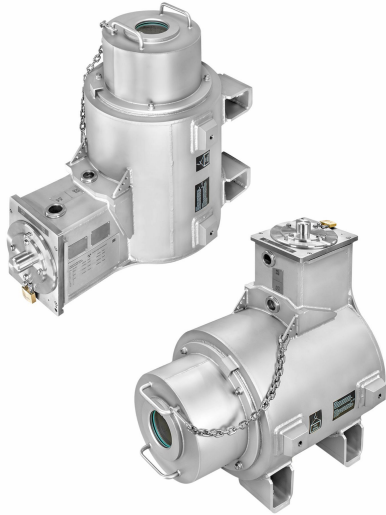


Technical Information

Source Container FQG74

Radiometric level measurement



Source container with up to 20 radiation sources

Application

The measuring system consists of Source Container FQG74, multiple Gamma Radiation Source FSG60 units and multiple Gammapiot FMG50 detectors.

Source Container FQG74 is designed for 12 or 20 radiation sources.

Hydrocracker, PTA plants, Density profiling systems, HF storage tanks.

Source Container FQG74 can accommodate the following maximum activity:

- Gamma Radiation Source FSG60: cesium-137: 740 GBq (20 Ci)
- Gamma Radiation Source FSG61: cobalt-60: 148 GBq (4 Ci)

Cesium-137 or cobalt-60 radiation sources, no nuclide mixture. Co, keine Nuklid-Mischung.

Your benefits

- Up to 20 radiation sources (in straight or curved protection pipes)
- Up to 30 m (98 ft) cable length
- Optimized shielding for high activity
- Highest safety classification for the radiation sources supplied (ISO 2919, typical classification C66646)
- Manual switch-on and switch-off ("ON/AN" or "OFF/AUS")
- Retaining element/padlock to fix switch position ("ON/AN" and "OFF/AUS")
- Switch state easily identified
- The FQG74 source container meets the design requirements of IEC 62598 for a category B storage container

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About this document

Symbols

Safety symbols



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



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



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



This symbol alerts you to a potentially harmful situation. Failure to avoid this situation can result in damage to the product or something in its vicinity.

Radiation warning sign



Warning symbol for radioactive source according to ISO 7010



Warning symbol for highly radioactive source according to ISO 21482

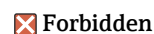
High radiation warning sign

- Warns of highly radioactive substances or ionizing radiation
- Highly radioactive sources are marked separately on the source containers with the wording "highly radioactive source" and the additional warning symbol in accordance with ISO 21482

Symbols for certain types of information and graphics



Procedures, processes or actions that are permitted



Procedures, processes or actions that are forbidden



Indicates additional information



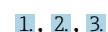
Reference to documentation



Reference to graphic



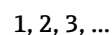
Notice or individual step to be observed



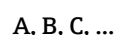
Series of steps



Result of a step



Item numbers



Views

 → **Safety instructions**

Observe the safety instructions contained in the associated Operating Instructions

Documentation

For an overview of the scope of the associated Technical Documentation, refer to the following:

- *Device Viewer* (www.endress.com/deviceviewer): Enter the serial number from the nameplate
- *Endress+Hauser Operations app*: Enter serial number from nameplate or scan matrix code on nameplate.

Function and system design

Function

Function of the source container

The radiation sources are surrounded by a lead-filled steel jacket in the source container, which shields the gamma radiation. The radiation sources can be brought into the process on separate ropes in a protection pipe. The radiation from the radiation sources is used for the radiometric measurement.

Switching the radiation ON and OFF

- The current switch position ("ON/AN" or "OFF/AUS") of the shutter and radiation sources concerned can be viewed from the outside via a window.
- The current switch position ("ON/AN" or "OFF/AUS") is secured by a lock.

System design

The FQG74 source container is mounted vertically on the vessel via the connecting flange
The gamma radiation is detected by several FMG50s

Container types

Typical container types for FQG74 applications

- Horizontal container, for example for interface measurement
- Vertical container, for example for level measurement

Attenuation factor and half-value layers

Cesium-137

In the direction of radiation (in the direction of the connecting flange)

- Attenuation factor F_s :
for cesium-137: 32600
- Number of half-value layers:
for cesium-137: 15

In the direction opposite to the beam (in the direction of the shutter)

- Attenuation factor F_s :
for cesium-137: 52500
- Number of half-value layers:
for cesium-137: 15.6

 These are typical values that do not take into account production-related variations in the activity and tolerances of the measuring instruments.

Cobalt-60

In the direction of radiation (in the direction of the connecting flange)

- Attenuation factor F_s :
for cobalt-60: TBD
- Number of half-value layers:
for cobalt-60: TBD

In the direction opposite to the beam (in the direction of the shutter)

- Attenuation factor F_s :
for cobalt-60: TBD
- Number of half-value layers:
for cobalt-60: TBD

 These are typical values that do not take into account production-related variations in the activity and tolerances of the measuring instruments.

Maximum activity of the radiation sources

 The maximum admissible activity can be further restricted by country-specific approvals.

Cesium-137	Feature 025; option "B1", "B2", "B3"	Feature 025; option "A1"
Maximum load	20 000 mCi (740 GBq) Cesium-137	20 000 mCi (740 GBq) Cesium-137
Maximum single load	1 000 mCi (37 GBq) Cesium-137 or 5 000 mCi (185 GBq) Cesium-137 ¹⁾	1 000 mCi (37 GBq) Cesium-137 or 5 000 mCi (185 GBq) Cesium-137 ²⁾

Cesium-137	Feature 025; option "B1", "B2", "B3"	Feature 025; option "A1"
Lowerable source magazine (feature 025)	■ YES (Option "B2") ■ NO (Option "B1") ■ NO (Option "B3")	NO (option "A1")
Number of radiation sources	1-12	1-20

- 1) for assembly positions P2, P7, P12 and P17: 5 000 mCi (185 GBq)cesium-137
 2) for assembly positions P2, P5, P8 and P11: 5 000 mCi (185 GBq)cesium-137

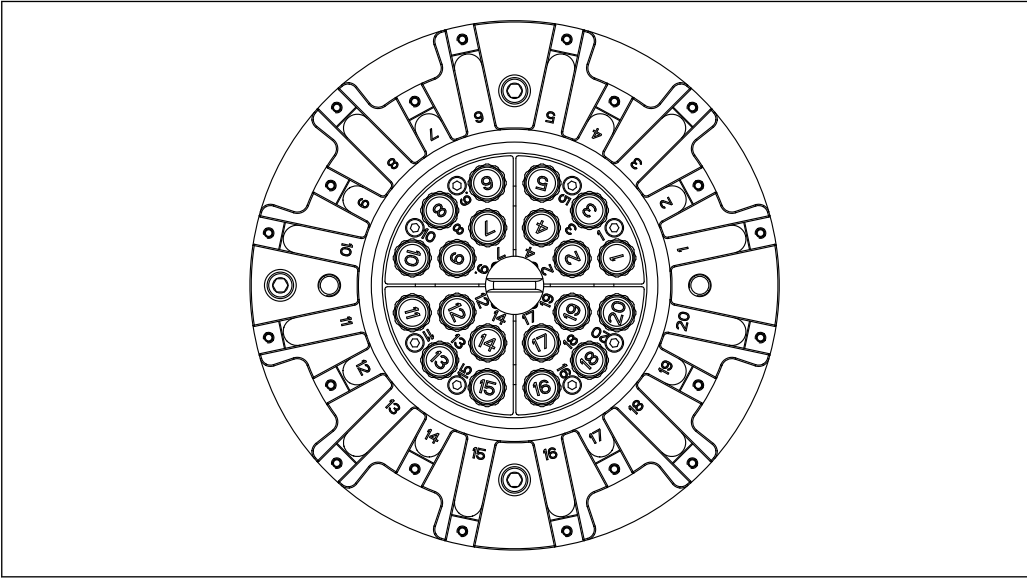
Cobalt-60	Feature 025; option "B1", "B2", "B3"	Feature 025; option "A1"
Maximum load	4 000 mCi (148 GBq) Cobalt-60	4 000 mCi (148 GBq) Cobalt-60
Maximum single load	200 mCi (7.4 GBq) Cobalt-60 or 500 mCi (18.5 GBq) Cobalt-60 ¹⁾	200 mCi (7.4 GBq) Cobalt-60 or 500 mCi (18.5 GBq) Cobalt-60 ²⁾
Lowerable source magazine (feature 025)	■ YES (Option "B2") ■ NO (Option "B1") ■ NO (Option "B3")	NO (option "A1")
Number of radiation sources	1-12	1-20

