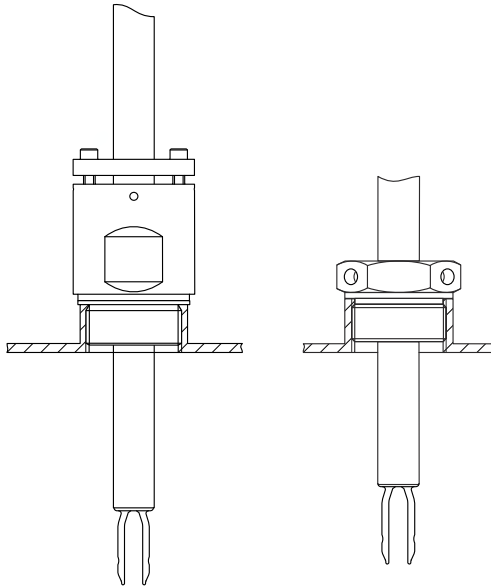


Special Documentation

Liquiphant FTL41, FTL51B, FTL64, FTL71, FTL81

Vibronic
Sliding sleeve for Liquiphant



1 Safety symbols

DANGER

This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

WARNING

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.

CAUTION

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.

NOTICE

This symbol contains information on procedures and other facts which do not result in personal injury.

2 Designated use

- Replace a defective unit with a functioning unit of the same type only
- Only use original parts from Endress+Hauser
- Use W@M Device Viewer to check if the accessory part is suitable for the specific measuring device

3 Requirements for the personnel

The personnel must fulfill the following requirements to carry out the necessary tasks, e. g., commissioning and maintenance:

- ▶ Trained, qualified specialists must have a relevant qualification for the specific function and task
- ▶ Are authorized by the plant owner/operator
- ▶ Are familiar with federal/national regulations
- ▶ Must have read and understood the instructions in the manual and supplementary documentation
- ▶ Follow instructions and comply with conditions

4 Safety instructions

- Observe federal/national regulations in relation to mounting, electrical installation, commissioning, maintenance and repair
- The measuring device is energized! Risk of fatal injury from electric shock. Open the measuring device only when the device is de-energized.
- Only open an Ex-certified measuring device when the device is de-energized!
Wait for a period of 10 minutes after switching off the energy supply or in environments without an explosive atmosphere
- In the case of measuring devices in safety-related applications in accordance with IEC 61508 or IEC 61511: commission in accordance with Operating Instructions after repair. Document the repair procedure.
- Before removing the device: set the process to a safe state and purge the pipe of dangerous process substances
- Hot surfaces! Risk of injury! Before commencing work: allow the system and measuring device to cool down to a touchable temperature
- Follow the Operating Instructions for the device
- Modifications to the measuring device are not permitted
- Observe the instructions for transporting and returning the device outlined in the Operating Instructions



In case of questions, please contact the local [Endress+Hauser Service organization](#).

5 Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany

Place of manufacture: See nameplate.

