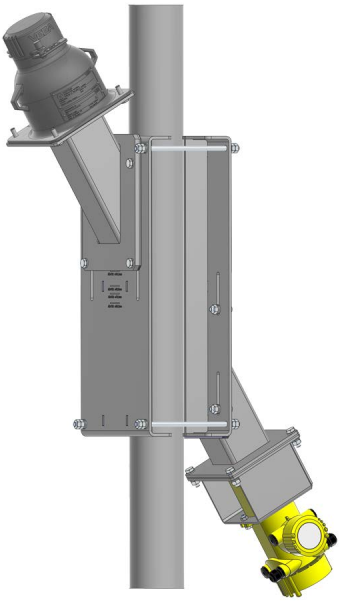
Supplementary instructions

Mounting bracket KV 31

For tubes with ø 50 … 100 mm

30° diagnonal irradiation



Document ID: 41863

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1 Product description

The KV 31 is a mounting bracket for the radiometric measuring system MINITRAC. It is suitable for pipes of 50 … 100 mm (1.97 … 3.94 in) diameter.

With source holder VEGASOURCE 31, 35

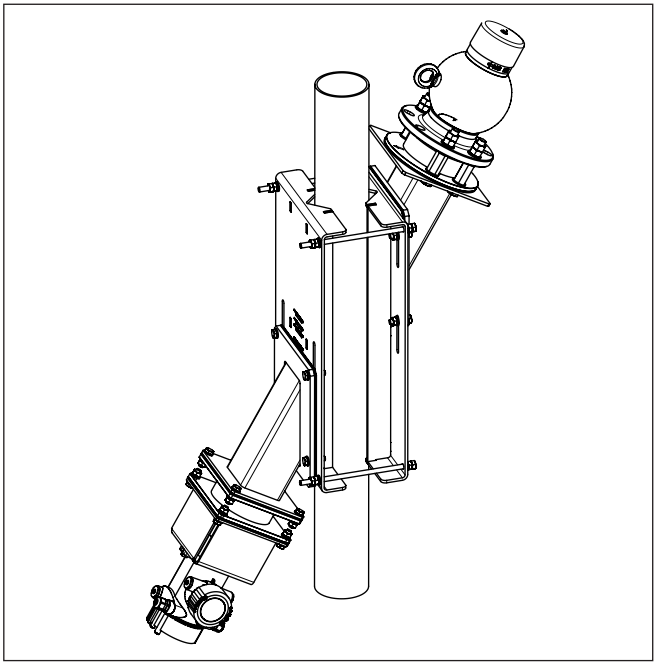

Fig. 1: Mounting bracket with 30° diagonal irradiation (with VEGASOURCE 31, 35)

With source container VEGASOURCE 81, 82, 83

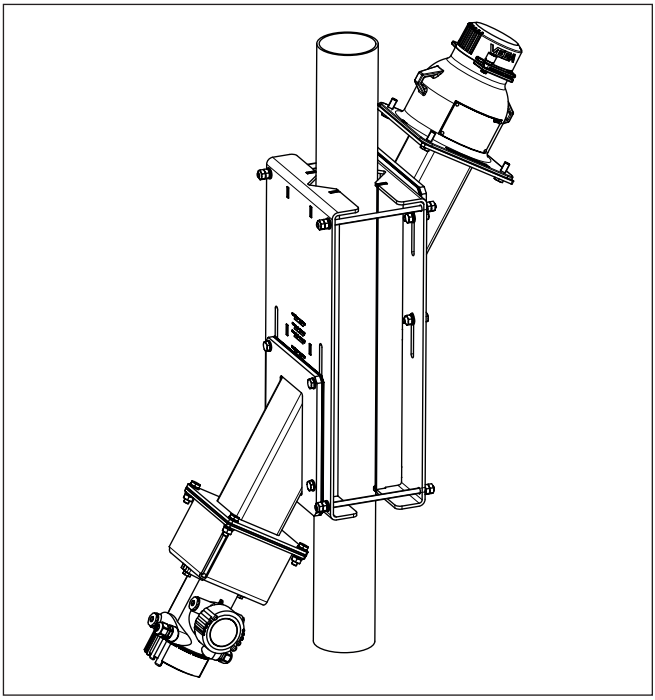

Fig. 2: Mounting bracket with 30° diagonal irradiation (with VEGASOURCE 81, 82, 83)

Scope of delivery

The mounting bracket KV 31 contains all necessary parts for fastening a radiometric measuring system to tubes with a diameter of 50 … 100 mm (1.97 … 3.94 in).

The two halves of the mounting bracket are already premounted.

Check the completeness of the mounting backet according to the assembly drawings of chapter " *Mounting*".

Collimator (optional)

A collimator can be mounted on the sensor side, the source holder side or on both sides of the mounting bracket.

A collimator directs the radiation directly to the sensor and absorbs the undirected scattered radiation.

2 Mounting with source container VEGASOURCE 31, 35

Operating instructions

Take note of the operating instructions of the corresponding sensor MINITRAC and the source holder.

Mounting bracket for 30° inclined irradiation

Take note of the following mounting instructions:

- Mount the bracket first, then the sensor and the source holder
- The marking arrow on the console (source holder side) and the transport lug of the source holder must point in the same direction after mounting.
- Make sure that the two clamps of the bracket are parallel to each other. Do this by measuring the lateral distances between the clamps
- To avoid injuries, shorten the threaded rods of the brackets to the suitable length after mounting

Mounting - Mounting bracket, sensor side

This half of the mounting bracket is already premounted when being shipped.

When retrofitting a collimator etc., mount the sensor side of the mounting bracket according to the following assembly drawing.

To facilitate mounting, mount the bracket first, then the sensor and the source holder.