- 1) for assembly positions P2, P7, P12 and P17: 500 mCi (18.5 GBq)cobalt-60
 2) for assembly positions P2, P7, P12 and P17: 500 mCi (18.5 GBq)cobalt-60

Determining the position of the source magazines

-  The tables show the positions (P1-P20) on the source magazines (vertical column) in which the source holders (horizontal row) are located when the magazine is not completely filled.
-  Positions not occupied by source holders are loaded with dummy rods.

Source magazine (20-position)



A0055570

 1 Loading overview, source magazine (20-position)

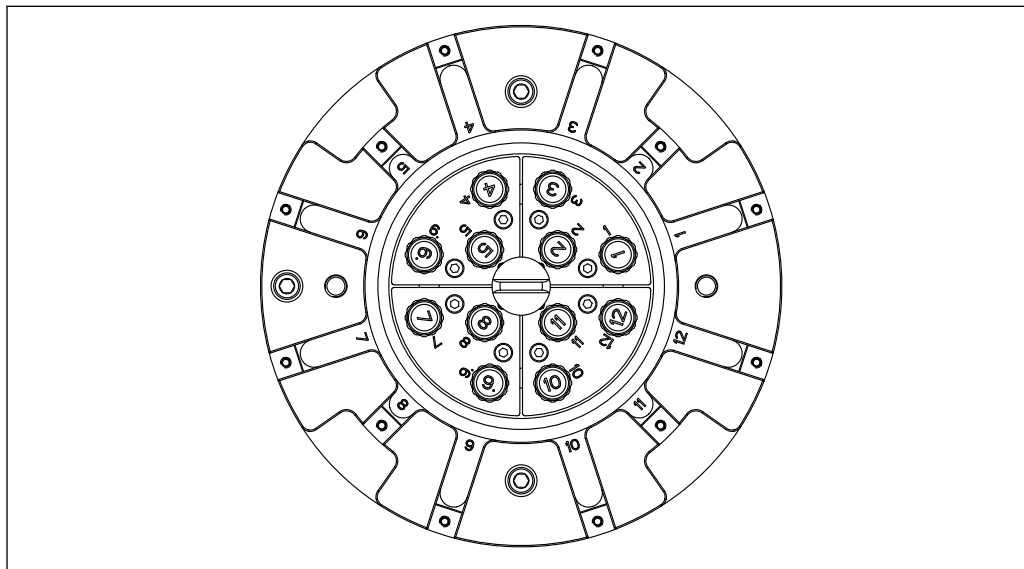
	Number of radiation source (depending on characteristic 100)																			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
P1	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	
P2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	
P4	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P5	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	
P6	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	
P7	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	
P9	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P10	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	
P11	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	
P12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	
P14	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P15	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	
P16	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	
P17	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
P18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	
P19	-	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	
P20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x	x	x	x	

P1-P20: Positions in source magazine

x: loaded with source holder

-: loaded with dummy rod

Source magazine (12-position)



A0055571

2 Loading overview, source magazine (12-position)

	Number of radiation source (depending on characteristic 100)										
	2	3	4	5	6	7	8	9	10	11	12
P1	-	-	-	x	x	x	x	x	x	x	x
P2	x	x	x	x	x	x	x	x	x	x	x
P3	-	-	-	-	-	-	-	x	x	x	x
P4	-	-	-	-	-	x	x	x	x	x	x
P5	-	x	x	x	x	x	x	x	x	x	x
P6	-	-	-	-	-	-	-	-	-	x	x
P7	-	-	-	-	x	x	x	x	x	x	x
P8	x	x	x	x	x	x	x	x	x	x	x
P9	-	-	-	-	-	-	-	-	x	x	x
P10	-	-	-	-	-	-	x	x	x	x	x
P11	-	-	x	x	x	x	x	x	x	x	x
P12	-	-	-	-	-	-	-	-	-	-	x

P1-P12: Positions in source magazine

x: loaded with source holder

-: loaded with dummy rod

Dose rate diagrams

A dose rate diagram specifies the local dose rate at a specified distance from the surface of the source container.

The following are examples of dose rate diagrams for a distance of 1 m (3.3 ft).

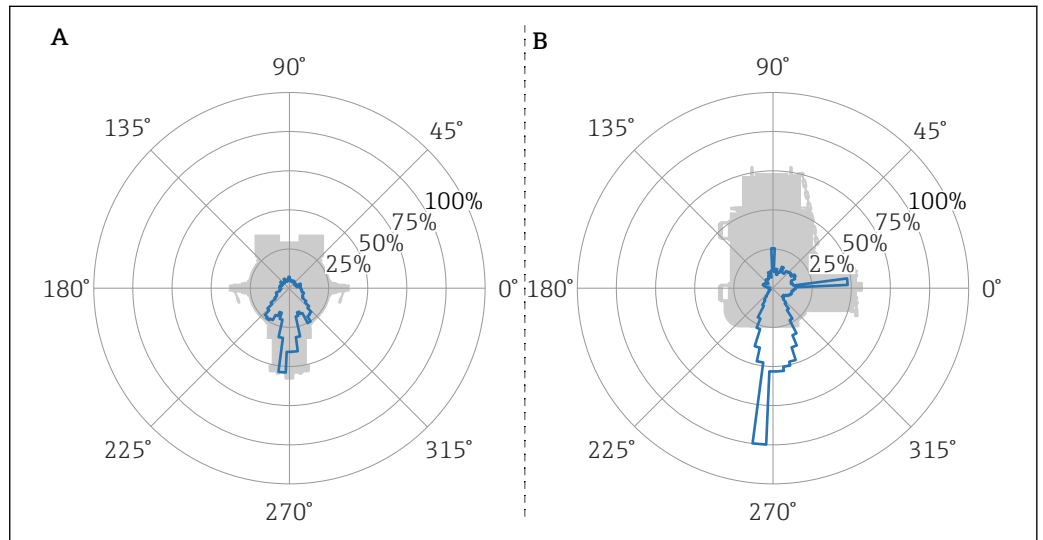
All dose rate diagrams and maximum values refer to the "OFF/AUS" switching position and are without a transportation lock.