6 High pressure sliding sleeves

6.1 Tools list



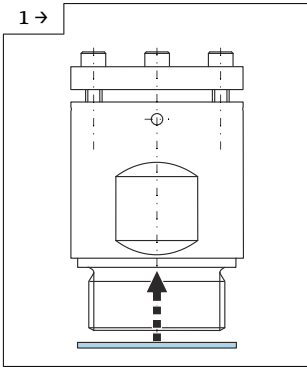
Allen key
5 mm



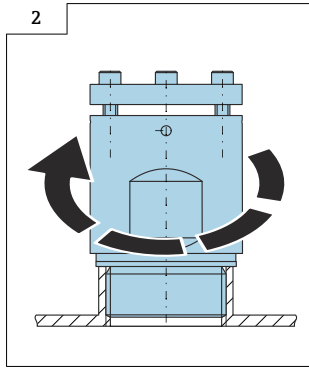
Open-ended wrench
50 mm

6.2 High pressure sliding sleeves G 1, G 1½

6.2.1 Mounting, screwing in



A0039286

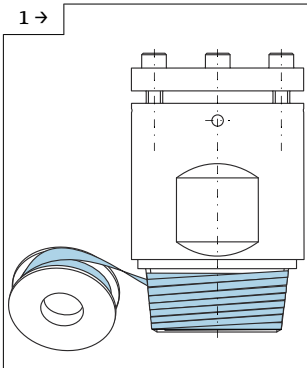


A0039287

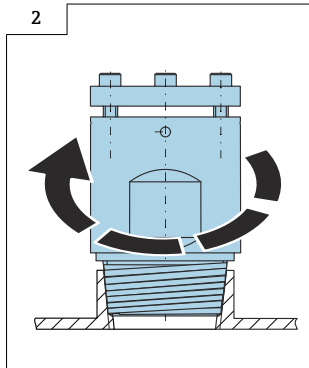
- ▶ G 1: Insert seal (33 mm x 39 mm).
- ▶ G 1½: Insert seal (48 mm x 55 mm).

- ▶ 300 to 600 Nm
(220 to 440 lbf ft)

