DuoSeries Detectors
LB 4700

Technical Information

56926TI2 Rev.03 08/2023
Embedded Software as of Version 12.00.00

BERTHOLD

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1. Information on 2-Wire Technology

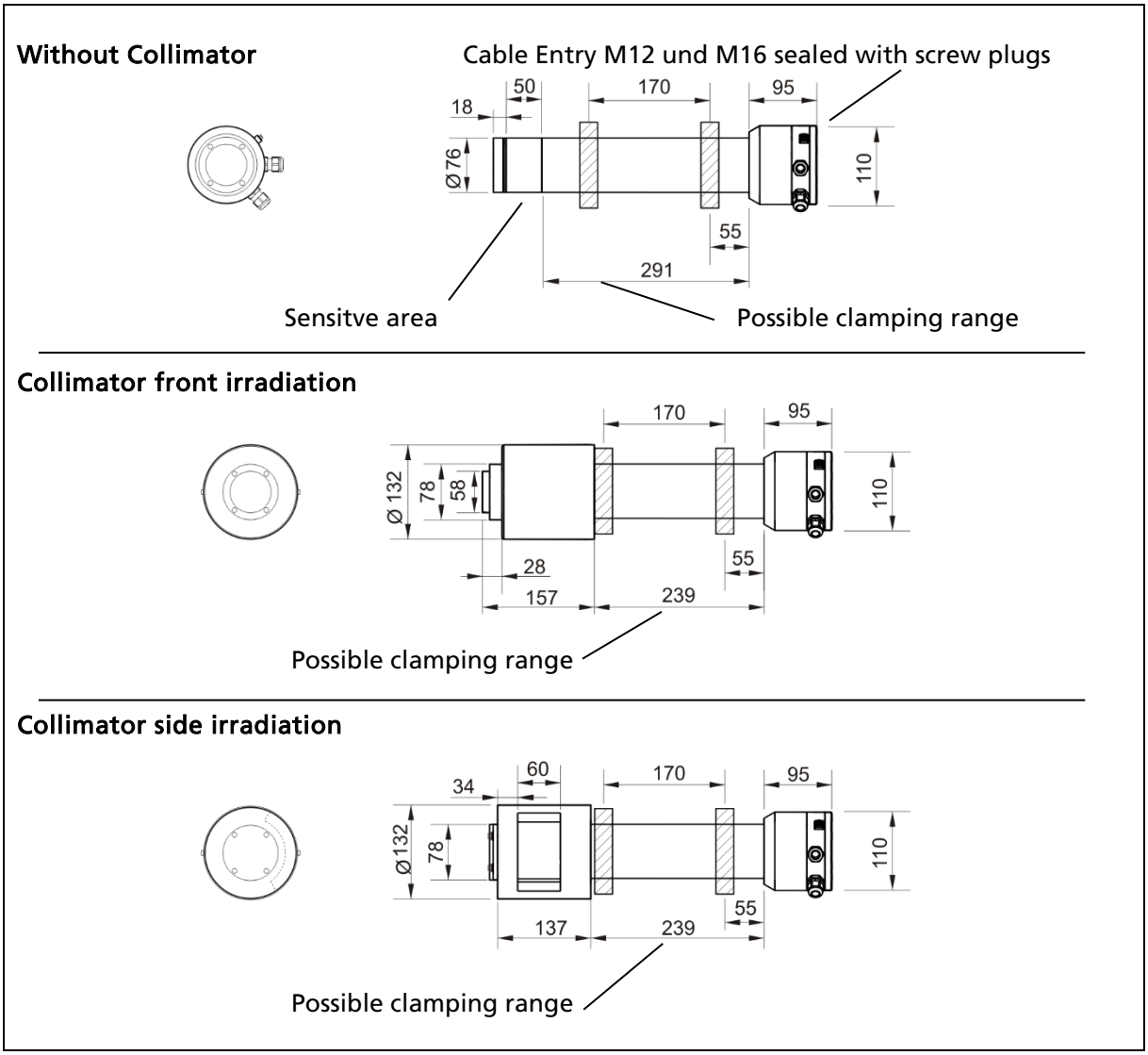
The DuoSeries/DuoXPERT measuring system consists of a scintillation detector – CrystalSENS point detector, UniSENS rod detector, SuperSENS detector or TowerSENS detector – and a sophisticated evaluation unit (DuoXPERT) for display and operation.

The evaluation unit is a state-of-the-art control unit with robust 3.5" TFT touch panel, powerful Dual Core CPU and diverse operator interfaces. Advanced self-diagnostics and monitoring features ensure a safe function of the system. Furthermore the data logging functionality allows operators to analyze their processes in depth, e.g. develop trends, track process changes etc.

Sophisticated Measuring System in 2-Wire Technology

- Unique: Radiometric system with intrinsically safe power supply (Full Ex-i)
- Real 2-wire technology, only 2 wires in the field
- Advanced self diagnostics and monitoring features
- Easy to use touch screen panel for local display and operation
- Integrated gas density compensation feature
- Direct replacement of predecessor model LB 440
- Interfaces with all 2-wire detectors LB 44xx, LB 54xx and LB 47xx

2. CrystalSENS LB-4700-1x

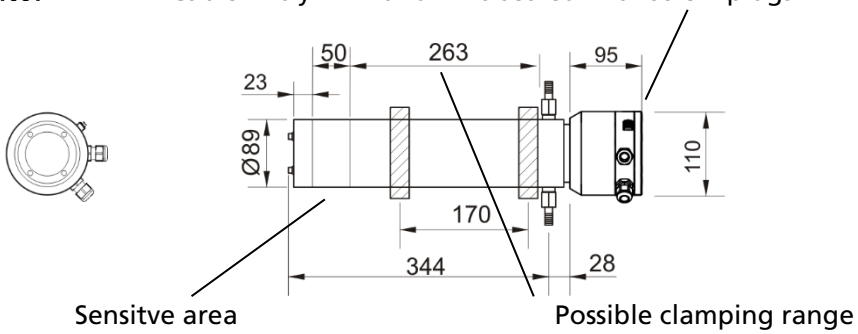


TI-Fig. 1 Dimensions CrystalSENS LB-4700-1x without water cooling (Dimensions in mm)

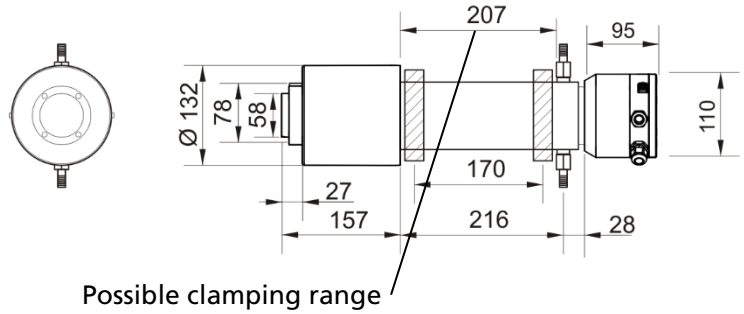
Water cooling	Collimator	Total Length (approx.)	Weight (approx.)
---	---	452 mm	9.4 kg
	Front irradiation	491 mm	21.1 kg
	Side irradiation	471 mm	19.2 kg

Without Collimator

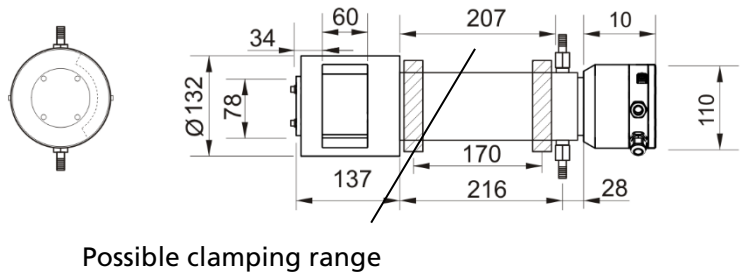
Cable Entry M12 und M16 sealed with screw plugs