Dose rate diagrams for individual radiation source configurations are available on request

Dose rate diagrams for cesium-137 in the 20-position source magazine

1 m (3.3 ft) distance to the surface



3 20-position source magazine (feature 25; option A1) in "OFF/AUS" position

A Equipped with 20 cesium-137 radiation sources of equal nominal activity (shutter at the bottom)

B Equipped with 20 cesium-137 radiation sources of equal nominal activity (shutter at the right)

Calculation of the maximum local dose rate ($\mu\text{Sv/h}$) at a 1 m (3.3 ft) distance to the surface

Maximum local dose rate ($\mu\text{Sv/h}$): Sum of the loaded individual activities (GBq) $\cdot$ 0.0052 ($\mu\text{Sv/h}$ / GBq)

Formula: $D_{\text{max}} = \sum A \cdot k_{20}$

D_{max} : Maximum local dose rate ($\mu\text{Sv/h}$)

A: Individual activity (GBq)

Factor k_{20} : 0.0052 ($\mu\text{Sv/h}$ / GBq)

Example:

Application with 20 radiation sources each with an individual activity of 37 GBq

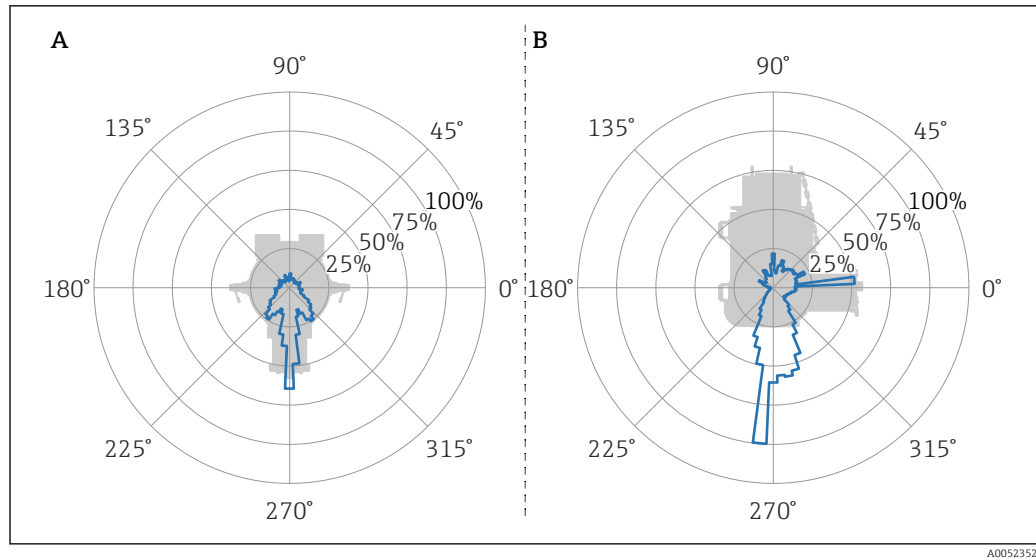
D_{max} : $20 \cdot 37 \text{ GBq} \cdot 0.0052 \mu\text{Sv/h} / \text{GBq}$ **3.848 $\mu\text{Sv/h}$**



The maximum local dose rate corresponds to the 100% value of the diagram

Dose rate diagrams for cesium-137 in the 12-position source magazine

1 m (3.3 ft) distance to the surface



4 12-position source magazine (feature 25; option B1, B2, B3) in "OFF/AUS" position

A Equipped with 12 cesium-137 radiation sources of equal nominal activity (shutter at the bottom)

B Equipped with 12 cesium-137 radiation sources of equal nominal activity (shutter at the right)

Calculation of the maximum local dose rate ($\mu\text{Sv/h}$) at a distance of 1 m (3.3 ft) to the surface

Maximum local dose rate ($\mu\text{Sv/h}$): Sum of the loaded individual activities (GBq) $\cdot$ 0.0056 ($\mu\text{Sv/h}$ / GBq)

Formula: $D_{\text{max}} = \sum A \cdot k_{12}$

D_{max} : Maximum local dose rate ($\mu\text{Sv/h}$)

A: Individual activity (GBq)

Factor k_{12} : 0.0056 ($\mu\text{Sv/h}$ / GBq)

Example:

Application with 12 radiation sources each with an individual activity of 37 GBq

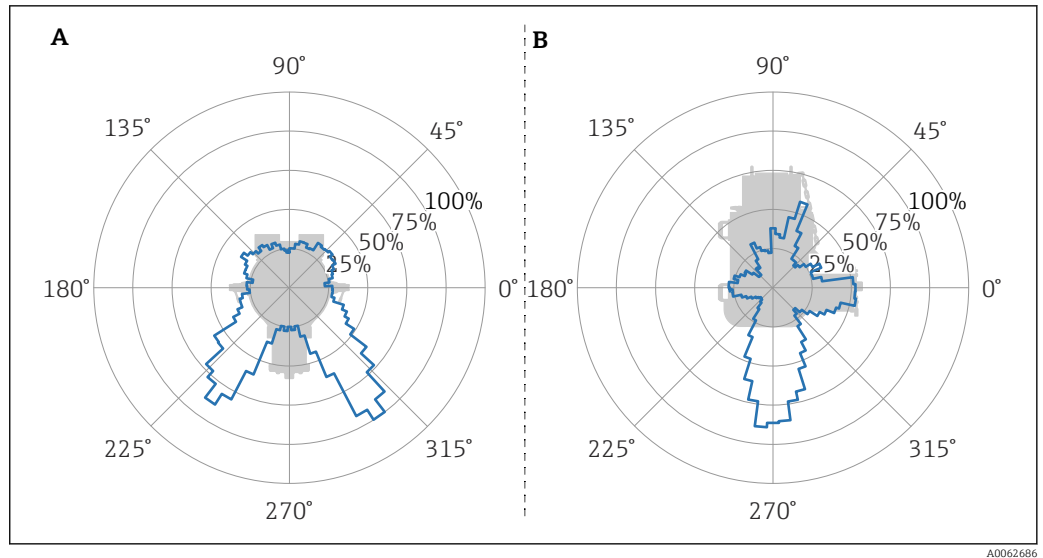
D_{max} : $12 \cdot 37 \text{ GBq} \cdot 0.0056 \mu\text{Sv/h} / \text{GBq}$: **2.4864 $\mu\text{Sv/h}$**



The maximum local dose rate corresponds to the 100% value of the diagram

Dose rate diagrams for cobalt-60 in the 20-position source magazine

1 m (3.3 ft) distance to the surface



5 20-position source magazine (feature 25; option A1) in "OFF/AUS" position

A Equipped with 20 cobalt-60 radiation sources of equal nominal activity (shutter at the bottom)

B Equipped with 20 cobalt-60 radiation sources of equal nominal activity (shutter at the right)

Calculation of the maximum local dose rate ($\mu\text{Sv/h}$) at a 1 m (3.3 ft) distance to the surface

Maximum local dose rate ($\mu\text{Sv/h}$): Sum of the loaded individual activities (GBq) $\cdot$ 0.13 ($\mu\text{Sv/h}$ / GBq)

Formula: $D_{\text{max}} = \sum A \cdot k_{20}$

D_{max} : Maximum local dose rate ($\mu\text{Sv/h}$)

A: Individual activity (GBq)

Factor k_{20} : 0.13 ($\mu\text{Sv/h}$ / GBq)

Example:

Application with 20 radiation sources each with an individual activity of 7.4 GBq

