

Climate  
Control

IMI Pneumatex

# Zeparo Cyclone Max Stainless



## Automatic air vents and separators

Dirt and magnetite separator in stainless steel  
with Cyclonic technology

DN50 - DN 150

# Zeparo Cyclone Max Stainless

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 calorimeters, 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:

Demineralsised 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.

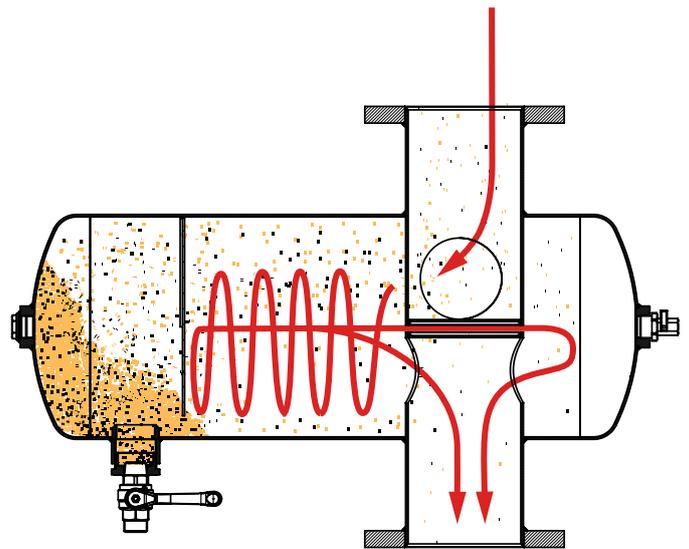
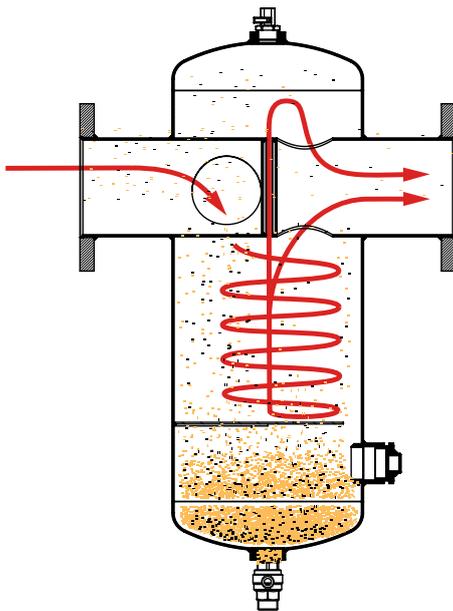
## Separation principle