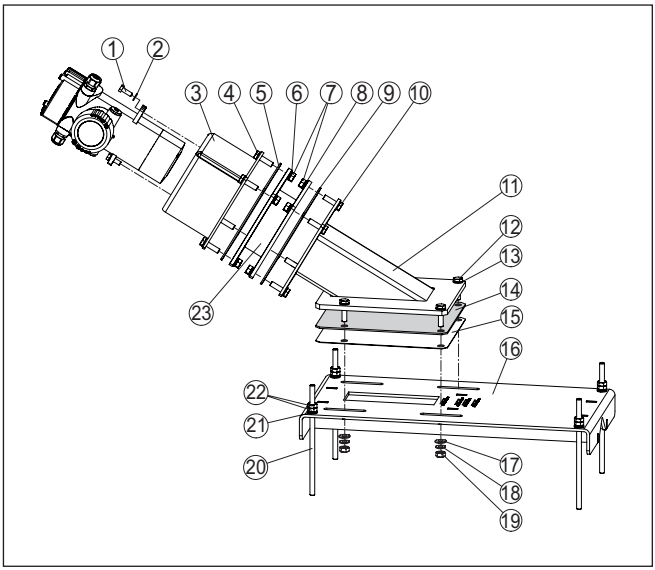

Fig. 3: Mounting brackets, sensor side (MINITRAC)

1 Hexagon screw M8 (2 pieces)
2 Washer for M8 (2 pieces)
3 Console, sensor side (MINITRAC)
4 Hexagon screw M8 (4 pieces)
5 Seal, collimator (sensor side)
6 Washer for M8 (4 pieces), (optional)
7 Hexagon nut M8 - (8 pieces), (optional)
8 Washer for M8 (4 pieces)
9 Seal, collimator (sensor side), (optional)
10 Hexagon screw M8 (4 pieces)
11 Console, sensor side (MINITRAC)
12 Hexagon screw M10 (4 pieces)
13 Washer for M10 (4 pieces)
14 Seal, bracket (sensor side)
15 Cover plate
16 Bracket, sensor side (MINITRAC)
17 Washer for M10 (4 pieces)
18 Spring rings for M10 (4 pieces)
19 Hexagon nut M10 (4 pieces)
20 Threaded rod M10 x 360 mm (4 pieces)
21 Washer for M10 (4 pieces)
22 Hexagon nut/Counter nut M10 (8 pieces)
23 Collimator, Sensor side (MINITRAC), (optional)

Mounting - Mounting bracket, radiator side

This half of the mounting bracket is already premounted when being shipped.

When retrofitting a collimator etc., mount the sensor side of the mounting bracket according to the following assembly drawing.

To facilitate mounting, mount the bracket first, then the sensor and the source holder.

Note:
Mount the components in such a way that the marking arrows of the console (3) and the collimator (1) point in the same direction.

Note the following illustrations.

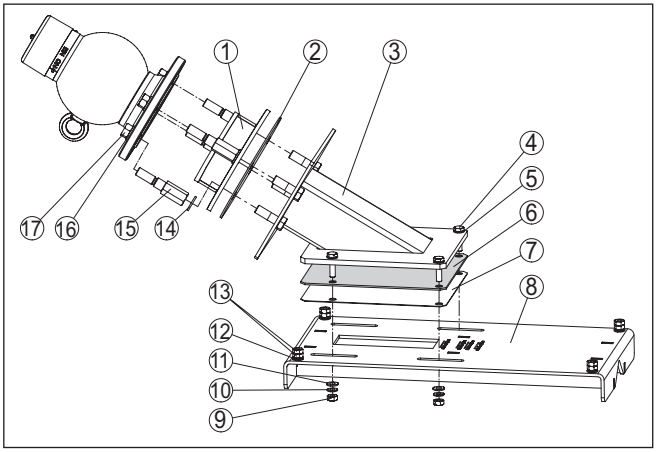

Fig. 4: Mounting bracket, source container side (with VEGASOURCE 31, 35)

1 Collimator, source holder side (optional)
2 Seal, collimator (source holder side), (optional)
3 Console, source holder side
4 Hexagon screw M10 (4 pieces)
5 Washer for M10 (4 pieces)
6 Seal, bracket (sensor side)
7 Cover plate
8 Clamp, source holder side
9 Hexagon nut M10 (4 pieces)
10 Spring rings for M10 (4 pieces)
11 Washer for M10 (4 pieces)
12 Washer for M10 (4 pieces)
13 Hexagon nut/Counter nut M10 (8 pieces)
14 Washer for M16 (4 pieces), (optional)
15 Distance bolt M16 (4 pieces), (optional)
16 Washer for M16 (4 pieces)
17 Hexagon nut M16 (4 pieces)

Note marking arrows

The marking arrows on the console and the collimator must point in the same direction. After mounting, the transport lug of the source holder must point in the same direction.

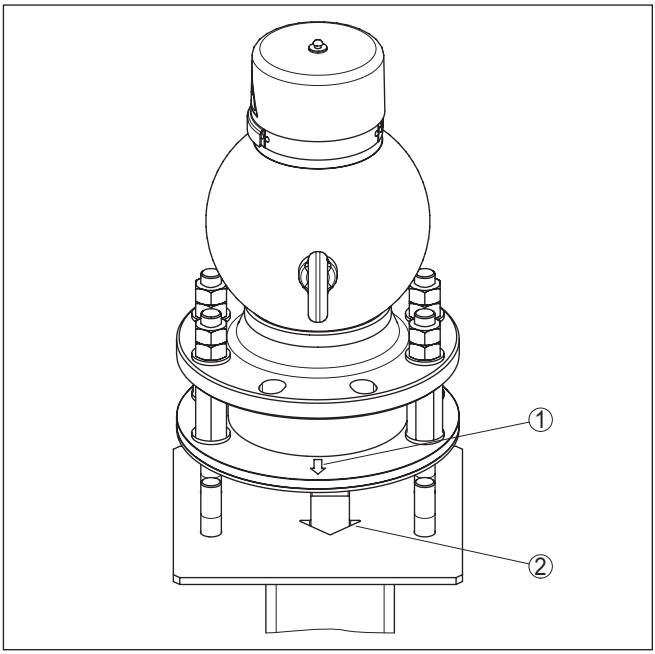

Fig. 5: The marking arrows of the console and the collimator point in the same direction.