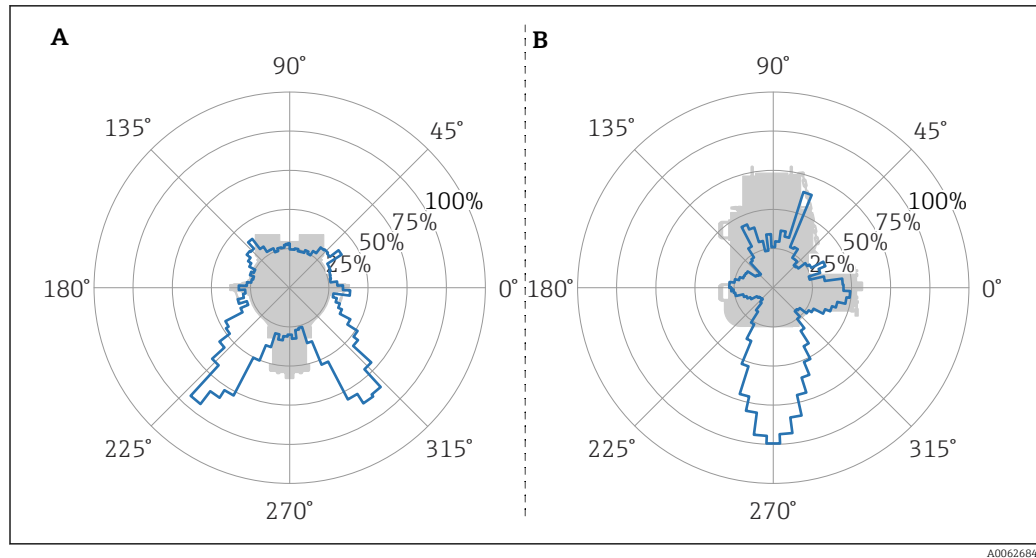
D_{max} : $20 \cdot 7.4 \text{ GBq} \cdot 0.13 \mu\text{Sv/h} / \text{GBq}$: **19.24 $\mu\text{Sv/h}$**



The maximum local dose rate corresponds to the 100% value of the diagram

Dose rate diagrams for cobalt-60 in the 12-position source magazine

1 m (3.3 ft) distance to the surface



6 12-position source magazine (feature 25; option B1, B2, B3) in "OFF/AUS" position

A Equipped with 12 cobalt-60 radiation sources of equal nominal activity (shutter at the bottom)

B Equipped with 12 cobalt-60 radiation sources of equal nominal activity (shutter at the right)

Calculation of the maximum local dose rate ($\mu\text{Sv/h}$) at a distance of 1 m (3.3 ft) to the surface

Maximum local dose rate ($\mu\text{Sv/h}$): Sum of the loaded individual activities (GBq) $\cdot$ 0.11 ($\mu\text{Sv/h} / \text{GBq}$)

Formula: $D_{\text{max}} = \sum A \cdot k_{12}$

D_{max} : Maximum local dose rate ($\mu\text{Sv/h}$)

A: Individual activity (GBq)

Factor k_{12} : 0.11 ($\mu\text{Sv/h} / \text{GBq}$)

Example:

Application with 12 radiation sources each with an individual activity of 7.4 GBq

D_{max} : $12 \cdot 7.4 \text{ GBq} \cdot 0.11 \mu\text{Sv/h} / \text{GBq}$: **9.768 $\mu\text{Sv/h}$**



The maximum local dose rate corresponds to the 100% value of the diagram

Installation

Installation instructions

NOTICE

Corrosion or damage to the protection pipes

Leaks in protection pipes can endanger the integrity of radiation sources, thus increasing the risk of contamination

- It is recommended to use double-walled protection pipes

NOTICE

Errors in the planning and implementation of the internal diameters and bending radii of the protection pipes

Source holders can become obstructed in the protection pipe or can get stuck in the protection pipe

- The recommended distance between two consecutive radiation sources should be at least 400 mm (15.75 in). This restriction does not apply if the protection pipe has an internal diameter >38 mm (1.5 in).
- For 20 radiation sources, only straight protection pipes should be used (feature 25: option "A1")
- For 12 radiation sources, only straight protection pipes may be used (feature 25: option "B1" or "B2")
- For 12 radiation sources, curved protection pipes may also be used (feature 25: option "B3"). Flexible source holders must be used for curved protection pipes.



For designing and ordering corrugated conduits and any mounted parts required for curved protection pipes:

Contact the Endress+Hauser sales organization

Orientation

For the measurement, the source container is installed vertically on the product vessel via the connecting flange.

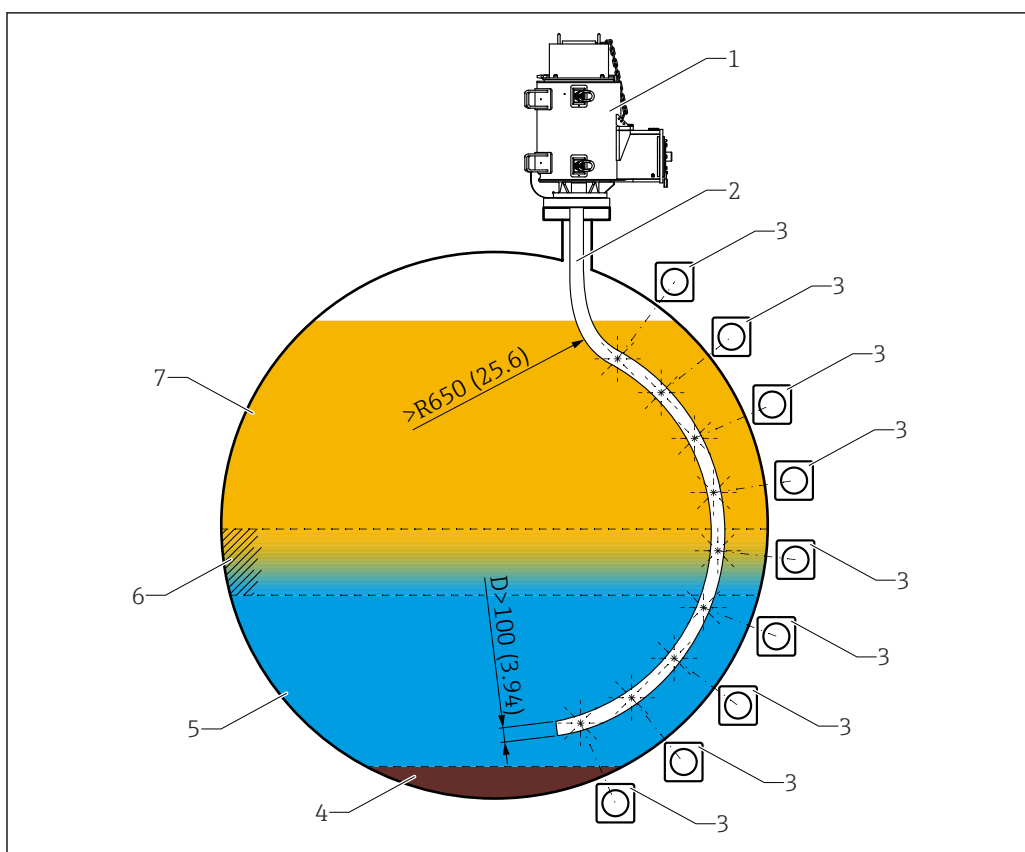
DANGER

Risk of accident from heavy gross weight

Incorrectly mounted source containers could lead to personal injuries and serious damage to physical items if they fall.

- Only vertical flange mounting is permitted.