### 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.

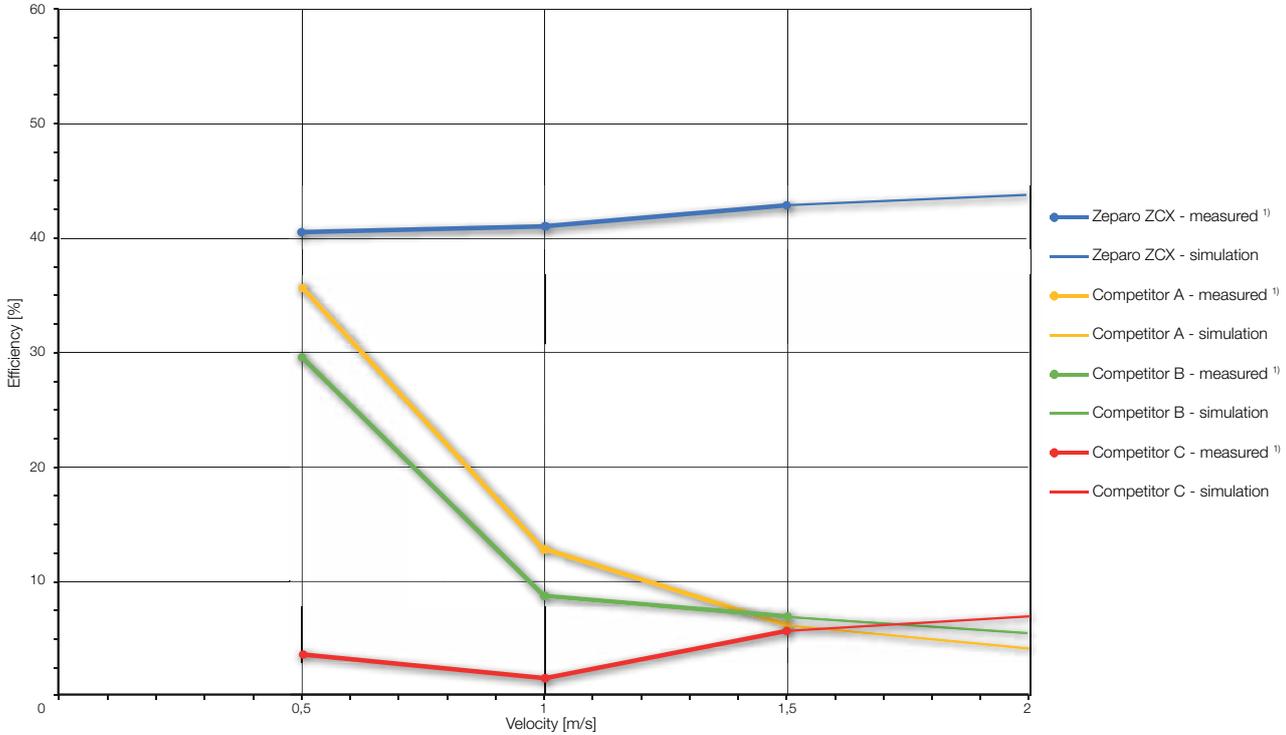


The cyclonic principle works regardless of placement. The separator can be mounted either horizontally, or vertically with a downward flow direction.