6.3 High pressure sliding sleeves NPT 1, NPT 1½

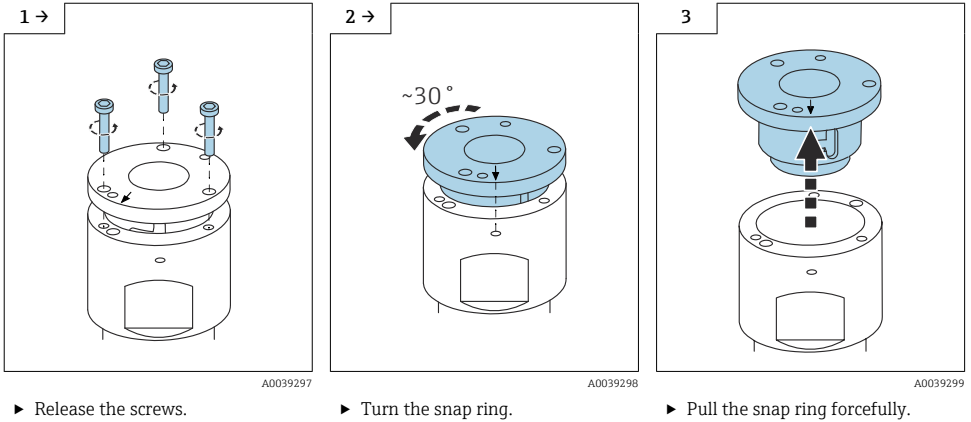


A0039288

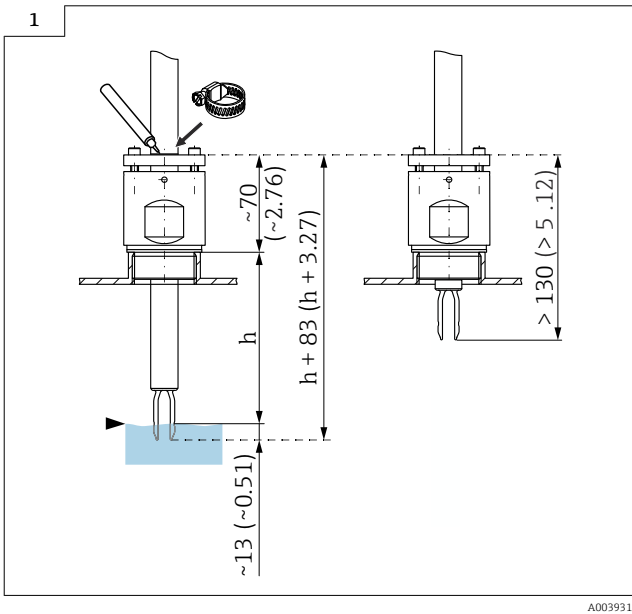


A0039289

6.4 Removing snap ring

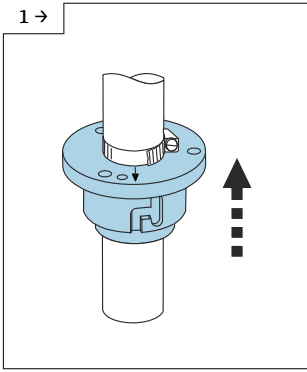


6.5 Determining the height setting for the switch point

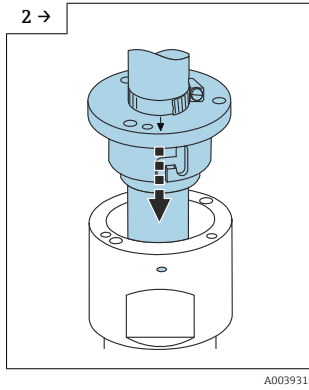


- Mark the height setting or fit a limit stop (hose clip).

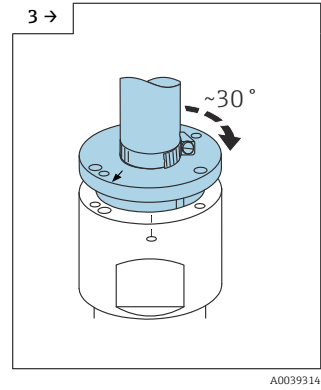
6.6 Mounting the snap ring



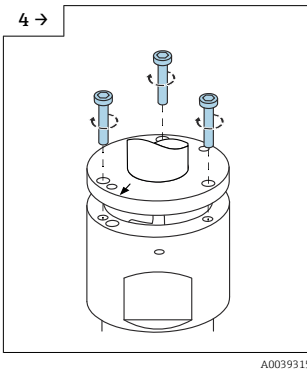
- ▶ Insert the Liquiphant up to the marking or limit stop (hose clip).



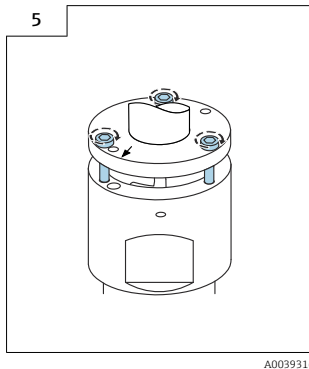
- ▶ Fit the snap ring.



- ▶ Turn the snap ring.



- ▶ Turn in the screws.



- ▶ Tighten the screws
6 to 8 Nm (4.5 to 6 lbf ft)
- ▶ Allow a waiting time to elapse
and retighten the screws
6 to 8 Nm (4.5 to 6 lbf ft)

6.7 Changing the switch point

⚠ WARNING

The vessel is pressurized.

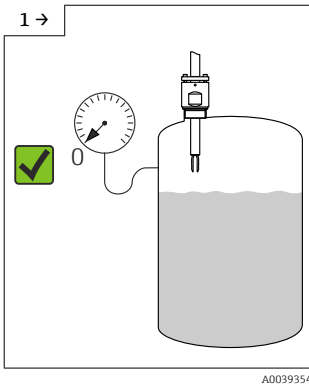
Risk of injury from explosion.

- ▶ Ensure that the vessel is in an unpressurized condition.

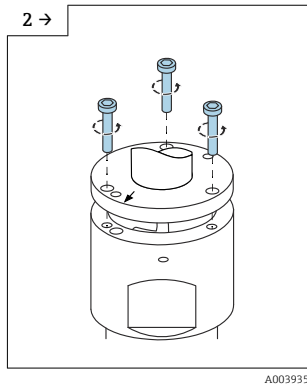


Moving the sensor back and forth causes leaks and accelerates wear of the graphite sealing rings.

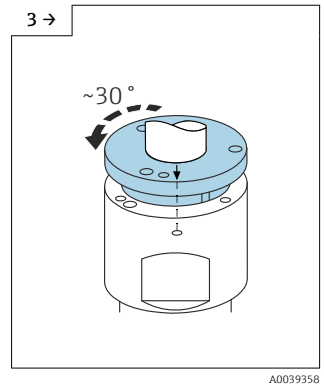
- Replace the graphite sealing rings after 3 switch point settings.
- Order number for graphite sealing rings: 71078875, including Brief Operating Instructions for seal replacement



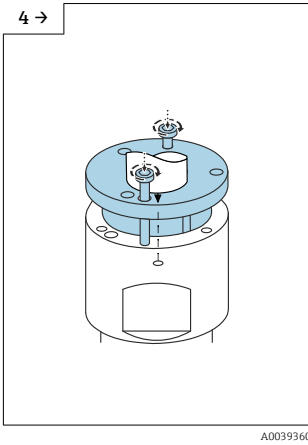
- ▶ Before starting work, ensure that the vessel is in an unpressurized condition!



