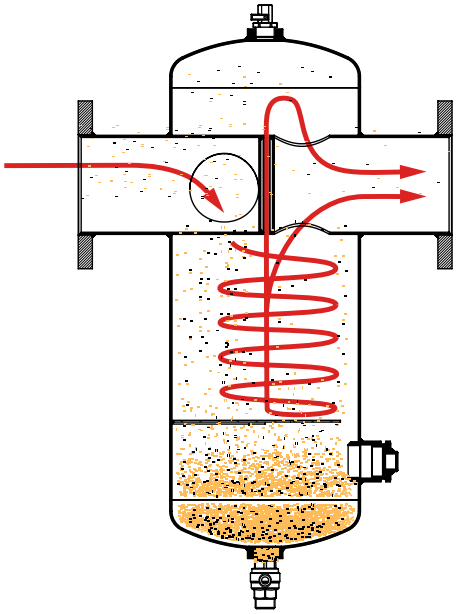
Standard:
Constructed according to PED 2014/68/EU.

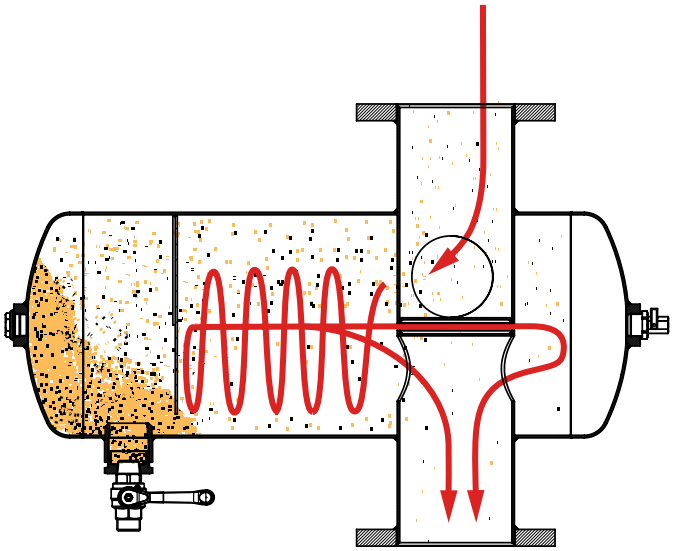
Separation principle

The cyclonic principle

The Zeparo Cyclone Max is based on a variety of principles that guarantee its high separation efficiency:

- Centrifugal forces - the cyclone creates a rotation within the Zeparo which results in additional forces on the dirt particles. The combination of gravitational and centrifugal forces result in high efficiency.
- Compared to the low gravity forces the centrifugal forces are significantly higher based on the speed inside the separator.
- The difference in density between the water and dirt particles (which have higher density) pushes the dirt particles to the outer wall of the Zeparo.
- Downwards stream: the downwards movement created within the Zeparo guides the dirt particles to the bottom and finally into the dirt collection chamber to be flushed out.





