# Reflex Ex separator

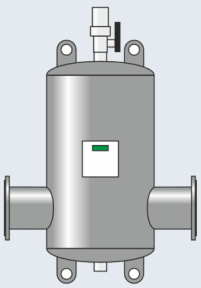
## Exvoid / Exvoid HC (HiCap)
## Exdirt / Exdirt HC (HiCap)
## Extwin /Extwin HC (HiCap)

GB

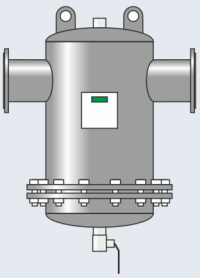
## Operating manual

Original operating manual

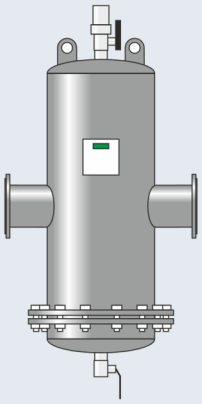
Exvoid



Exdirt



Extwin



# 1 Safety

## 1.1 Explanation of symbols

The following symbols and signal words are used in this operating manual.

**⚠ DANGER**

Danger of death and/or serious damage to health

- The sign, in combination with the signal word 'Danger', indicates imminent danger; failure to observe the safety information will result in death or severe (irreversible) injuries.

**⚠ WARNING**

Serious damage to health

- The sign, in combination with the signal word 'Warning', indicates imminent danger; failure to observe the safety information can result in death or severe (irreversible) injuries.

**⚠ CAUTION**

Damage to health

- The sign, in combination with the signal word 'Caution', indicates danger; failure to observe the safety information can result in minor (reversible) injuries.

***ATTENTION***

Damage to property

- The sign, in combination with the signal word 'Attention', indicates a situation where damage to the product itself or objects within its vicinity can occur.

▶ **Note!**

This symbol, in combination with the signal word 'Note', indicates useful tips and recommendations for efficient handling of the product.

## 1.2 Personnel requirements

Only specialist personnel or specifically trained personnel may install and operate the equipment.

Regional regulations and directives must be adhered to.

## 1.3 Notes to personnel

▶ **Notice!**

Every person installing this equipment or performing any other work at the equipment is required to carefully read this operating manual prior to commencing work and to comply with its instructions. The manual is to be provided to the product operator and must be stored near the product for access at any time.

- Modifications of the equipment are not permitted.
  - For example, welding at other points than the connection piece (in equipment with welded connection)
  - For example, mechanical deformations
- Use only original parts provided by the manufacturer when replacing parts.
- All required inspections must be ordered by the operator pursuant to the provisions of the applicable industrial safety regulations. Required inspections and tests are:
  - Inspections and tests prior to commissioning
  - Inspections and tests after significant modifications of the installation
  - Recurring inspections
- The devices to be installed and operated must not exhibit any visible exterior damage at the pressure component.
- Ignoring this manual and the safety information in particular, may cause the destruction and defects of the equipment, endanger persons and adversely affect the functioning. Any contravention voids the guarantee and liability.

## 1.4 Intended use

The device is a separator for heating and cooling water systems. Dependent on its design, it is suitable for separating and removing dirt and sludge as well as air bubbles and microbubbles.

The devices may be used only in systems that are sealed against corrosion and with the following water types:

- Non-corrosive
- Chemically non-aggressive
- Non-toxic

The ingress of atmospheric oxygen into the entire heating and cooling water system, make-up water, etc. must be reliably minimized during operation.

**Note!**

- To ensure fault-free operation of the system for the long-term, glycols whose inhibitors prevent corrosion phenomena must always be used for systems operating with water/glycol mixtures.
- The specifications of the respective manufacturer are always decisive for the specific properties and mixing ratio of the water/glycol mixtures.
- Types of glycol must not be mixed and the concentration is generally to be checked every year (see manufacturer information).

## 1.5 Inadmissible operating conditions

The device is **not** suited for the following conditions.

- In drinking water systems
- Outdoor operation
- Usage with mineral oils
- Usage with flammable media
- For the use with distilled water
- For use with foam-forming substances because this may compromise operation of the vent and result in leaks.
- For use with additives in a concentration above the permissible dosing quantity
- For use with chemical substances, for which no compatibility tests have been performed for all materials present in the system
- For use with water with a glycol content of greater than 50%

### 1.6 Residual risks

This device has been manufactured to the current state of the art. However, some residual risk cannot be excluded.

**⚠ WARNING**

**Risk of injury due to heavy weight**

The devices are heavy. Consequently, there is a risk of physical injury and accidents.

- Use suitable lifting equipment for transportation and installation.

**⚠ CAUTION**

**Risk of burns**

High media and surface temperatures in heating systems can cause burns to the skin.

- Allow the system to cool before working on the device.
- Maintain a sufficient distance from escaping medium.
- Wear suitable personal protective equipment (safety gloves and goggles).
- Please place appropriate warning signs in the vicinity of the device.

**⚠ CAUTION**

**Risk of injury due to pressurised liquid**

If installation, removal or maintenance work is not carried out correctly, there is a risk of burns and other injuries at the connection points, if pressurised hot water or hot steam suddenly escapes.

- Ensure proper installation, removal or maintenance work.
- Ensure that the system is de-pressurised before performing installation, removal or maintenance work at the connection points.

## 2 Description of the device

**Note!**

In general standard separators are used for flow velocities up to 1.5 m/s. In general the HiCap (HC) model is used with flow velocities of 1.5 to 3.0 m/s.

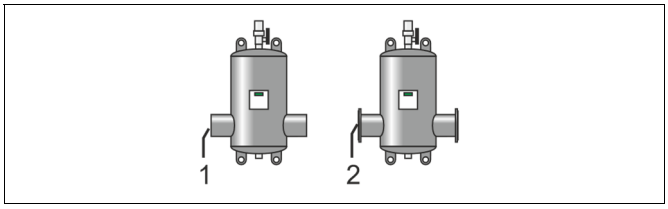
### 2.1 Devices

#### 2.1.1 Exvoid / Exvoid HC

A gas/air separator with micro bubble separation removing circulating free air and gas bubbles.

The device is available in the following variants:

| No. | Variant |
|---|---|
| 1 | Welded connection |
| 2 | Flange connection |

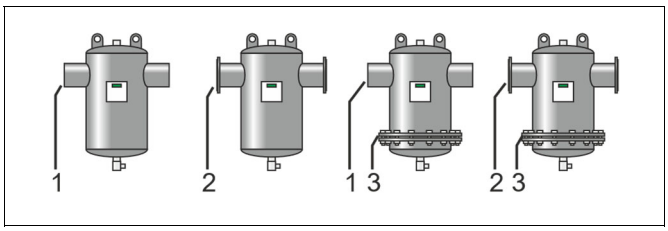



#### 2.1.2 Exdirt / Exdirt HC

A dirt/sludge separator removing circulating free dirt and sludge particles.

