SOLFLEX

Acoustic housing

Installation - Manual

HD- Acoustic Housing

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1. General information

Solflex produces SonaSafe acoustic housing for a wide range of Heat Pump, Air Conditioning and Refrigeration systems.

This manual applies to the following series:

HD* Serie
https://solflex.eu/en/hdschalldaemmgehaeuse6db

2. Technical Data

Unique acoustic housing in elegant design made of EPP plastic in RAL7021 black grey. Through the single EPP parts, the acoustic hood is easy to install and transport. Decisive for the performance of a heat pump is the air throughput, the inlet and outlet openings are geometrically optimally adapted to the air flow. The patented internal air diversion and acoustic housing openings ensure maximum performance and effectiveness. This achieves optimum performance of the heat pump in whisper-quiet operation. An air short circuit is prevented by internal partitions. The partitions are lined with sound absorption material.

The EPP parts are mounted around a specially designed aluminium frame by simply attaching the individual elements from above onto the aluminium frame that has been fixed to the floor. The aluminium frame can be loosened at the corners, so that a retrofitting of the acoustic enclosure is possible. For maintenance purposes, only a few elements must be removed to reach the heat exchanger or the service level. The installed refrigerant piping can be easily routed through the side / rear EPP parts. The holes for the refrigerant piping are to be created on site with a cutter knife.

The power and sound measurement was performed in a certified laboratory. At the test point, a reduction of up to 6 dB(A) was measured.

Principle: rear intake, front exhaust

Version: RAL7021 black grey

Solflex Type	Housing dimensions H x W x D [mm]	Weight [kg]	Max. dimensions for installation * H x W x D [mm]
HD100NP	1155 x 1385 x 1100	40	1020 x 1050 x 460
HDY100NP	1400 x 1385 x 1100	43	1260 x 1050 x 460
HD200NP	1880 x 1385 x 1100	48	1740 x 1050 x 460

Options

HD100 Recirculation Plate Preview	Closed air separation board for on-site adaptation to the existing outdoor unit
HDY100 Recirculation Plate Preview	Closed air separation board for on-site adaptation to the existing outdoor unit
HD200 Recirculation Plate Preview	Closed air separation board for on-site adaptation to the existing outdoor unit
HD Feet Preview	Base frame for outdoor unit
HD Drain Pan Preview	Condensate tray made of aluminium, including temperature-controlled electronic condensate tray heating, leaf retention grid and oil separator
HD Transport EU	DAP delivery at place within EU (main land) without installation

** The dimensions of the device used must be checked individually.*

HD Feet

HD Drain Pan

2.1. Noise protection hood dimensions

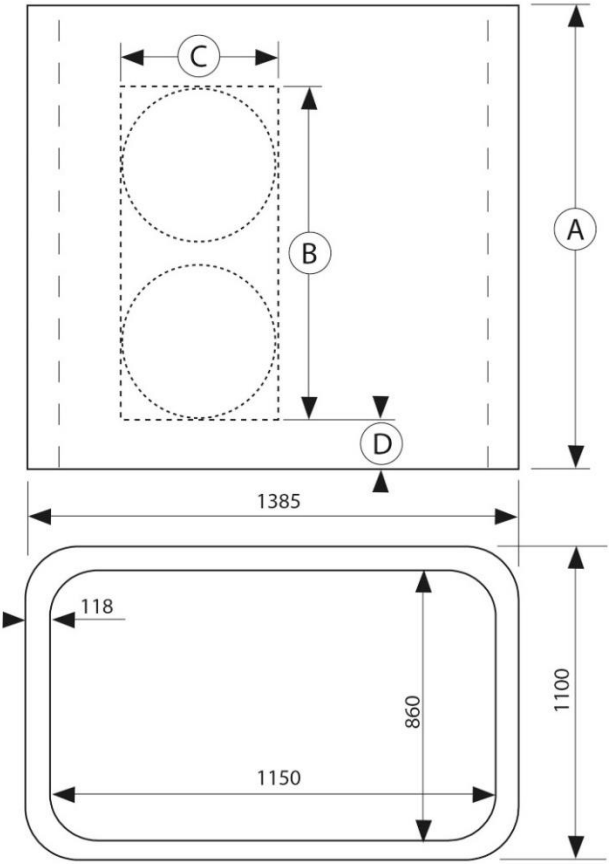


Fig 1

Noise protection hood dimensions (all dimensions in mm)

Heat pump type	HD(_)100NP	HDY(_)100NP	HD(_)200NP
A	1155	1400	1880
B	500	615	1260
C	565	570	570
D	275	405	315

2.2. Dimensions for noise protections hoods with outdoor units

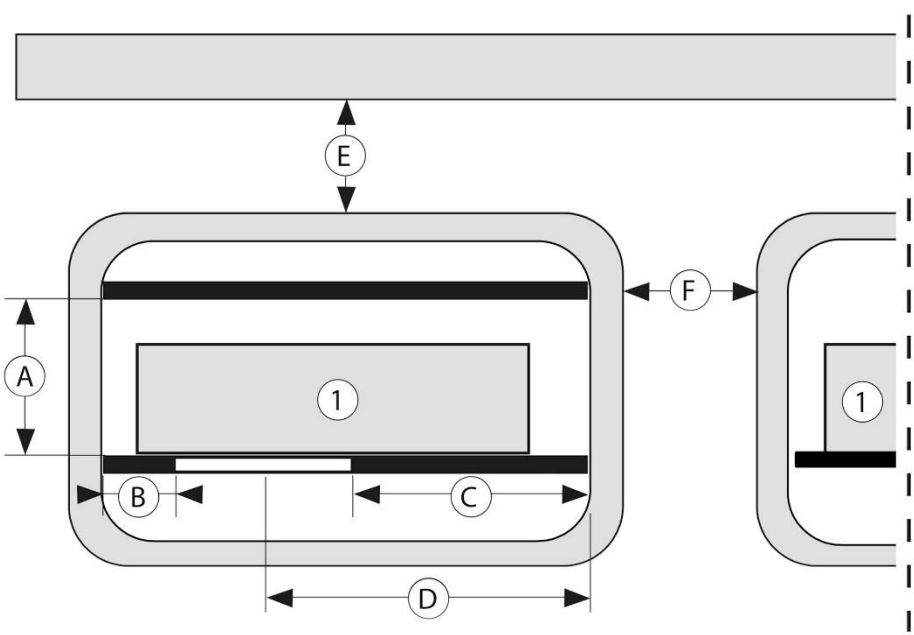


Fig 2

Dimensions for noise protection hoods with outdoor units

Series	HD(_)100NP	HDY(_)100NP	HD(_)200NP
1	Outdoor unit		
A	510		
B	304	198	195
C	454	452	455
D to fan middle	687	739	741
Minimum distances			
E - to building wall	300		
F - from outdoor unit to building wall	700		
From the unit´s bottom edge to the top edge of the solid base (see Fig 3)	200		

Alle Maße in mm

3. Performance sound insulation

The sound insulation performance of our sound protection enclosure was measured by an independent laboratory according to DIN EN ISO 3744.

