

### Choosing the exhaust lead-through

The properties of different lead-throughs are compared in table 1.

#### Exhaust lead-throughs

Exhaust lead-throughs are mainly intended for devices that do not take the combustion air through the inlet air pipe around the exhaust pipe. All exhaust lead-throughs are made of stainless steel. The exhaust lead-throughs fit in Ø 28 mm exhaust pipe 1028. Devices that require a jacket tube with a larger diameter as

insulation of the exhaust pipe always need to be equipped with combination lead-throughs.

#### Combination lead-throughs

A combination lead-through contains the lead-throughs for exhaust gas and jacket tube of combustion air in the same piece. All combination lead-throughs are made of stainless steel. They fit in Ø 28 mm exhaust pipe and Ø 45 mm jacket tube 2448.

**If you clean your boat with a high-pressure washer, be careful not to spray water to the lead-through; the device may get wet.**

### General instructions for installation

1.

Air must always be able to flow free past the lead-through. Try to install the lead-through in such a way that wind can blow past it. The lead-through must not be placed in a corner or a confined area when wind pressure may disturb the operation of the device.

2.

Exhaust gas is hot. Always make sure that there is nothing that might be damaged by the heat within a distance of less than 200 mm, such as ropes, fenders or another boat.

3.

The exhaust pipe and the jacket tube for inlet air must be made of stainless steel, 1028 or 2448. Aluminium tube 4045 is sufficient insulation for just an exhaust lead-through. The exhaust

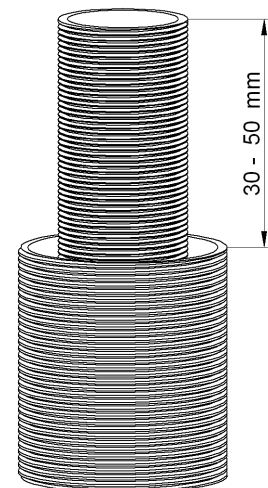
pipe should be about 30 - 50 mm longer than the jacket tube to ensure that it stays in place. Isolate the connections between exhaust pipe and device and exhaust pipe and lead-through opening with heat resistance silicone paste.

4.

When you make the installation opening for the lead-through, you can use the lead-through gasket as a template, especially with round openings. If necessary, seal the installation opening with silicone in addition to the lead-through insulation.

5.

All lead-throughs radiate heat. Especially a wooden deck may dry up as a result of the heat. Beware of the hot surface of the lead-through during use.



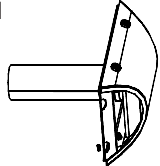
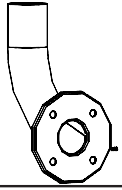
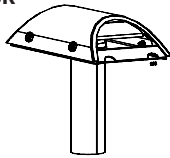
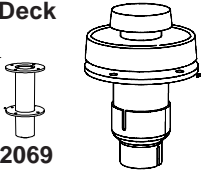
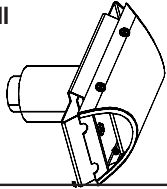
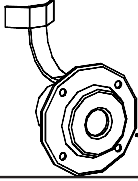
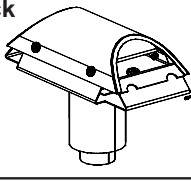
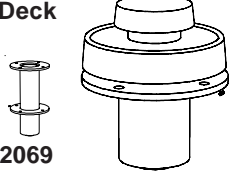
6.

The minimum distance of a hull lead-through from the water level is 300 mm. It should be taken into account especially in sailing boats that the lead-through must not get below the water for a long time (more than 5 seconds). It is recommended that the lead-through be placed on the hull as near the stern as possible or to the stern.

*Please also note the specific requirements for each device.*

Table 1:

Splash guard: ●●●● Excellent ●●● Good ●● Fair ● Satisfactory  
 Flow resistance: ●●●● Small ●●● Minor ●● Fair ● Big  
 (Flow resistance mainly matters in long exhaust pipes.)  
 Wind tolerance: ●●●● Excellent ●●● Good ●● Fair ● Satisfactory  
 Temperature of the installation surface:  
 ●●●● Low ●●● Fairly low ●● Fairly high ● High