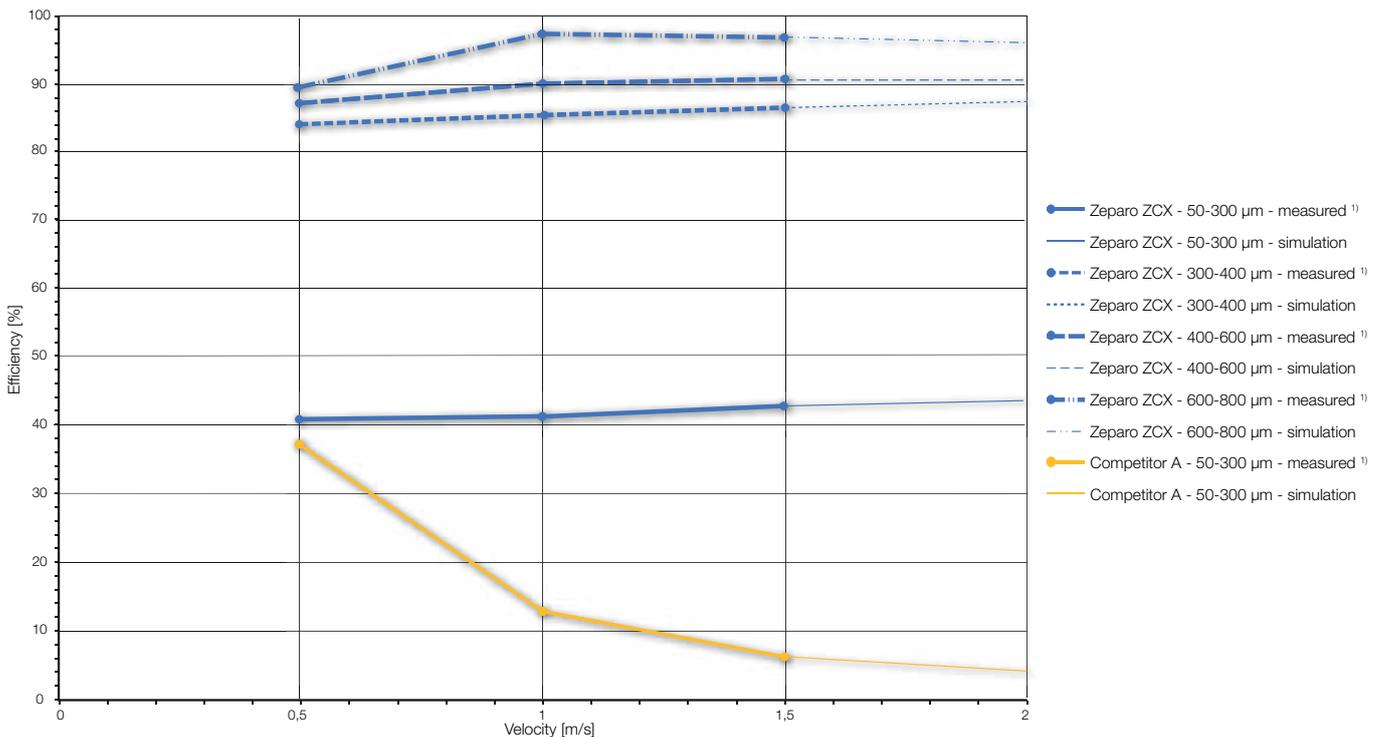
## Separation efficiency

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

Separator DN65 - Glass particles 50-300 µm



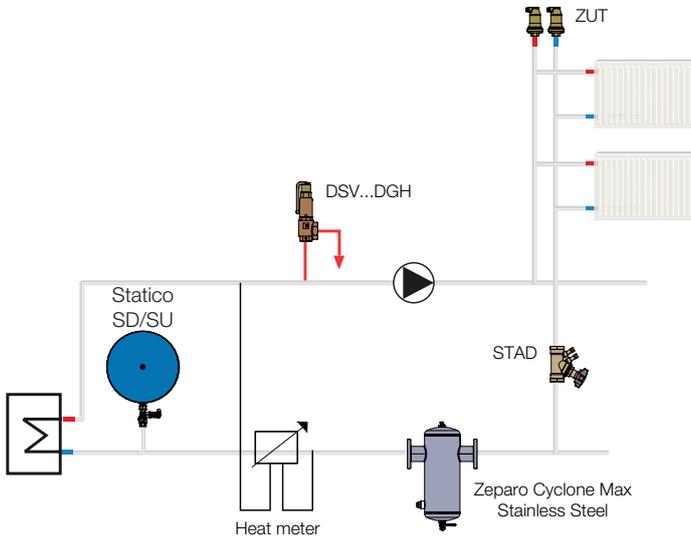
Separator DN65 - Glass particles with batch differentiation 50-800 µm



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.