Measurement method

The sound insulation performance of our sound protection enclosure was measured by an independent laboratory according to DIN en ISO 3744.

Measurement method

- Measurement of sound power of the calibrated (MP1)
  Reference source via a ball surface with 12 microphones. Acoustic data: Class 2 According to DIN en ISO 3744, as third spectrum and octave spectrum.
- Measurement of Sound Power (MP2) of the Solflex Sonasafe Sound Insulation Housing Reference source in the housing via a ball surface with 12 microphones. Acoustic Data Class 2 according to DIN EN ISO 3744, as a third spectrum and octave spectrum.
- The difference between the two measurements is the sound insulation power of the noise-isolating housing.

MP1-MP2= Sound insulation performance Sound Insulation Housing

* The measurement tolerance of +/-1.5 dB (A) or tolerance width of 3 dB (A) according to DIN EN ISO 3744 would finalised not be used and we publish excluding the minimum sound insulation performance data**.**

Measurement results

The **HD sound insulating housing** has a **sound absorbing power of 6 dB (A).**

f (Hz)	63	125	250	500	1k	2k	4k	8k	16k
De (dB)	2	1	1	4	5	7	10	10	11

The acoustic result depends on the device to be installed and is prone to deviations due to the particular conditions at the installation site.

4. Warranty

24 months from delivery.

5. Safety

Bei unsachgemäßer oder nicht bestimmungsgemäßer Verwendung können Gefahren für Leib und Leben des Benutzers oder Dritter bzw. Beeinträchtigungen des Gerätes und anderer Sachwerte entstehen.

5.1. Intended use

The unit must only be used as acoustic housing for compatible Heat Pump, Air Conditioning and Refrigeration systems. Any other use is strictly prohibited.

5.2. Safety instructions

All work about the assembly, installation and commissioning of the unit must be carried out by specially trained technicians**.**

5.3. Risks during unloading and transportation

⚠WARNING

Risk of serious injury from dislodged loads. Do not stand under suspended loads. Risks from electric power

⚠WARNING

Risk of electric shock from electrostatic charge of housing:
Earth the device.

5.3.1. Risk of damage to property and the environment

! NOTICE

Serious damage to property from dropping loads;
please observe the instructions in section "Delivery of product".

Serious damage to heat exchanger connections, panelling and other mounted components from force impact during moving of unit elements; **always move the unit elements by their base frame.**

Risk of damage to components from heavy impact, e.g. when attempting to dislodge a part with a hammer, etc.: **Components that rest on the foundation must only be moved by shifting.**

5.4. Emergency procedures

5.4.1. Fire fighting

Strictly adhere to all statutory fire safety regulations.
The insulation foam has a fire behavior according norm.

6. Product delivery

Upon delivery, inspect the product for damage caused during transport and ensure that the delivery is complete. Record any damage or missing parts on the transport documents. Complaints regarding obvious transport damage or incomplete deliveries cannot be considered if made too late.

On the construction site, protect the unit against dirt, impact and the elements.

6.1. Unloading / transport to location of installation

This unit is shipped in parts on a pallet.
For unloading, lift the unit by the pallet.

Too short forks can damage the acoustic housing.

Risk of serious injury or damage to property from dropping loads.
Observe the safety instructions of the transport equipment and lifting gear.

Do not climb onto the unit.

7. Mounting

NOTICE

At the place of installation, it must be possible to provide impeccable service and maintenance and the necessary air intake of the built-in air-conditioning, refrigeration and heat pump units.

When planning the installation site, the guide lines for minimum distances around the air-conditioning, refrigeration and heat pump manufacturer must be respected.

For a frost-proof discharge of the resulting condensate, suitable options must be provided by the customer.

Important NOTE:

CAUTION

Please always use the required safety work gear during installation.
Due to the packaging materials and the production process, personal injury may occur, such as hand injuries.
If the soundproof housing is freely accessible, the necessary measures during assembly should be taken to local conditions to avoid personal injury.

7.1. Setting up the outdoor unit and the noise protection hood

Fundation

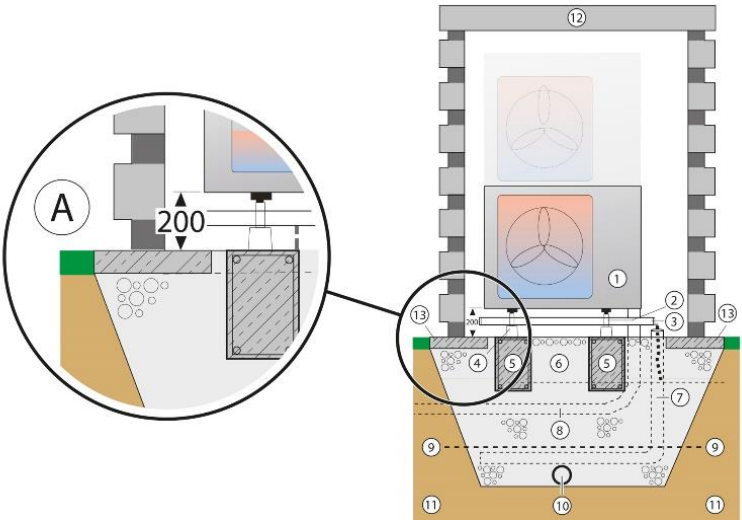


Fig 3

Condensate drainage, seepage of condensate and strip foundation (cross-section)