1 Collimator, source holder side
2 Console, source holder side

Adjust mounting bracket

Note:
Adjust both sides of the mounting bracket to the respective tube diameter before mounting the mounting bracket to the tube. This facilitates the adjustment.

A later adjustment is difficult due to the weight of the mounting bracket.

1. Loosen the four screw connections until the console can be shifted.
2. Adjust the consoles on the sensor side and the source holder side according to your tube diameter.

   Take note of the marking lines on the bracket. The edge of the console must be exactly on the corresponding marking line.

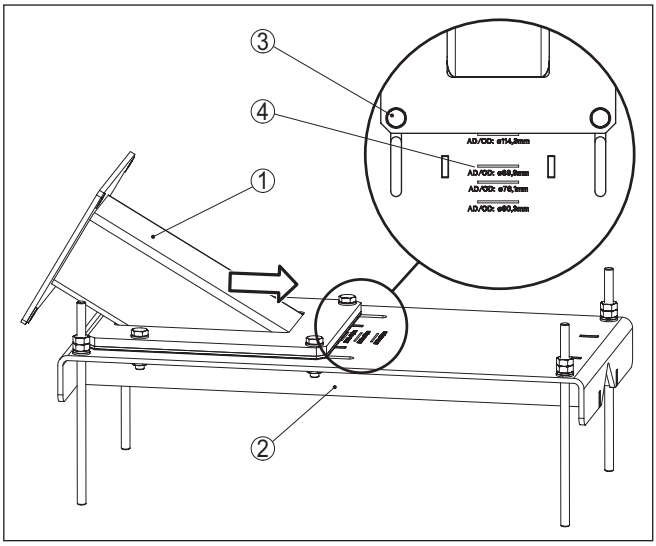

Fig. 6: Adjust mounting bracket

1 Console
2 Bracket, sensor or source holder side
3 Screw connections
4 Markings (different tube diameters)

Installation of the mounting bracket

Mount the bracket according to the following assembly drawing:

Tip:
The mounting bracket is very heavy. We recommend using a support, eg of wood, as a mounting aid to hold the mounting bracket at the proper height during installation.

1. Before mounting, check if the adjustment with respect to the tube diameter is correct on both sides of the mounting bracket and if the marking arrows of the console and the collimator (optional) point in the same direction.
2. Make sure that the two clamps of the bracket are parallel to each other. Do this by measuring the lateral distances between the clamps.
3. Tighten the nuts of the threaded rod evenly. Keep the tube diameter and the stability of the tube material in mind. Avoid deformation of the tube through an overtightening of the mounting bracket.

   If you have the impression that the tube cannot permanently carry the weight of the mounting bracket, sensor and source container, mount a suitable support below the mounting bracket.
4. Shorten the threaded rods after mounting to avoid injuries.

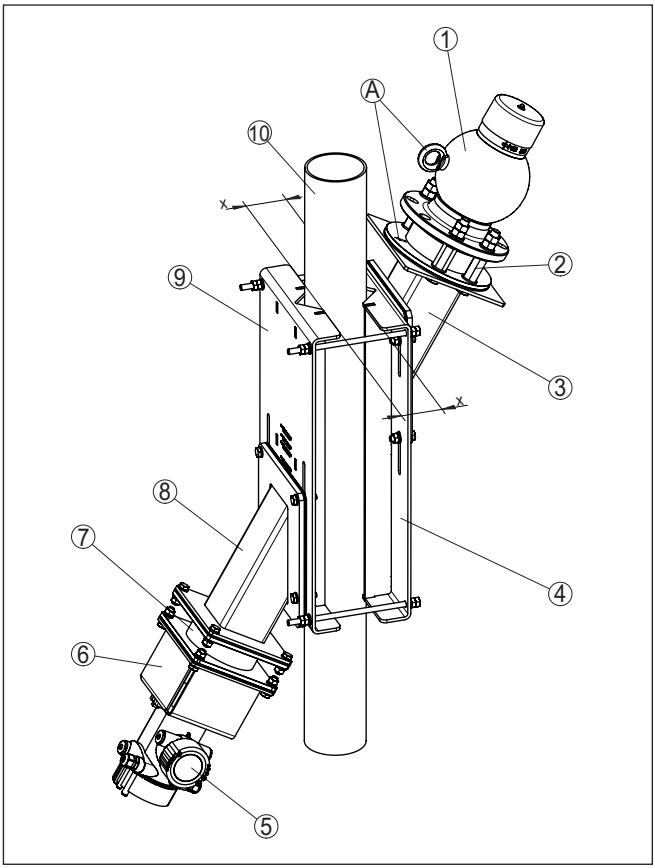

Fig. 7: Mounting bracket for 30° diagonal irradiation (with VEGASOURCE 31, 35)

1 Source holder
2 Collimator, source holder side (optional)
3 Console, source holder side
4 Clamp, source holder side
5 Sensor (MINITRAC)
6 Console, sensor side (MINITRAC)
7 Collimator, sensor side (optional)
8 Detector console, sensor side (MINITRAC)
9 Bracket, sensor side (MINITRAC)
10 Tube ø 50 … 100 mm (1.97 … 3.94 in)
x Brackets in parallel, distances on both sides the same
A The marking arrow and the eye-bolt in the same direction

Mount the sensor and source holder

Once the mounting bracket is installed, you can mount the sensor and the source holder.