The device is available in the following variants:

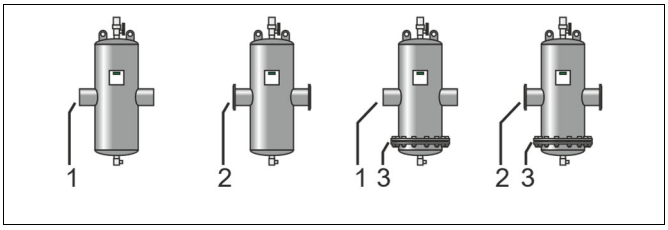
| No. | Variant |
|---|---|
| 1 | Welded connection |
| 2 | Flange connection |
| 1 + 3 | Welded connection and service flange |
| 2 + 3 | Flange connection and service flange |



### 2.1.3 Extwin / Extwin HC

A combined dirt/sludge separator and gas/air separator removing circulating free air and gas bubbles and free dirt and sludge particles.
The device is available in the following variants:

| No. | Variant |
|---|---|
| 1 | Welded connection |
| 2 | Flange connection |
| 1 + 3 | Welded connection and service flange |
| 2 + 3 | Flange connection and service flange |




## 2.2 Optional equipment

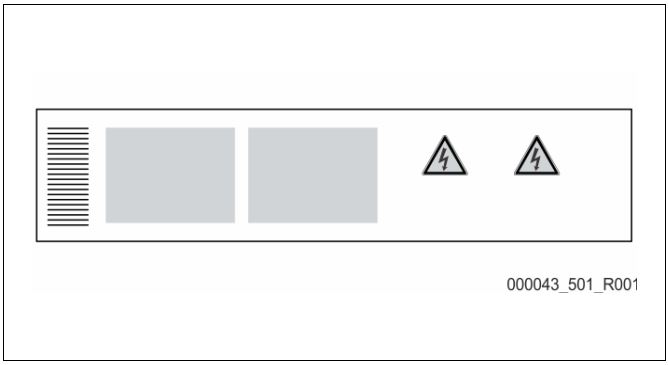
### 2.2.1 Sludge separator

The devices can be expanded with the following accessories:

- Magnet insert Exferro

## 2.3 Identification

| Information on nameplate | Meaning |
|---|---|
| XXX | Device name |
| Type | Device type |
| Connections | Connection |
| Max. allowable pressure | Maximum allowable pressure |
| Max. allowable temperature | Maximum allowable temperature |
| Year of manufacturing | Year of manufacturing |
| Serial no. | Serial number |
| Art.-No- | Article number |




# 3 Technical data

**Note!**

The following values apply for all standard separators:

- Max. temperature: 0-110 °C
- Max. pressure: 10 bar
- Special versions according to individual specification and nameplate.

Contact the manufacturer to determine the weight of the separator.

**Note!**

You can find a detailed listing of all technical data at the end of the complete document.

# 4 Installation and assembly

**⚠ CAUTION**

**Risk of burns**

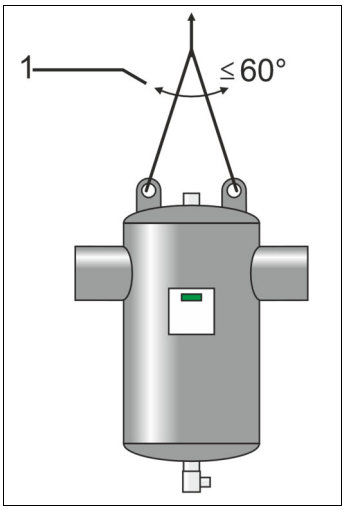
Escaping hot medium can cause burns.

- Maintain a sufficient distance from the escaping medium.
- Wear suitable personal protective equipment (safety gloves and goggles).

## 4.1 Notes

The following items must be considered when assembling and installing the equipment:

- Do not install the device above sensitive components or close to electrical plant.
- Perform installation in dry and frost-proof locations.
- The flow direction is not pre-determined.
- Ensure a vertical and stress-free installation.
  - Any stresses that may occur in some cases must be countered by appropriate constructive actions. Stresses may be caused by temperature effects, for example.
- Ensure the device is readily accessible in its place of installation.
- Ensure sufficient bearing capability of the installation site.
  - This applies to filling the separator with water in particular.
  - If necessary additional structural measures may be required to ensure adequate load bearing capacity.
- The device is not a load-bearing structural element.
  - By default, the calculation of the vessels does not take lateral acceleration forces into account. Avoid alternating stresses such as pressure shocks, abrupt pressure changes, or strong vibrations.
- Use only approved transport and lifting equipment.
  - The eyes provided on the device are intended solely as installation aids.
- The angle (1) of the lifting tackles must be maximum 60°.
- After attachment of insulation, attach the additional sticker on the outside so that it is readily visible.



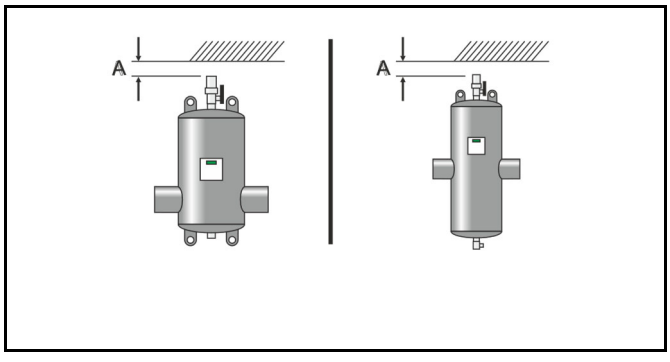

- Thoroughly rinse the system through after installation of the Reflex Exdirt.

## 4.2 Space requirements

**A: Minimum free space above the top part of the ventilation**

| Type:<br>82511xx / 82513xx / 82531xx / 82532xx / 82533xx / 82534xx |
|---|
| 50 mm |

**Note!**
For connection size DN 450 or greater we recommend increasing the minimum space requirement to provide access for servicing of the vent.




**B: Minimum free space below the draw-off tap**

- For installation of an Exferro magnetic insert
- For removal of a grid pipe for separators with service flange

**Note!**

- You can find a detailed listing of all data at the end of the complete document.
- Welded connection only up to DN 300

### 4.3 Exvoid

- Fit the safety plug on the bottom side of the separator.
- Fit the large vent with 3-way valve bottom part on the top side of the separator. Maintain the large vent freely opened.

### 4.4 Exdirt

- Fit the draw-off tap on the bottom side of the separator. Close the valves.
- Fit the vent plug on the top side of the separator. Ensure the vent plug is always correctly closed, open it for manual venting.
- Installation of the Exferro magnetic insert on the bottom side of the separator:
  First insert the Exferro component in the separator, as can be seen in the figure see chapter 5.2.3 "Sludge separator with magnet insert" on page 11 . Then fit the draw-off tap (supplied with the Exdirt) correctly to the side on the T-piece of the magnetic insert. Lastly close the valve.

### 4.5 Extwin

- Fit the draw-off tap on the bottom side of the separator. Close the valves.
- Fit the large vent with 3-way valve bottom part on the top side of the separator. Maintain the large vent freely opened.
- Installation of the Exferro magnetic insert on the bottom side of the separator:
  First insert the Exferro component in the separator, as can be seen in the figure see chapter 5.2.3 "Sludge separator with magnet insert" on page 11 . Then fit the draw-off tap correctly to the side on the T-piece of the magnetic insert. Lastly close the valve.

### 4.6 Exvoid/Extwin

Comply with the following instructions:

- To drain the released air or gases (odour, explosive gases), you may connect an additional hose or pipe at the ½“ thread of the blow-off opening.

**Note!**

The device is now ready for use.

### 4.7 Exiso/heat insulation

**Note!**

If the separators are equipped with a Reflex Exiso heat insulation unit or another type of heat insulation, then tap extensions must be fitted on the upper or lower side of the connection according to the thickness of the insulation. These are supplied with the insulation or made available on site. This ensures accessibility of the add-on components.

# 5 Maintenance

**⚠ CAUTION**

**Risk of burns on hot surfaces**

Hot surfaces in heating systems can cause burns to the skin.

- Wait until hot surfaces have cooled down or wear protective safety gloves.
- The operating authority is required to place appropriate warning signs in the vicinity of the device.

**⚠ CAUTION**

**Function restrictions due to magnetic field**

The device contains permanent magnets generating a static magnetic field. Magnets can affect the functioning of pacemakers and implanted defibrillators.

- If you are fitted with such a medical device or other metal implants you must maintain a safe distance relative to the permanent magnets.
- Provide warnings for people fitted with such devices or metal implants to prevent them from approaching the permanent magnets.