1: Outdoor unit
2: Feet for condensate
3: Condensate catch pan including pan heater
4: Floor bracket
5: Reinforced strip foundation HxWxD = 300x160x600 mm
6: Gravel layer for seepage
7: Drainage channel
8: Conduit for refrigerant piping and electrical connecting line (temperature-resistant up to at least 80^0C)
9: Frost line
10: Drainage pipe
11: Soil
12: Noise protection hood
13: Solid base (e.g. concrete plates)

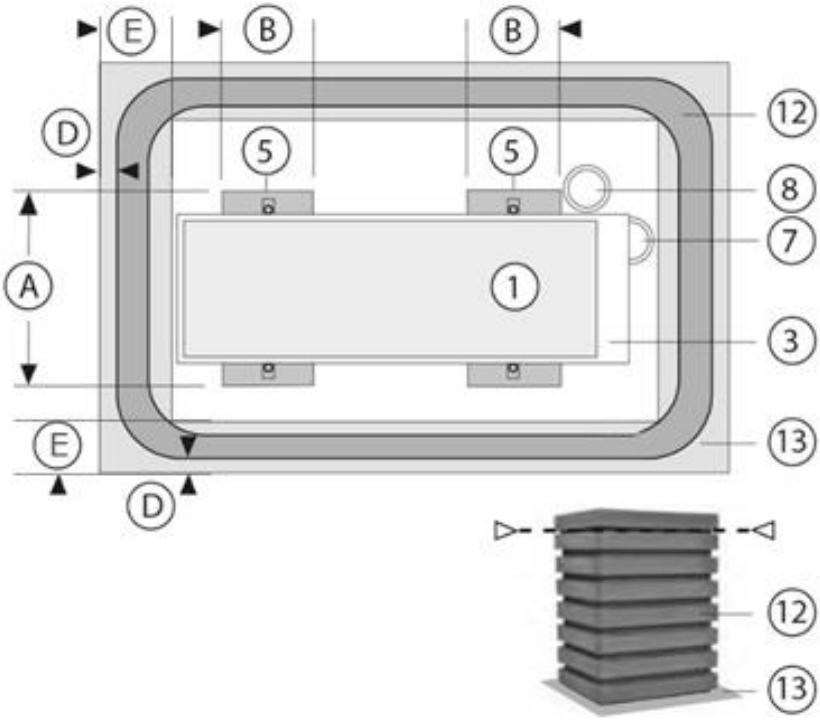
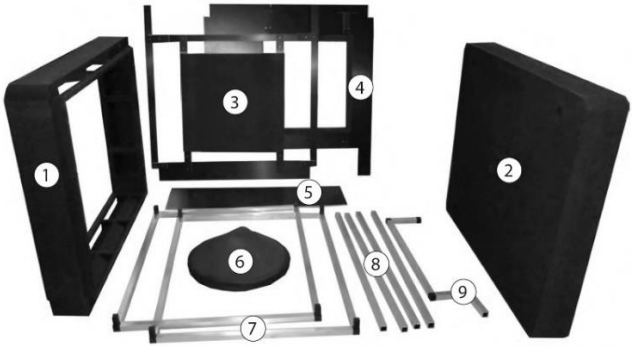


Fig 4

Dimension	
A	600
B	160
D	75
E	100

7.2. Design of the noise protection hood

Components on the noise protection hood



Pos	Designation	Anzahl		
		HD(_)100NP	HDY(_)100NP	HD(_)200NP
1	Ring element	4	5	7
2	Cover	1	1	1
3	Air intake baffle plate	1	1	1
4	Air outlet baffle plate	1	1	1
5	Base air outlet baffle plate	1	1	1
6	Buffer	1	1	2
7	Top/bottom aluminium frame	2	2	2
8	Aluminium support	4	4	4
9	Buffer support	1	1	1
	Components not illustrated			
	Holding eyelets	2	2	2
	Strap	2	2	2
	M5x 50 mm installation screw and washers for buffer	2	2	4
	M6 120mm threaded rod for cover (top aluminium frame)	4	4	4
	M6 nuts and washers to affix the cover	4	4	4
	Cover sealing cap	4	4	4
	Corner connector	8	8	8

In order to assemble the noise protection hood, proceed as follows:

1) The noise protection hood must be installed on a base that is defined as suitable according to the dimensions. It can be installed on a foundation that is manufactured separately or on ground that is prepared for the installation Start with the bottom aluminium fame when installing. Ensure that the aluminium frame is connected securely to the base (e.g. using anchor bolts, ground anchors or fixed screw connections) so that the entire noise protection hood is attached securely.

Fig 5

2) Place the installation frame over the heat pumps outdoor unit and arrange the frame so that it has an even gab all around the unit. Check whether the relevant holes to attach the noise protection hood enable it to be attached securely. As there are several options for this, there are no installation materials included with the HD noise protection hood for attaching. These attachments must be provided by the customer.

Fig 6

3) If the refrigerant piping is laid visibly from the rear for installation on the outdoor unit (Fig. 7), the frame must be installed below the piping. If the refrigerant piping is installed on the outdoor unit from the bottom and is not in the vicinity of the ring elements of the noise protection hood, you can continue installation without an opening. If this is the case, continue installation as described.

Fig 7

4) To open the bottom frame, pull the corner connector out of the aluminium pipe and install the aluminium pipe below the refrigerant piping.

Fig 8

5) After you have installed the aluminium pipe below the refrigerant piping, re-assemble the corner connector completely.

The aluminium frame must now be connected to the base using suitable attachment materials. If a concrete foundation /strip foundation or flagstones are used, you must use corresponding screws and anchor bolts. If the noise protection hood is to be installed on ground that has been prepared for it, use suitable ground anchors. If the hood is not attached, is not secured against wind loads and operation of the entire system is not permitted. **If the wind load is expected to be higher than normal, we recommend securing the hood with additional storm ropes.**

Fig 9

6) Once you have installed the bottom aluminium frame, place the first ring element over the outdoor unit (Fig. 10 and Fig. 11) and draw the position of the refrigerant piping on the ring element accordingly so that you can remove the opening from the ring element.

Lift the ring element off the outdoor unit again and remove the area that you previously drew. To remove the opening for the piping, use suitable tools such as a cutting knife, a jigsaw or along saw blade.

Fig 10

7) After you have created the opening, place the ring element back over the outdoor unit and secure it around the aluminium frame.