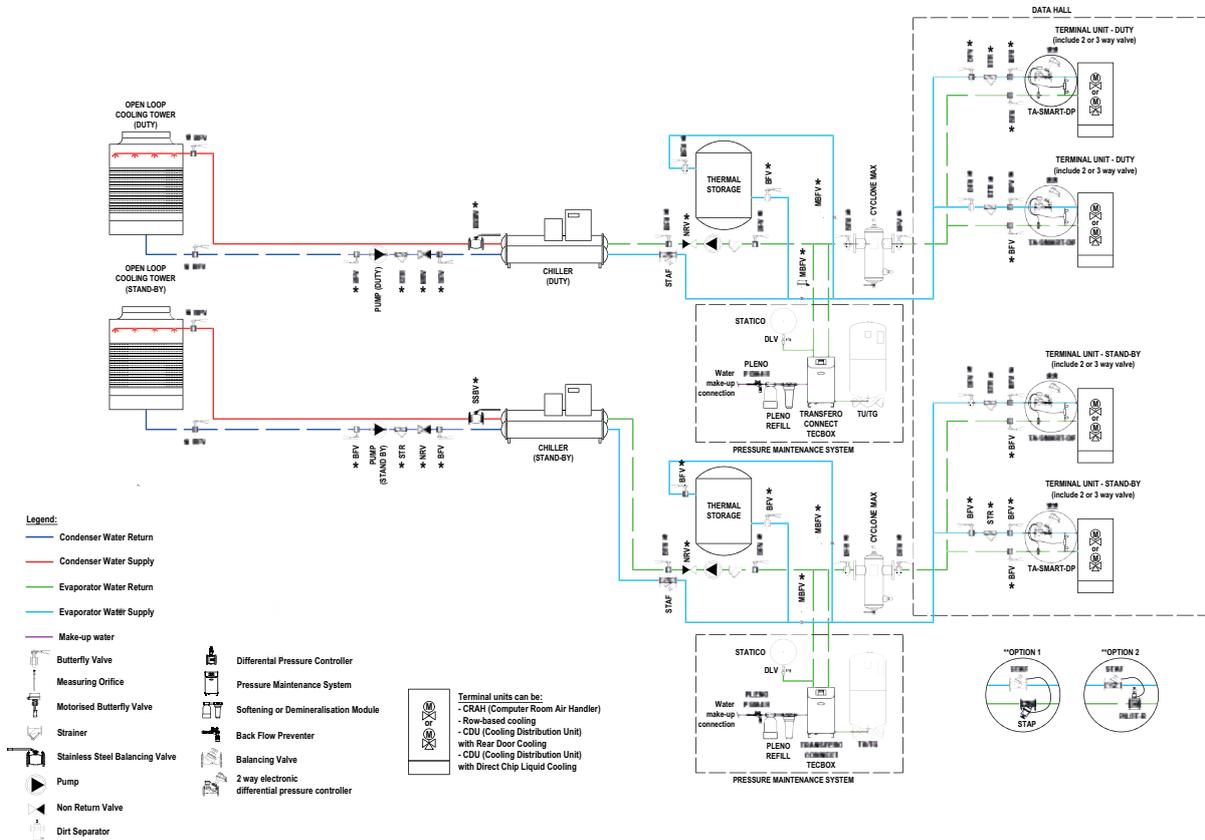
## Application examples

### System with heat exchanger

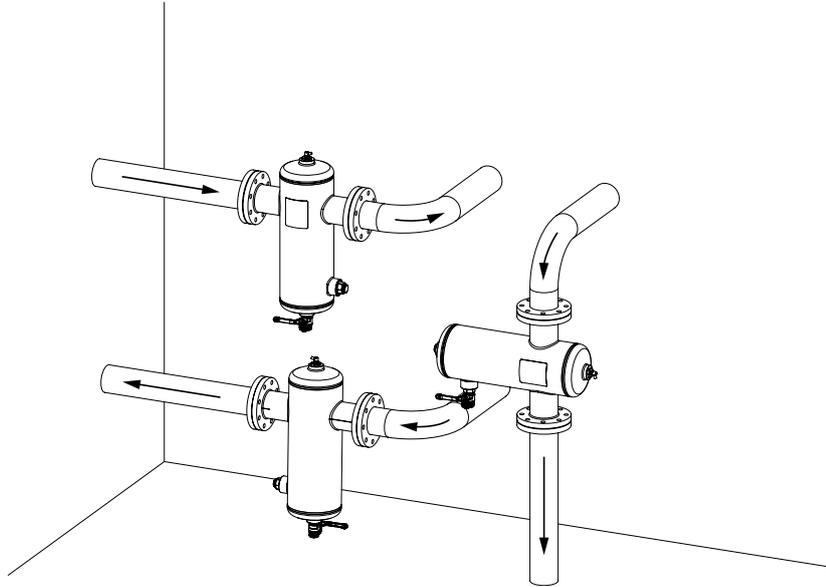


The Zeparo Cyclone Max Stainless should be mounted either on the return in front of the unit to be protected or directly in front of the energy source. There is no minimum upstream or downstream distance required for pipe bends etc. from the Zeparo Cyclone Max Stainless.

### Data centers

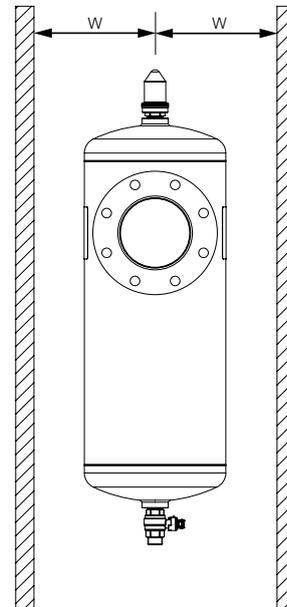


## Installation



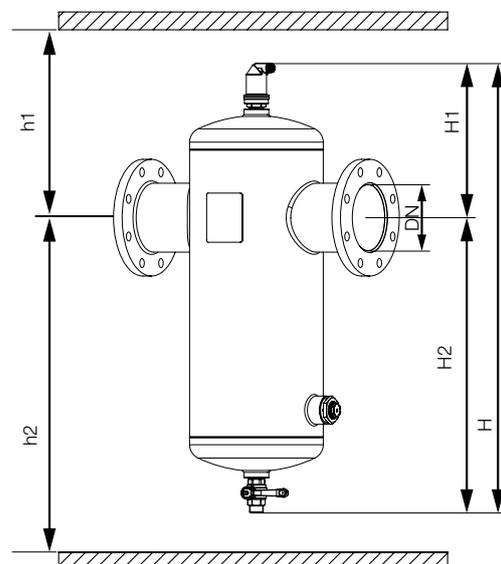
### Wall distance (all versions)

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



### Distances du mur-plafond-sol (avec ZUTIX installé)

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



For other dimensions, refer to section Articles.