Collimator front irradiation



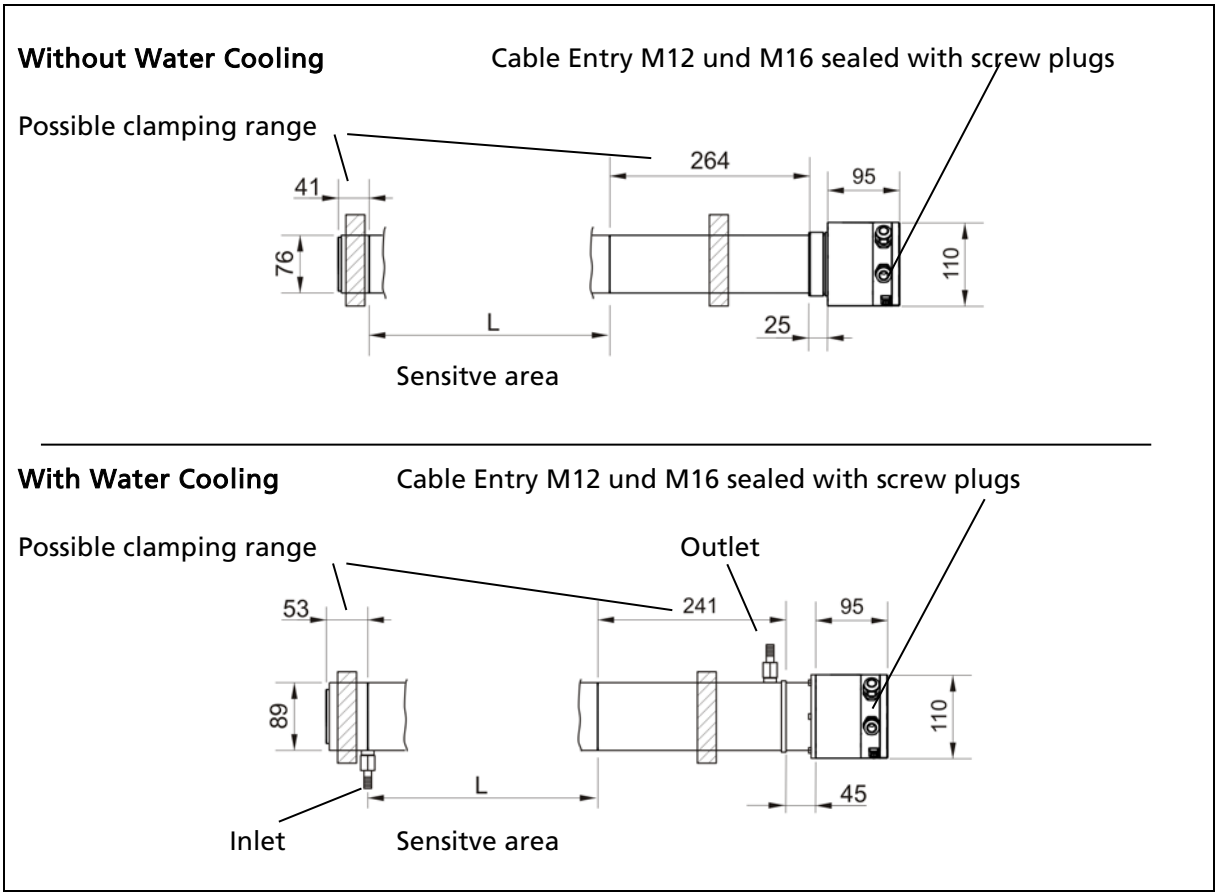
Collimator side irradiation



TI-Fig. 2 Dimensions CrystalSENS LB-4700-1x with water cooling (Dimensions in mm)

Water cooling	Collimator	Total Length (approx.)	Weight (approx.)
✓	---	467 mm	12.3 kg
	Front irradiation	496 mm	23.0 kg
	Side irradiation	475 mm	21.7 kg

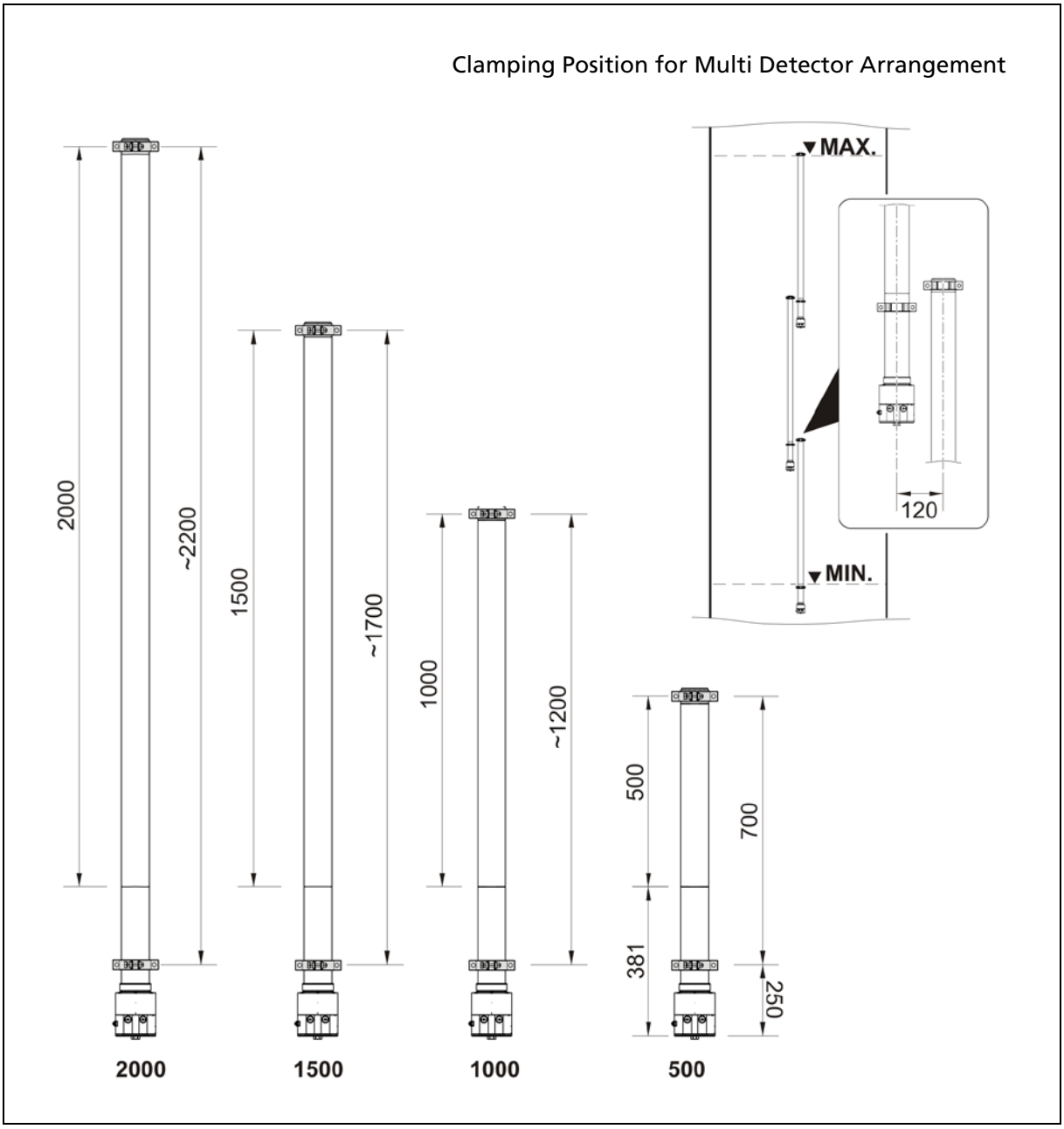
3. UniSENS LB 4700-2x



TI-Fig. 3 Dimensions UniSENS LB-4700-2x (Dimensions in mm)

L (sensitive area)	Water cooling	Total Length (approx.)	Weight (approx.)
500 mm	-	925 mm	13.7 kg
	✓	934 mm	19.5 kg
750 mm	-	1175 mm	15 kg
	✓	1184 mm	23 kg
1000 mm	-	1425 mm	16.8 kg
	✓	1434 mm	26.3 kg
1250 mm	-	1675 mm	19.3 kg
	✓	1684 mm	31.5 kg
1500 mm	-	1925 mm	22.7 kg
	✓	1934 mm	35.7 kg
2000 mm	-	2425 mm	26.5 kg
	✓	2434 mm	42.8 kg

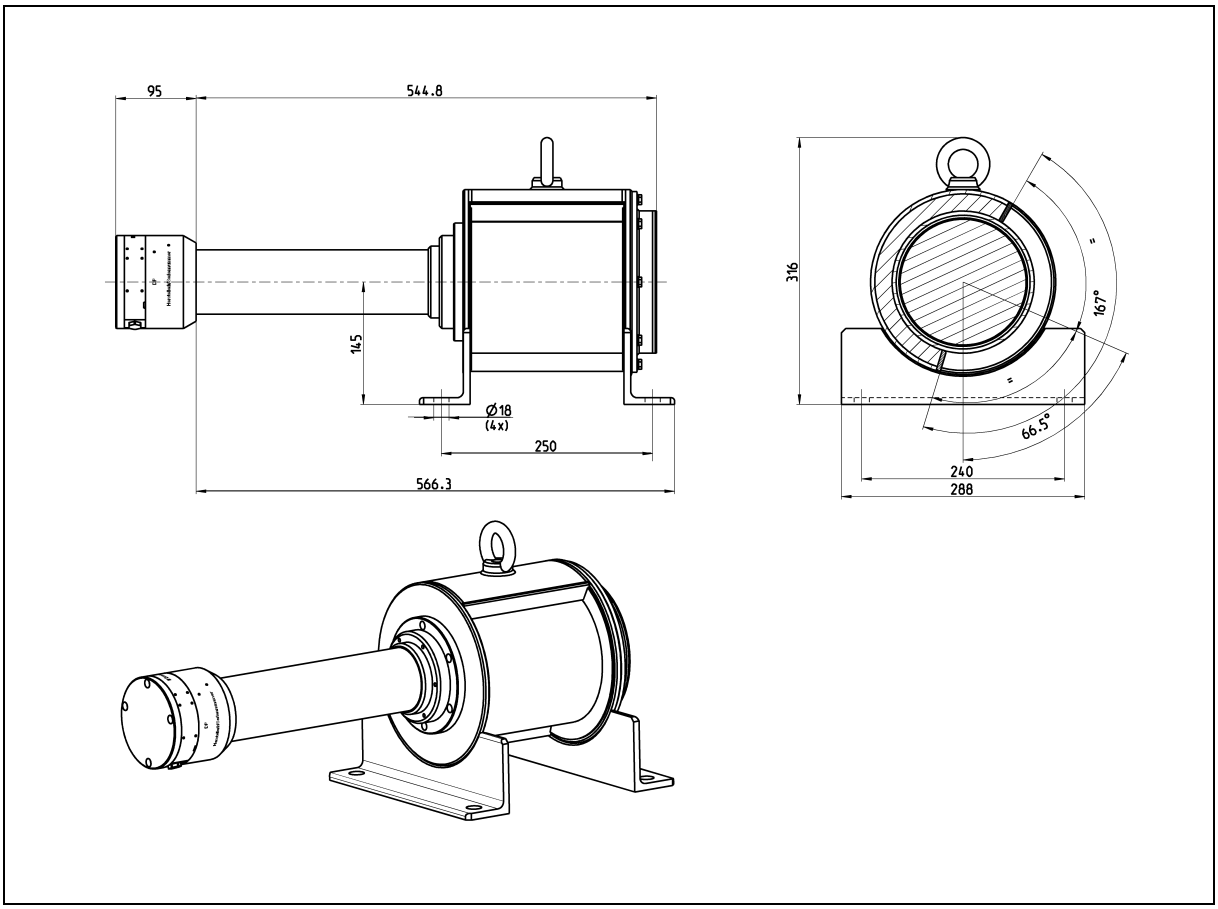
3.1. Clamping Positions for UniSENS Rod Detectors