The time intervals for maintenance work depend on the specific operating conditions.

## 5.1 Pressure test

- During a hydraulic pressure test, the pressure must not exceed 1½ times the maximum working pressure.
- During a compressed air test of the system, the large vent valve of the separators Exvoid and Extwin must be closed for this period by a site-provided suitable closing cap.

## 5.2 Cleaning

### 5.2.1 Sludge separator

- The cleaning interval depends on the accumulated dirt within the system.
- The manufacturer recommends an initial check after 4 weeks and at least an annual documented service.
- Provide a catching container and a pressure and temperature-resistant drain hose, if required.
- Dependent on the type of medium, ensure you correctly dispose of any collected dirt content.

For cleaning, proceed as follows:

1. Gradually open the desludging valve for a short time until sludge no longer drains off.
   – Make sure that not much water escapes.
2. Subsequently, check the system pressure and add water as required.

### 5.2.2 Sludge separator with removable floor flange

The separator element at the equipment can be cleaned and replaced, if required.

– The equipment must have cooled down, been emptied, and de-pressurised.
– Keep a suitable flange gasket at hand.

For cleaning, proceed as follows:

1. Use appropriate lifting gear to carefully lower the separator element and the bottom cover to the floor.
   – Ensure that the separator element can neither topple nor roll away or execute other unintended movements.
   – Avoid damage to the draw-off tap.
2. Remove any deposits from the separator element.
   – Use a water jet or low-pressure cleaner.

Reassemble in reverse order.

3. Insert a functioning gasket and grease this with a suitable sealant.
4. Tighten the flange screws with a suitable torque.
   – Tighten diagonally and step-by-step as per the state of the art.

### 5.2.3 Sludge separator with magnet insert

**⚠ CAUTION**

**Function restrictions due to magnetic field**

The device contains permanent magnets generating a static magnetic field. Magnets can affect the functioning of pacemakers and implanted defibrillators.

- If you are fitted with such a medical device or other metal implants you must maintain a safe distance relative to the permanent magnets.
- Provide warnings for people fitted with such devices or metal implants to prevent them from approaching the permanent magnets.

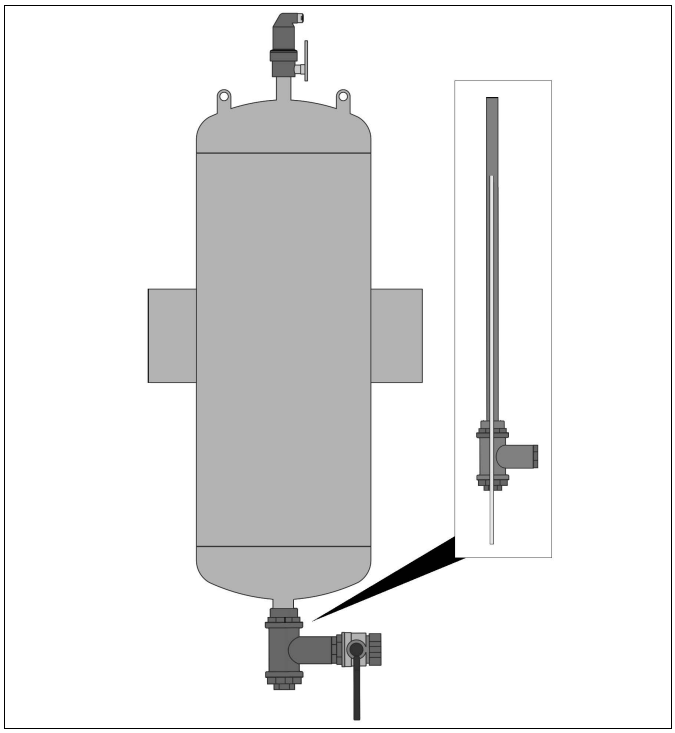
The device can be emptied without the operation being shut down.

For emptying, proceed as follows:

1. Unscrew the magnet from the immersion sleeve.
2. Provide a vessel to capture the drained material.
3. Slowly or for a short time only open the draw-off tap.
4. Screw the magnet into the immersion sleeve.

**Note!**

If no magnetic insert is fitted, steps 1 and 4 are not needed.



# 6 Annex

## 6.1 Conformity and standards

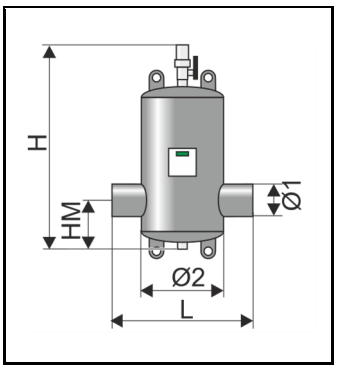
<table>
<tr><td colspan="2">EU-Declaration of conformity of Reflex Ex-Separators Design - Manufacturing - Product Verification<br>This declaration of conformity is issued under the sole responsibility of the manufacturer.</td></tr>
<tr><td colspan="2">Air and Dirt Ex-Separators<br>Exvoid, Exvoid T, Exvoid V, T Solar, Solar, HiCap / Exdirt, Exdirt M, Exdirt Magneto, Exdirt V, HiCap / Extwin, Extwin M<br>universally applicable in heating, solar and cooling systems</td></tr>
<tr><td>Type</td><td>according to name plate of vessel</td></tr>
<tr><td>Serial no.</td><td>according to name plate of vessel</td></tr>
<tr><td>Year of manufacture</td><td>according to name plate of vessel</td></tr>
<tr><td>Max. allowable pressure (PS)</td><td>according to name plate of vessel</td></tr>
<tr><td>Test pressure (PT)</td><td>according to name plate of vessel</td></tr>
<tr><td>Min. / Max. allowable temperature (TS)</td><td>according to name plate of vessel</td></tr>
<tr><td>Max. continious operating temperature</td><td>according to name plate of vessel</td></tr>
<tr><td>Operating medium</td><td>Water</td></tr>
<tr><td>The conformity of the product described above with the provisions of the applied Directive(s) is demonstrated by compliance with the following standards / regulations:</td><td>Pressure Equipment Directive, AD 2000 according to name plate of vessel</td></tr>
<tr><td>Signed for and on behalf of<br>reflex<br>Manufacturer<br>Reflex Winkelmann GmbH<br>Gersteinstraße 19<br>59227 Ahlen - Germany<br>Telefon: +49 2382 7069 -0<br>Telefax: +49 2382 7069 -9588<br>E-Mail: info@reflex.de</td><td>The manufacturer herewith declares that Ex-Separators of the type Exvoid, Exdirt und Extwin are designed and manufactured in accordance to the directive 2014/68/EU article 4 paragraph 3 listed requirements of the sound engineering practice of the member States.<br>The chosen technical specification for the fulfillment of the basic safety requirements of the directive 2014/68/EU are according to the name plate of the separator.<br><br>Ahlen, 19.07.2016<br>Norbert Hülsmann<br>Volker Mauel<br>Members of the Management</td></tr>
</table>

## 6.2 Guarantee

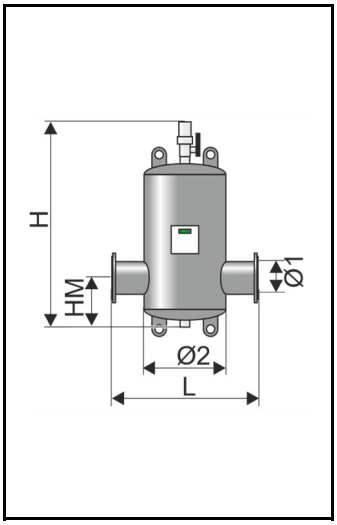
The respective statutory guarantee regulations apply.