Picture	Art. No. (pipe)	Exhaust only or combination	Splash guard	Stream resistance*	Wind tolerance	Temperature level of mounting surface	Size and height (mm)	Sealable
Hull 	3467 (1028)	Exhaust only	●●●●	●●●	●●●	●●	140 x 73 40	No
Hull 	1066 (1028)	Exhaust only	●	●●●●	●**	●●●	∅ 65 4	No
Deck 	3467 (1028)	Exhaust only	●●●●	●●●	●●●	●●	140 x 73 40	No
Deck  2069	2466 (1028)	Exhaust only	●●●●	●●	●●	●●	∅ 92 50	Yes
Hull 	3468 (2448)	Combination	●●●●	●●	●●●●	●●●	155 x 83 56	No
Hull 	2467 (2448)	Combination	●	●●●	●●	●●●●	∅ 92 19	No
Deck 	3468 (2448)	Combination	●●●●	●●	●●●●	●●●	155 x 83 56	No
Deck  2069	2460* (2448)	Combination	●●●●	●	●●●	●●●	∅ 92 50	Yes

\* 2069 always with Nautic 40D. \*\* A strong gust of wind (over 15 m/s) may put the device out. \*\*\* While open.

Please also note the specific requirements for each device.

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**Gooseneck**

A hull lead-through must always be equipped with a so-called gooseneck whether it is an exhaust or a combination lead-through. See figure 1.

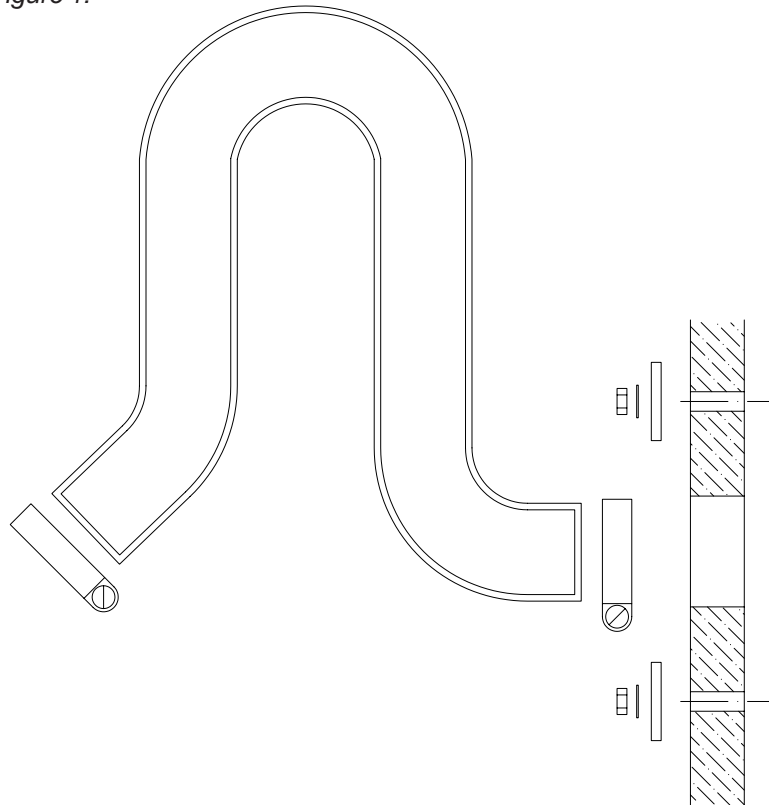
We recommend that a gooseneck is added to the exhaust and jacket tube of a combination lead-through placed in the deck.

**Drainage lock 602293**

We recommend that drainage lock 602293 be used with deck lead-throughs for removing occasional splashing and condensing water from the exhaust pipe. See figure 2.

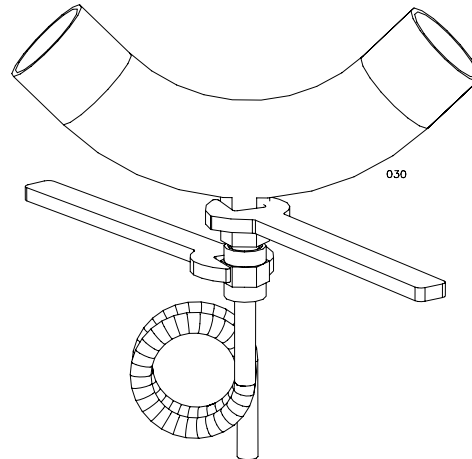
If desired, it is possible to install a drainage lock to the exhaust pipe (ø 28 mm) of a hull lead-through, but then the drainage lock must come after the gooseneck. See figure 5.