TI-Fig. 4 Clamping Positions for UniSENS Rod Detectors

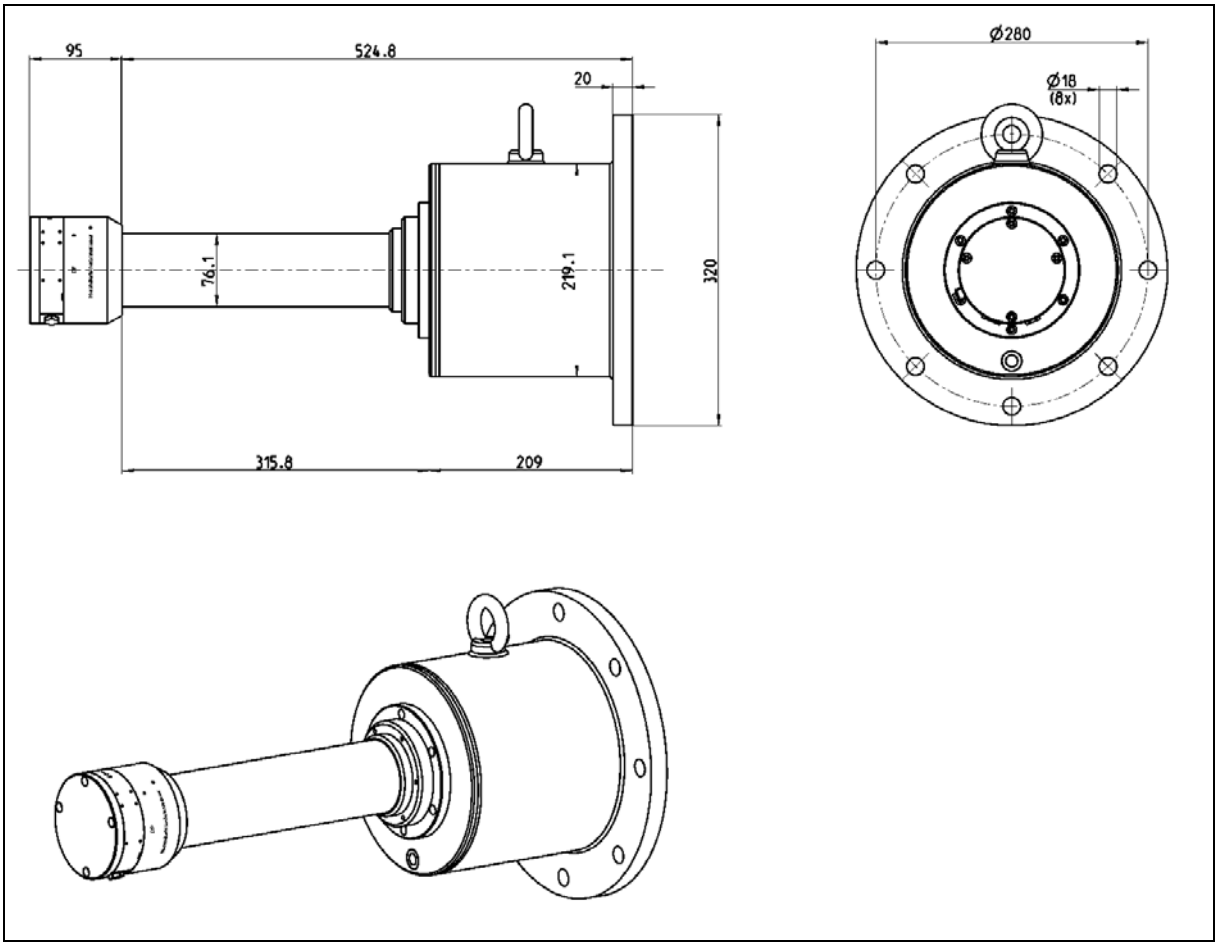
4. SuperSENS

4.1. SuperSENS: without water-cooling (side irradiation)



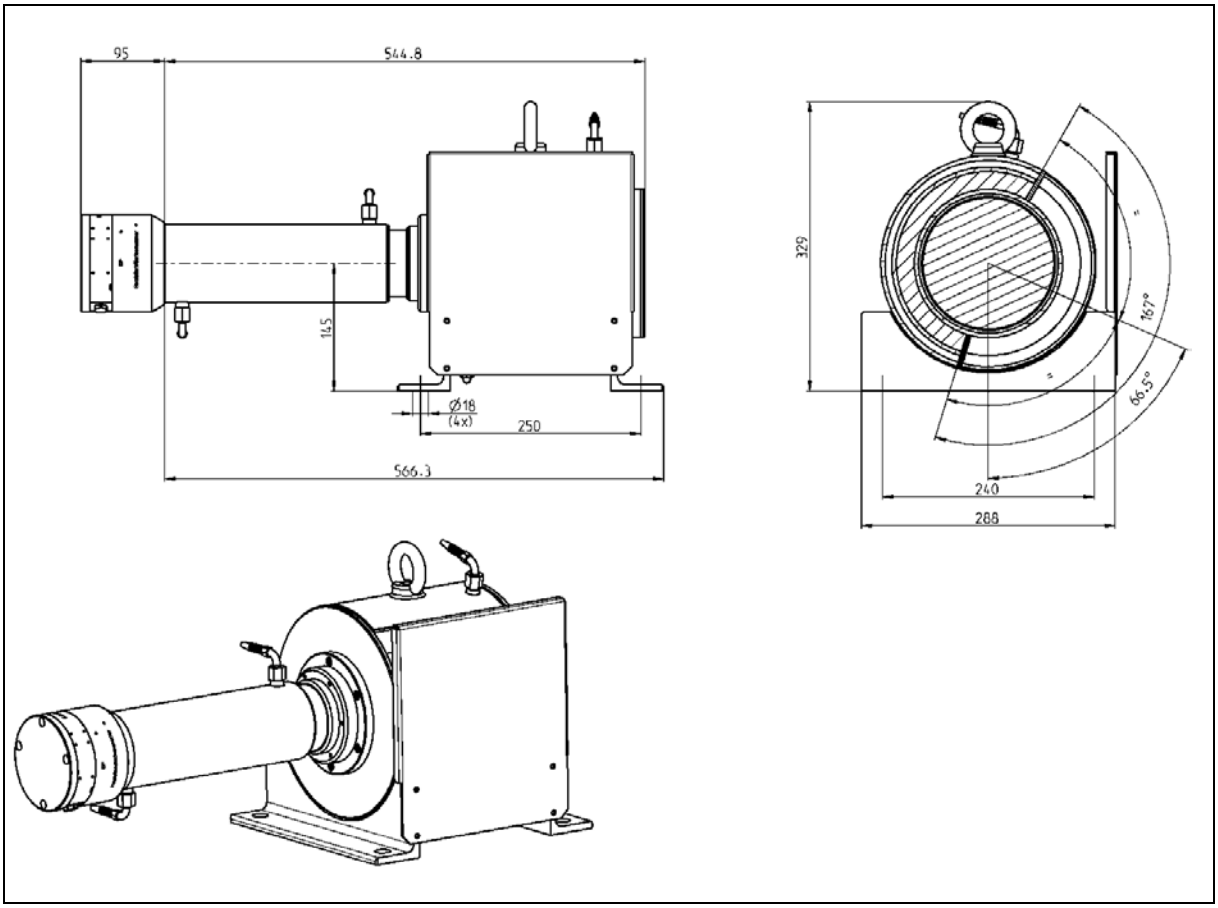
TI-Fig. 5 Dimensions SuperSENS without water-cooling (side irradiation)

4.2. SuperSENS: without water-cooling (frontal irradiation)



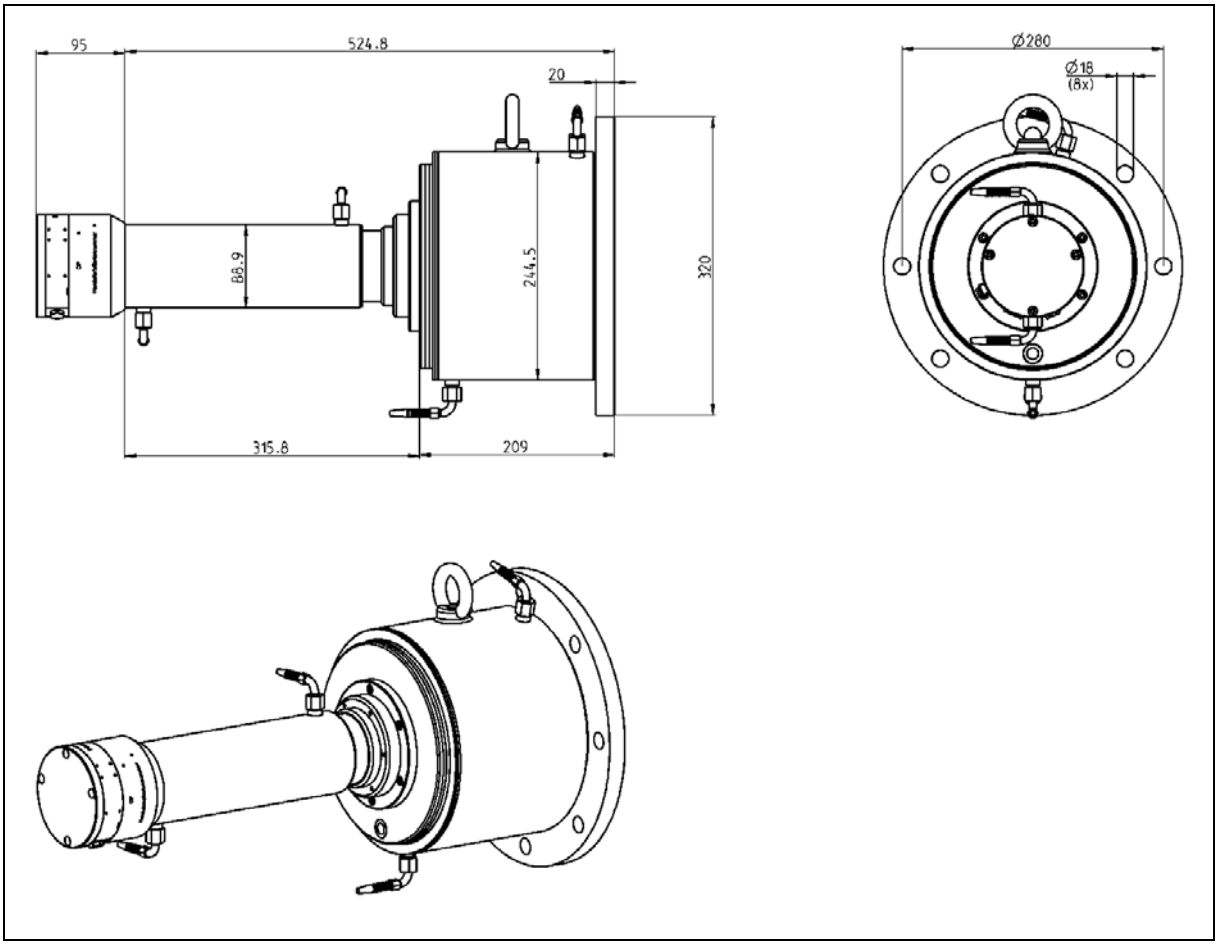
TI-Fig. 6 Dimensions SuperSENS without water-cooling (frontal irradiation)