Ensure that the attachment point required to attach the buffer at a later time is in the middle in front of the fan

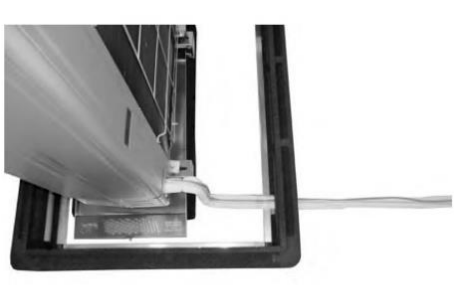


Fig 11

8) Now place the enclosed aluminium supports at the corners of the aluminium frame and attach them. (Fig. 12) Only use suitable tools for this, such as a rubber hammer, in order to prevent damage to the aluminium profiles.

Fig 12

9) Ensure that all four supports are completely pushed into the corner connectors in order to guarantee that they are aligned (Fig. 13)

Fig 13

Coution!

Ensure that the outdoor unit is shut down and secured to prevent a restare during the installation, maintenance and repair times in order to prevent injuries caused by the fan starting up!

10) Remove the grille in front of the fan (exhaust side) by removing the four screws in the corners. Both grilles must be removed on outdoor units that have two fans. The grilles are no longer required to operate the system. The second ring element can now be placed on the first ring element (Fig. 12).

Use the fan grille for maintenance purposes.

Fig 14

11) Now take the baffle plate for the air outlet and slide it into the EPP ring's groove on the air outlet side

Fig 15

12) Insert the air inlet baffle plate with the foam insulation side to the inside towards the outdoor unit. The baffle plate for the air inlet must rest with the supporting feet at the bottom on the aluminium frame. (Fig. 18).

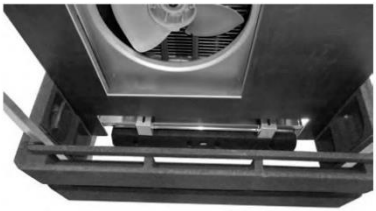


Fig 16

13) To install the baffle plate, guide it into the opening (groove) provided. When installing each additional ring element, the baffle plate for the air outlet must always be installed through the opening.

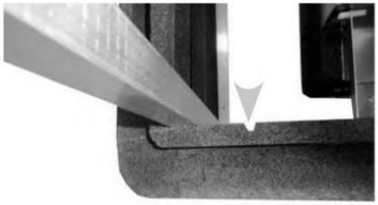


Fig 17

14) The baffle plate for the air outlet must rest with the side of the foam insulation directly on the outdoor unit.

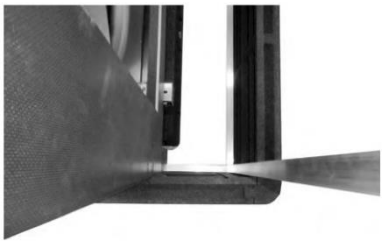


Fig 18

15) After it has been installed, as shown in Fig. 19, the baffle plate is horizontal in the noise protection hood, directly in front of and tight to the outdoor unit.

Fig 19

16) Now take the baffle plate base for the air outlet and place it at an angle at the bottom in front of the condensate tray.

Fig 20

17) The baffle plate on the base is to prevent an air short circuit. It is not screwed on and must be installed flush to the cover for the air outlet. (Fig. 21).

Fig

Fig 21

18) Now take the baffle plate for the air inlet and install this baffle plate in the air intake at the rear of the HD noise protection hood.

Fig 22

19) Insert the baffle plate with the foam insulation side to the inside with a gap to the outdoor unit in the first opening on the ring element. The baffle plate is not installed directly on the outdoor unit and must rest with the side supporting feet at the bottom on the aluminium frame to intake air.

Fig 23

20) Install the baffle plate for the air inlet evenly in the relevant opening (groove)until it is resting with both adjustment feet on the bottom aluminium profile. When installing the subsequent ring elements, the baffle plate for the air inlet and outlet must always be pushed into the same openings

Fig 24

21) The holding eyelets supplied must now be attached to the top of the air outlet baffle place using the corresponding screws. The holding eyelets must be installed on the top of the baffle plate for the air outlet in such a way that the attachment strap I fixed through the grille on the air inlet at the height of the top fastening screw.

Fig 25

22) After installing the holding eyelets on the left and right of the baffle plate for the air outlet, use the straps supplied to attach it so that it is flush with the housing on the outdoor unit. Ensure that the baffle plate is tight to the outdoor unit's housing. To do this, you must press the baffle plat tightly onto the housing. It is sufficient for the baffle plate to be installed tight and flush to the outdoor unit (Fig. 26)

Fig 26

23) The supports to attach the buffer (components on the noise protection hood on page 19 and the top aluminium frame Ensure that the top attachment point for the buffer´s support is in the middle in front of the fan opening. (Fig. 27)

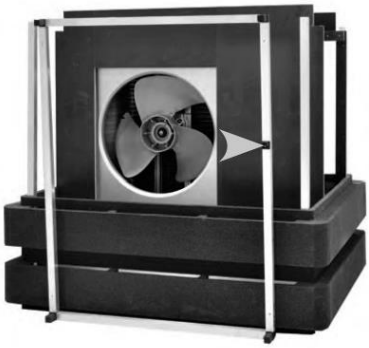


Fig 27

24) The support for the buffer (Fig. 28) is installed on the fastening point on the top and bottom aluminium frame, as shown in Fig. 29.

Fig 28

25) All connection son the top and bottom frame, as well as the supports, must be connected completely. Only use suitable tools for installation in order to prevent damage to the aluminium profiles.

Fig 29

26) The buffer supplied (Fig.30) can now be installed using two screws and washers (M8). Two buffers and the corresponding screws are supplied for outdoor units that haver two fans.

Fig 30

27) Use the M8 x 50mm screws supplied to install the buffer.

When installing, use the openings that are provided in the supports and install the buffer as shown in Fig. 31. Both buffers must be installed directly in front of the relevant fan on outdoor units that have two fans.

Fig 31

28) To continue installation, place the next ring element on the elements that have already been installed.

Fig 32

29) The third ring element must rest completely on the element below.

Fig 33

30) Always place each additional ring element completely on the bottom element until you only have the cover left.