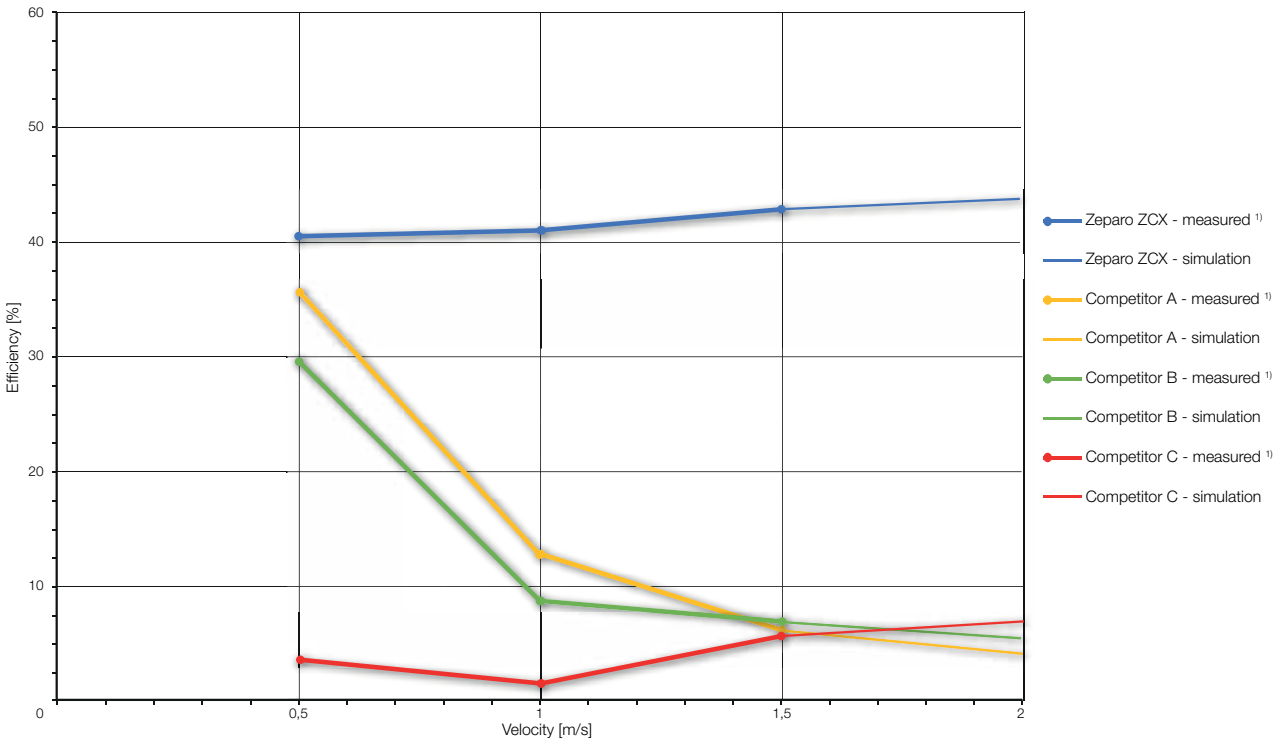
The cyclonic principle works regardless of installation, as the unit can be mounted in pipes running both horizontally, and vertically with a downward flow direction (see Page 6). The efficiency of the Zeparo Cyclone Max is highest when the separator chamber is positioned upright.

The optional ZCXM magnetic rod enhances separation performance, enabling the removal of magnetite particles down to 5 µm