4.3. SuperSENS: with water-cooling (side irradiation)



TI-Fig. 7 Dimensions SuperSENS with water-cooling (side irradiation)

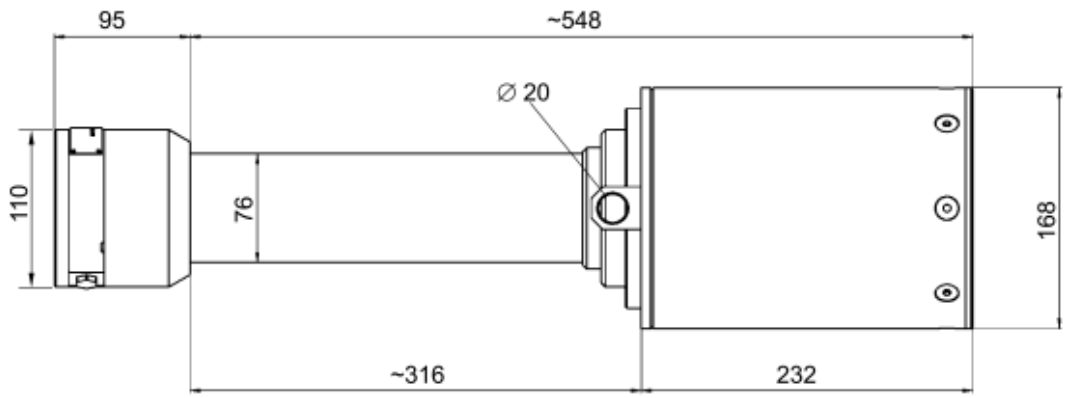
4.4. SuperSENS: with water-cooling (frontal irradiation)

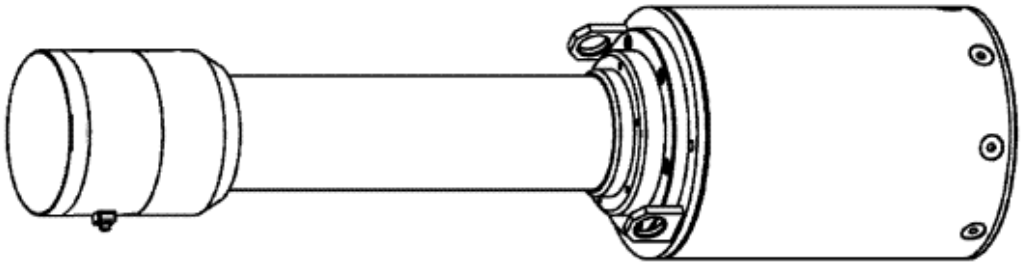


TI-Fig. 8 Dimensions SuperSENS with water-cooling (frontal irradiation)