Fig 34

31) After installing the ring elements, the aluminium frame can still be seen at the top edge. To install the top cover, you must screw the four M6 x 120 mm threaded rods supplied into the corresponding M6 threaded sleeves.

Fig 35

32) To install, screw the threaded rods two centimetres into the threaded sleeve until the threaded rod protrudes 10cm from the top edge of the aluminium profile to the top edge of the threaded rod.

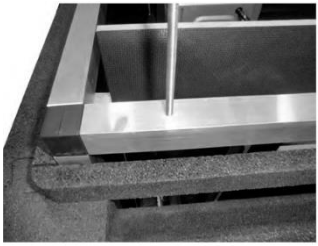


Fig 36

33) Check that all openings provided for fastening on the cover plate are open. If there are blocked openings, use suitable tools to remove any EPP residues from the openings.

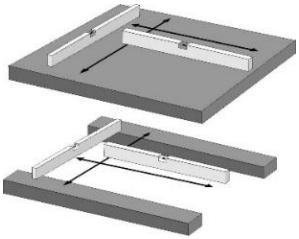
Fig 38

Fig 37

34) The cover can now be installed on the ring elements and attached using the M6 nuts and washers provided. After fastening the lock screws, place the cover plates in the openings for the screws. Installation of the HD noise protection hood is now complete.

7.3. Foundation

The foundation must meet the relevant static and sound propagation requirements and must feature a proper drain for water. It must be level and smooth. The resonance frequency of the support structure must be distinctly different from the excitation frequency of the rotating machine components (Heat Pump, Air Conditioning and Refrigeration system).



An uneven foundation might cause malfunction or jammed panels. Liability is excluded for damage caused by installation on an uneven surface.
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7.4. Installation of Heat Pump, Air Conditioning and Refrigeration outdoor unit

⚠ WARNUNG

The correct installation position of the air conditioning, refrigeration or heat pump unit is decisive for the fit and function of the acoustic housing.

8. Maintenance on the outdoor unit

Caution!

For maintenance and service work on the refrigeration, air-conditioning or heat pump unit, the necessary panels can be easily removed from the acoustic housing

!

If maintenance is to be carried out on the outdoor unit, the HD noise protection hood must be removed in reverse order. You do not have to remove al ring elements to do this. The bottom two or three ring elements can remain installed for maintenance.

In order to access the outdoor unit`s service opening, proceed as follows:

1. Remove the cover plates by undoing the screws that are used to attach the cover to the aluminium frame.

Fig 39

1: Cover plate, removed.

2. You can now remove the ring elements by pushing them upwards on the aluminium frame one after the other.

Fig 40

As mentioned above, the bottom two or three ring elements can remain installed for maintenance. Then remove the corresponding side part of the casing and open the mounting opening on the outdoor unit of the HD heat pump. (see Fig. 41)

Fig 41

Cleaning and maintenance of the acoustic housing

- Remove other dirt with a damp cloth; if necessary, use grease-or oil-dissolving detergents(concentrated neutral detergent with pH between 8 and 9).
- Treat galvanized parts with preservation spray.
- Regularly lubricate moving parts such as panel locks with a lubrication spray.
- Regularly treat seals.
- Repair any damage to the coating, including areas that show signs of corrosion, with repair paint.
- Clean the unit thoroughly to remove all construction dust and other dirt.

8.1. Exploded view of and spare parts list for noise protection hood HD(_)100NP

Exploded view of the housing

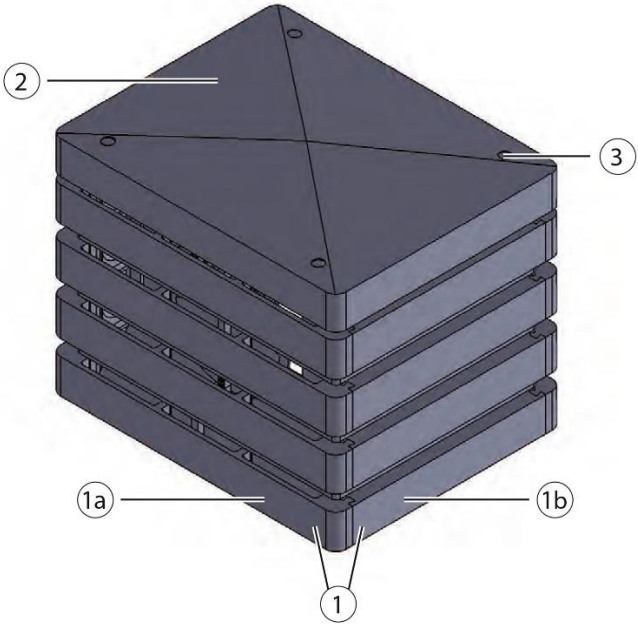


Fig 42

Nr.	Spare parts	Quantity	EDV-Nr.
1	Complete ring element comprising 2x longitudinal and transverse elements each	4	260882
1a	Rin element on the noise protection hood's longitudinal side	8	260881
1b	Ring element on the noise protection hood´s transverse side	8	260880
2	Noise protection hood cover	1	260879
3	Sealing cap	4	1102172