Figure 1:



**The highest point of the gooseneck must always be above the water level.**

Figure 2: The water pipe of the drainage lock can be extended e.g. with a rubber hose to a suitable drainage point.



**Insulation pack for metal hull boats**

There are insulation packs for insulating the lead-through from the metal hull. See figure 3.

**3467 and 3468 standard lead-throughs**

A standard lead-through can be placed in any position, but the examples show the optimal position for their operation:

1.

When installed on the hull or the side of deck structures, in a slightly inclined position towards the stern, so that the external surface of the lead-through is cooled by both the thermal flow and the flow caused by the wind.

2.

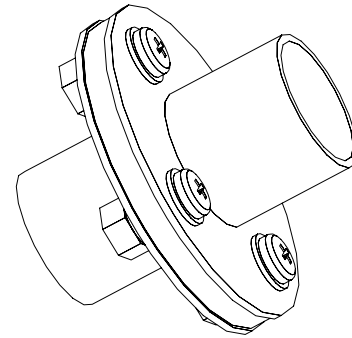
When installed on deck, perpendicularly.

**2466 and 2460 sealable lead-throughs**

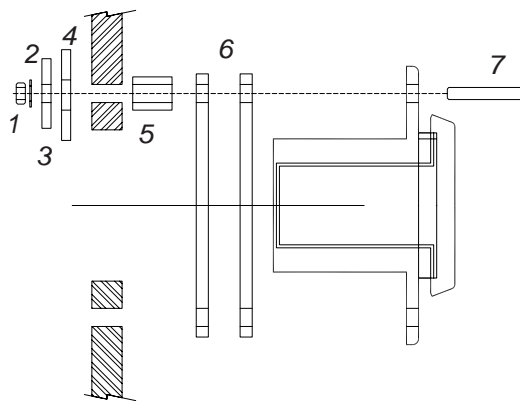
Remove the cap of a sealable lead-through for installation by pressing the spring into the pipe e.g. with a screwdriver. Be careful not to slip the screwdriver when you press the spring; it is tight. When assembling the lead-through, check the correct order of parts in figure 4. Also make sure that the spring enters the right hole in the cap; otherwise the lead-through cannot be closed.

Figure 3: Insulation packs for metal hull boats

a) For exhaust lead-through (ø 28 mm) insulation pack 602308. Cut the exhaust pipe and attach the insulation pack to the ends of the exhaust pipe with hose clamps.



b) For round coaxial lead-through insulation pack 2461



- 1. M5 nut
- 2. M5 washer
- 3. Washer 15/5 x 1.2
- 4. Rubber washer 20/10 x 3
- 5. Rubber hose 8/4.5 x 35: Cut to length according to hull thickness.
- 6. insulation cap 87/61 x 4: Two insulations outside the hull
- 7. M5 x 25 screw

c) For standard coaxial lead-through insulation pack 602309.

- 1. Nut
- 2. M5 washer
- 3. Washer 15/5 x 1.2
- 4. Rubber washer 20/10 x 3
- 5. Rubber hose 8/4.5 x 35: Cut to length according to hull or deck thickness.
- 6. Silicone packing
- 7. Screw

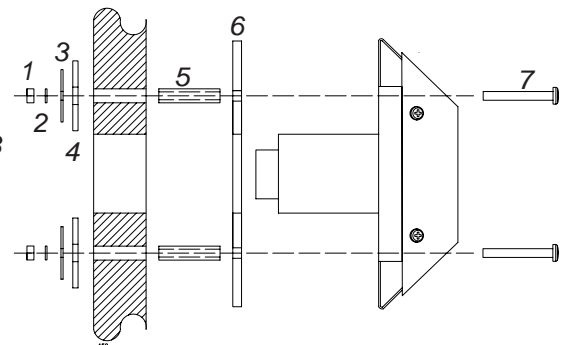


Figure 4: Sealable lead-through. With adapter 2462 the lead-through 2460 can be installed to an old, larger opening.