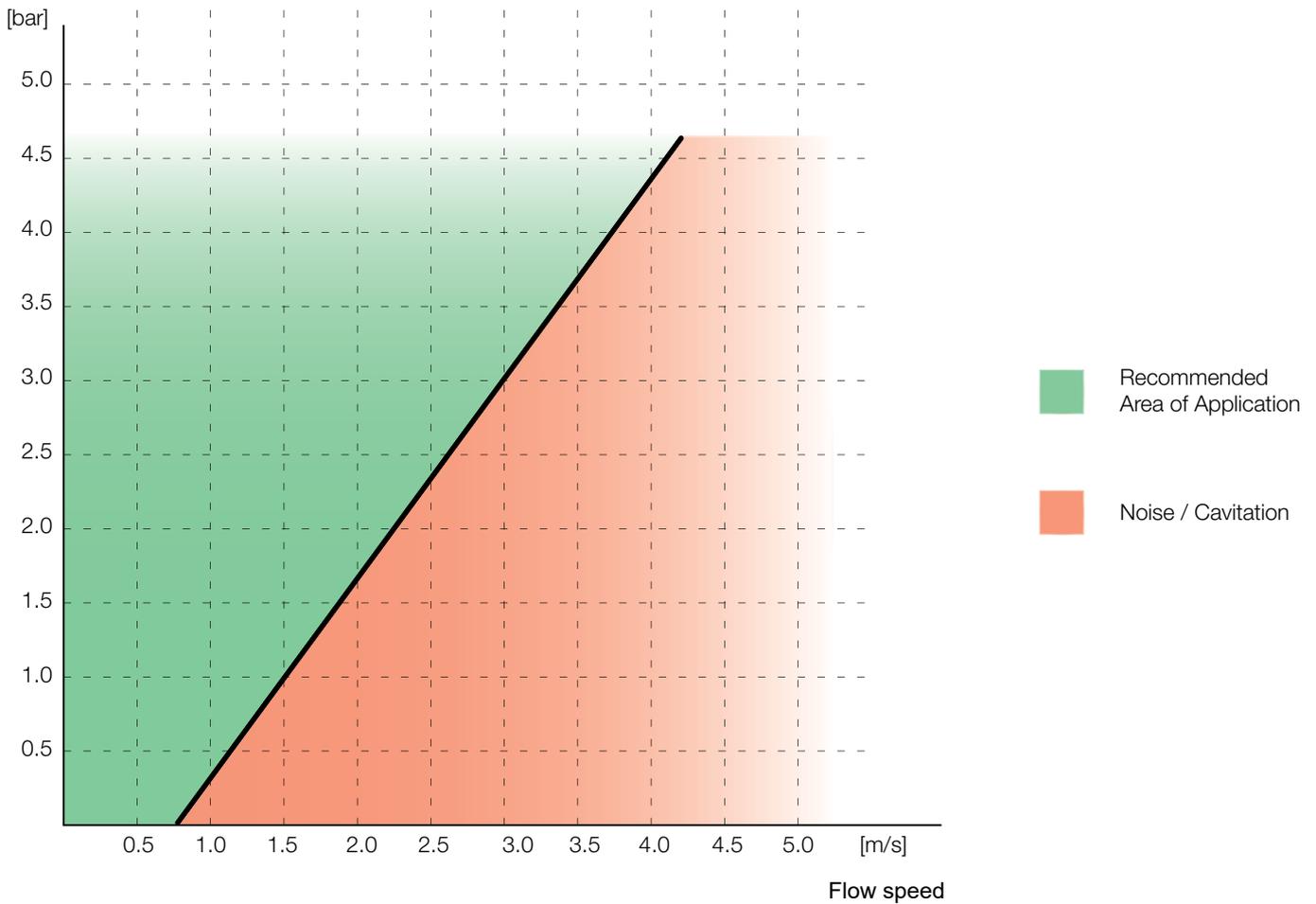
## Volumes and Flows

DN	VN [l]	qN [m <sup>3</sup> /h]	q <sub>max</sub> [m <sup>3</sup> /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

VN = Nominal volume  
 qN = Nominal flow/flow rate  
 qN<sub>max</sub> = Maximum flow