Exploded view of the interior

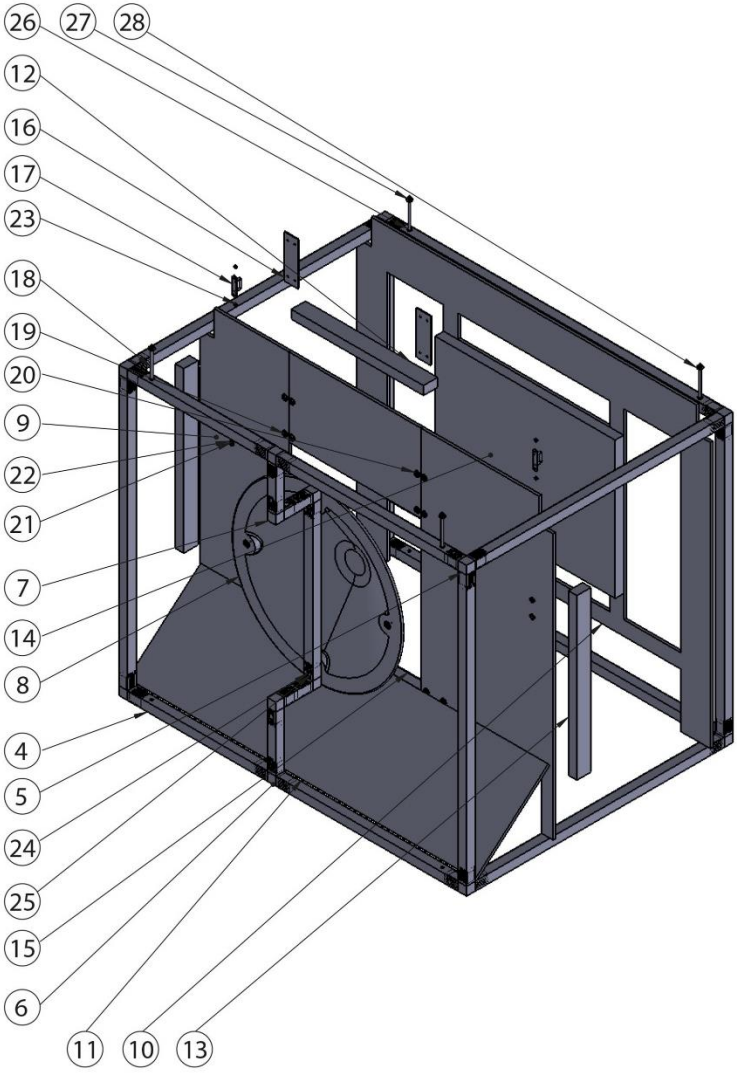


Fig 43

Spare parts list for the interior

Nr.	Spare parts	Quantity	EDV-Nr.
4	Aluminium square pipes, 30x30x2.0 mm (frame)	1	1102173
5	Multi-way pipe connector, type 2 (corner connector)	8	1102174
6	Multi way pipe, type 3 (T connector)	2	1102175
7	Multi-way pipe connector, type 1 (L connector)	4	1102176
8	Buffer	1	260877
9	Front screen process baffle plate	1	1102177
10	Rear screen process baffle plate Front plate neutral	1	1102178
11	Angled screen process baffle plate	1	1102179
12	Top/bottom insolation strip	2	1102180
13	Right/left insolation strips	2	1102181
14	Rear baffle plate insulation mat	1	1102182
15	3 mm aluminium bar for front baffle plate	1	1121410
16	3 mm aluminium connection plate, top, 150x 50 mm	2	1121411
17	Belt cramp	2	1102183
18	M6 x 120 threaded pin with hexagon socket	4	1102184
19	M6 x 14 raised-head screw	12	99
20	D 6.4 washer	12	99
21	M5 x 16 raised-head screw	4	99
22	D 5,3 washer	4	99
23	M5 hexagon nut	4	99
24	M8 x 50 hexagon screw	2	99
25	D 8.4 washer	2	99
26	M6 riveting nut	4	99
27	M6 hexagon nut	4	99
28	D 6,4 washer	4	99
	Fastening belt 505 (not illustrated)	2	1000963

8.2. Exploded view of and spare parts list for noise protection hood HDY100NP

Exploded view of the housing

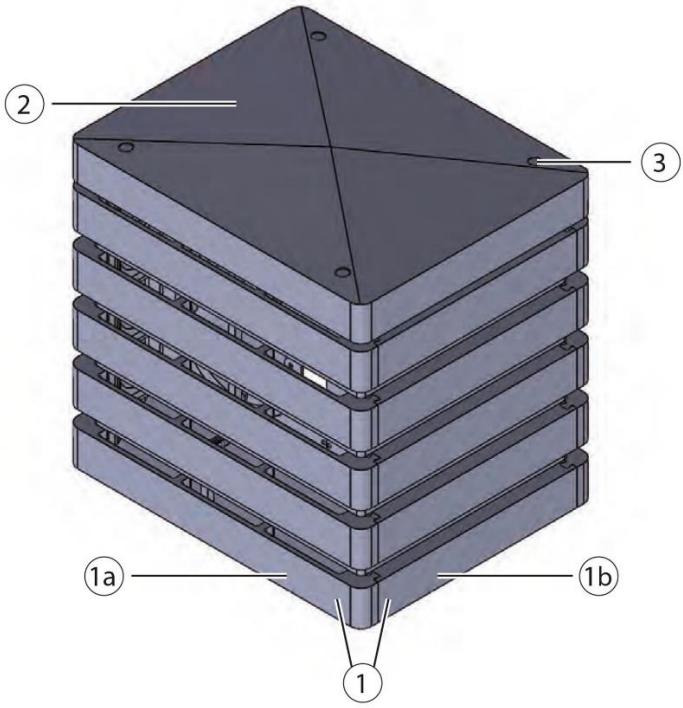


Fig 44

Nr.	Spare parts	Quantity	EDV-Nr.
1	Complete ring element comprising 2x longitudinal and transverse elements each	5	260882
1a	Rin element on the noise protection hood's longitudinal side	10	260881
1b	Ring element on the noise protection hood´s transverse side	10	260880
2	Noise protection hood cover	1	260879
3	Sealing cap	4	1102172