Interface measurement



A0052330

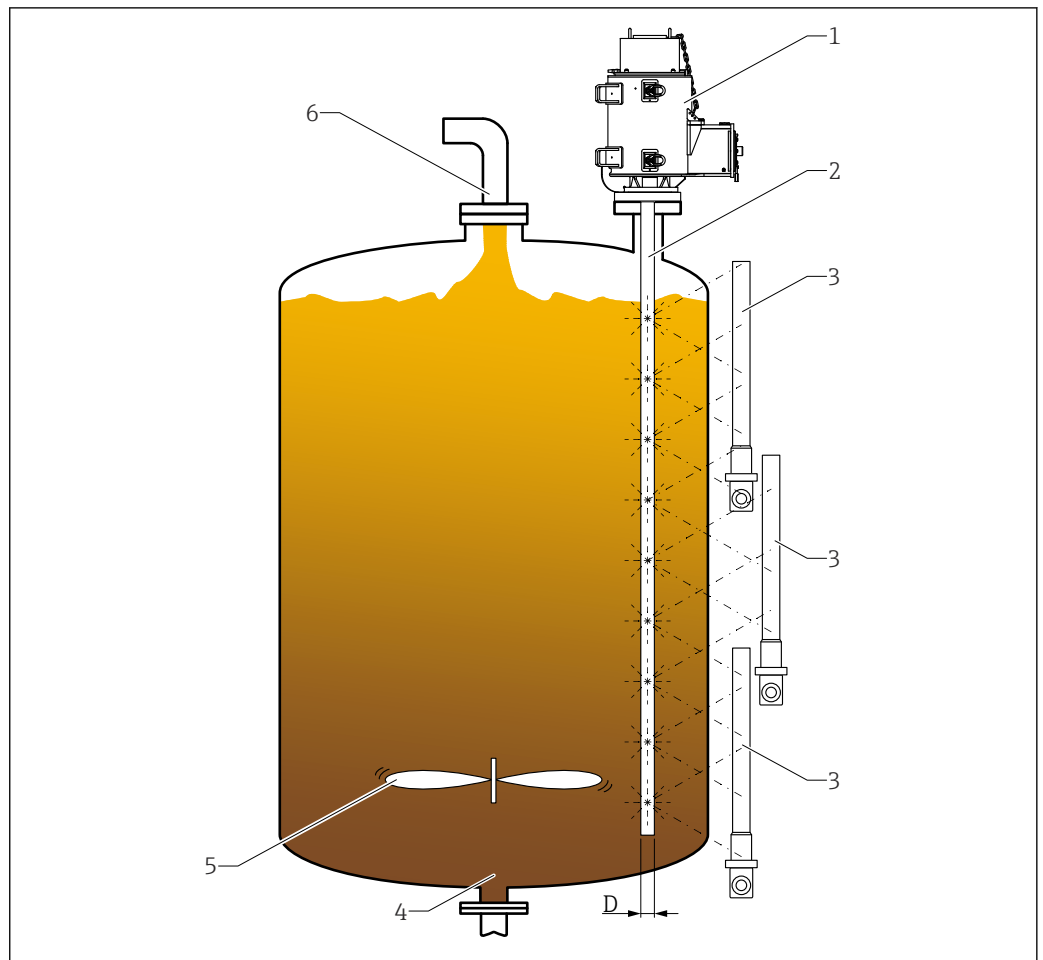
7 Interface measurement

- 1 FQG74
- 2 Curved protection pipe
- 3 Gammapirot FMG50
- 4 Medium: Sand/sludge
- 5 Medium: Water
- 6 Medium: Emulsion
- 7 Medium: Oil
- R Minimum radius: 650 mm (25.6 in)
- D Minimum internal diameter of the protection pipe



For the version with curved protection pipes:
Contact the Endress+Hauser sales organization

Level measurement



A0055455

8 Level measurement

- 1 FQG74
- 2 Straight protection pipe
- 3 Gammapiot FMG50
- 4 Medium
- 5 Agitator
- 6 Inlet
- D Minimum internal diameter of the protection pipe

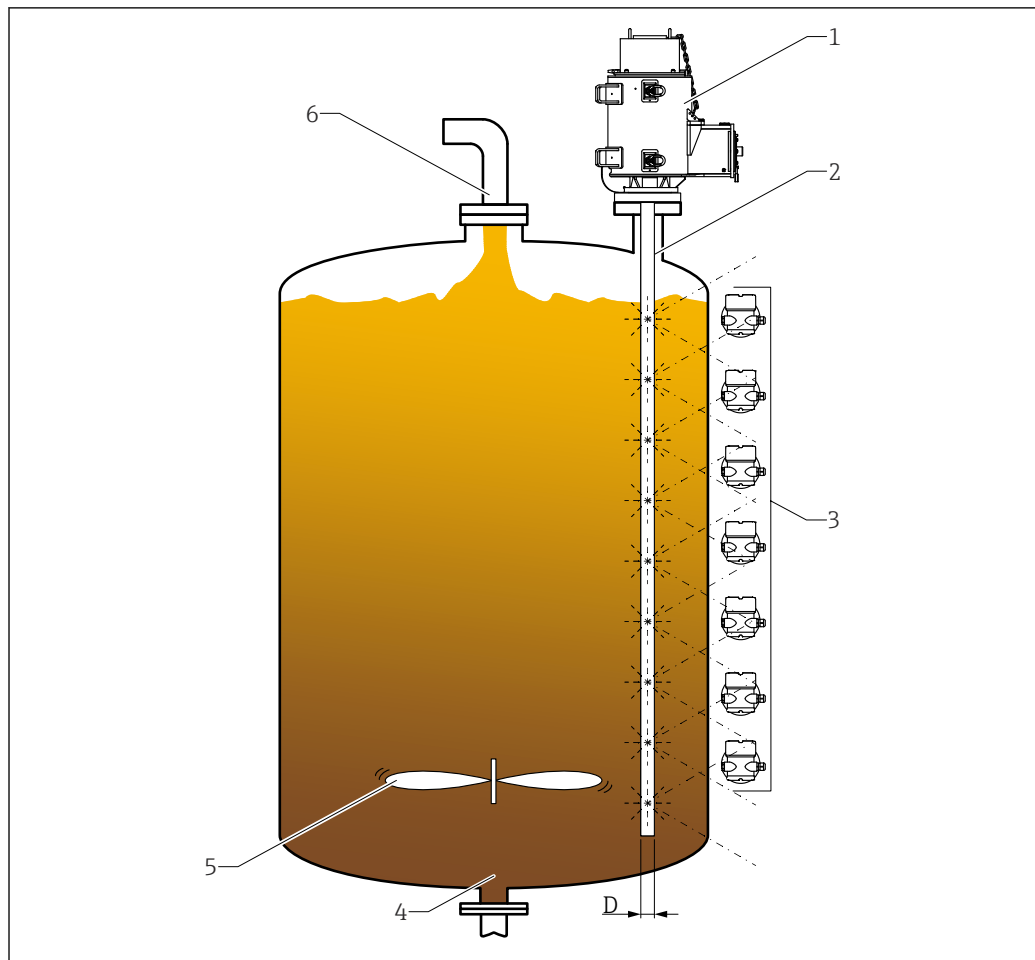


Observe the notes for long measuring ranges in the FMG50 operating instructions ("Cascading operation" section)



BA01966F, operating instructions FMG50

Density measurement (multipoint)



A0056398

9 Density measurement (multipoint)

- 1 FQG74
- 2 Straight protection pipe
- 3 Gammapirot FMG50 (horizontal mounting)
- 4 Medium
- 5 Agitator
- 6 Inlet
- D Minimum internal diameter of the protection pipe

Flange mounting screws
(customer-supplied)

Screw diameter M20 or G1/2

- **Material:** A4
- **Min. tensile strength:** Strength class 70; 700 N/mm² (157.36 lbf)

Environment

Ambient storage temperature	Ambient temperature range: -52 to +120 °C (-61 to +248 °F) Temperature range during mounting or disassembly: -40 to +120 °C (-40 to +248 °F) NOTICE The process temperature can be outside the permitted ambient temperature range This may cause damage to the source container ▶ The operator must ensure that the permissible temperature at the source container is not exceeded by heat transfer from the process. ▶ The ambient temperature range applies to the source container up to the connecting flange
Radiation sources	The operating temperature range and temperature class depend on the radiation source.  TI00439F/00
Ambient pressure	Atmospheric pressure
Vibration resistance	IEC 60068-2-64 test Fh; 5 to 200 Hz; 0.01 (m/s ²)/Hz
Shock	IEC 60068-2-27 test Ea (15 g; 11 ms; 3 shocks/direction/axis)
Degree of protection	IP66
Fire resistance	IEC 62598 Fire resistance class D: +945 °C (+1 733 °F) / 60 min  The specification can be restricted by country-specific approvals.