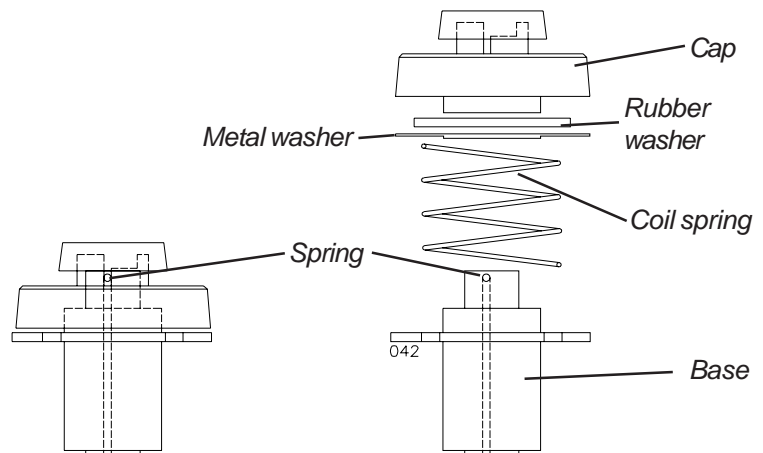


Figure 5: Standard lead-though 3467 for exhaust gas installed in hull. The installation opening is  $\varnothing$  35-45 mm and the screw holes are 2 x  $\varnothing$  6 mm.

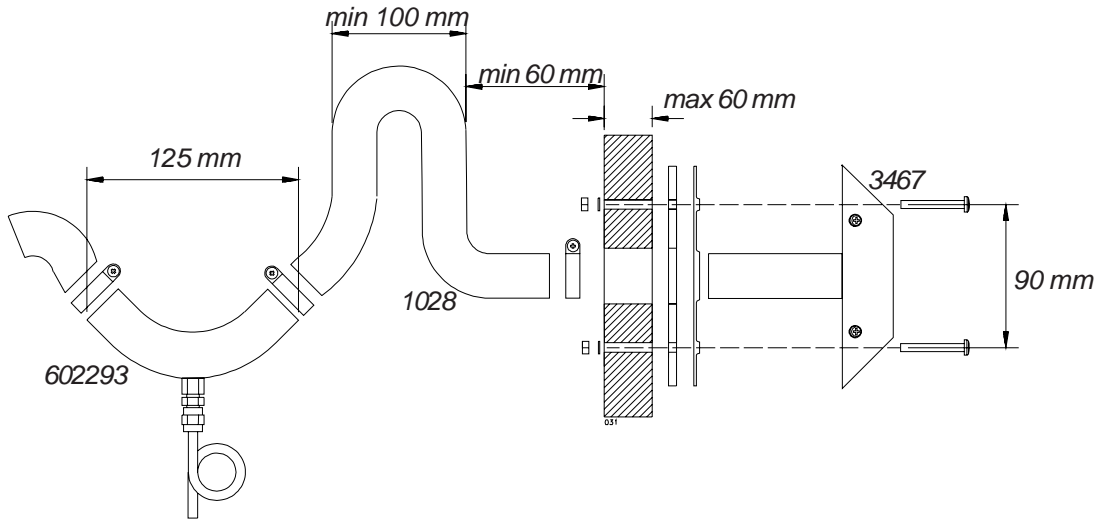


Figure 6: Installation of exhaust lead-though 1066 in hull. The installation opening is  $\varnothing$  35 mm and the screw holes are 4 x  $\varnothing$  5 mm.

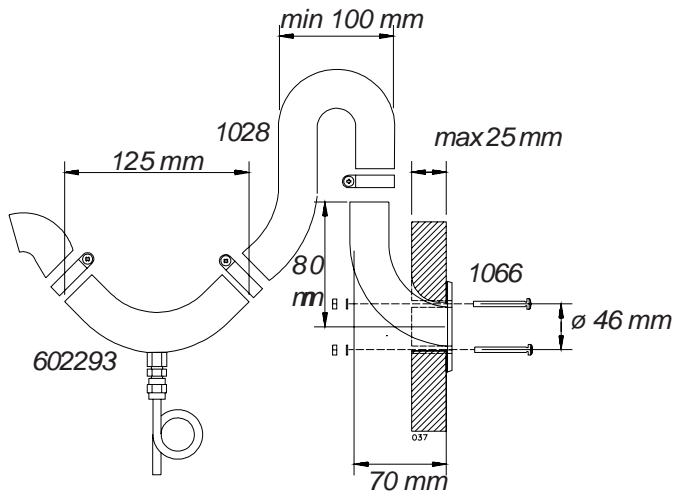


Figure 7: Standard exhaust lead-though 3467 installed in deck. The installation opening is  $\varnothing$  35-45 mm and the screw holes are 2 x  $\varnothing$  6 mm.