You can find the torque in the " *Technical data*".

Danger:
When mounting, make sure that the source holder is reliably switched off.

1. First of all fasten the sensor.
2. Mount the source holder. Use a suitable lifting device and note the respective safety regulations for lifting loads.

3 Mounting with source container VEGASOURCE 81, 82, 83

Operating instructions

Take note of the operating instructions of the corresponding sensor MINITRAC and the source holder.

Mounting bracket for 30° inclined irradiation

Take note of the following mounting instructions:

- Mount the bracket first, then the sensor and the source holder
- The marking arrow on the console (source holder side) and the transport lug of the source holder must point in the same direction after mounting.
- Make sure that the two clamps of the bracket are parallel to each other. Do this by measuring the lateral distances between the clamps
- To avoid injuries, shorten the threaded rods of the brackets to the suitable length after mounting

Mounting - Mounting bracket, sensor side

This half of the mounting bracket is already premounted when being shipped.

When retrofitting a collimator etc., mount the sensor side of the mounting bracket according to the following assembly drawing.

To facilitate mounting, mount the bracket first, then the sensor and the source holder.

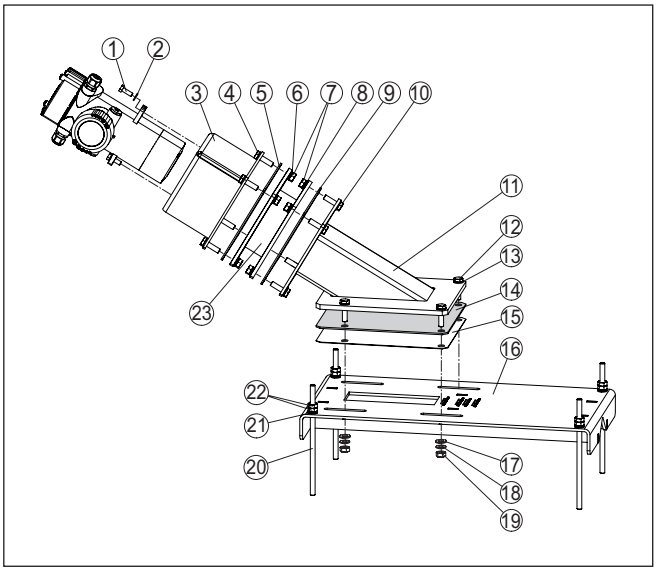

Fig. 8: Mounting brackets, sensor side (MINITRAC)

1 Hexagon screw M8 (2 pieces)
2 Washer for M8 (2 pieces)
3 Console, sensor side (MINITRAC)
4 Hexagon screw M8 (4 pieces)
5 Seal, collimator (sensor side)
6 Washer for M8 (4 pieces), (optional)
7 Hexagon nut M8 - (8 pieces), (optional)
8 Washer for M8 (4 pieces)
9 Seal, collimator (sensor side), (optional)
10 Hexagon screw M8 (4 pieces)
11 Console, sensor side (MINITRAC)
12 Hexagon screw M10 (4 pieces)
13 Washer for M10 (4 pieces)
14 Seal, bracket (sensor side)
15 Cover plate
16 Bracket, sensor side (MINITRAC)
17 Washer for M10 (4 pieces)
18 Spring rings for M10 (4 pieces)
19 Hexagon nut M10 (4 pieces)
20 Threaded rod M10 x 360 mm (4 pieces)
21 Washer for M10 (4 pieces)
22 Hexagon nut/Counter nut M10 (8 pieces)
23 Collimator, Sensor side (MINITRAC), (optional)

Mounting - Mounting bracket, radiator side

This half of the mounting bracket is already premounted when being shipped.

When retrofitting a collimator etc., mount the sensor side of the mounting bracket according to the following assembly drawing.

To facilitate mounting, mount the bracket first, then the sensor and the source holder.

Note:
Mount the components in such a way that the marking arrows of the console (3) and the collimator (1) point in the same direction.

Note the following illustrations.

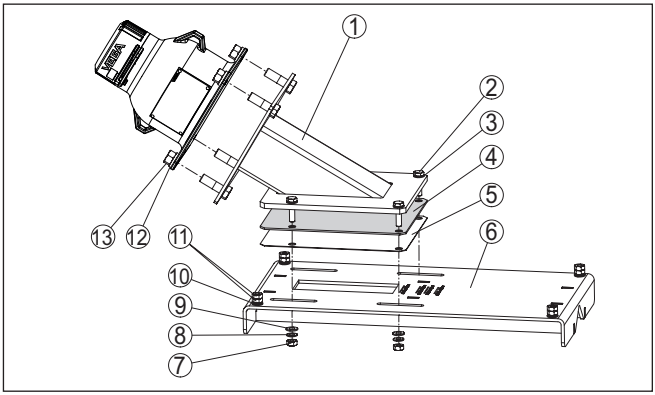

Fig. 9: Mounting bracket, source container side (with VEGASOURCE 81, 82, 83)

1 Console, source holder side
2 Hexagon screw M10 (4 pieces)
3 Washer for M10 (4 pieces)
4 Seal, bracket (sensor side)
5 Cover plate
6 Clamp, source holder side
7 Hexagon nut M10 (4 pieces)
8 Spring rings for M10 (4 pieces)
9 Washer for M10 (4 pieces)
10 Washer for M10 (4 pieces)
11 Hexagon nut/Counter nut M10 (8 pieces)
12 Washer for M16 (4 pieces)
13 Hexagon nut M16 (4 pieces)

Adjust mounting bracket

Note:
Adjust both sides of the mounting bracket to the respective tube diameter before mounting the mounting bracket to the tube. This facilitates the adjustment.

A later adjustment is difficult due to the weight of the mounting bracket.