Process

Process temperature range

–52 to 450 °C (–61 to 842 °F)

The process temperature can be exceeded for a short period of time

⚠ WARNING

Radioactive contamination from leaking radiation sources

Health hazard and environmental hazard

- ▶ Observe the operating temperature range of the radiation sources

NOTICE

The process temperature can be outside the permitted ambient temperature range.

This may cause damage to the source container.

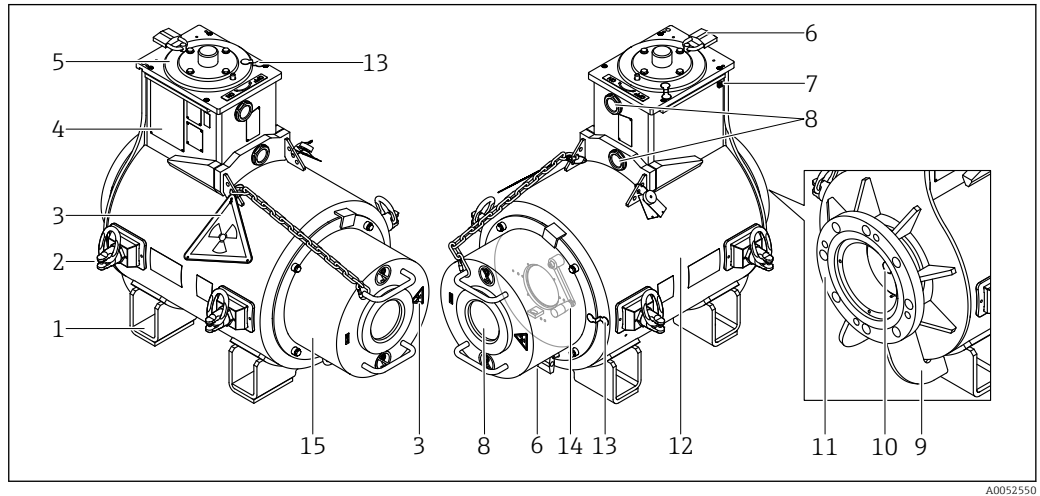
- ▶ The plant operator must ensure that the permissible temperature at the source container is not exceeded by heat transfer from the process.
- ▶ The plant operator must define organizational measures to protect from hot parts.
- ▶ Equipment operators must be warned of the danger posed by hot parts on the source container, e.g. in the form of notices and training.
- ▶ The plant operator is responsible for ensuring that the radiation source can be safely set to the "AUS/OFF" switch position in an emergency. A risk of injury from hot parts on the source container must be taken into consideration.

Process connection

- Flange: ANSI 6" 150 lbs
- Other process connections (optional): Contact Endress+Hauser sales organization

Mechanical construction

Design



A0052550

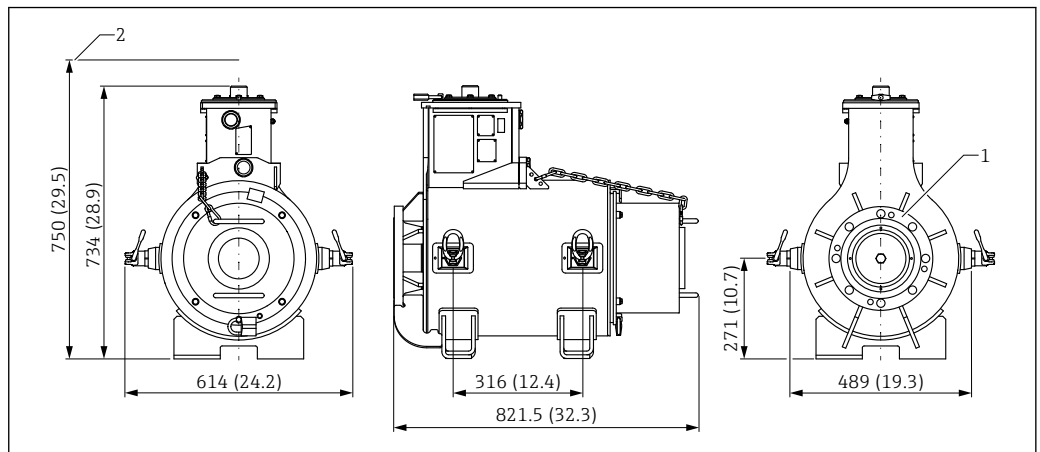
- 1 Transport feet
- 2 Lifting point (RUD PP-B-1.5t-M16)
- 3 Warning signs
- 4 Sign holders (for fitting nameplates and connection for potential equalization)
- 5 Twist protection/cover shutter
- 6 Lock
- 7 Ground terminal
- 8 Window
- 9 Skids for setting up the source container
- 10 Transport lock
- 11 Connecting flange
- 12 Source container housing
- 13 Protective seal
- 14 Crank for shutter
- 15 Cover



The switching position is indicated directly via the shutter. The shutter is held in position by the twist protection device.