4.5. SuperSENS: for Dip Pipe

LB 4700-31-00-80-01-100
56926-101

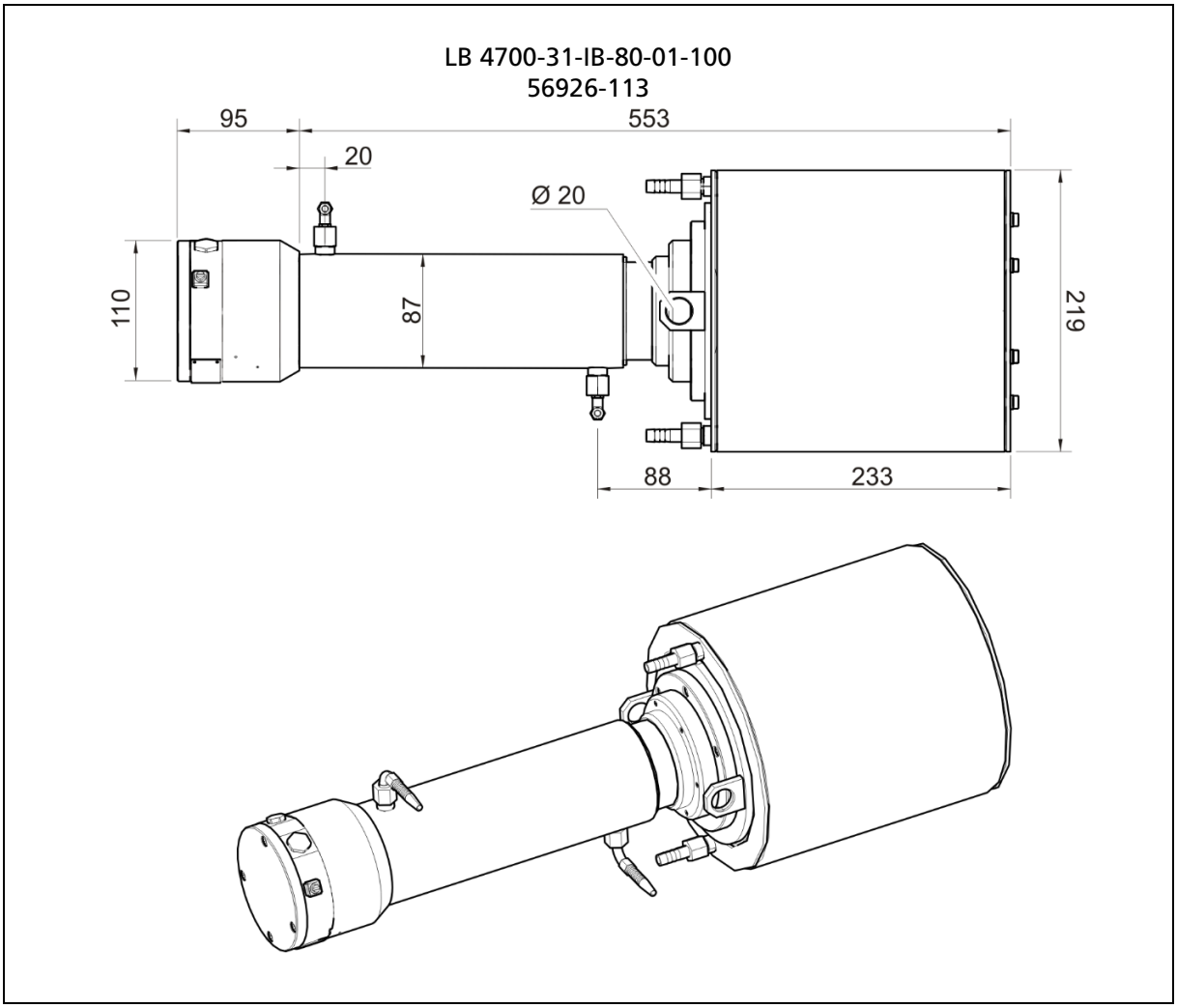




Gewicht ca. 21 kg

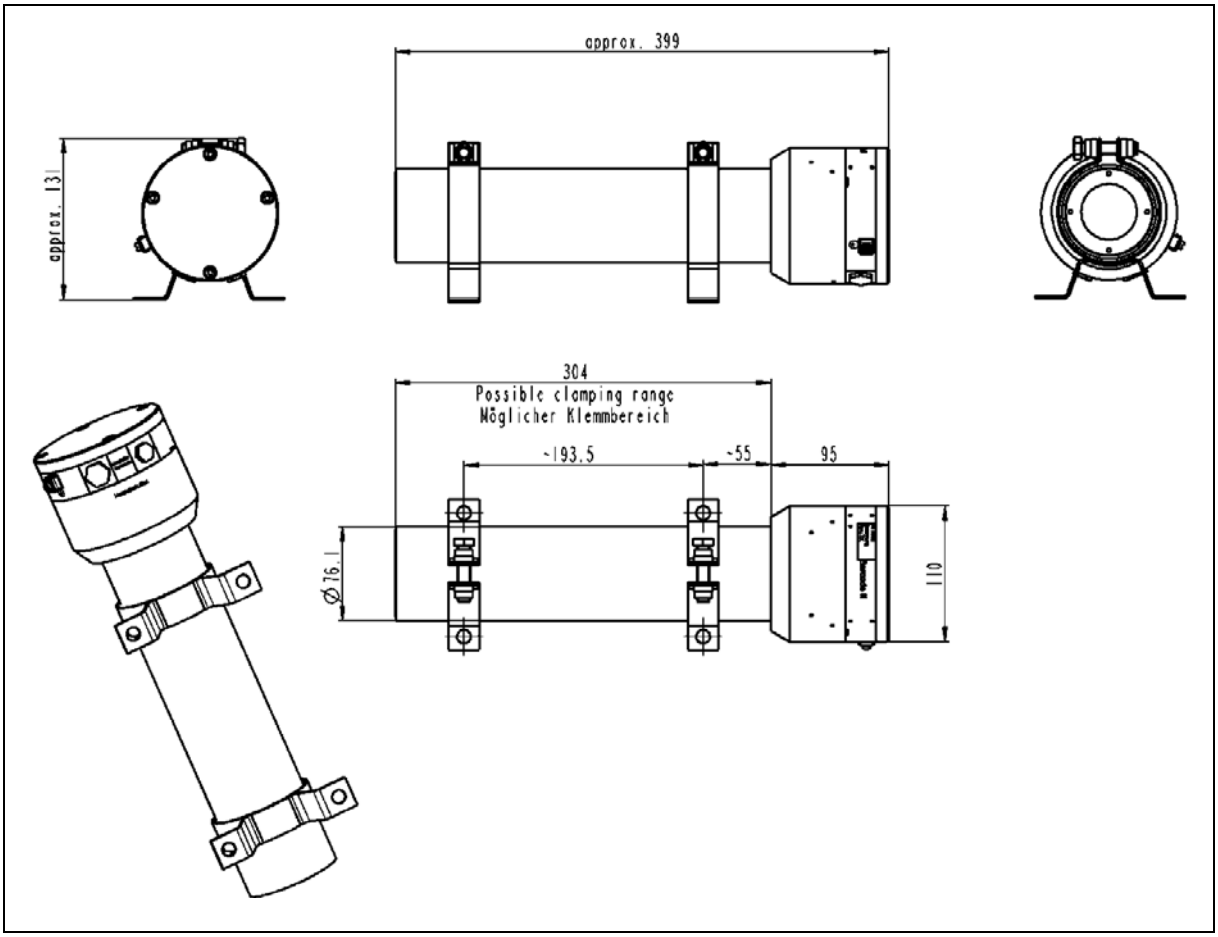
TI-Fig. 9 SuperSENS Detector for Dip Pipe (Dimensions in mm)

4.6. SuperSENS: for Dip Pipe with Water-Cooling



TI-Fig. 10 SuperSENS Detector for Dip Pipe with water-cooling (Dimensions in mm)

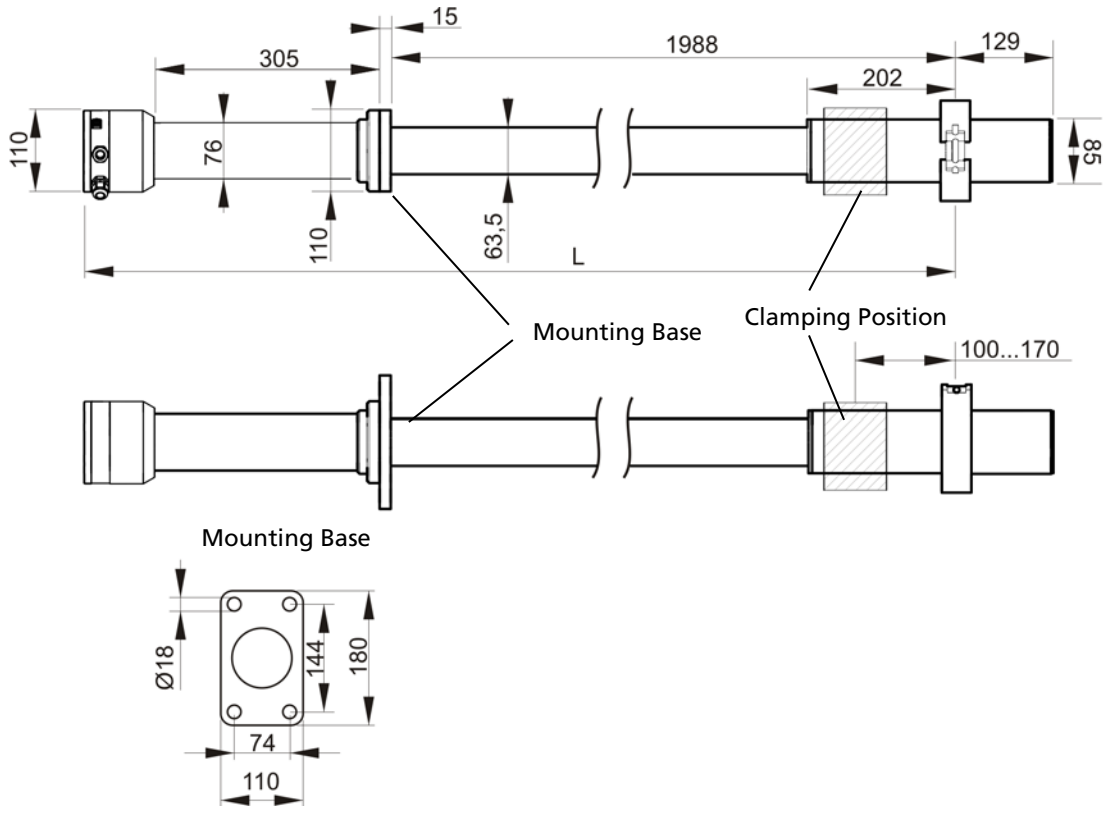
5. Detector for Low Energy Isotopes (like Am-241 / Cm-244)



TI-Fig. 11 Detector for Low Energy Isotopes (Dimensions in mm)

6. TowerSENS

6.1. TowerSENS: without water-cooling

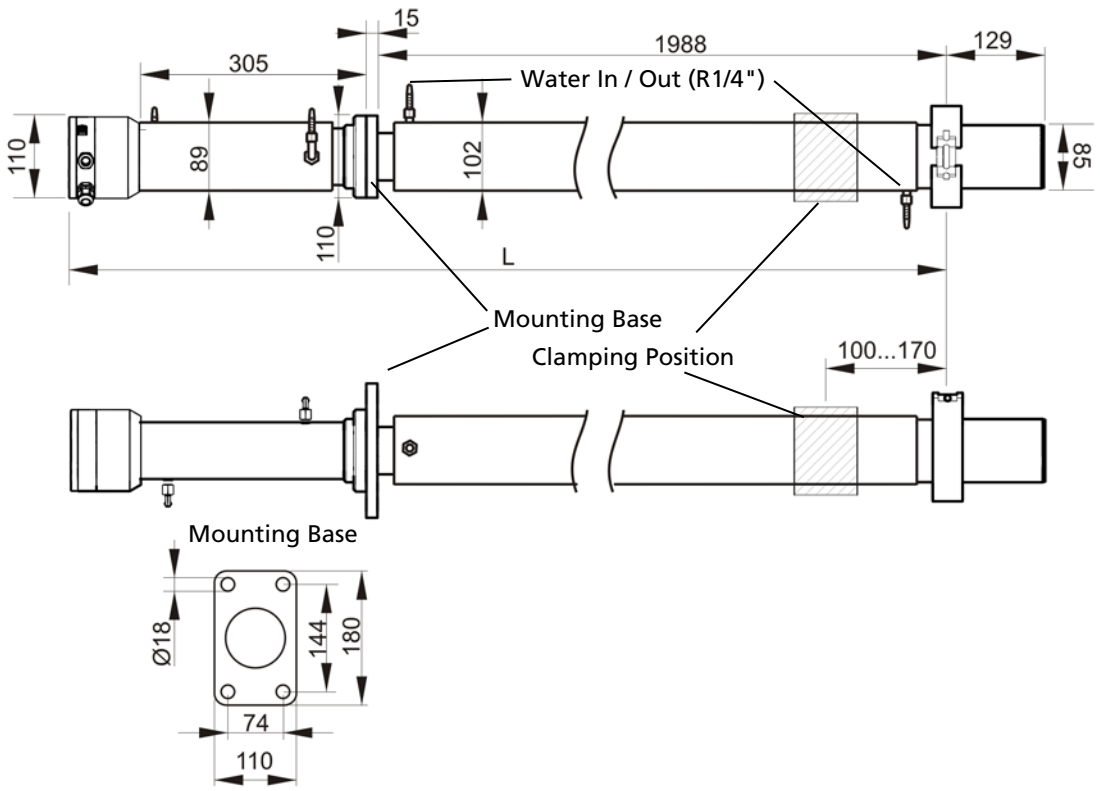


Housing material: stainless steel 1.4301

TI-Fig. 12 Basic Module without water-cooling (Dimensions in mm)

Type	Sensitive Length	Length L	Weight
Basic Module 2 m Zones Variant	1988 mm	2532 mm	26 kg
Basic Module 2 m Divisions Variant	1988 mm	2563 mm	27 kg