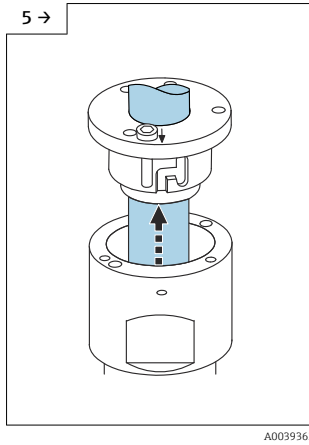
- ▶ Once the vessel is unpressurized, release the screws.



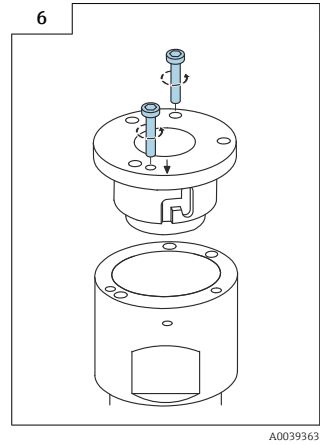
- ▶ Turn the snap ring.



- ▶ Pull off the snap ring by turning in the screws.

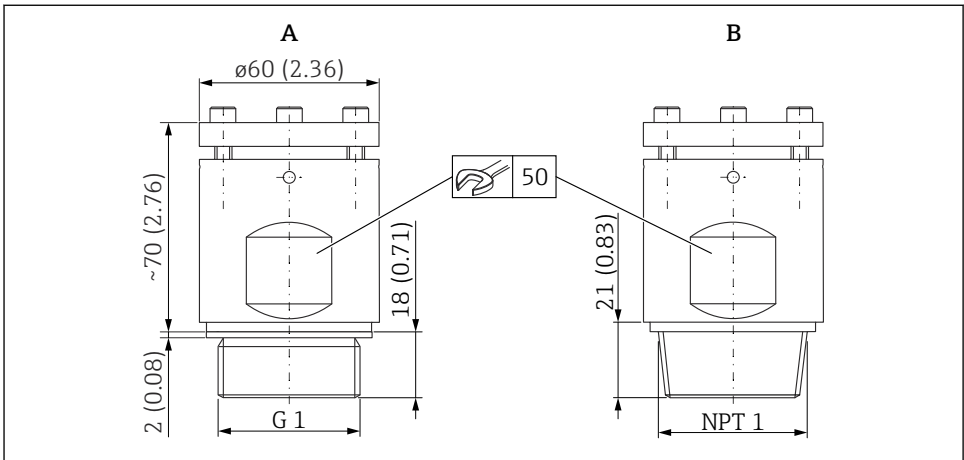


- ▶ Pull out the Liquiphant.



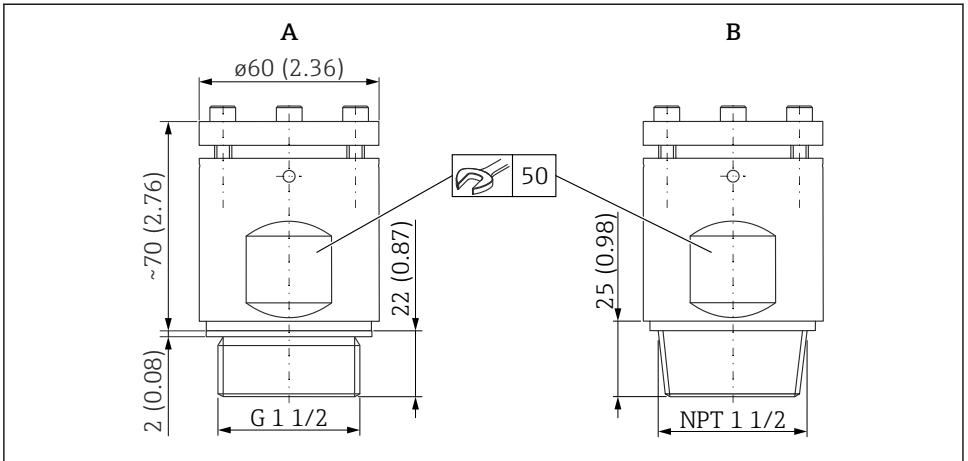
- ▶ Release the screws.
- ▶ For information on setting a new switch point, see the section on determining the height setting for the switch point and the section on mounting the snap ring.