1. Loosen the four screw connections until the console can be shifted.
2. Adjust the consoles on the sensor side and the source holder side according to your tube diameter.

   Take note of the marking lines on the bracket. The edge of the console must be exactly on the corresponding marking line.

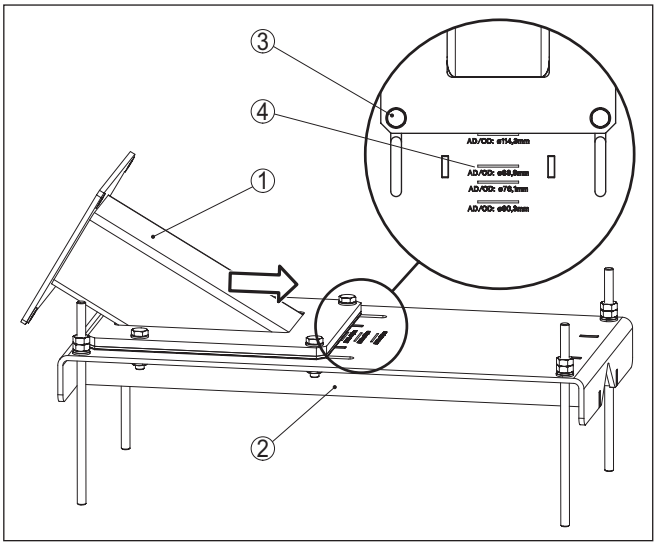

Fig. 10: Adjust mounting bracket

1 Console
2 Bracket, sensor or source holder side
3 Screw connections
4 Markings (different tube diameters)

Installation of the mounting bracket

Mount the bracket according to the following assembly drawing:

Tip:
The mounting bracket is very heavy. We recommend using a support, eg of wood, as a mounting aid to hold the mounting bracket at the proper height during installation.

1. Before mounting, check if the adjustment with respect to the tube diameter is correct on both sides of the mounting bracket and if the marking arrows of the console and the collimator (optional) point in the same direction.
2. Make sure that the two clamps of the bracket are parallel to each other. Do this by measuring the lateral distances between the clamps.
3. Tighten the nuts of the threaded rod evenly. Keep the tube diameter and the stability of the tube material in mind. Avoid deformation of the tube through an overtightening of the mounting bracket.

   If you have the impression that the tube cannot permanently carry the weight of the mounting bracket, sensor and source container, mount a suitable support below the mounting bracket.
4. Shorten the threaded rods after mounting to avoid injuries.

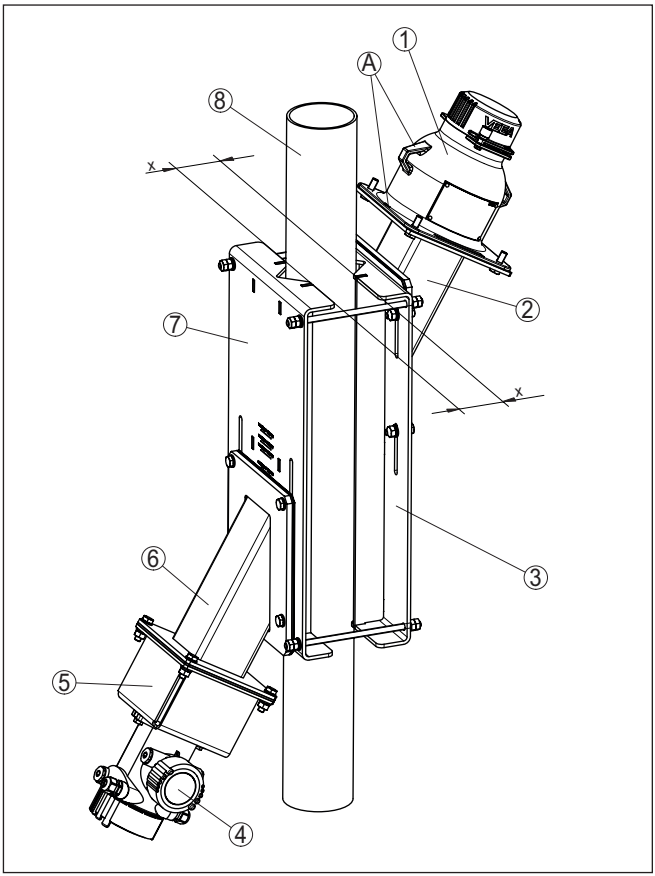

Fig. 11: Mounting bracket for 30° diagonal irradiation (with VEGASOURCE 81, 82, 83)

1 Source holder
2 Console, source holder side
3 Clamp, source holder side
4 Sensor (MINITRAC)
5 Collimator, sensor side (optional)
6 Console, sensor side (MINITRAC)
7 Bracket, sensor side (MINITRAC)
8 Tube ø 50 … 100 mm (1.97 … 3.94 in)
x Brackets in parallel, distances on both sides the same
A The marking arrow and the lug point in the same direction

Mount the sensor and source holder

Once the mounting bracket is installed, you can mount the sensor and the source holder.

You can find the torque in the " *Technical data*".

Danger:
When mounting, make sure that the source holder is reliably switched off.

1. First of all fasten the sensor.
2. Mount the source holder. Use a suitable lifting device and note the respective safety regulations for lifting loads.