6.2. TowerSENS: with water-cooling

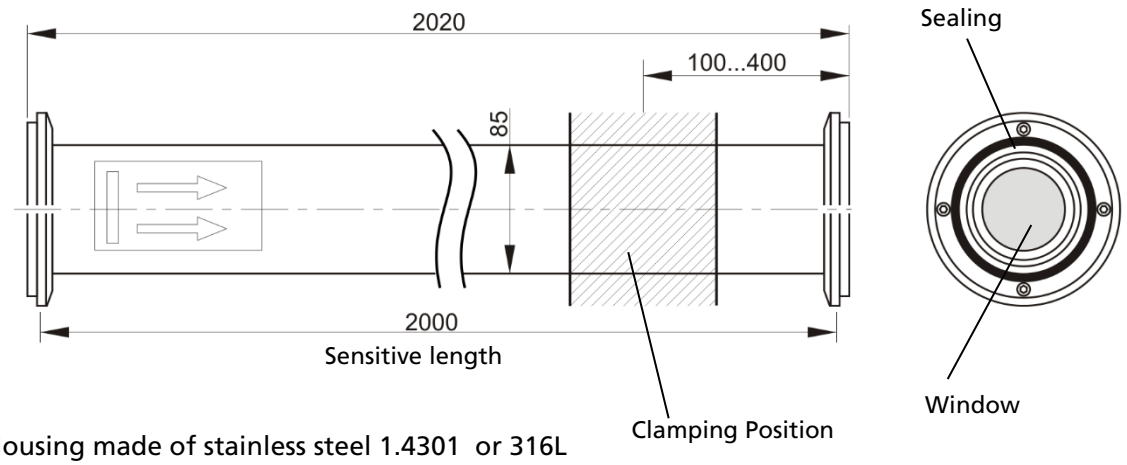


Housing material: stainless steel 1.4301

TI-Fig. 13 Basic Module with water-cooling (Dimensions in mm)

Type	Sensitive Length	Length L	Weight
Basic Module 2 m Zones Variant	1988 mm	2532 mm	41 kg
Basic Module 2 m Divisions Variant	1988 mm	2563 mm	42 kg

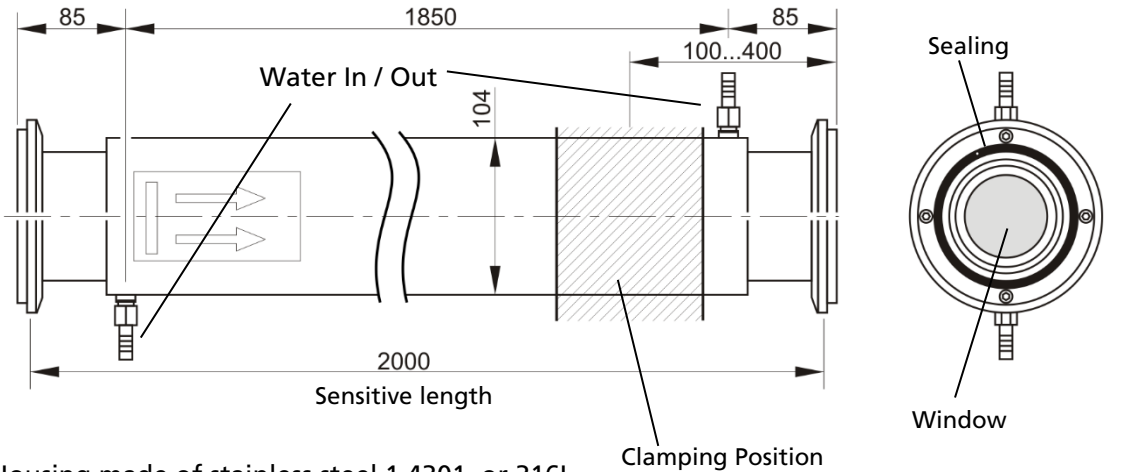
6.3. TowerSENS: 2 m Extension Module without water-cooling



Housing made of stainless steel 1.4301 or 316L
Weight: 17 kg

TI-Fig. 14 TowerSENS: 2 m Extension Module without water-cooling (Dimensions in mm)

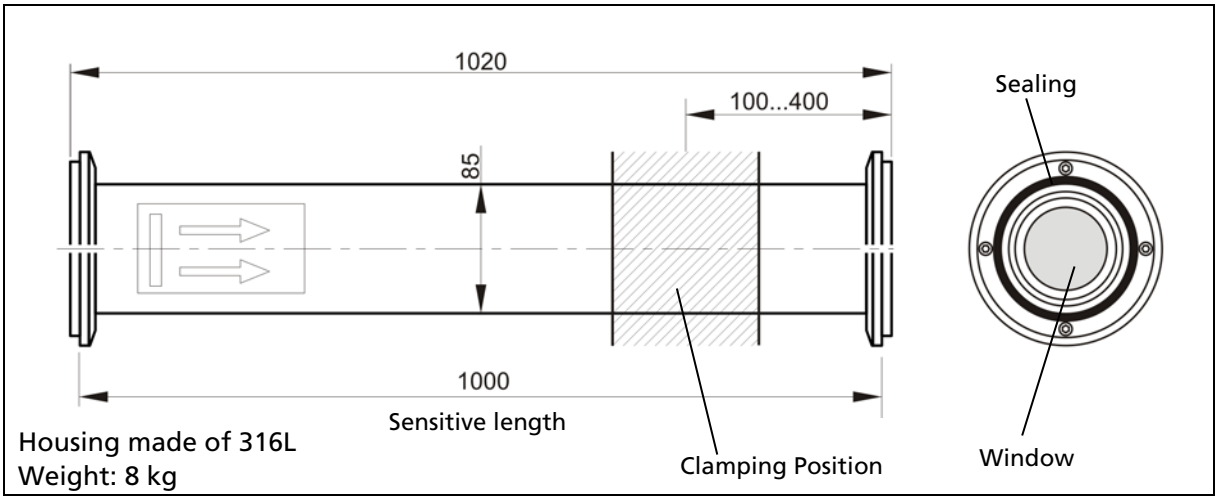
6.4. TowerSENS: 2 m Extension Module with water-cooling



Housing made of stainless steel 1.4301 or 316L
Weight: 32 kg

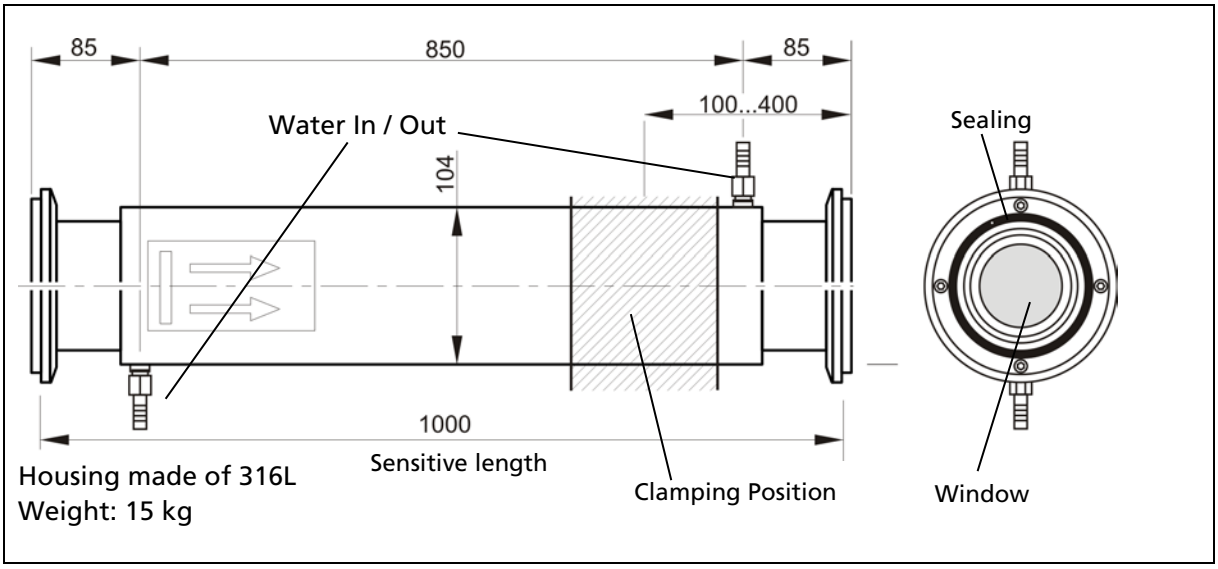
TI-Fig. 15 TowerSENS: 2 m Extension Module with water-cooling (Dimensions in mm)

6.5. TowerSENS: 1 m Extension Module without water-cooling



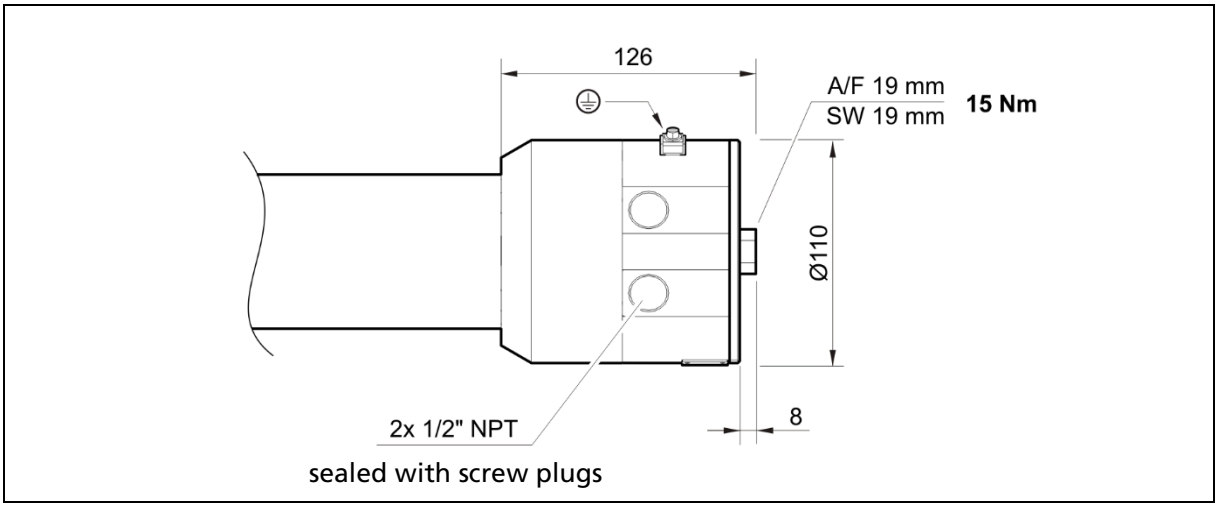
TI-Fig. 16 TowerSENS: 1 m extension module without water-cooling (Dimensions in mm)

6.6. TowerSENS: 1 m Extension Module with water-cooling



TI-Fig. 17 TowerSENS: 1 m extension module with water-cooling (Dimensions in mm)

7. Versions for Class, Divisions: “DIP” / “XP” LB 4700-xx-Fx



TI-Fig. 18 Versions for Class, Divisions: “DIP” / “XP” LB 4700-xx-Fx (Dimensions in mm)

The detector version for divisions (NEC/CEC) differs only in the terminal housing, compared to the standard version illustrated above. The dimensions of this terminal housing are illustrated in this drawing.