## Minimum System Pressure

System Pressure



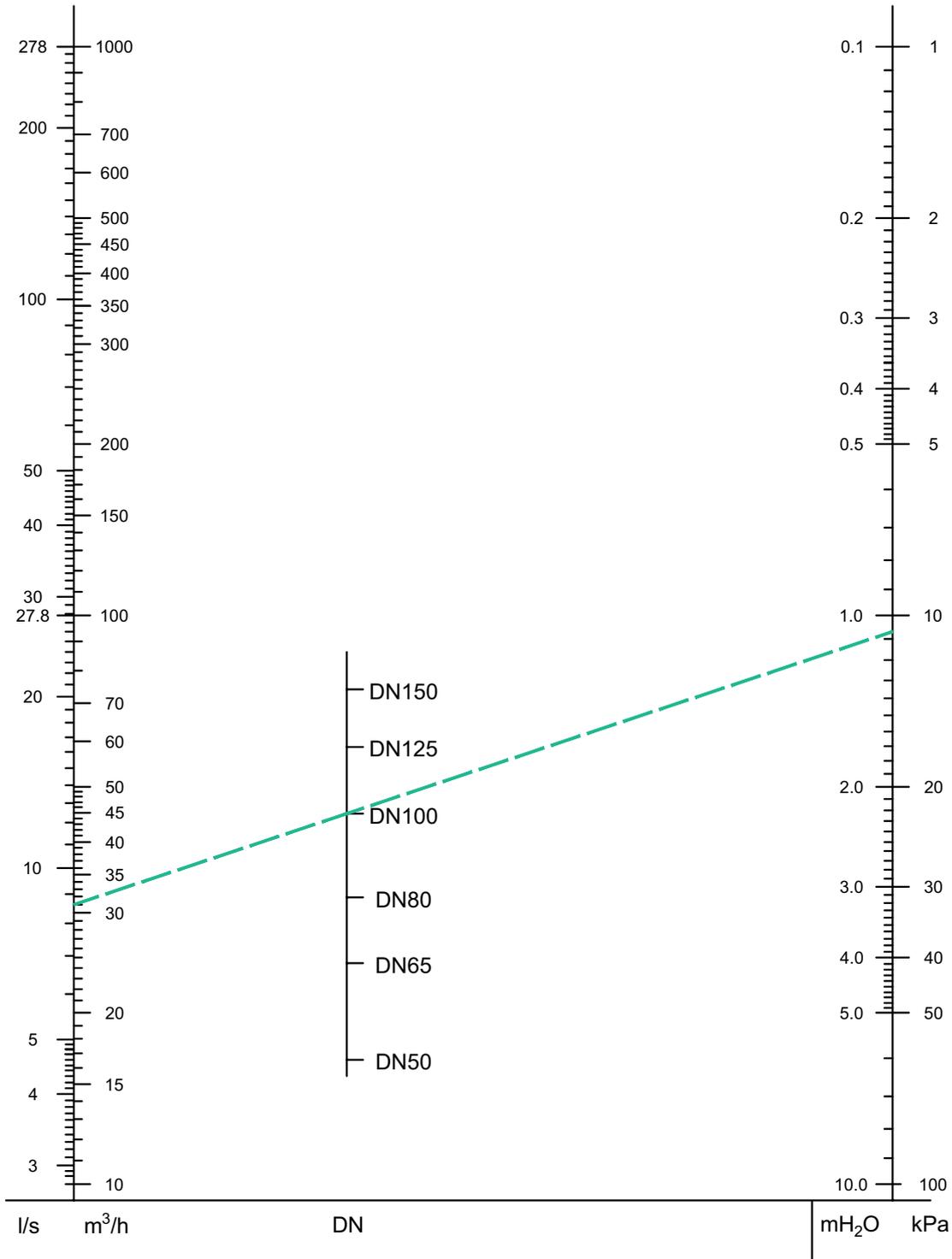
As seen in the above graph, at a flow speed of 2 m/s a minimum static+dynamic pressure of 1.7 bar must be maintained at the inlet of the Cyclone Max in order to avoid cavitation.

## Quick selection

### Heating

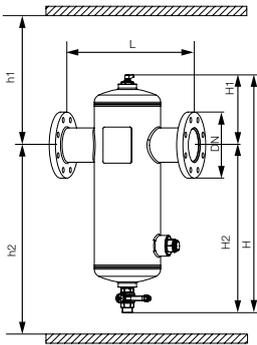
#### Example:

Heating system with a pipe DN 100 and 31 m<sup>3</sup>/h flow. Draw a line from the point 31 m<sup>3</sup>/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



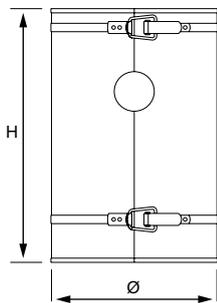
### Flanged connection

Installation: horizontal, vertical (downward flow direction).

Type	DN	H	H1	H2	h1*	h2	L	q <sub>N</sub> [m³/h]	q <sub>max</sub> [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

\*) +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

\*) Insulation thickness  
Additional dimensions available upon request.



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