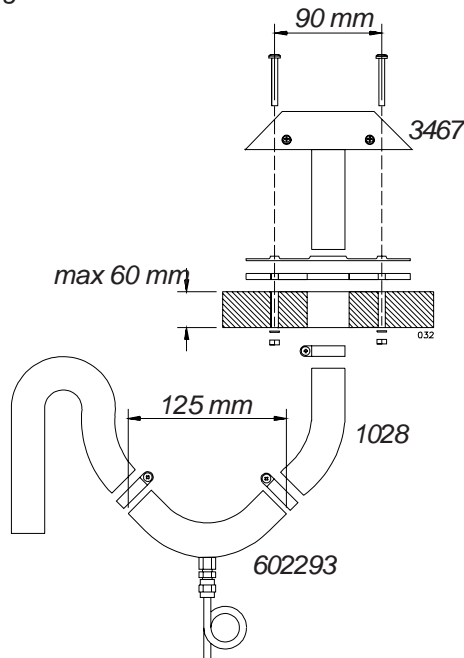
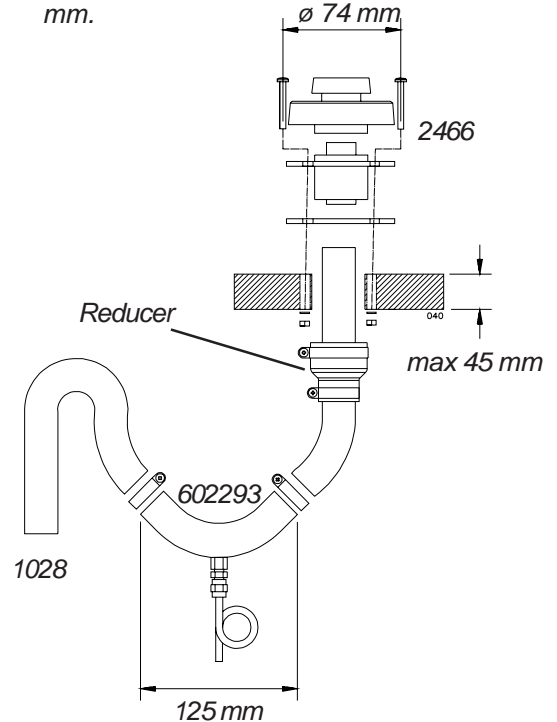


Figure 8: Installation of sealable deck lead-though 2466. The installation opening is  $\varnothing$  45 mm and the screw holes are 4 x  $\varnothing$  6 mm.



When installing deck lead-though extension 2096 for extremely demanding conditions, attach the reducer at the bottom end of the extension. The lead-though is attached to the extension as shown in figure 13.

Figure 9: Installation of standard lead-through 3468 on the hull for exhaust gas and inlet air. The installation opening is  $\varnothing$  45 mm and the screw holes are 2 x  $\varnothing$  6 mm.

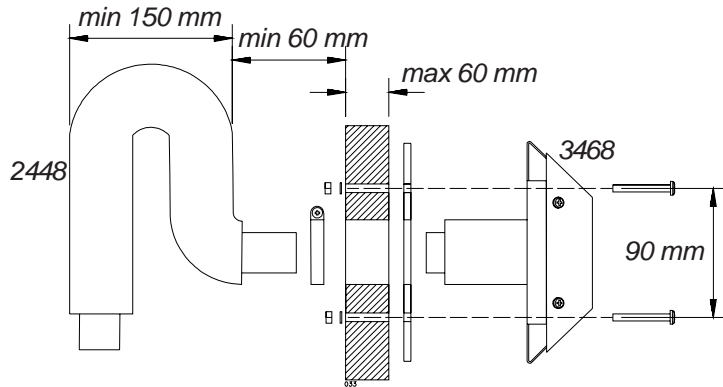


Figure 10: Hull lead-through 2467 installed. The installation opening is  $\varnothing$  50 mm and the screw holes are 4 x  $\varnothing$  6 mm.