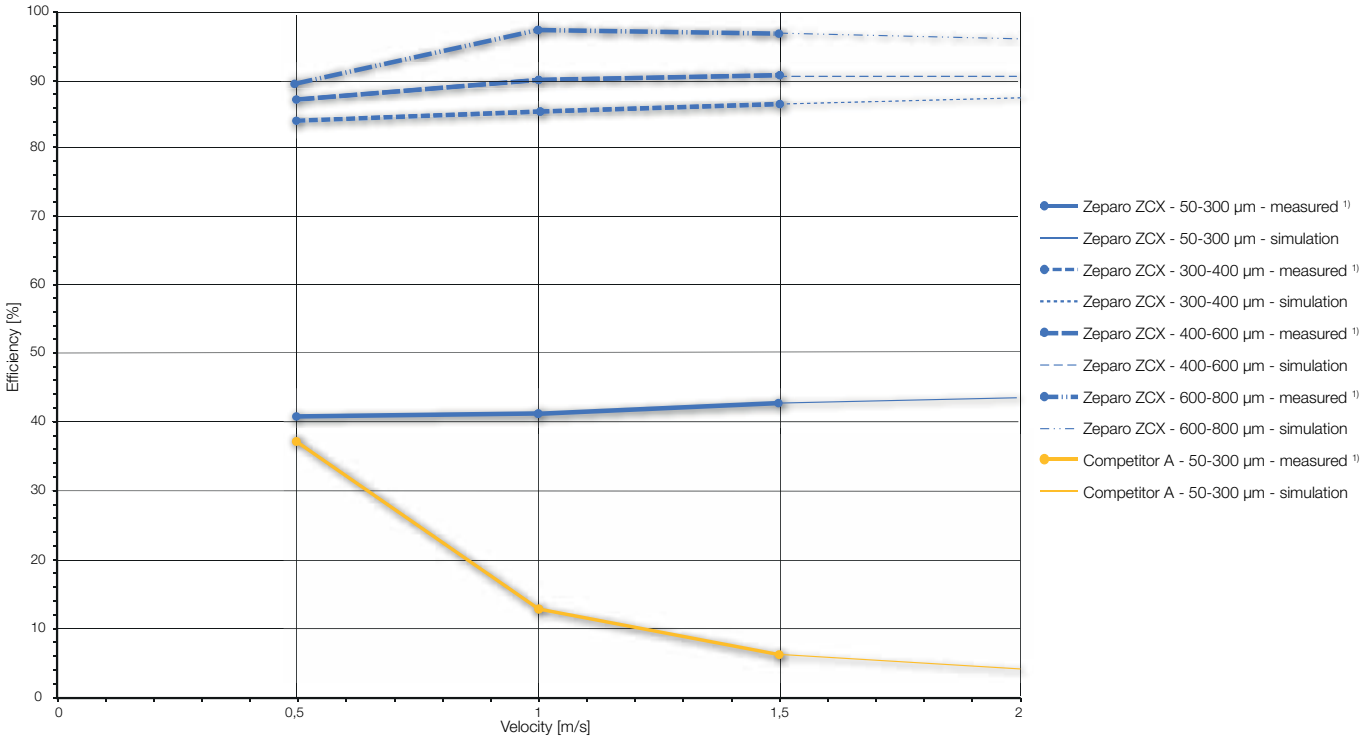
Separation efficiency

A comparison of the Zeparo Cyclone Max with separators featuring different technologies

Separator [2] DN65 - Glass particles 50-300 µm



Separator [2] DN65 - Glass particles with batch differentiation 50-800 µm

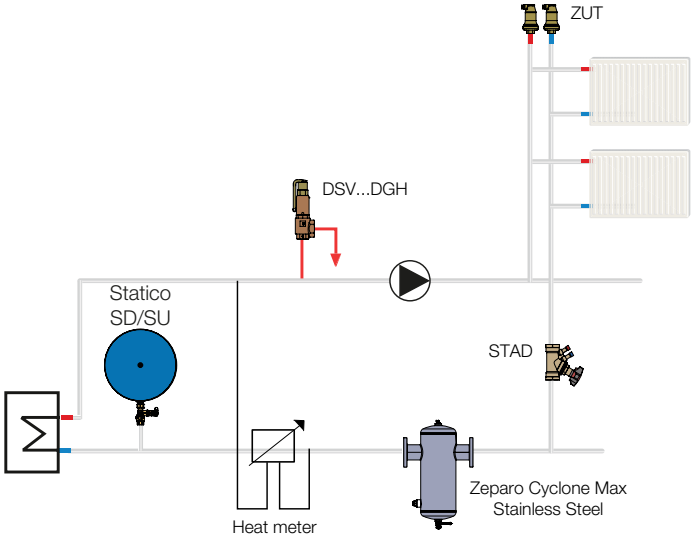


1) HLK Stuttgart GmbH, DAkkS Deutsche Akkreditierungsstelle D-PL-11026-01-00, Measured values according to test report No.: H.2412.P.817.IMI, 17th January 2025.

2) Horizontal installation, with the separation chamber positioned upright.