Dimensions

FQG74 dimensions



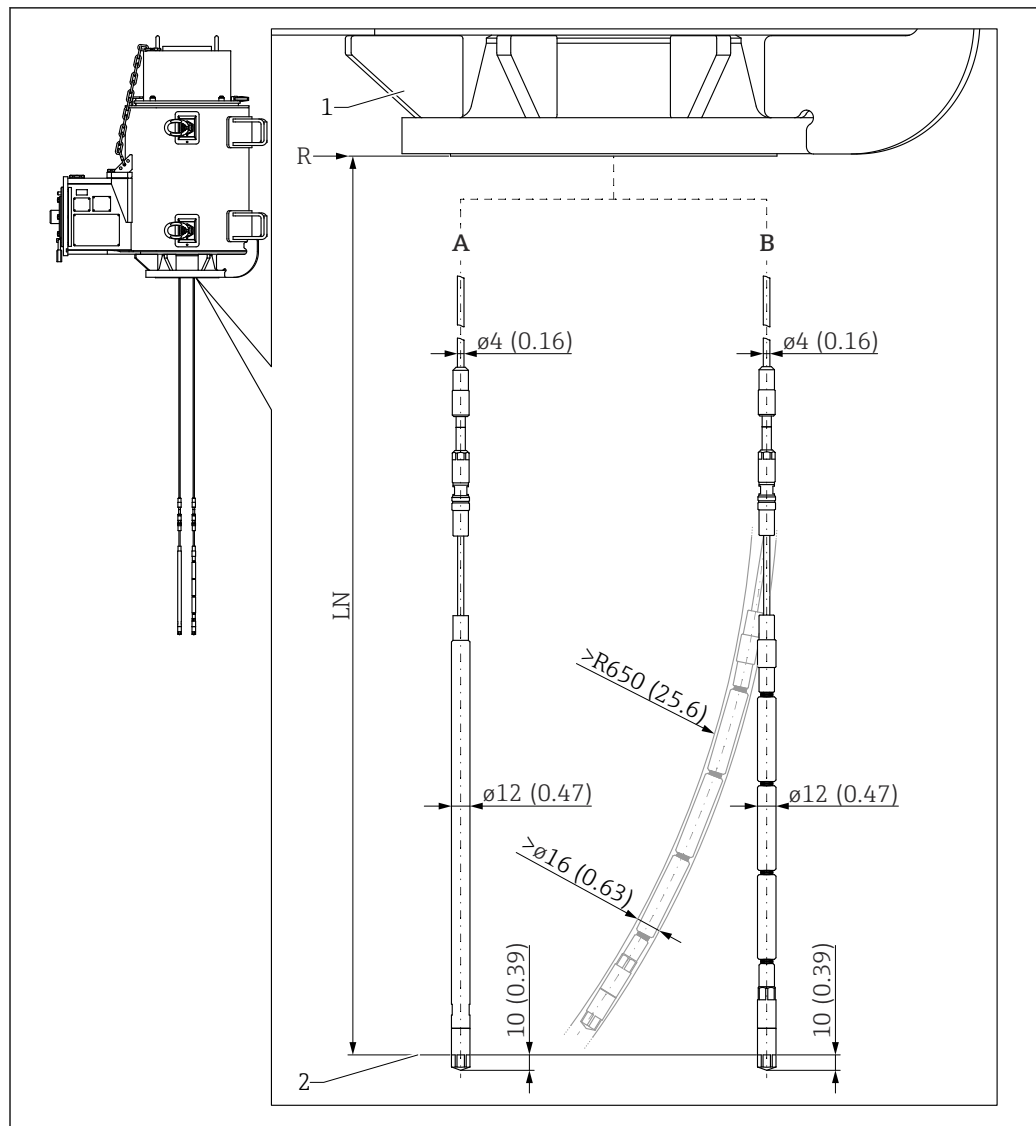
A0052329

10 Dimensions. Unit of measurement mm (in)

Maximum total weight: 780 kg (1 720 lb)

- 1 Flange: ANSI 6" 150 lbs
- 2 Overall length dimension with operating clearance for the crank

Dimensions of cable extension and source holder



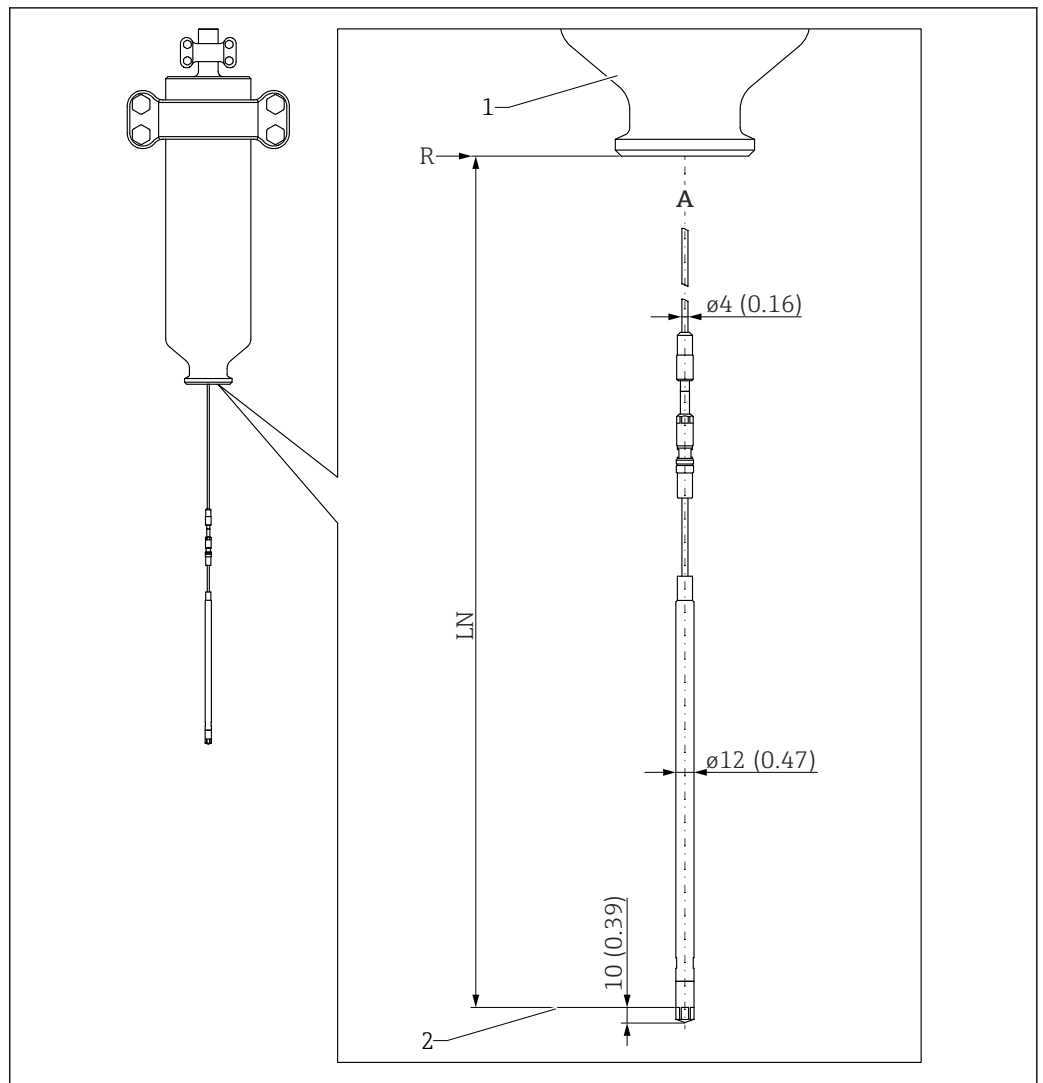
A0052811

- 1 Source container
 2 Center of the radiation source
 A Rigid source holder (feature 025; option "A1", "B1", "B2")
 B Flexible source holder (feature 025; option "B3")
 R Reference point
 LN Variable length, depending on the version



When using an adapter between the source container and the product vessel, take into account the offset arising from the adapter dimension

Dimensions of cable extension and source holder (source magazine can be lowered)



A0055666

- 1 Process adapter
 2 Center of the radiation source
 A Rigid source holder (feature 025; option "B2")
 R Reference point
 LN Variable length, depending on the version

Weight

- FQG74 source container: Max. 780 kg (1 720 lb)
- Cable extension: 0.1 kg/m (0.067 lb/ft)

Materials

Housing:

316L (1.4404)

Source container:

This device contains approx. 43 l (11.36 gal) Lead with CAS No. 7439-92-1

Shutter:

316L (1.4404)

Source holder:

316L (1.4404)

Cable extension:

2.4602 (Alloy C22)

Wave spring of the flexible source holder (characteristic 025; option "B3"):

17-7PH (1.4568)

Nameplates:

A2 (1.4301)

Warning signs:

A2 (1.4301)

Padlock:

- **Lock body:** brass
- **Shackle:** Hardened steel

Seals:

FKM

Screws and nuts:

A4

Safety equipment

- Twist protection and padlock to secure the "ON/AN" or "OFF/AUS" switch position.
- Lockable cover provides protection from theft.