**Exvoid**

| | Kg | Ø1 (mm) | $\dot{V}_{max}$ (m³/h) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| A 60.3 | 3,0 | 60,3 | 12,5 | 260 | 132 | 625 | 153 |
| A 76.1 | 3,0 | 76,1 | 20 | 260 | 132 | 625 | 163 |
| A 88,9 | 9,0 | 88,9 | 27 | 370 | 206 | 740 | 159 |
| A 114.3 | 9,0 | 114,3 | 47 | 370 | 206 | 740 | 169 |
| A 139.7 | 22,0 | 139,7 | 72 | 525 | 354 | 915 | 214 |
| A 168.3 | 24,0 | 168,3 | 108 | 525 | 354 | 915 | 229 |
| A 219.1 | 44,0 | 219,1 | 180 | 650 | 409 | 1125 | 284 |
| A 273.0 | 70,0 | 273,0 | 288 | 750 | 480 | 1402 | 351 |
| A 323.9 | 112,0 | 323,9 | 405 | 850 | 634 | 1612 | 406 |

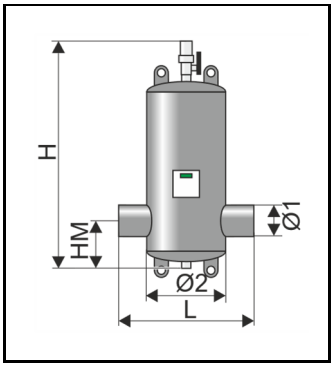



| | Kg | Ø1 | $\dot{V}_{max}$ (m³/h) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| A 50 | 9,0 | DN50/PN16 | 12,5 | 350 | 132 | 625 | 153 |
| A 65 | 10,0 | DN65/PN16 | 20 | 350 | 132 | 625 | 163 |
| A 80 | 16,0 | DN80/PN16 | 27 | 470 | 206 | 740 | 159 |
| A 100 | 19,0 | DN100/PN16 | 47 | 475 | 206 | 740 | 169 |
| A 125 | 35,0 | DN125/PN16 | 72 | 635 | 354 | 915 | 214 |
| A 150 | 39,0 | DN150/PN16 | 108 | 635 | 409 | 915 | 229 |
| A 200 | 65,0 | DN200/PN16 | 180 | 775 | 409 | 1125 | 284 |
| A 250 | 108,0 | DN250/PN16 | 288 | 890 | 480 | 1402 | 351 |
| A 300 | 158,0 | DN300/PN16 | 405 | 1005 | 634 | 1612 | 406 |
| A 350 | --- | DN350/PN16 | 500 | 1128 | 650 | 1950 | 501 |
| A 400 | --- | DN400/PN16 | 650 | 1226 | 750 | 2150 | 580 |
| A 450 | --- | DN450/PN16 | 850 | 1330 | 750 | 2360 | 609 |
| A 500 | --- | DN500/PN16 | 1060 | 1430 | 1000 | 2580 | 671 |
| A 600 | --- | DN600/PN16 | 1530 | 1630 | 1200 | 3020 | 832 |

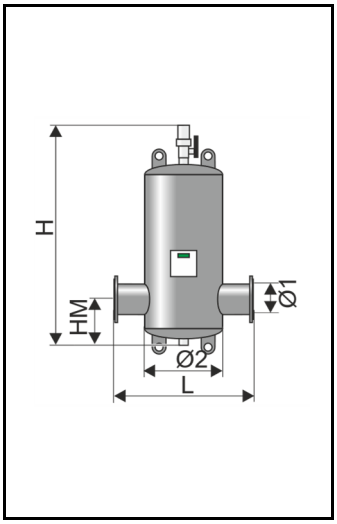



**Exvoid-HiCap**

| | Kg | Ø1 (mm) | $\dot{V}_{max}$ (m³/h) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| A 60.3 HC | 23,0 | 60,3 | 25 | 260 | 132 | 810 | 153 |
| A 76.1 HC | 23,0 | 76,1 | 40 | 260 | 132 | 810 | 163 |
| A 88,9 HC | 36,0 | 88,9 | 54 | 370 | 206 | 965 | 159 |
| A 114.3 HC | 37,0 | 114,3 | 94 | 370 | 206 | 965 | 169 |
| A 139.7 HC | 85,0 | 139,7 | 144 | 525 | 354 | 1225 | 214 |
| A 168.3 HC | 86,0 | 168,3 | 215 | 525 | 354 | 1225 | 229 |
| A 219.1 HC | 129,0 | 219,1 | 360 | 650 | 409 | 1495 | 284 |
| A 273.0 HC | 175,0 | 273,0 | 575 | 750 | 480 | 1609 | 351 |
| A 323.9 HC | 340,0 | 323,9 | 810 | 850 | 634 | 2225 | 406 |

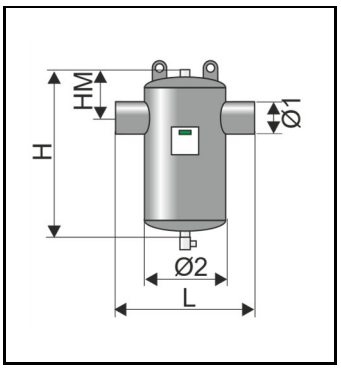



| | Kg | Ø1 | $\dot{V}_{max}$ (m³/h) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| A 50 HC | 23,0 | DN50/PN16 | 25 | 350 | 132 | 810 | 153 |
| A 65 HC | 23,0 | DN65/PN16 | 40 | 350 | 132 | 810 | 163 |
| A 80 HC | 36,0 | DN80/PN16 | 54 | 470 | 206 | 965 | 159 |
| A 100 HC | 22,0 | DN100/PN16 | 94 | 470 | 206 | 965 | 169 |
| A 125 HC | 85,0 | DN125/PN16 | 144 | 635 | 354 | 1225 | 214 |
| A 150 HC | 86,0 | DN150/PN16 | 216 | 635 | 354 | 1225 | 229 |
| A 200 HC | 90,0 | DN200/PN16 | 376 | 775 | 409 | 1495 | 284 |
| A 250 HC | 175,0 | DN250/PN16 | 576 | 890 | 480 | 1609 | 351 |
| A 300 HC | 340,0 | DN300/PN16 | 810 | 1005 | 634 | 2225 | 406 |
| A 350 HC | 293,0 | DN350/PN16 | 1000 | 1128 | 650 | 2460 | 501 |
| A 400 HC | 540,0 | DN400/PN16 | 1300 | 1226 | 750 | 2740 | 580 |
| A 450 HC | 570,0 | DN450/PN16 | 1700 | 1330 | 750 | 3030 | 609 |
| A 500 HC | 1000,0 | DN500/PN16 | 2120 | 1430 | 1000 | 3310 | 671 |
| A 600 HC | 2420,0 | DN600/PN16 | 3060 | 1630 | 1200 | 3160 | 832 |

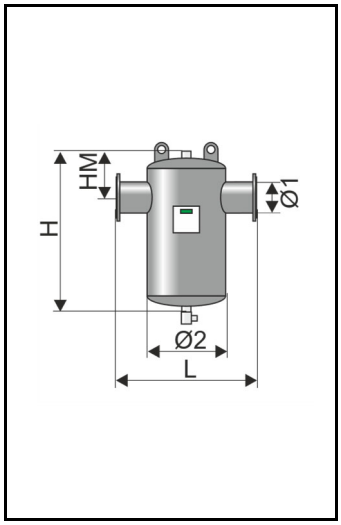


**Exdirt**

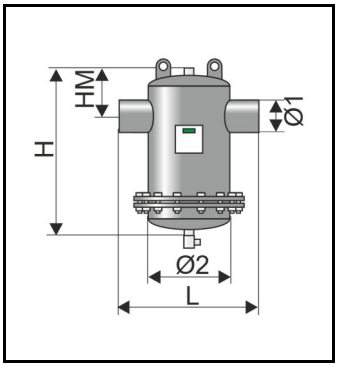
| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 60.3 | 3,0 | 60,3 | 12,5 | 260 | 132 | 521 | 165 |
| D 76.1 | 3,0 | 76,1 | 20 | 260 | 132 | 521 | 175 |
| D 88.9 | 9,0 | 88,9 | 27 | 370 | 206 | 636 | 170 |
| D 114.3 | 9,0 | 114,3 | 47 | 370 | 206 | 636 | 180 |
| D 139.7 | 22,0 | 139,7 | 72 | 525 | 354 | 811 | 225 |
| D 168.3 | 24,0 | 168,3 | 108 | 525 | 354 | 811 | 240 |
| D 219.1 | 44,0 | 219,1 | 180 | 650 | 409 | 1021 | 295 |
| D 273.0 | 70,0 | 273,0 | 288 | 750 | 480 | 1324 | 358 |
| D 323.9 | 112,0 | 323,9 | 405 | 850 | 634 | 1535 | 413 |