Exploded view of the interior

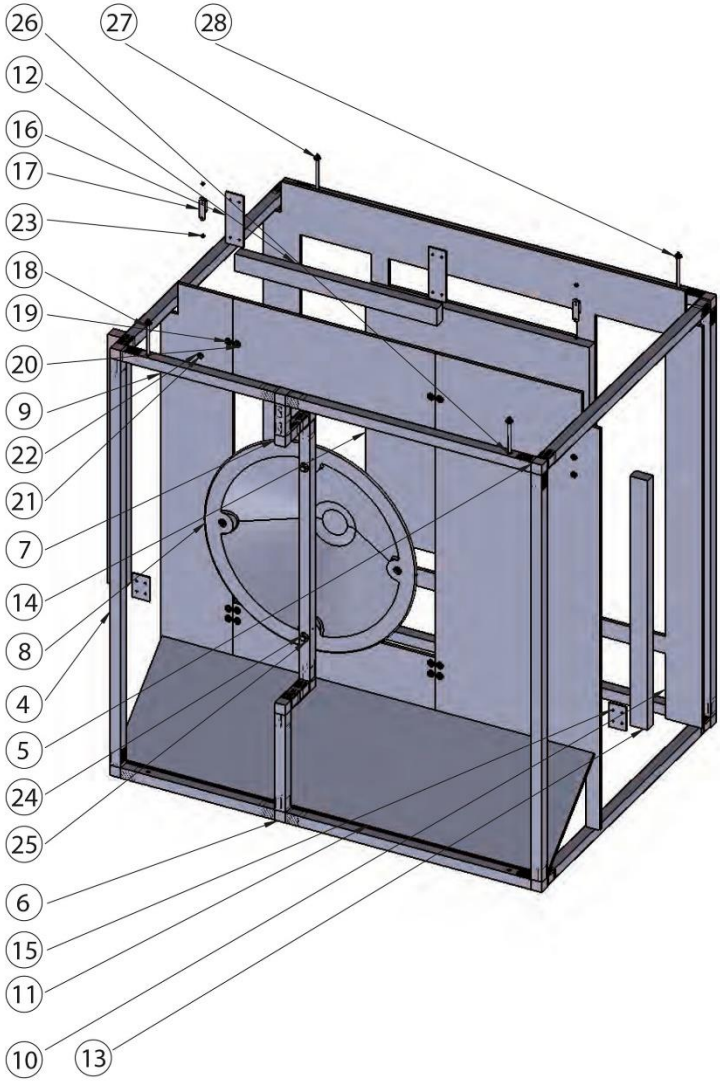


Fig 45

Spare parts list for the interior

Nr.	Spare parts	Qunatity	EDV-Nr.
4	Aluminium square pipes, 30x30x2.0 mm (frame)	1	1102173
5	Multi-way pipe connector, type 2 (corner connector)	8	1102174
6	Multi way pipe, type 3 (T connector)	2	1102175
7	Multi-way pipe connector, type 1 (L connector)	4	1102176
8	Buffer	1	260877
9	Front screen process baffle plate	1	1102191
10	Rear screen process baffle plate Front plate neutral	1	1102192
11	Angled screen process baffle plate	1	1102193
12	Top/bottom insulation strip	2	1102188
13	Right/left insulation strips	2	1102194
14	Rear baffle plate insulation mat	1	1102195
15	3 mm aluminium connection plate, bottom	2	1121412
16	3 mm aluminium connection plate, top, 150x 50 mm	2	1121411
17	Belt cramp	2	1102183
18	M6 x 120 threaded pin with hexagon socket	4	1102184
19	M6 x 14 raised-head screw	16	99
20	D 6.4 washer	16	99
21	M5 x 16 raised-head screw	4	99
22	D 5,3 washer	4	99
23	M5 hexagon nut	4	99
24	M8 x 50 hexagon screw	2	99
25	D 8,4 washer	2	99
26	M6 riveting nut	4	99
27	M6 hexagon nut	4	99
28	D 6.4 washer	4	99
	Fastening belt 505 (not illustrated)	2	1000963

8.3. Exploded view of and spare parts list for noise protection hood HD(_)200NP

Exploded view of the housing

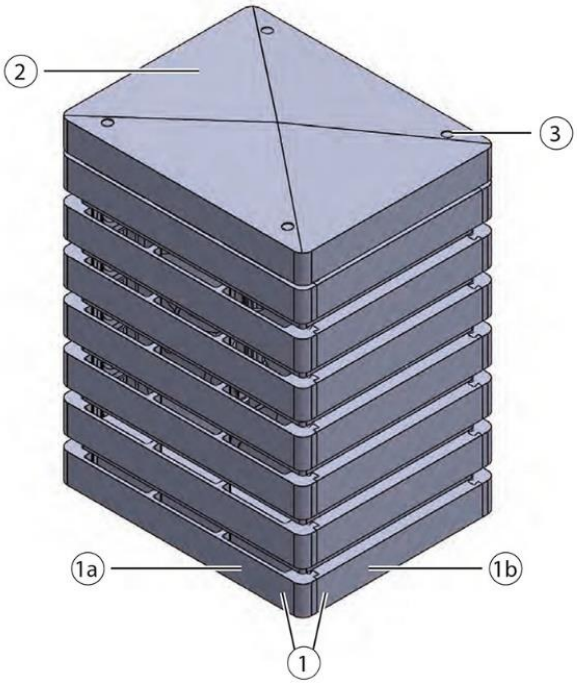


Fig 46

Nr.	Spare parts	Qualitiy	EDV-Nr.
1	Complete ring element comprising 2x longitudinal and transverse elements each	7	260882
1a	Ring element on the noise protection hood's longitudinal side	14	260881
1b	Ring element on the noise protection hood´s transverse side	14	260880
2	Noise protection hood cover	1	260879
3	Sealing cap	4	1102172