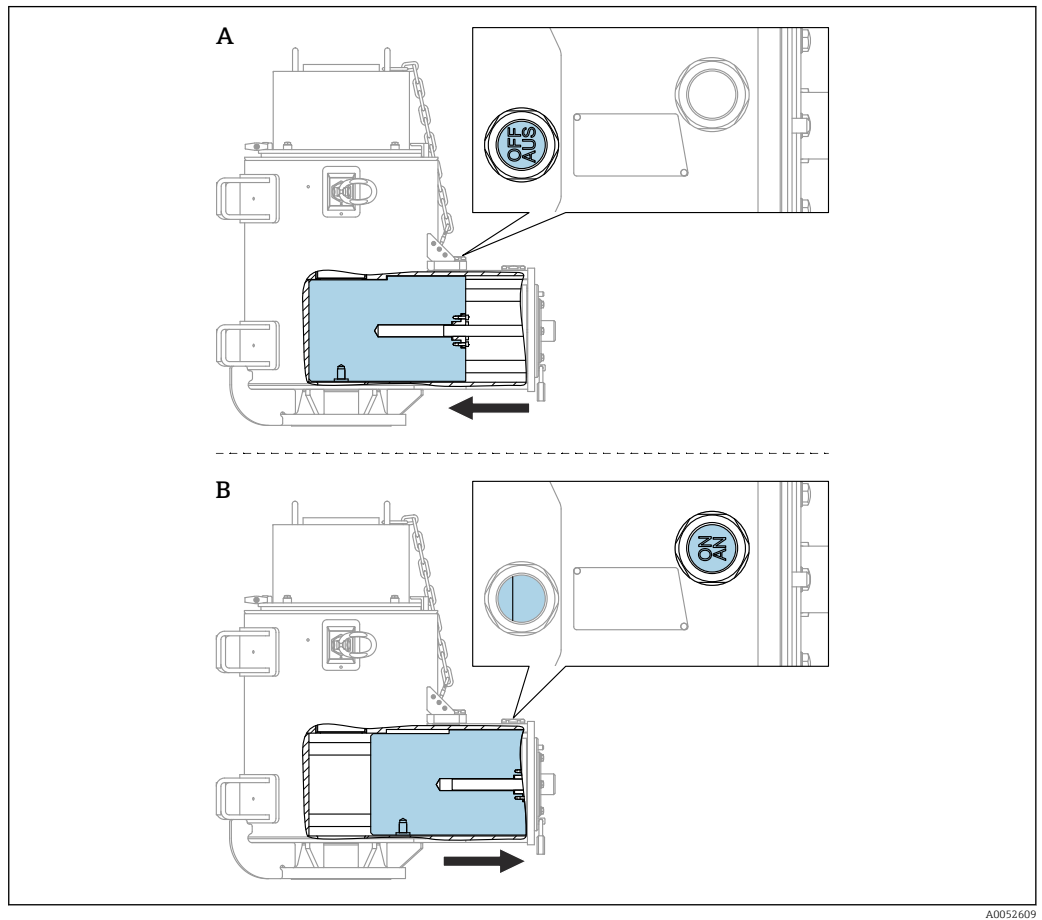
The anti-theft protection does not meet the requirements of DIN25422.

Alternative solutions to theft protection must be implemented in accordance with DIN25422.

For example, by securing the installation site.

Operability

Operation concept



- A "OFF/AUS" switch position: switched-off state
- B "ON/AN" switch position: switched-on state

Switching on and off



For additional information about switching the device on and off, refer to the operating instructions

Ordering information

Ordering information

Detailed ordering information is available from your nearest sales organization www.addresses.endress.com or in the Product Configurator at www.endress.com :

1. Click Corporate
2. Select the country
3. Click Products
4. Select the product using the filters and search field
5. Open the product page

The Configuration button to the right of the product image opens the Product Configurator.



Product Configurator - the tool for individual product configuration

- Current configuration data
 - Depending on the device: direct input of information specific to the measuring point, such as the measuring range or operating language
 - Automatic verification of exclusion criteria
 - Automatic creation of the order code and its breakdown in PDF or Excel output format
 - Ability to order directly in the Endress+Hauser Online Shop

Scope of delivery

- Source container FQG74
- FSG60 radiation source (built-in; depending on the variant)
- Radiation symbol (depends on specific version)
- Accessories enclosed:
 - Cable extensions (number depending on characteristic 100)
 - Radiation warning sign
 - Optional: Mounting flange
- Documentation:
 - Operating Instructions
 - Type A acceptance certificate and certificate of suitability for Type A
 - Copy of the recognition of the quality assurance program for Type A
 - Instructions for installing the anchor points
 - Optional: Wipe test certificate
 - Optional: Dose rate diagram

Delivery

Germany

Delivery conditions (mainland only):

- Radiation sources can only be delivered upon presentation of a handling permit (copy)
- Source containers are always supplied with built-in radiation sources
 - The source container is in the "OFF/AUS" position when delivered
 - The "OFF/AUS" switch position is secured by a lock
- If the operator requests advance delivery of the source container and subsequent delivery of the radiation sources, the radiation sources will then be delivered in a transportation cask



Endress+Hauser is more than happy to assist in procuring the necessary documents
Contact the Endress+Hauser sales organization

Other countries

Export conditions:

- Radiation sources can only be delivered upon presentation of an import license (copy)
 - Radiation sources are delivered in source containers
 - The source container is in the "OFF/AUS" position when delivered
 - The "OFF/AUS" switch position is secured by a lock
 - The source containers loaded with the radiation sources are transported by a company commissioned by Endress+Hauser and officially certified to perform this type of transportation work.
- Following successful testing, source container FQG74 is suitable for shipment as a Type A package (IATA rules) for radiation sources.



Endress+Hauser is more than happy to assist in procuring the necessary documents
Contact the Endress+Hauser sales organization

Accessories

The following accessories are to be provided by the customer:

- Seal
- Connecting flange (ANSI 6" 150 lbs)
- Double-walled protection pipe; inner protection pipe separable

Documentation

The following document types are available in the Download area of the Endress+Hauser website (www.endress.com/downloads):



For an overview of the scope of the associated Technical Documentation, refer to the following:

- *Device Viewer* (www.endress.com/deviceviewer): Enter the serial number from the nameplate
- *Endress+Hauser Operations app*: Enter serial number from nameplate or scan matrix code on nameplate.

Operating Instructions (BA)**Reference document**

These Operating Instructions contain all the information that is required in the various life cycle phases of the device: from product identification, incoming acceptance and storage, to installation, connection, operation and commissioning, through to troubleshooting, maintenance and disposal.

Supplementary documentation**FQG74 Operating Instructions**

BA02361F

FQG74 Operating Instructions (source magazine can be lowered)

BA02365F

FMG50 Operating Instructions

BA01966F

FMG50 Technical Information

TI01462F

FSG60/FSG61 radiation source Technical Information

TI00439F

Special Documentation: Type A

SD00311F

Technical Information for attachment points (RUD PP-B-1.5t-M16)

Technical information is available via the manufacturer's homepage:

<https://www.rud.com>

Special Documentation: Returning source containers

Detailed description for returning source containers, radiation sources:

SD00309F

Special Documentation: Loading, unloading and replacing radiation sources

SD03325F

Type A certificate of suitability

This source container is suitable as a type A package. The certificate of suitability and the approval of the German supervisory authority for the quality assurance program for the development and production of type A shipping packaging are available via the *Device Viewer* (www.endress.com/deviceviewer).

These are an integral part of the Operating Instructions.



www.addresses.endress.com