4 Supplement

4.1 Technical data

General data

Take note of the information in the operating instructions manual of the installed MINITRAC level sensor and the source holder

Material 316L corresponds to 1.4404 or 1.4435

Materials

– Mounting bracket	316L
– Threaded rods	316L

Weight (without sensor and source holder)

– Mounting bracket without collimator	47.6 kg (105 lbs)
– Mounting bracket with collimator sensor side	57.8 kg (127.4 lbs)

Torques

– Screws, Sensor mounting (M8)	15 Nm (11.06 lbf ft)
– Nuts (M16)	20 Nm (14.75 lbf ft)
– Threaded rods (M10)	Dependent on the tube material

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4.2 Dimensions

4.2.1 Dimensions with source container VEGASOURCE 31, 35

KV 31, without collimator

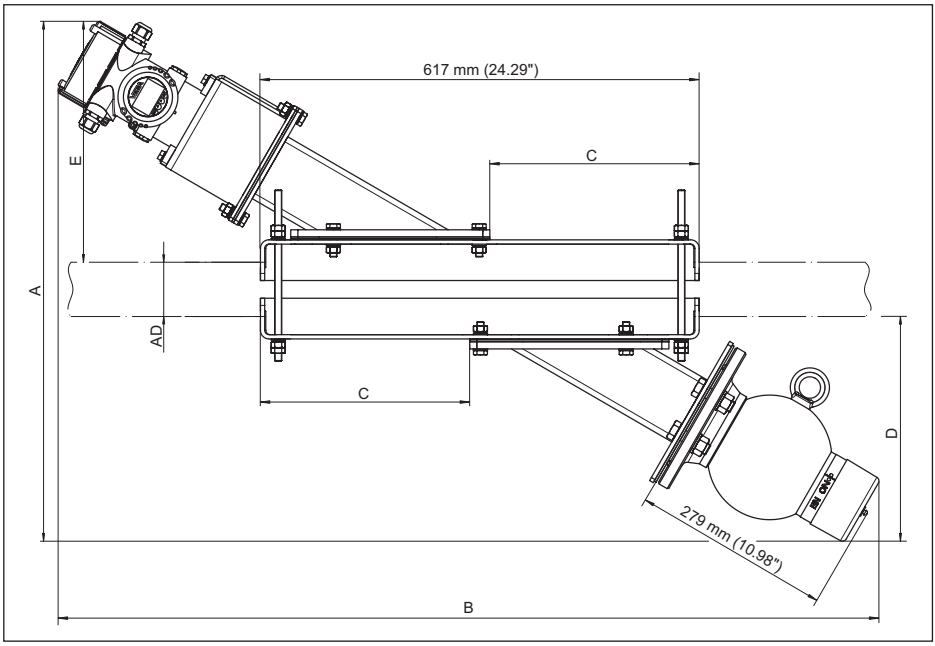

Fig. 12: Mounting bracket without collimator (with VEGASOURCE 31, 35)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	706 mm (27.8 in)	1116 mm (44 in)	275 mm (10.8 in)	304 mm (12 in)	326 mm (12.9 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	728 mm (28.7 in)	1154 mm (45.5 in)	295 mm (11.7 in)	315 mm (12.5 in)	338 mm (13.4 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	746 mm (29.4 in)	1186 mm (46.7 in)	310 mm (12.2 in)	324 mm (12.8 in)	347 mm (13.7 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	782 mm (30.8 in)	1248 mm (49.2 in)	342 mm (13.5 in)	342 mm (13.5 in)	365 mm (14.4 in)

KV 31, collimator on the sensor side

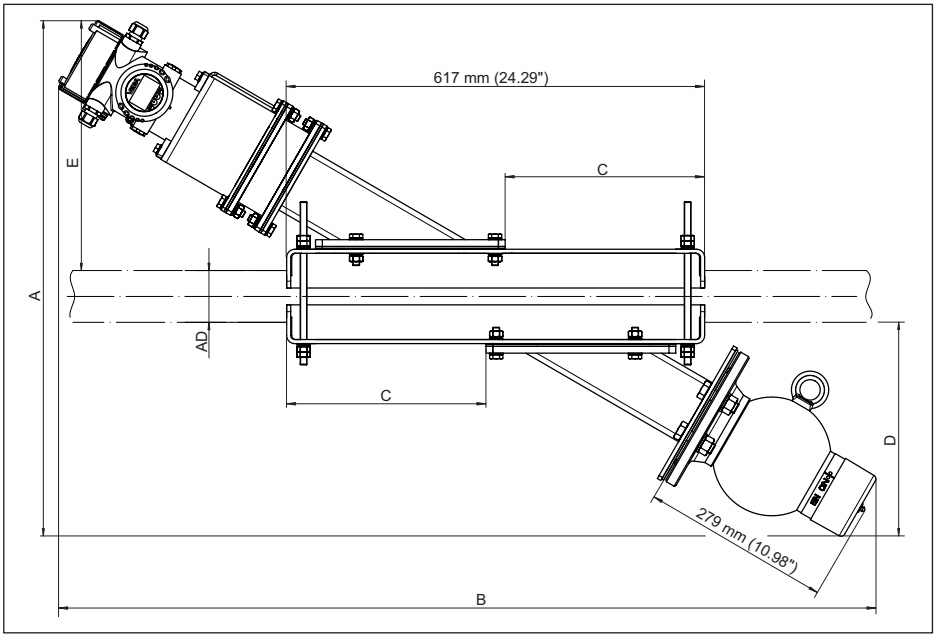

Fig. 13: Mounting bracket with collimator on the sensor side (with VEGASOURCE 31, 35)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	734 mm (29 in)	1167 mm (46 in)	275 mm (10.8 in)	304 mm (12 in)	357 mm (14.1 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	758 mm (29.9 in)	1206 mm (47.5 in)	295 mm (11.7 in)	315 mm (12.5 in)	368 mm (14.5 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	775 mm (30.6 in)	1238 mm (48.8 in)	310 mm (12.2 in)	324 mm (12.8 in)	377 mm (14.9 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	811 mm (32 in)	1300 mm (51.2 in)	342 mm (13.5 in)	342 mm (13.5 in)	395 mm (15.6 in)

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KV 31, collimator on the source holder side