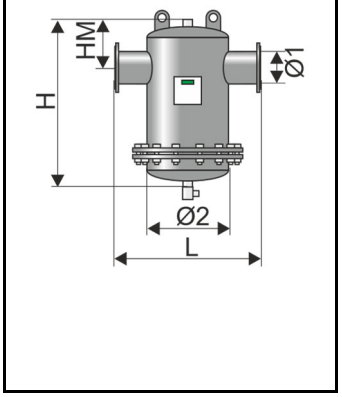

| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 50 | 9,0 | DN50/PN16 | 12,5 | 350 | 132 | 521 | 165 |
| D 65 | 10,0 | DN65/PN16 | 20 | 350 | 132 | 521 | 175 |
| D 80 | 16,0 | DN80/PN16 | 27 | 470 | 206 | 636 | 170 |
| D 100 | 19,0 | DN100/PN16 | 47 | 475 | 206 | 636 | 180 |
| D 125 | 35,0 | DN125/PN16 | 72 | 635 | 354 | 811 | 225 |
| D 150 | 39,0 | DN150/PN16 | 108 | 635 | 354 | 811 | 240 |
| D 200 | 65,0 | DN200/PN16 | 180 | 775 | 409 | 1021 | 295 |
| D 250 | 108,0 | DN250/PN16 | 288 | 890 | 480 | 1324 | 358 |
| D 300 | 156,0 | DN300/PN16 | 405 | 1005 | 634 | 1535 | 413 |
| D 350 | --- | DN350/PN16 | 500 | 1128 | 650 | 1890 | 509 |
| D 400 | --- | DN400/PN16 | 650 | 1226 | 750 | 2090 | 588 |
| D 450 | --- | DN450/PN16 | 850 | 1330 | 750 | 2300 | 617 |
| D 500 | --- | DN500/PN16 | 1060 | 1430 | 1000 | 2520 | 679 |
| D 600 | --- | DN600/PN16 | 1530 | 1630 | 1200 | 2960 | 840 |




| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 60.3 R | 16,0 | 60,3 | 12,5 | 260 | 132 | 521 | 165 |
| D 76.1 R | 23,0 | 76,1 | 20 | 260 | 132 | 521 | 175 |
| D 88.9 R | 32,0 | 88,9 | 27 | 370 | 206 | 636 | 170 |
| D 114.3 R | 37,0 | 114,3 | 47 | 370 | 206 | 636 | 180 |
| D 139.7 R | 85,0 | 139,7 | 72 | 525 | 354 | 811 | 225 |
| D 168.3 R | 78,0 | 168,3 | 108 | 525 | 354 | 811 | 240 |
| D 219.1 R | 101,0 | 219,1 | 180 | 650 | 409 | 1021 | 295 |
| D 273.0 R | 158,0 | 273,0 | 288 | 750 | 480 | 1324 | 358 |
| D 323.9 R | 330,0 | 323,9 | 405 | 850 | 634 | 1535 | 413 |

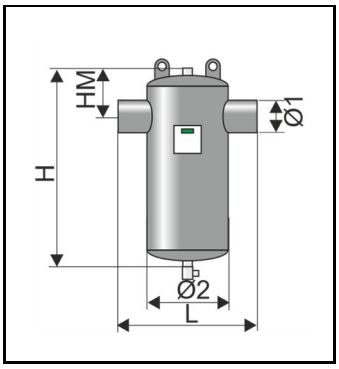



| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 50 R | 18,0 | DN50/PN16 | 12,5 | 350 | 132 | 521 | 165 |
| D 65 R | 19,0 | DN65/PN16 | 20 | 350 | 132 | 521 | 175 |
| D 80 R | 43,0 | DN80/PN16 | 27 | 470 | 206 | 636 | 170 |
| D 100 R | 51,0 | DN100/PN16 | 47 | 475 | 206 | 636 | 180 |
| D 125 R | 89,0 | DN125/PN16 | 72 | 635 | 354 | 811 | 225 |
| D 150 R | 94,0 | DN150/PN16 | 108 | 635 | 354 | 811 | 240 |
| D 200 R | 121,0 | DN200/PN16 | 180 | 775 | 409 | 1021 | 295 |
| D 250 R | 255,0 | DN250/PN16 | 288 | 890 | 480 | 1324 | 358 |
| D 300 R | 390,0 | DN300/PN16 | 405 | 1005 | 634 | 1535 | 413 |
| D 350 R | --- | DN350/PN16 | 500 | 1128 | 650 | 1890 | 509 |
| D 400 R | --- | DN400/PN16 | 650 | 1226 | 750 | 2090 | 588 |
| D 450 R | --- | DN450/PN16 | 850 | 1330 | 750 | 2300 | 617 |
| D 500 R | --- | DN500/PN16 | 1060 | 1430 | 1000 | 2520 | 679 |
| D600 R | --- | DN600/PN16 | 1530 | 1630 | 1200 | 2960 | 840 |

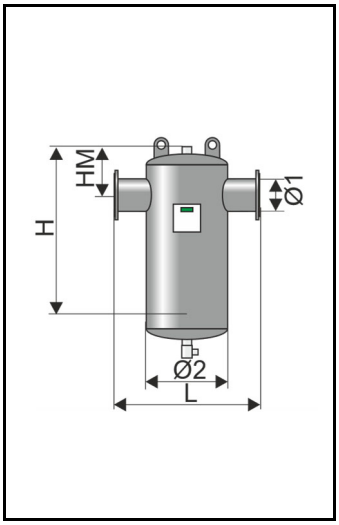


**Exdirt-HiCap**

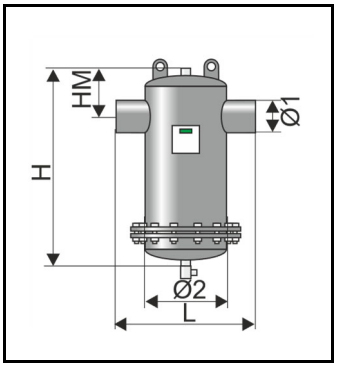
| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 60.3 HC | 5,0 | 60,3 | 25 | 260 | 132 | 706 | 165 |
| D 76.1 HC | 23,0 | 76,1 | 40 | 260 | 132 | 706 | 175 |
| D 88.9 HC | 36,0 | 88,9 | 54 | 370 | 206 | 861 | 170 |
| D 114.3 HC | 37,0 | 114,3 | 94 | 370 | 206 | 861 | 180 |
| D 139.7 HC | 85,0 | 139,7 | 144 | 525 | 354 | 1121 | 225 |
| D 168.3 HC | 86,0 | 168,3 | 216 | 525 | 354 | 1121 | 240 |
| D 219.1 HC | 129,0 | 219,1 | 376 | 650 | 409 | 1391 | 295 |
| D 273.0 HC | 175,0 | 273,0 | 576 | 750 | 480 | 1532 | 358 |
| D 323.9 HC | --- | 323,9 | 810 | 850 | 634 | 2148 | 413 |