6.8 Technical data



Unit of measurement mm (in)

- A G 1
- B NPT 1



A0039364

Unit of measurement mm (in)

A G 1 1/2

B NPT 1 1/2

6.8.1 Materials

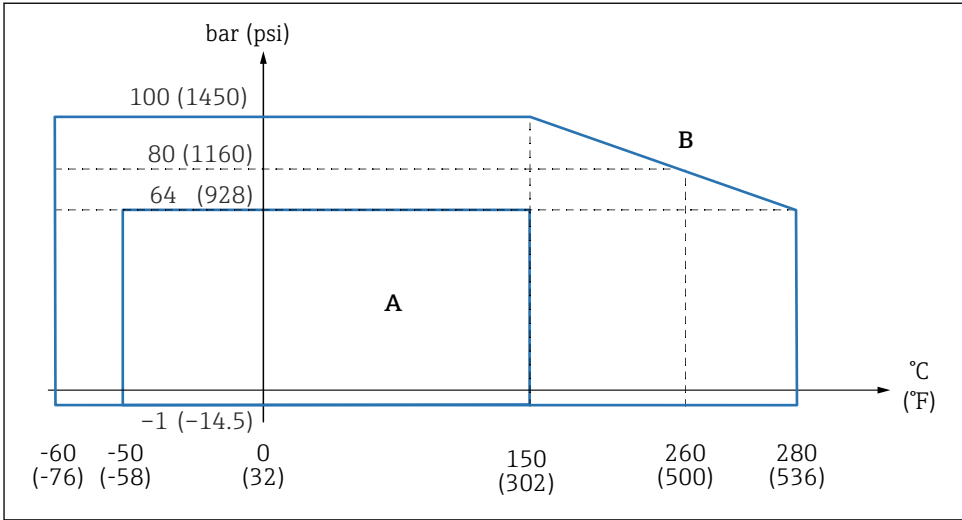
Materials process connection (in contact with process)

- 316L (1.4435)
- Alloy C22 (2.4602)

Materials snap ring (not in contact with process)

304 (1.4301)