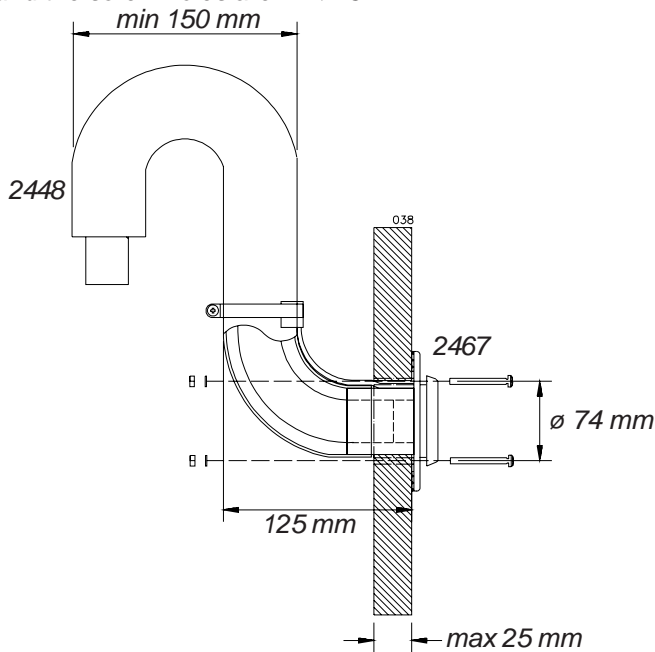


Figure 11: Standard lead-through 3468 for exhaust gas and inlet air installed in deck. The installation opening is  $\varnothing$  45 mm and the screw holes are 2 x  $\varnothing$  6 mm.

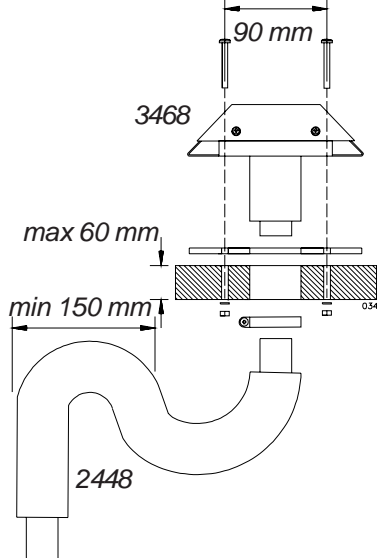
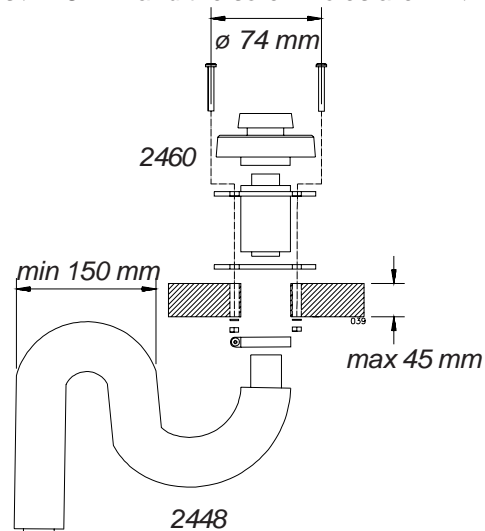
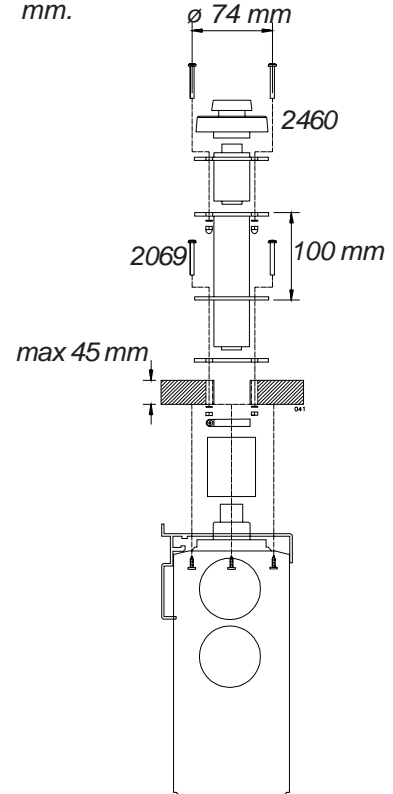


Figure 12: Installation of sealable deck lead-through 2460. The installation opening is  $\varnothing$  45 mm and the screw holes are 4 x  $\varnothing$  6 mm.



When deck lead-through extension 2069 is installed in extremely demanding conditions, the lead-through is attached to the extension as shown in figure 13.

Figure 13: Sealable deck lead-through 2460 and lead-through extension 2069 installed directly to the heater. When installed like this, the device is easily exposed to splashing water. The installation opening is  $\varnothing$  60 mm and the screw holes are 4 x  $\varnothing$  6 mm.



When the deck lead-through is installed directly to the heater without extension 2069, the lead-through is attached to the deck like an extension piece.