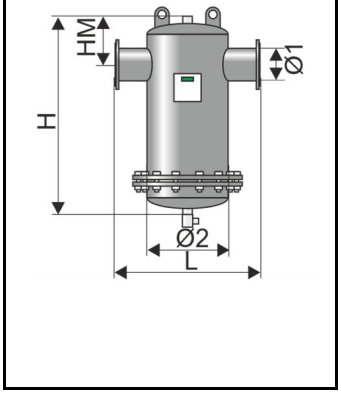

| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 50 HC | 28,0 | DN50/PN16 | 25 | 350 | 132 | 706 | 165 |
| D 65 HC | 29,0 | DN65/PN16 | 40 | 350 | 132 | 706 | 175 |
| D 80 HC | 18,0 | DN80/PN16 | 54 | 470 | 206 | 861 | 170 |
| D 100 HC | 46,0 | DN100/PN16 | 94 | 470 | 206 | 861 | 180 |
| D 125 HC | 98,0 | DN125/PN16 | 144 | 635 | 354 | 1121 | 552 |
| D 150 HC | 100,0 | DN150/PN16 | 216 | 635 | 354 | 1121 | 240 |
| D 200 HC | 75,0 | DN200/PN16 | 376 | 775 | 409 | 1391 | 295 |
| D 250 HC | 119,0 | DN250/PN16 | 576 | 890 | 480 | 1532 | 358 |
| D 300 HC | 218,0 | DN300/PN16 | 810 | 1005 | 634 | 2148 | 413 |
| D 350 HC | --- | DN350/PN16 | 1000 | 1128 | 650 | 2400 | 509 |
| D 400 HC | --- | DN400/PN16 | 1300 | 1226 | 750 | 2680 | 588 |
| D 450 HC | --- | DN450/PN16 | 1700 | 1330 | 750 | 2970 | 617 |
| D 500 HC | --- | DN500/PN16 | 2120 | 1430 | 1000 | 3100 | 679 |
| D 600 HC | --- | DN600/PN16 | 3060 | 1630 | 1200 | 3250 | 840 |




| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 60.3 R-HC | 23,0 | 60,3 | 25 | 260 | 132 | 706 | 165 |
| D 76.1 R-HC | 23,0 | 76,1 | 40 | 260 | 132 | 706 | 175 |
| D 88.9 R-HC | 36,0 | 88,9 | 54 | 370 | 206 | 861 | 170 |
| D 114.3 R-HC | 37,0 | 114,3 | 94 | 370 | 206 | 861 | 180 |
| D 139.7 R-HC | 85,0 | 139,7 | 144 | 525 | 354 | 1121 | 225 |
| D 168.3 R-HC | 86,0 | 168,3 | 216 | 525 | 354 | 1121 | 240 |
| D 219.1 R-HC | 129,0 | 219,1 | 376 | 650 | 409 | 1391 | 295 |
| D 273.0 R-HC | 260,0 | 273,0 | 576 | 750 | 480 | 1532 | 358 |
| D 323.9 R-HC | 460,0 | 323,9 | 810 | 850 | 634 | 2148 | 413 |

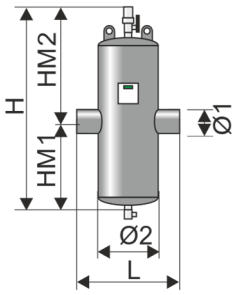



| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM (mm) |
|---|---|---|---|---|---|---|---|
| D 50 R-HC | 28,0 | DN50/PN16 | 25 | 350 | 132 | 706 | 165 |
| D 65 R-HC | 29,0 | DN65/PN16 | 40 | 350 | 132 | 706 | 175 |
| D 80 R-HC | 44,0 | DN80/PN16 | 54 | 470 | 206 | 861 | 170 |
| D 100 R-HC | 46,0 | DN100/PN16 | 94 | 470 | 206 | 861 | 180 |
| D 125 R-HC | 98,0 | DN125/PN16 | 144 | 635 | 354 | 1121 | 225 |
| D 150 R-HC | 100,0 | DN150/PN16 | 216 | 635 | 354 | 1121 | 240 |
| D 200 R-HC | 140,0 | DN200/PN16 | 376 | 775 | 409 | 1391 | 295 |
| D 250 R-HC | 246,0 | DN250/PN16 | 576 | 890 | 480 | 1532 | 358 |
| D 300 R-HC | 510,0 | DN300/PN16 | 810 | 1005 | 634 | 2148 | 413 |
| D 350 R-HC | --- | DN350/PN16 | 1000 | 1128 | 650 | 2400 | 509 |
| D 400 R-HC | --- | DN400/PN16 | 1300 | 1226 | 750 | 2680 | 588 |
| D 450 R-HC | --- | DN450/PN16 | 1700 | 1330 | 750 | 2970 | 617 |
| D 500 R-HC | --- | DN500/PN16 | 2120 | 1430 | 1000 | 3100 | 679 |
| D600 R-HC | --- | DN600/PN16 | 3060 | 1630 | 1200 | 3250 | 840 |

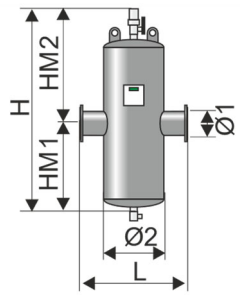


**Extwin**

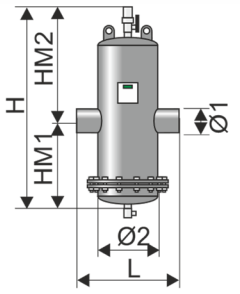
| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 60.3 | 4,0 | 60,3 | 12,5 | 260 | 132 | 785 | 335 | 450 |
| TW 76.1 | 5,0 | 76,1 | 20 | 260 | 132 | 785 | 335 | 450 |
| TW 88.9 | 12,0 | 88,9 | 27 | 370 | 206 | 940 | 413 | 527 |
| TW 114.3 | 14,0 | 114,3 | 47 | 370 | 206 | 940 | 413 | 527 |
| TW 139.7 | 34,0 | 139,7 | 72 | 525 | 354 | 1200 | 542 | 658 |
| TW 168.3 | 31,0 | 168,3 | 108 | 525 | 354 | 1200 | 542 | 658 |
| TW 219.1 | 113,0 | 219,1 | 180 | 650 | 409 | 1470 | 678 | 792 |
| TW 273.0 | 215,0 | 273,0 | 288 | 750 | 480 | 1916 | 915 | 1001 |
| TW 323.9 | 265,0 | 323,9 | 405 | 850 | 634 | 2237 | 1076 | 1161 |