6.8.2 Derating



A0039367


A *Liquiphant, Liquiphant M*


B *Liquiphant S*

7 Sliding sleeves for unpressurized operation

7.1 Sliding sleeves for unpressurized operation G 1, NPT 1


7.1.1 Tools list

 Allen key
3 mm

 Open-ended wrench
41 mm

7.2 Sliding sleeves for unpressurized operation G 1½, NPT 1½

7.2.1 Tools list

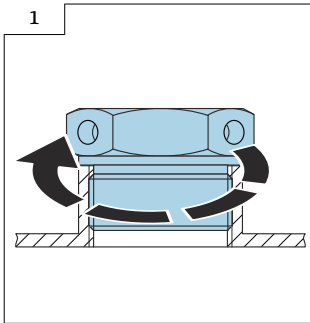
 Allen key
3 mm



Open-ended wrench
55 mm

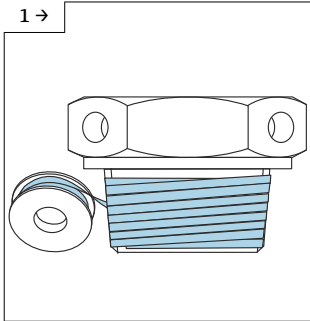
7.3 Mounting, screwing in

7.3.1 Sliding sleeves for unpressurized operation G 1, G 1½

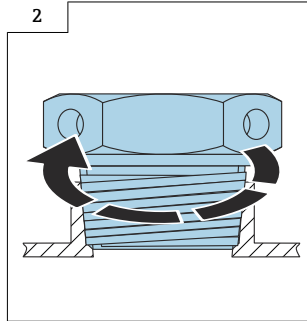


A0039381

7.3.2 Sliding sleeves for unpressurized operation NPT 1, NPT 1½

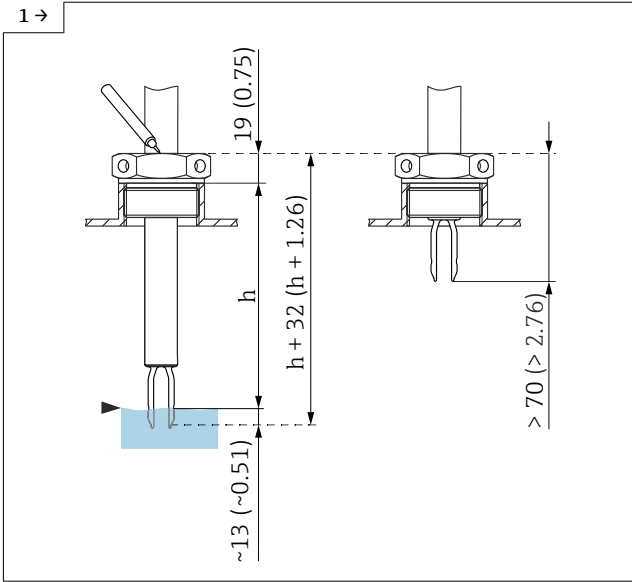


A0039372

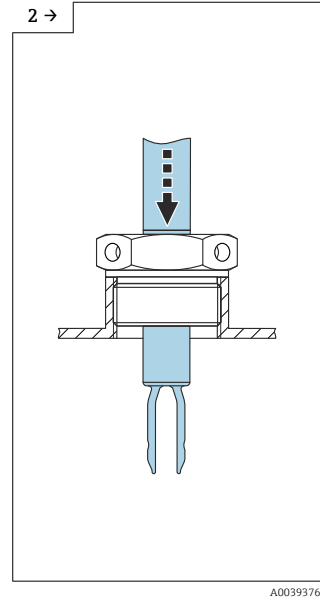


A0039373

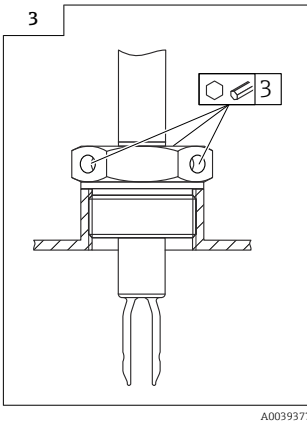
7.4 Determining the height setting for the switch point



- ▶ Mark the height setting.

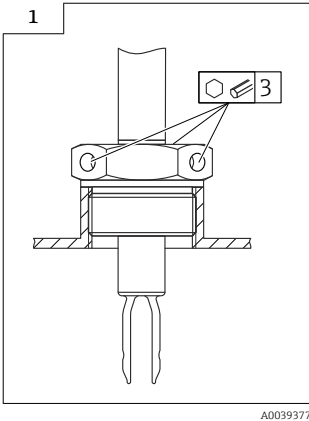


- ▶ Insert the Liquiphant up to the marking and hold it securely.