Exploded view of the interior

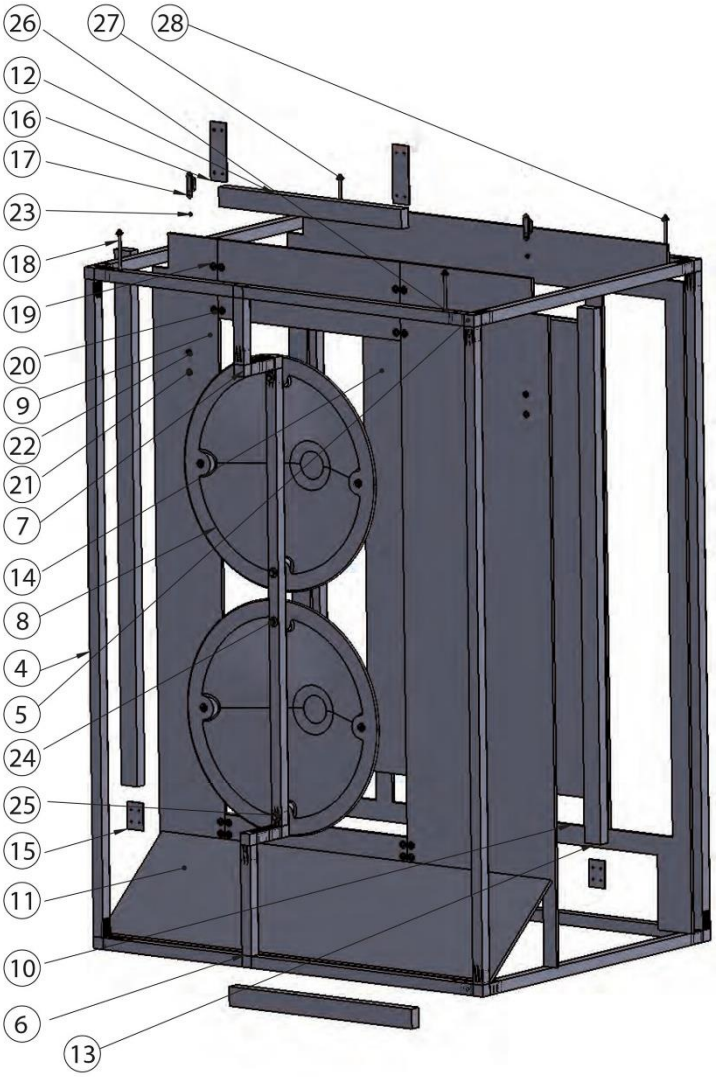


Fig 47

Spare parts list for the interior

Nr.	Spare parts	Quantity	EDV-Nr.
4	Aluminium square pipes, 30x30x2.0 mm (frame)	1	1102173
5	Multi-way pipe connector, type 2 (corner connector)	8	1102174
6	Multi way pipe, type 3 (T connector)	2	1102175
7	Multi-way pipe connector, type 1 (L connector	4	1102176
8	Buffer	1	260877
9	Front screen process baffle plate	1	1102185
10	Rear screen process baffle plate Front plate neutral	1	1102186
11	Angled screen process baffle plate	1	1102187
12	Top/bottom insulation strip	2	1102188
13	Right/left insulation strips	2	1102189
14	Rear baffle plate insulation mat	1	1102190
15	3 mm aluminium connection plate, bottom	2	1121412
16	3 mm aluminium connection plate, top, 150x 50 mm	2	1121411
17	Belt cramp	2	1102183
18	M6 x 120 threaded pin with hexagon socket	4	1102184
19	M6 x 14 raised-head screw	16	99
20	D 6,4 washer	16	99
21	M5 x 16 raised-head screw	4	99
22	D 5,3 washer	4	99
23	M5 hexagon nut	4	99
24	M8 x 50 hexagon screw	4	99
25	D 8.4 washer	4	99
26	M6 riveting nut	4	99
27	M6 hexagon nut	4	99
28	D 6.4 washer	4	99
	Fastening belt 505 (not illustrated)	2	1000963

8.4. Grounding

Depending on the local regulations and position, we recommend carrying out a grounding or lightning protection.

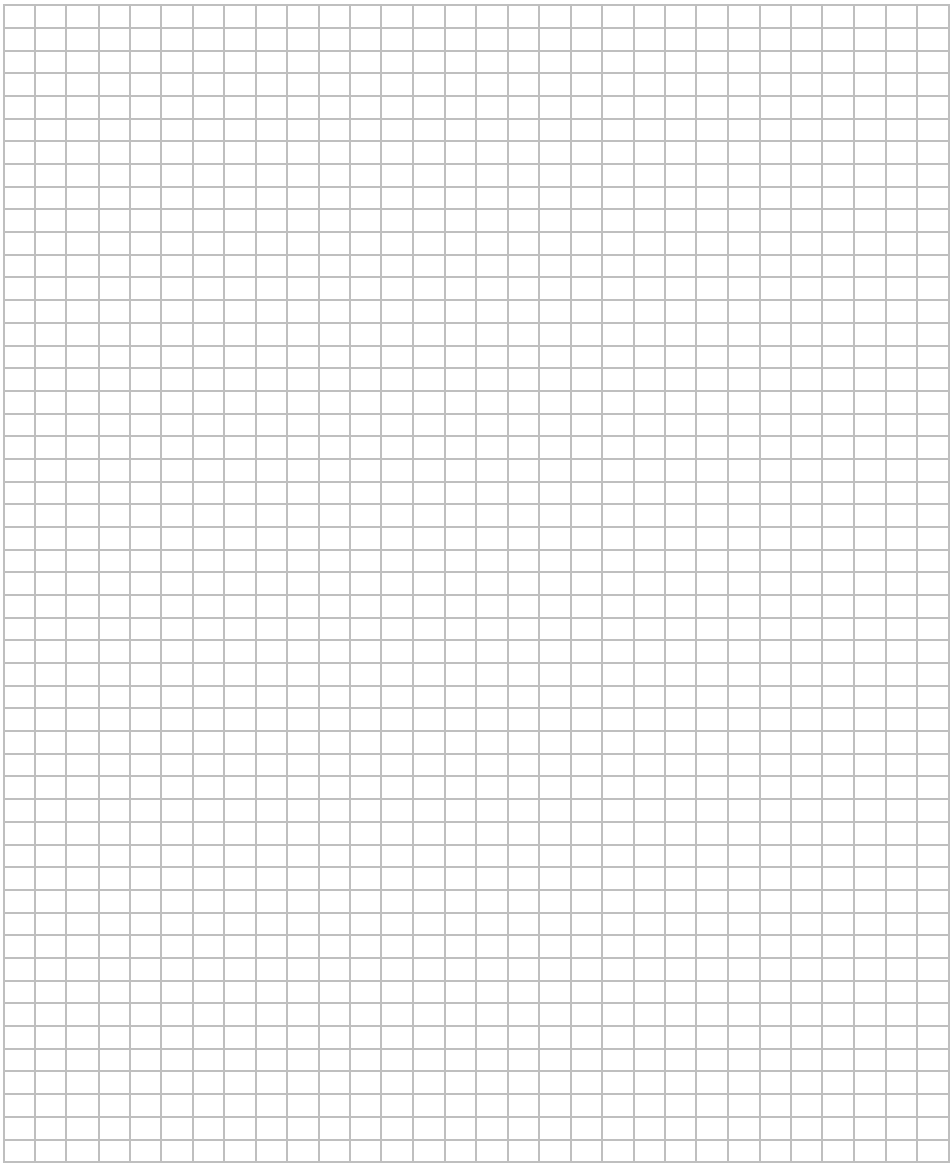
8.5. Test run

After working on the acoustic housing, the person responsible must ensure that no persons are in the acoustic housing before it is put into operation again.

8.6. Removal and disposal

Metal parts and plastic parts are to be recycled, per applicable regulations.

Notes



Do you have anymore questions?

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