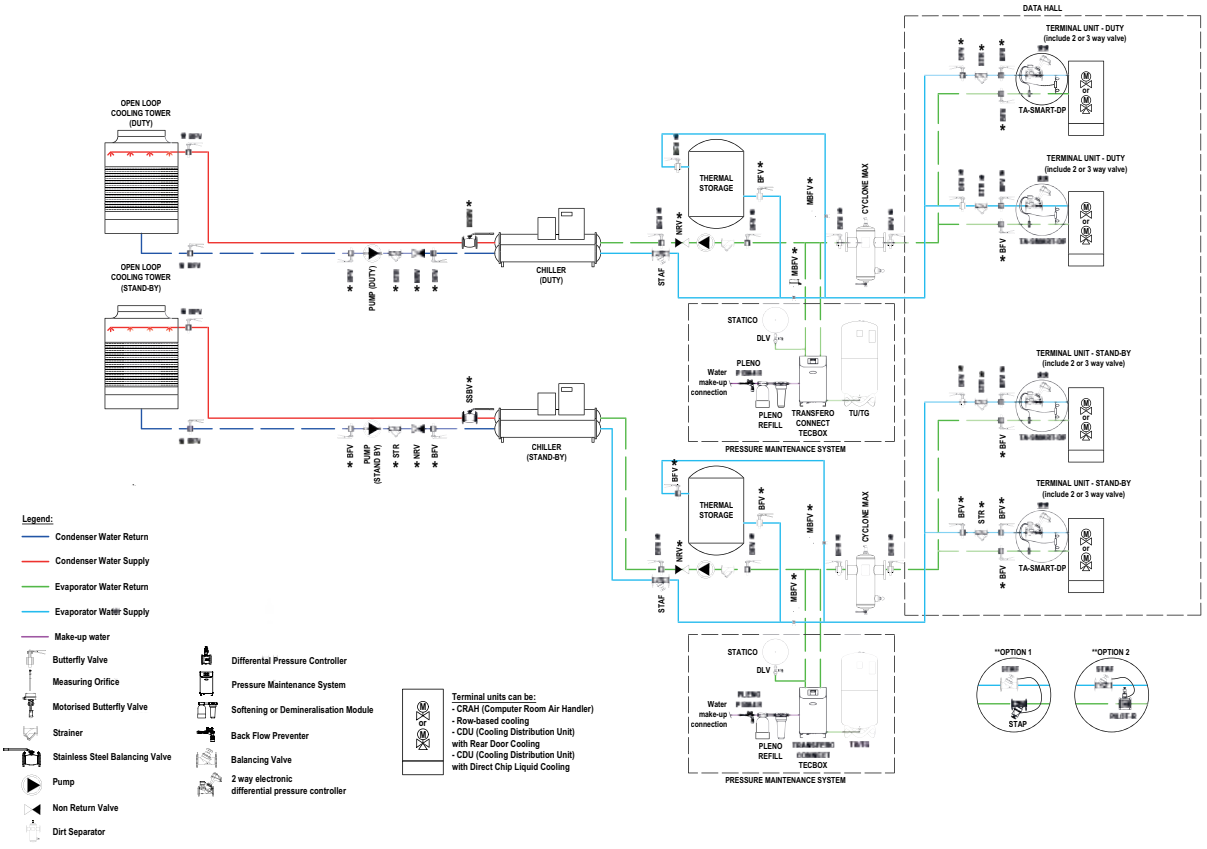
Application examples

System with heat exchanger

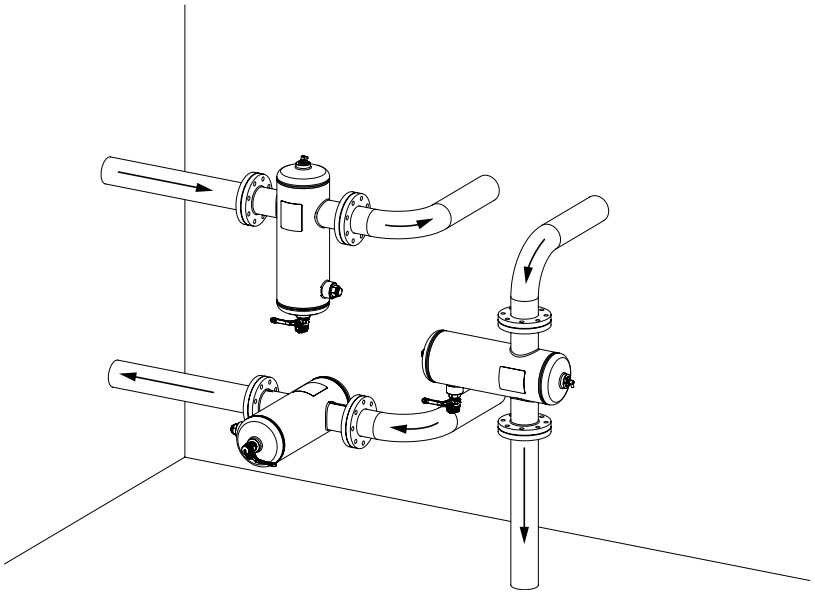


The Zeparo Cyclone Max Stainless should be mounted either on the return in front of the unit to be protected or directly in front of the energy source. There is no minimum upstream or downstream distance required for pipe bends etc. from the Zeparo Cyclone Max Stainless.

Data centers

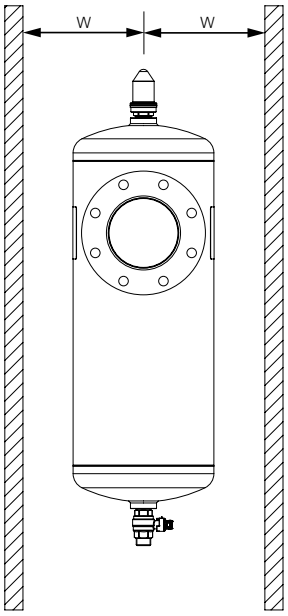


Installation



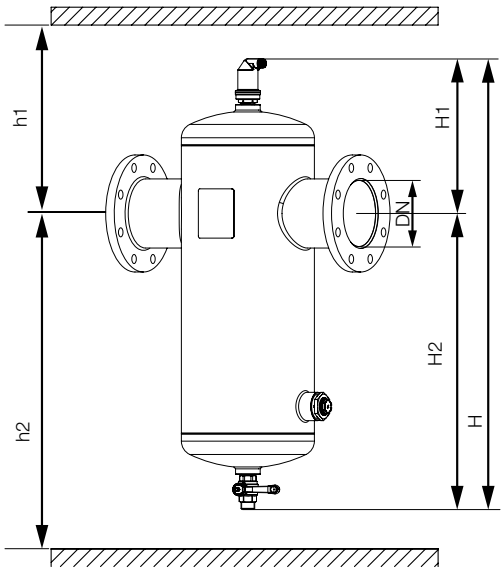
Wall distance **(all versions)**

Type	W	with insulation
ZCXIX 50	134	175
ZCXIX 65	134	175
ZCXIX 80	160	200
ZCXIX 100	160	200
ZCXIX 125	212	250
ZCXIX 150	212	250
ZCXIX 200	279	320
ZCXIX 250	355	395
ZCXIX 300	355	395



Wall-ceiling-floor clearances (with ZUTIX installed)

Type	DN	H	H1	H2	h1	h2
ZCXIX 50	50	780	330	450	580	700
ZCXIX 65	65	780	330	450	580	700
ZCXIX 80	80	920	360	560	610	810
ZCXIX 100	100	920	360	560	610	810
ZCXIX 125	125	1140	420	720	670	970
ZCXIX 150	150	1140	420	720	670	970
ZCXIX 200	200	1435	495	940	745	1190
ZCXIX 250	250	1685	555	1130	805	1380
ZCXIX 300	300	1835	595	1240	845	1490



For other dimensions, refer to section Articles.