Divisions versions are available for all detectors with the following exceptions:

- Am / Cm detector
- CrystalSENS 125/50

8. Mounting Clamps

8.1. Standard Design

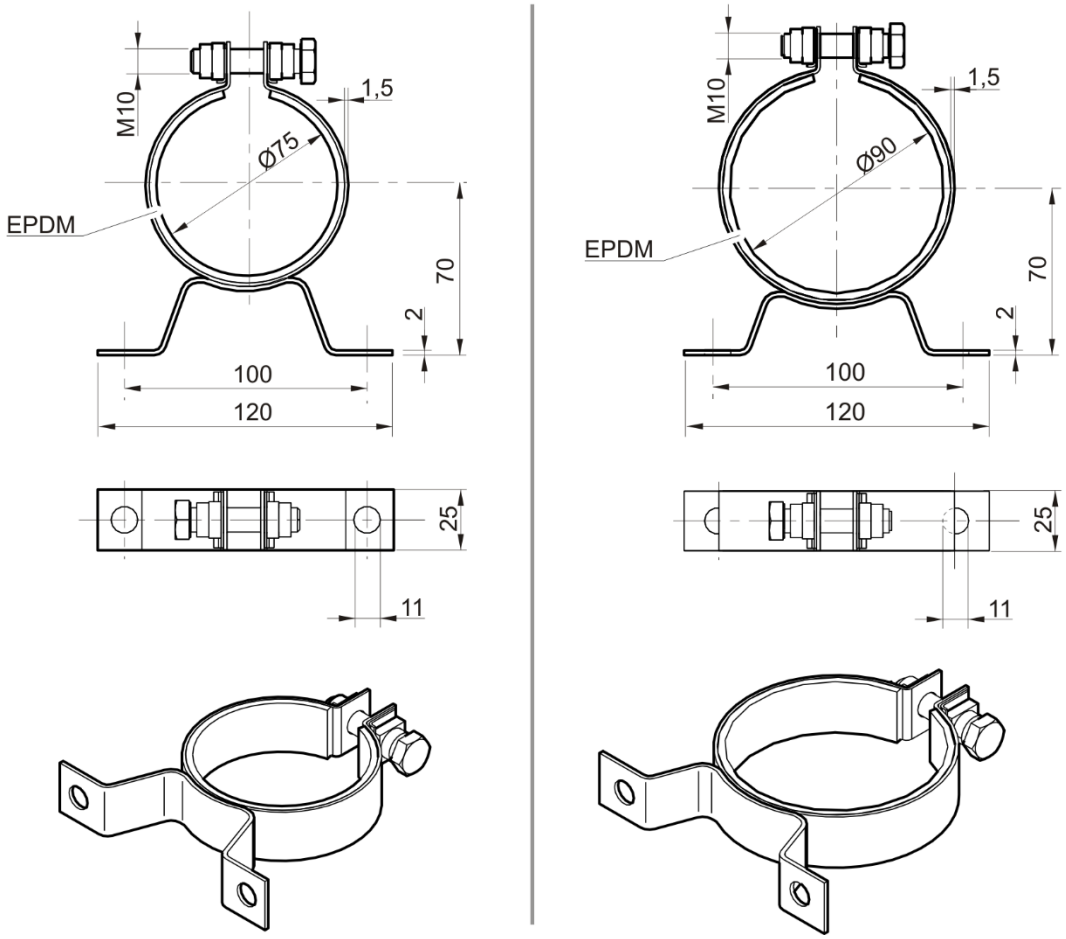
IMPORTANT

The distance from the middle of the detector to the vessel surface or surface of heat insulation should be approx. 100 mm. Care should be taken during mounting to avoid as far as possible heat transfer from the vessel via the clamps to the detector.

for Detectors without water cooling

for Detectors with water cooling

Material
316Ti
1.4571



Mat. No. 31346 (1 set = 2 clamps)
Mat. No. 31345 (single clamp)

Mat. No. 31347 (1 Satz = 2 Schellen)
Mat. Nr. 31344 (single clamp)

Position for the clamps, see detector drawing

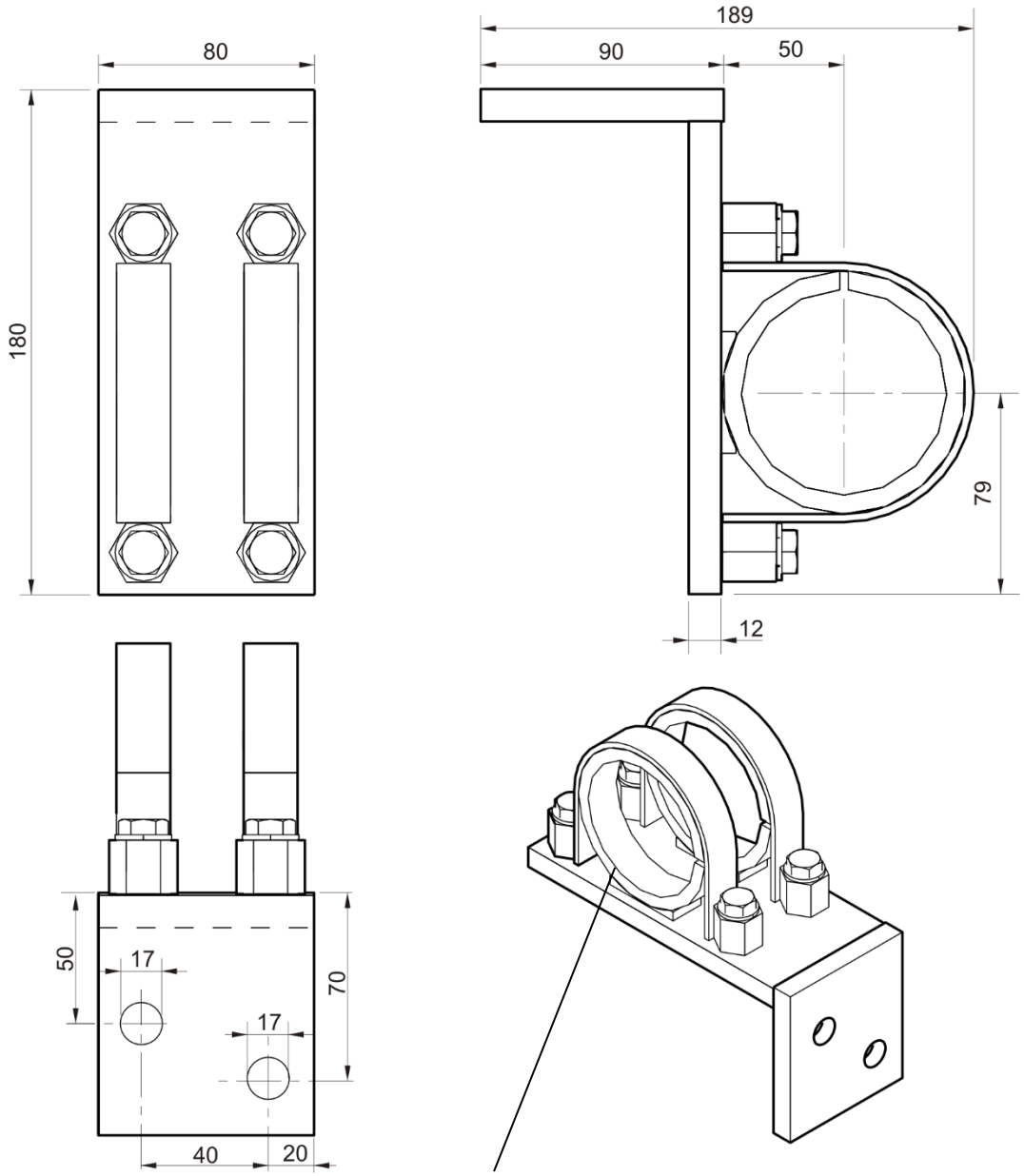
TI-Fig. 19 Mounting clamps for detectors (Dimensions in mm)