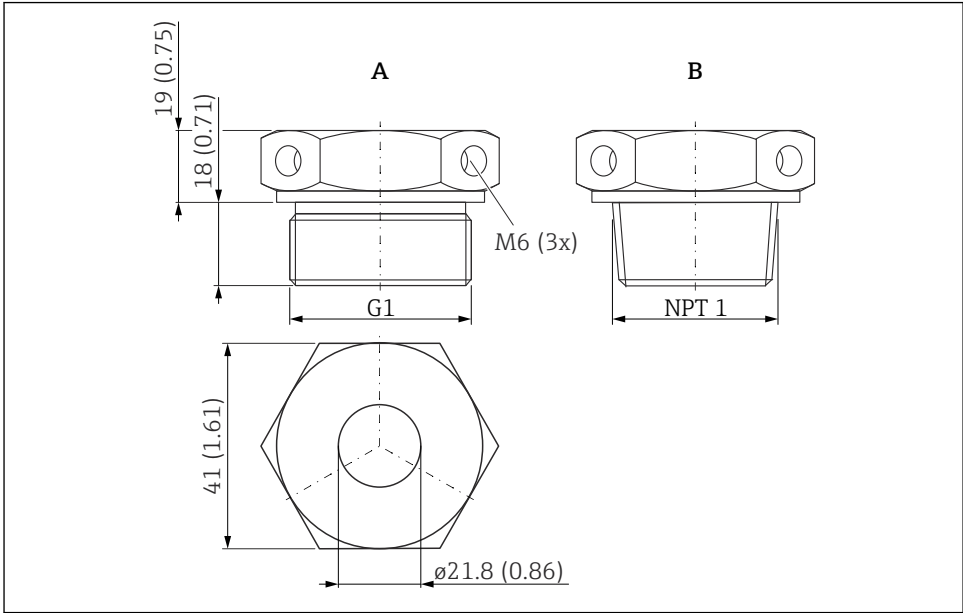
- ▶ Tighten the fixing screws. Max. 4 Nm (3 ft lbs).

7.5 Changing the switch point



- ▶ Hold the Liquiphant securely.
- ▶ Release the fixing screws.
- ▶ Push the Liquiphant to the desired position.
- ▶ Tighten the fixing screws. Max. 4 Nm (3 ft lbs).

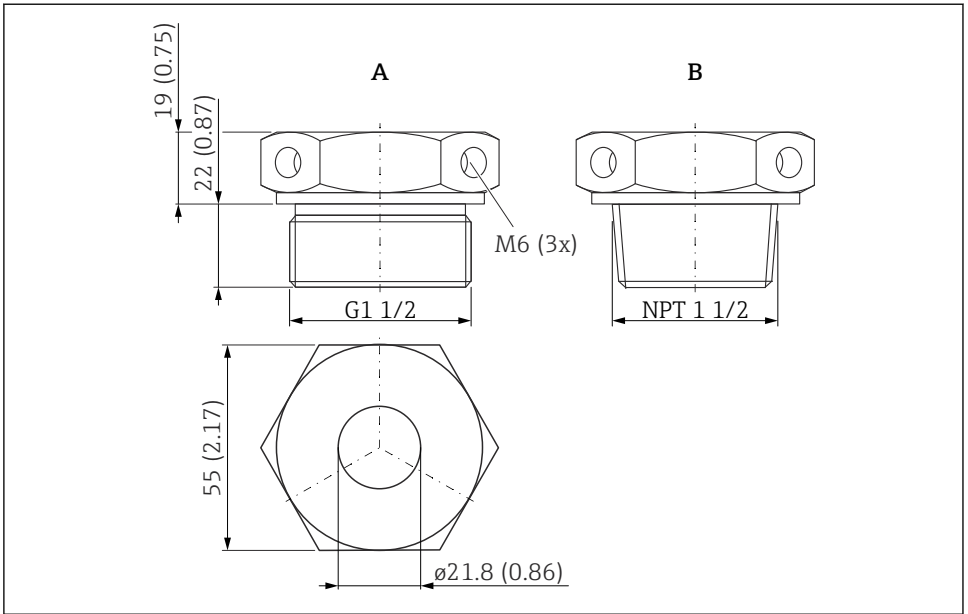
7.6 Technical data



A0039382

Unit of measurement mm (in)

- A G1
- B NPT 1



A0039370

Unit of measurement mm (in)

A G1 1/2

B NPT 1 1/2

7.6.1 Material

Material: 316L (1.4435)



71577864

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