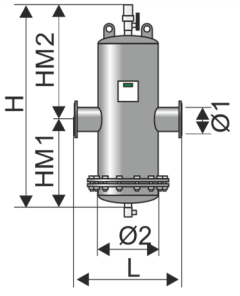

| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 50 | 10,0 | DN50/PN16 | 12,5 | 350 | 132 | 785 | 335 | 450 |
| TW 65 | 10,0 | DN65/PN16 | 20 | 350 | 132 | 785 | 335 | 450 |
| TW 80 | 18,0 | DN80/PN16 | 27 | 470 | 206 | 940 | 413 | 527 |
| TW 100 | 24,0 | DN100/PN16 | 47 | 470 | 206 | 940 | 413 | 527 |
| TW 125 | 41,0 | DN125/PN16 | 72 | 635 | 354 | 1200 | 542 | 658 |
| TW 150 | 46,0 | DN150/PN16 | 108 | 635 | 354 | 1200 | 542 | 658 |
| TW 200 | 79,0 | DN200/PN16 | 180 | 775 | 409 | 1470 | 678 | 792 |
| TW 250 | 156,0 | DN250/PN16 | 288 | 890 | 480 | 1916 | 915 | 1001 |
| TW 300 | 325,0 | DN300/PN16 | 405 | 1005 | 634 | 2237 | 1076 | 1161 |
| TW 350 | --- | DN350/PN16 | 500 | 1128 | 650 | 2600 | 1257 | 1343 |
| TW 400 | --- | DN400/PN16 | 650 | 1226 | 750 | 2900 | 1407 | 1493 |
| TW 450 | --- | DN450/PN16 | 850 | 1330 | 750 | 3150 | 1532 | 1618 |
| TW 500 | --- | DN500/PN16 | 1060 | 1430 | 1000 | 3500 | 1707 | 1793 |
| TW 600 | --- | DN600/PN16 | 1530 | 1630 | 1200 | 4100 | 2007 | 2093 |




| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 60.3 R | 13,0 | 60,3 | 12,5 | 260 | 132 | 785 | 335 | 450 |
| TW 76.1 R | 13,0 | 76,1 | 20 | 260 | 132 | 785 | 335 | 450 |
| TW 88.9 R | 46,0 | 88,9 | 27 | 370 | 206 | 940 | 413 | 527 |
| TW 114.3 R | 36,0 | 114,3 | 47 | 370 | 206 | 940 | 413 | 527 |
| TW 139.7 R | 102,0 | 139,7 | 72 | 525 | 354 | 1200 | 542 | 658 |
| TW 168.3 R | 78,0 | 168,3 | 108 | 525 | 354 | 1200 | 542 | 658 |
| TW 219.1 R | 182,0 | 219,1 | 180 | 650 | 409 | 1470 | 678 | 792 |
| TW 273.0 R | 180,0 | 273,0 | 288 | 750 | 480 | 1916 | 915 | 1001 |
| TW 323.9 R | 450,0 | 323,9 | 405 | 850 | 634 | 2237 | 1076 | 1161 |

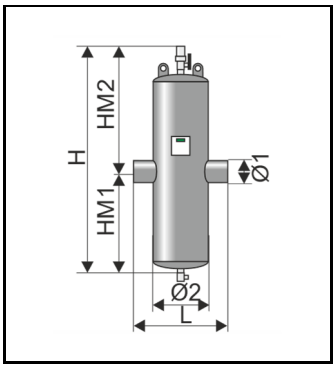



| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 50 R | 18,0 | DN50/PN16 | 12,5 | 350 | 132 | 785 | 335 | 450 |
| TW 65 R | 19,0 | DN65/PN16 | 20 | 350 | 132 | 785 | 335 | 450 |
| TW 80 R | 43,0 | DN80/PN16 | 27 | 470 | 206 | 940 | 413 | 527 |
| TW 100 R | 51,0 | DN100/PN16 | 47 | 470 | 206 | 940 | 413 | 527 |
| TW 125 R | 89,0 | DN125/PN16 | 72 | 635 | 354 | 1200 | 542 | 658 |
| TW 150 R | 94,0 | DN150/PN16 | 108 | 635 | 354 | 1200 | 542 | 658 |
| TW 200 R | 138,0 | DN200/PN16 | 180 | 775 | 409 | 1470 | 678 | 792 |
| TW 250 R | 355,0 | DN250/PN16 | 288 | 890 | 480 | 1916 | 915 | 1001 |
| TW 300 R | 500,0 | DN300/PN16 | 405 | 1005 | 634 | 2237 | 1076 | 1161 |
| TW 350 R | --- | DN350/PN16 | 500 | 1128 | 650 | 2600 | 1257 | 1343 |
| TW 400 R | --- | DN400/PN16 | 650 | 1226 | 750 | 2900 | 1407 | 1493 |
| TW 450 R | --- | DN450/PN16 | 850 | 1330 | 1000 | 3150 | 1532 | 1618 |
| TW 500 R | --- | DN500/PN16 | 1060 | 1430 | 3500 | 3500 | 1707 | 1793 |
| TW 600 R | --- | DN600/PN16 | 1530 | 1630 | 4100 | 4100 | 2007 | 2093 |

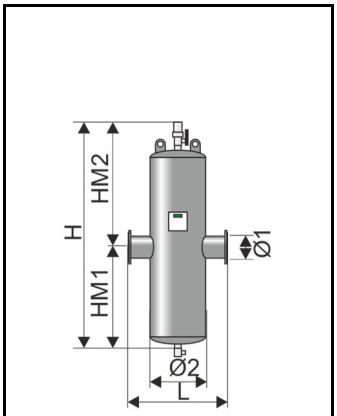


**Extwin-HiCap**

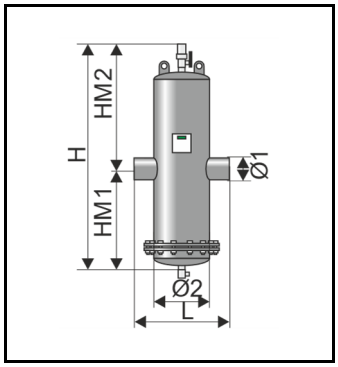
| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 60.3 HC | 6,0 | 60,3 | 25 | 260 | 132 | 1050 | 468 | 582 |
| TW 76.1 HC | 7,0 | 76,1 | 40 | 260 | 132 | 1050 | 468 | 582 |
| TW 88.9 HC | 12,0 | 88,9 | 54 | 370 | 206 | 1285 | 585 | 700 |
| TW 114.3 HC | 13,0 | 114,3 | 94 | 370 | 206 | 1285 | 585 | 700 |
| TW 139.7 HC | 28,0 | 139,7 | 144 | 525 | 354 | 1710 | 797 | 913 |
| TW 168.3 HC | 30,0 | 168,3 | 216 | 525 | 354 | 1710 | 797 | 913 |
| TW 219.1 HC | 50,0 | 219,1 | 376 | 650 | 409 | 2035 | 960 | 1075 |
| TW 273.0 HC | 76,0 | 273,0 | 576 | 750 | 480 | 2764 | 1339 | 1425 |
| TW 323.9 HC | 126,0 | 323,9 | 810 | 850 | 634 | 3330 | 1622 | 1708 |



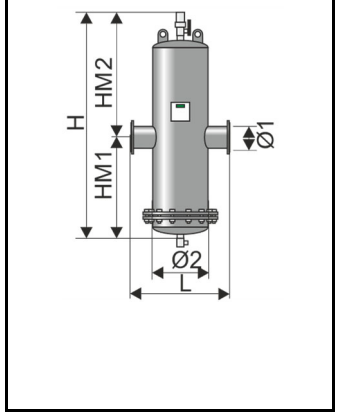

| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 50 HC | 12,0 | DN50/PN16 | 25 | 350 | 132 | 1050 | 468 | 582 |
| TW 65 HC | 14,0 | DN65/PN16 | 40 | 350 | 132 | 1050 | 468 | 582 |
| TW 80 HC | 20,0 | DN80/PN16 | 54 | 470 | 206 | 1285 | 585 | 700 |
| TW 100 HC | 25,0 | DN100/PN16 | 94 | 470 | 206 | 1285 | 585 | 700 |
| TW 125 HC | 41,0 | DN125/PN16 | 144 | 635 | 354 | 1710 | 797 | 913 |
| TW 150 HC | 50,0 | DN150/PN16 | 216 | 635 | 354 | 1710 | 797 | 913 |
| TW 200 HC | 104,0 | DN200/PN16 | 376 | 775 | 409 | 2035 | 960 | 1075 |
| TW 250 HC | 168,0 | DN250/PN16 | 576 | 890 | 480 | 2764 | 1339 | 1425 |
| TW 300 HC | 480,0 | DN300/PN16 | 810 | 1005 | 634 | 3330 | 1622 | 1708 |
| TW 350 HC | --- | DN350/PN16 | 1000 | 1128 | 650 | 3600 | 1757 | 1843 |
| TW 400 HC | --- | DN400/PN16 | 1300 | 1226 | 750 | 4000 | 1957 | 2043 |
| TW 450 HC | --- | DN450/PN16 | 1700 | 1330 | 750 | 4500 | 2207 | 2293 |
| TW 500 HC | --- | DN500/PN16 | 2120 | 1430 | 1000 | 4900 | 2407 | 2493 |
| TW 600 HC | --- | DN600/PN16 | 3060 | 1630 | 1200 | 5800 | 2857 | 2943 |