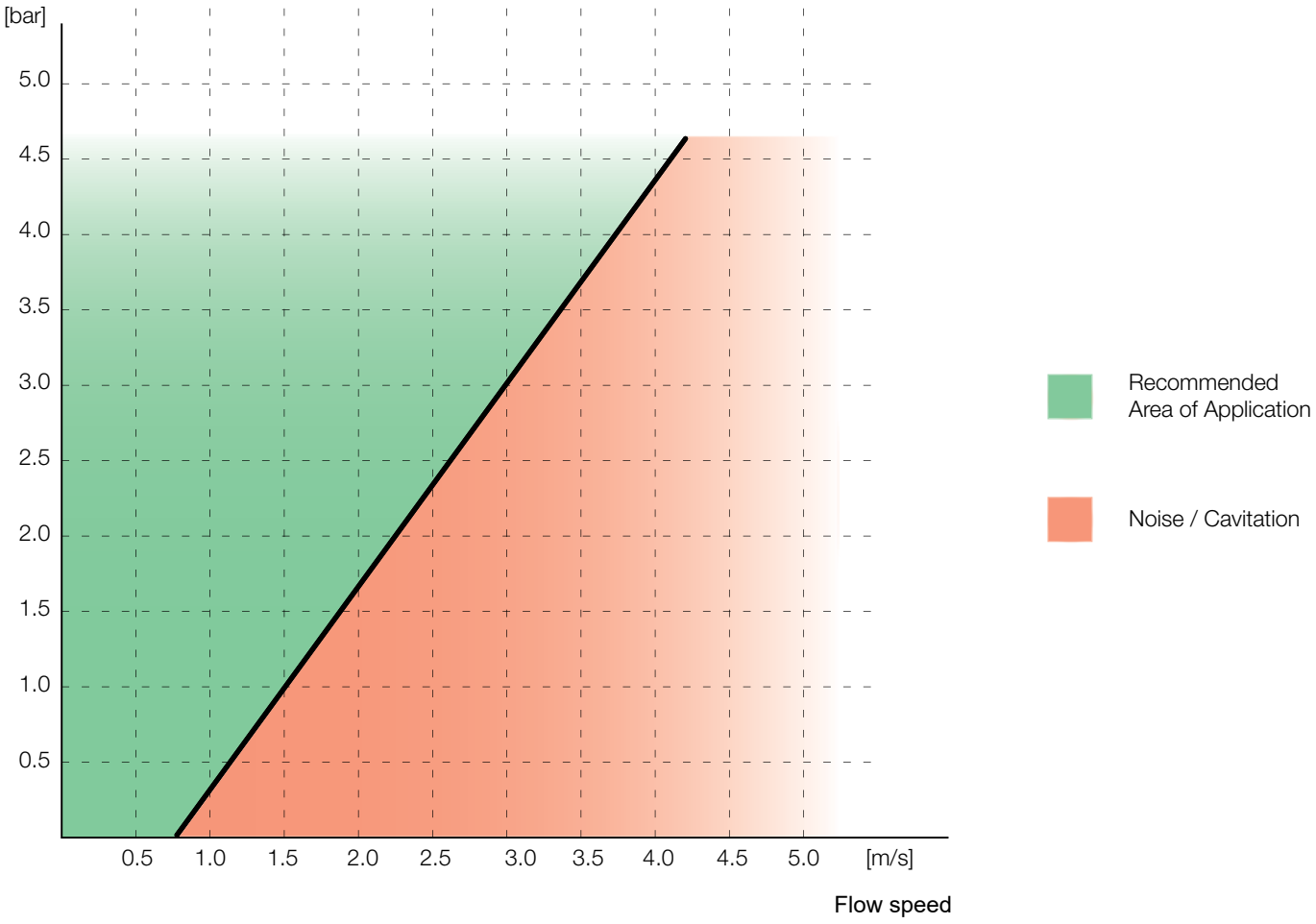
Volumes and Flows

DN	VN [l]	qN [m³/h]	q_{max} [m³/h]
50	11	6	24
65	11	11	40
80	23	18	56
100	24	33	95
125	70	58	148
150	73	93	216
200	175	184	375
250	370	336	575
300	430	535	815