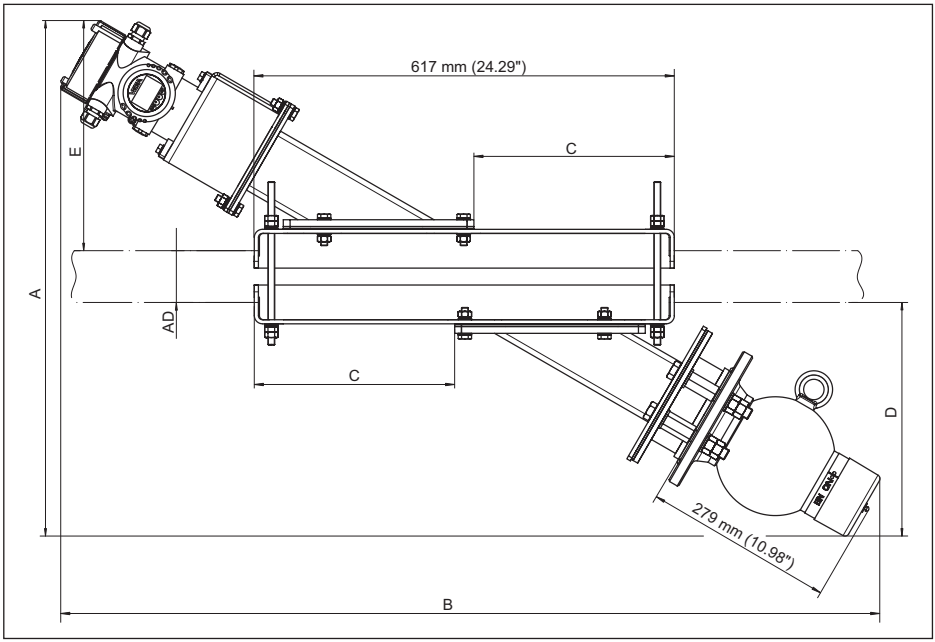

Fig. 14: Mounting bracket with collimator on the source container side (with VEGASOURCE 31, 35)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	734 mm (29 in)	1165 mm (45.8 in)	275 mm (10.8 in)	332 mm (13 in)	327 mm (12.9 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	757 mm (29.8 in)	1204 mm (47.4 in)	295 mm (11.7 in)	343 mm (13.5 in)	338 mm (13.4 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	775 mm (30.6 in)	1235 mm (48.7 in)	310 mm (12.2 in)	352 mm (13.9 in)	347 mm (13.7 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	811 mm (32 in)	1297 mm (51.1 in)	342 mm (13.5 in)	370 mm (14.6 in)	365 mm (14.4 in)

KV 31, collimators on both sides

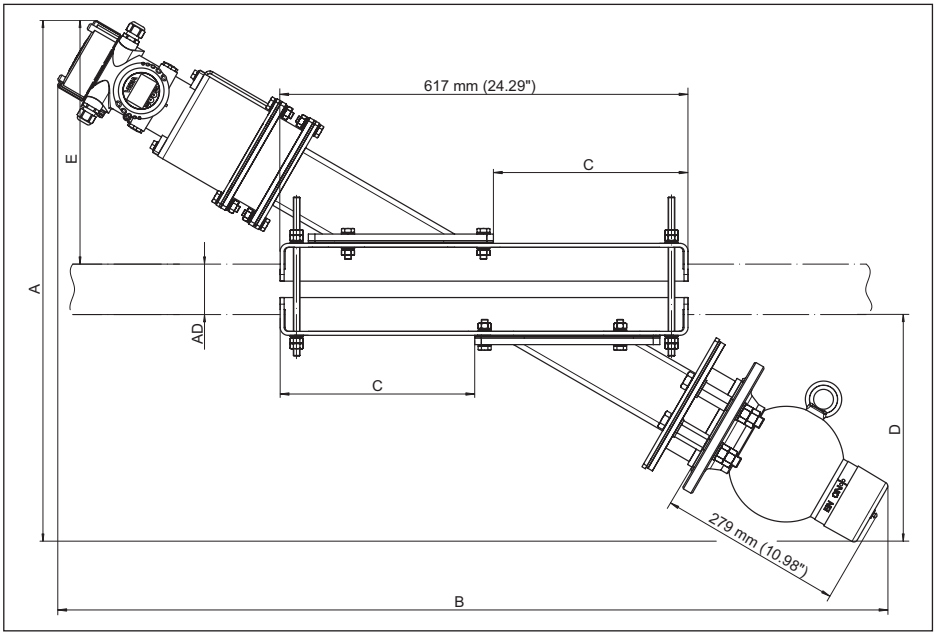

Fig. 15: Mounting bracket with collimator on the sensor and source container side (with VEGASOURCE 31, 35)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	764 mm (30 in)	1217 mm (47.9 in)	275 mm (10.8 in)	340 mm (13.4 in)	364 mm (14.4 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	787 mm (31 in)	1256 mm (49.5 in)	294.4 mm (11.6 in)	343 mm (13.5 in)	367 mm (14.5 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	805 mm (31.7 in)	1287 mm (50.7 in)	310 mm (12.2 in)	352 mm (13.9 in)	376 mm (14.8 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	841 mm (33.1 in)	1349 mm (53.2 in)	341.2 mm (13.5 in)	370 mm (10.8 in)	394 mm (15.5 in)

4.2.2 Dimensions with source container VEGASOURCE 81, 82, 83

Note:
When calculating the length, also take into account optional attachment parts such as the pneumatic changeover, cooling devices, etc.

Depending on the version of the source container, the dimension "L" is extended.

For dimensional information on the versions, please refer to the operating instructions of the source container.