| | Kg | Ø1 (mm) | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 60.3 R-HC | 23,0 | 60,3 | 25 | 260 | 132 | 1050 | 468 | 582 |
| TW 76.1 R-HC | 23,0 | 76,1 | 40 | 260 | 132 | 1050 | 468 | 582 |
| TW 88.9 R-HC | 36,0 | 88,9 | 54 | 370 | 206 | 1285 | 585 | 700 |
| TW 114.3 R-HC | 37,0 | 114,3 | 94 | 370 | 206 | 1285 | 585 | 700 |
| TW 139.7 R-HC | 85,0 | 139,7 | 144 | 525 | 354 | 1710 | 797 | 913 |
| TW 168.3 R-HC | 86,0 | 168,3 | 216 | 525 | 354 | 1710 | 797 | 913 |
| TW 219.1 R-HC | 129,0 | 219,1 | 376 | 650 | 409 | 2035 | 960 | 1075 |
| TW 273.0 R-HC | 400,0 | 273,0 | 576 | 750 | 480 | 2764 | 1339 | 1425 |
| TW 323.9 R-HC | 570,0 | 323,9 | 810 | 850 | 634 | 3330 | 1622 | 1708 |

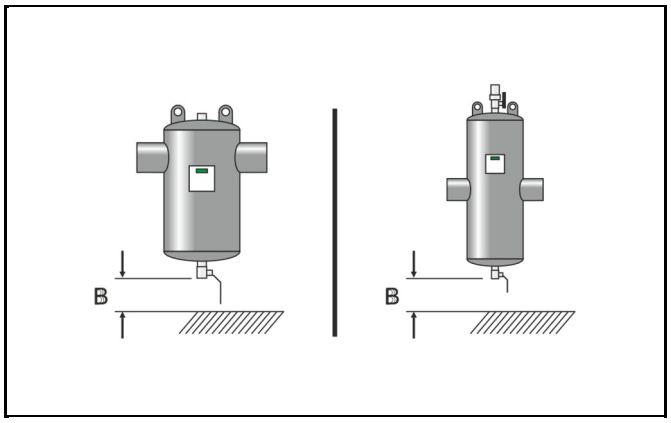



| | Kg | Ø1 | $\dot{V}_{max}$ ($m^3/h$) | L (mm) | Ø2 (mm) | H (mm) | HM1 (mm) | HM2 (mm) |
|---|---|---|---|---|---|---|---|---|
| TW 50 R-HC | 28,0 | DN50/PN16 | 25 | 350 | 132 | 1050 | 468 | 582 |
| TW 65 R-HC | 29,0 | DN65/PN16 | 40 | 350 | 132 | 1050 | 468 | 582 |
| TW 80 R-HC | 44,0 | DN80/PN16 | 54 | 470 | 206 | 1285 | 585 | 700 |
| TW 100 R-HC | 46,0 | DN100/PN16 | 94 | 470 | 206 | 1285 | 585 | 700 |
| TW 125 R-HC | 98,0 | DN125/PN16 | 144 | 635 | 354 | 1710 | 797 | 913 |
| TW 150 R-HC | 100,0 | DN150/PN16 | 216 | 635 | 354 | 1710 | 797 | 913 |
| TW 200 R-HC | 151,0 | DN200/PN16 | 376 | 775 | 409 | 2035 | 960 | 1075 |
| TW 250 R-HC | 435,0 | DN250/PN16 | 576 | 890 | 480 | 2764 | 1339 | 1425 |
| TW 300 R-HC | 620,0 | DN300/PN16 | 810 | 1005 | 634 | 3330 | 1622 | 1708 |
| TW 350 R-HC | --- | DN350/PN16 | 1000 | 1128 | 650 | 3600 | 1757 | 1843 |
| TW 400 R-HC | --- | DN400/PN16 | 1300 | 1226 | 750 | 4000 | 1957 | 2043 |
| TW 450 R-HC | --- | DN450/PN16 | 1700 | 1330 | 750 | 4500 | 2207 | 2293 |
| TW 500 R-HC | --- | DN500/PN16 | 2120 | 1430 | 1000 | 4900 | 2407 | 2493 |
| TW 600 R-HC | --- | DN600/PN16 | 3060 | 1630 | 1200 | 5800 | 2857 | 2943 |

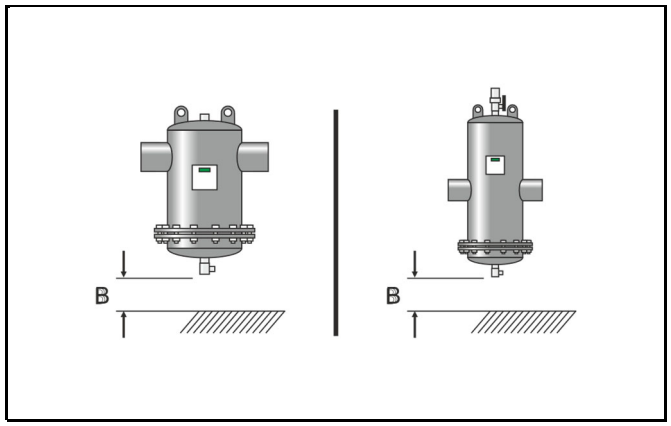


**B:**

| | | B | |
|---|---|---|---|
| | | **Exdirt / Extwin** | |
| | | 82521xx / 82523xx / 82531xx / 82533xx | |
| | | - [mm] | HiCap [mm] |
| DN 50 / DN 65 / DN 80 / DN 100 | 60.3 76.1 88.9 - 114.3 | 370 | 430 |
| DN 125 / DN 150 / DN 200 | 139.7 / 168.3 / 219.1 | 430 | 500 |
| DN 250 / DN 300 | 273.0 / 323.9 | 500 | 600 |
| DN 350 / DN 400 / DN 450 / DN 500 / DN 600 | - | 600 | 700 |




| | | B | | | |
|---|---|---|---|---|---|
| | | **Exdirt R / Exdirt R-HC** | | **Extwin R / Extwin R-HC** | |
| | | 82522xx / 82524xx | | 82532xx / 82534xx | |
| | | - [mm] | HiCap [mm] | - [mm] | HiCap [mm] |
| DN 50 / DN 65 | 60.3 / 76.1 | 300 | 570 | 370 | 640 |
| DN 80 / DN 100 | 88.9 / 114.3 | 400 | 660 | 550 | 900 |
| DN 125 / DN 150 | 139.7 / 168.3 | 500 | 870 | 750 | 1300 |
| DN 200 | 219.1 | 700 | 1030 | 1000 | 1600 |
| DN 250 | 273.0 | 850 | 1050 | 1350 | 2100 |
| DN 300 | 323.9 | 1000 | 1600 | 1850 | 2900 |



SI1413enC / 11-2021

reflex
Thinking solutions.

Reflex Winkelmann GmbH
Gersteinstraße 19
59227 Ahlen, Germany

+49 (0)2382 7069-0

+49 (0)2382 7069-9546

A WINKELMANN BUILDING+INDUSTRY BRAND

www.reflex-winkelmann.com