VN = Nominal volume
qN = Nominal flow/flow rate
qN_{max} = Maximum flow

Minimum System Pressure

System Pressure

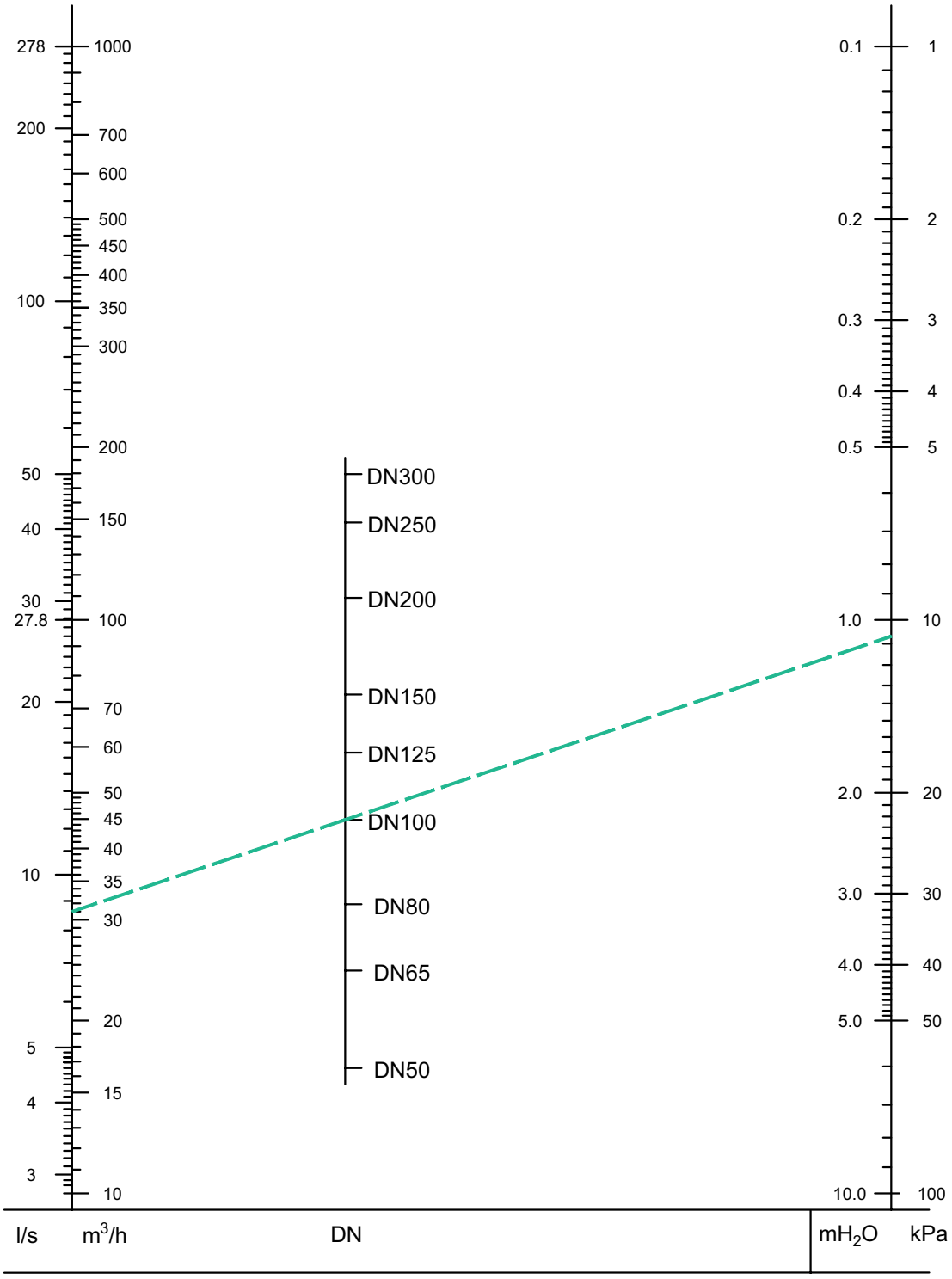


As seen in the above graph, at a flow speed of 2 m/s a minimum static+dynamic pressure of 1.7 bar must be maintained at the inlet of the Cyclone Max in order to avoid cavitation.