KV 31, without collimator

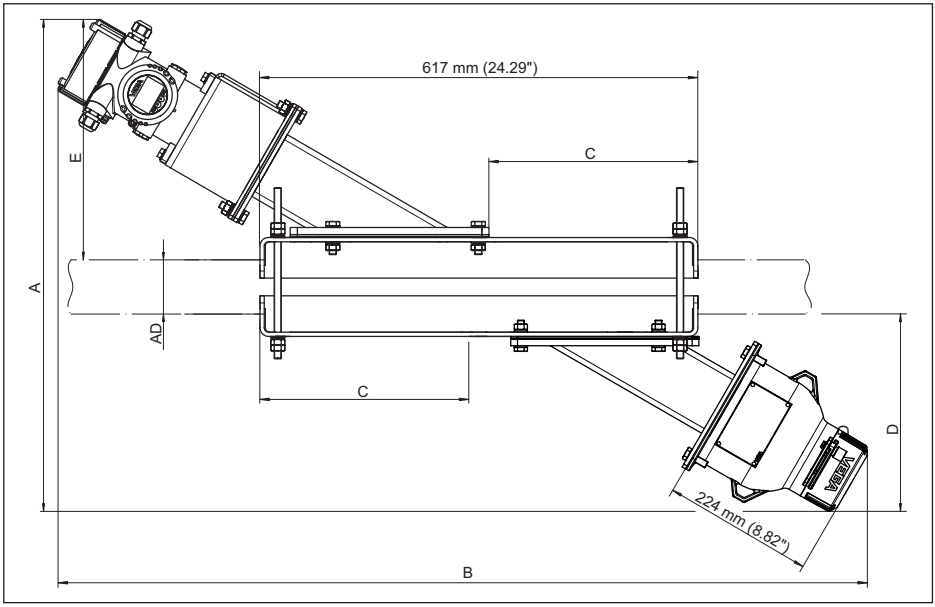

Fig. 16: Mounting bracket without collimator (with VEGASOURCE 81, 82, 83)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	706 mm (27.8 in)	1116 mm (44 in)	275 mm (10.8 in)	304 mm (12 in)	326 mm (12.9 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	728 mm (28.7 in)	1154 mm (45.5 in)	295 mm (11.7 in)	315 mm (12.5 in)	338 mm (13.4 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	746 mm (29.4 in)	1186 mm (46.7 in)	310 mm (12.2 in)	324 mm (12.8 in)	347 mm (13.7 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	782 mm (30.8 in)	1248 mm (49.2 in)	342 mm (13.5 in)	342 mm (13.5 in)	365 mm (14.4 in)

KV 31, collimator on the sensor side

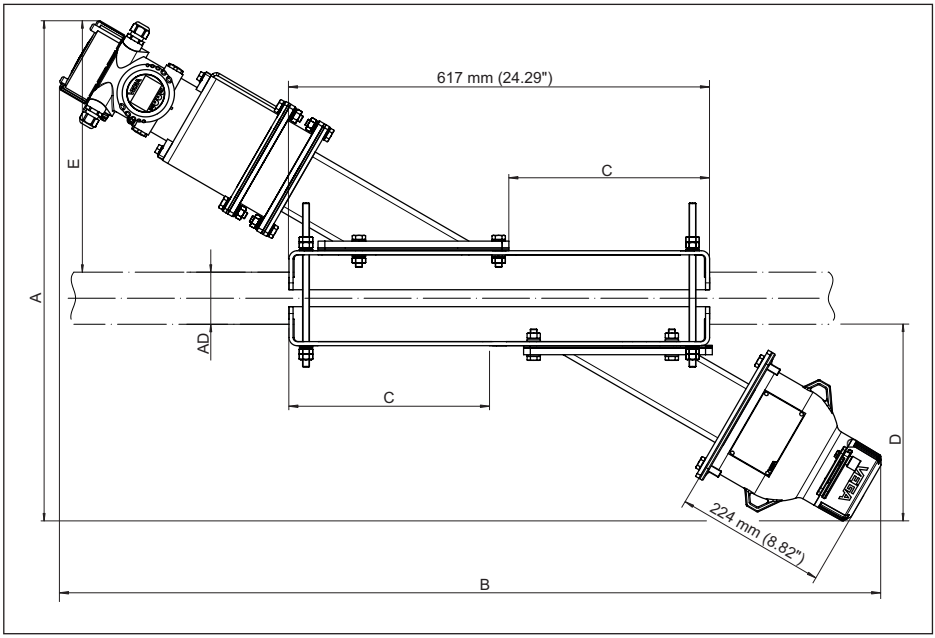

Fig. 17: Mounting bracket with collimator on the sensor side (with VEGASOURCE 81, 82, 83)

A Total width
AD Tube diameter
B Total length
C Adjustment
D Height - Radiator side
E Height - Sensor side

Tube DN (in)	Tube diameter (AD)	Total width (A)	Total length (B)	Adjustment (C)	Height - Radiator side (D)	Height - Sensor side (E)
DN 50 (2 in)	ø 60.3 mm (2.37 in)	734 mm (29 in)	1167 mm (46 in)	275 mm (10.8 in)	304 mm (12 in)	357 mm (14.1 in)
DN 65 (2.5 in)	ø 73 mm (2.9 in)	758 mm (29.9 in)	1206 mm (47.5 in)	295 mm (11.7 in)	315 mm (12.5 in)	368 mm (14.5 in)
DN 80 (3 in)	ø 88.9 mm (3.5 in)	775 mm (30.6 in)	1238 mm (48.8 in)	310 mm (12.2 in)	324 mm (12.8 in)	377 mm (14.9 in)
DN 100 (4 in)	ø 114.3 mm (4.5 in)	811 mm (32 in)	1300 mm (51.2 in)	342 mm (13.5 in)	342 mm (13.5 in)	395 mm (15.6 in)

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4.3 Industrial property rights

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4.4 Trademark

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