Quick selection

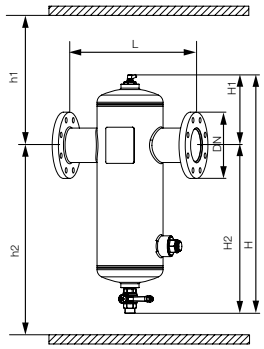
Heating

Example:
Heating system with a pipe DN 100 and 31 m³/h flow. Draw a line from the point 31 m³/h to required dimension DN 100 and read on the line for pressure drop 10,08 kPa.



Flow rate must not exceed the max flow rates of the relevant dimension.
For exact calculations please use HySelect software.

Articles

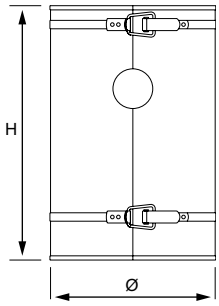


Flanged connection
Installation: horizonal, vertical (downward flow direction).

Type	DN	H	H1	H2	h1*	h2	L	q_N [m³/h]	q_{max} [m³/h]	Weight [kg]	Kvs [m³/h]	EAN	Article No
ZCXIX 50	50	665	215	450	465	700	350	6	24	19	21,3	7640161646568	303041-40900
ZCXIX 65	65	665	215	450	465	700	350	11	40	21	38,5	7640161646575	303041-41001
ZCXIX 80	80	805	245	560	495	810	470	18	56	29	57,1	7640161646407	303041-41101
ZCXIX 100	100	805	245	560	495	810	470	33	95	33	94,9	7640161646414	303041-41201
ZCXIX 125	125	1025	305	720	555	970	635	58	148	59	142,0	7640161646421	303041-41301
ZCXIX 150	150	1025	305	720	555	970	635	93	216	63	201,5	7640161646438	303041-41401
ZCXIX 200	200	1320	380	940	630	1190	775	184	375	167	361,0	7640161646445	303041-41501
ZCXIX 250	250	1570	440	1130	690	1380	890	336	575	240	570,0	7640161646452	303041-41601
ZCXIX 300	300	1720	480	1240	730	1490	1005	535	815	277	731,8	7640161646469	303041-41701

*) +115 when ZUTIX is used

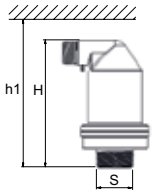
Accessories



Zeparo ZCXAI
Thermal insulation for Zeparo Cyclone Max and Zeparo Aero.
Heating water systems.

Type	DN	Ø	H	S*	Weight [kg]	EAN	Article No
ZCXAI 50/65	50/60	250	540	40	3,7	7640161646131	303040-70000
ZCXAI 80/100	80/100	300	680	40	7,3	7640161646148	303040-70001
ZCXAI 125/150	125/150	400	900	40	14,4	7640161646155	303040-70002
ZCXAI 200	200	535	1135	40	22,3	7640161646162	303040-70003
ZCXAI 250	250	690	1380	40	38,0	7640161646223	303040-70004
ZCXAI 300	300	690	1530	40	41,5	7640161646230	303040-70005

*) Insulation thickness
Additional dimensions available upon request.



Zeparo ZUTIX
External thread. Vertical installation.

Type	H	h1	m [kg]	S	dpu [bar]	EAN	Article No
ZUTIX 10	117	145	0,7	R3/8	16	7640161646674	789 0610
ZUTIX 15	119	145	0,7	R1/2	16	7640161646636	789 0615
ZUTIX 20	121	145	0,7	R3/4	16	7640161646643	789 0620
ZUTIX 25	124	150	0,7	R1	16	7640161646650	789 0625

The products, texts, photographs, graphics and diagrams in this document may be subject to alteration by IMI without prior notice or reasons being given. For the most up to date information about our products and specifications, please visit climatecontrol.imiplc.com.