8.2. Heavy Duty Detector Holder

For detectors without water cooling
Mat. No. 39246

For detectors with water cooling
Mat. No. 39247

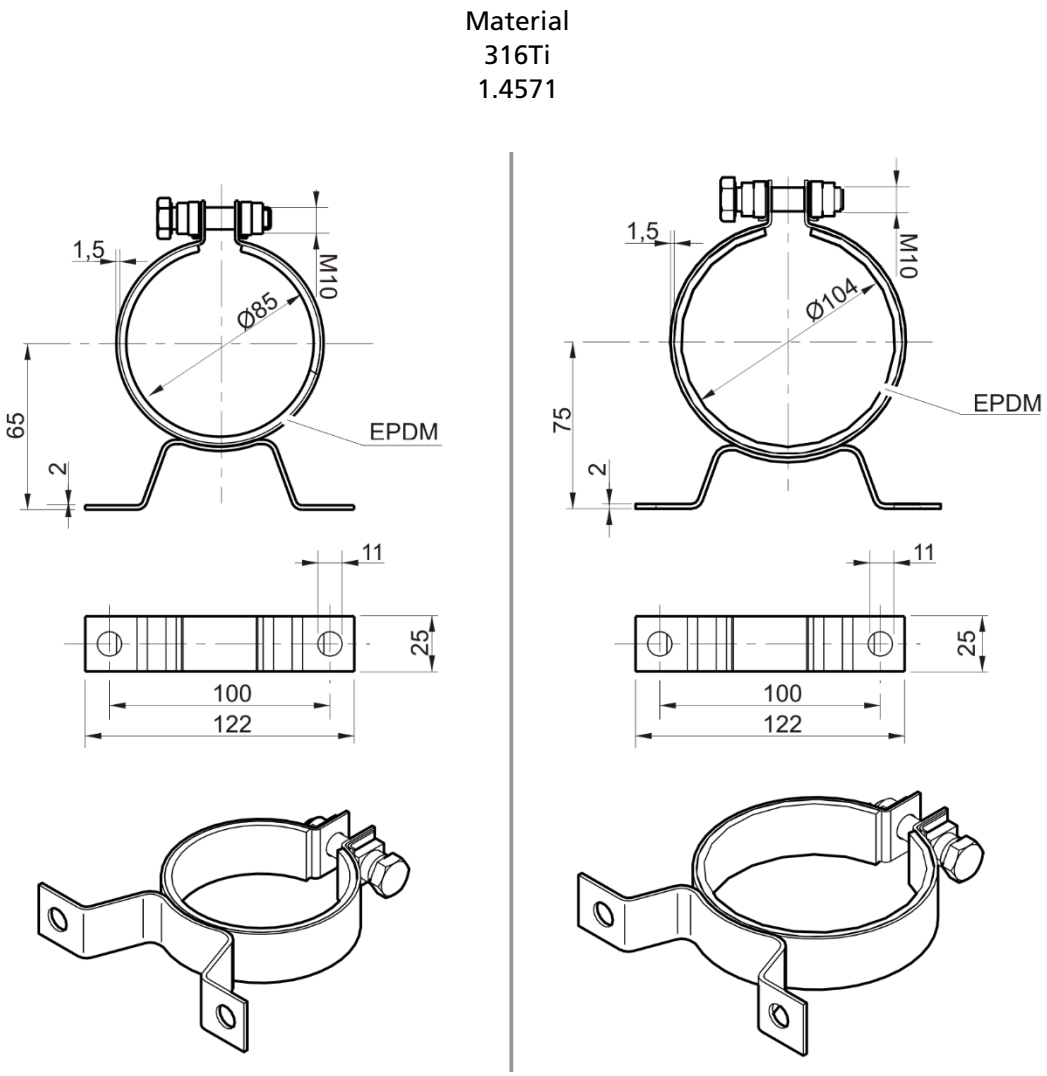
Material: stainless steel



Remove the plastic ring for detectors with water cooling.

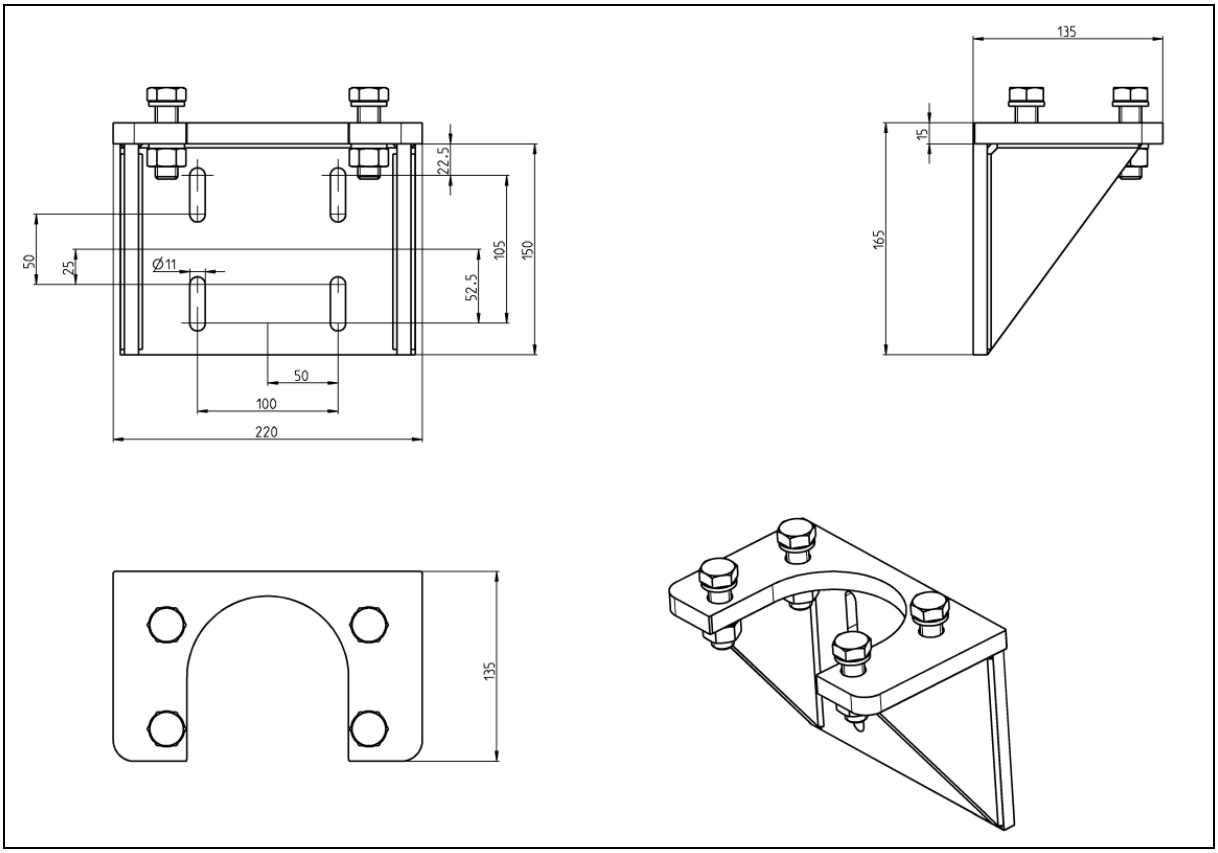
TI-Fig. 20 Heavy duty version (Dimensions in mm)

8.3. Mounting Clamps for TowerSENS



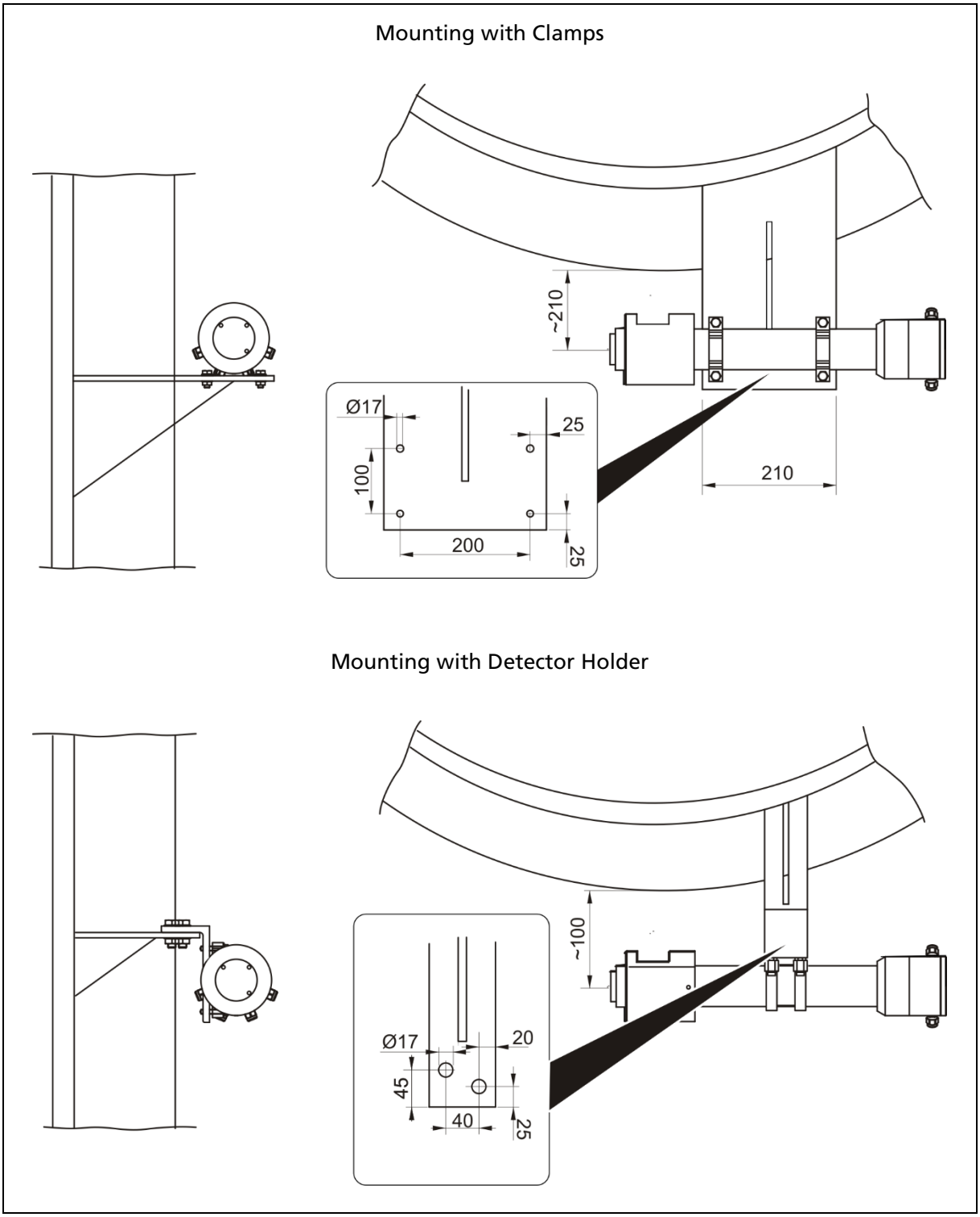
TI-Fig. 21 Mounting Clamps for TowerSENS (Dimensions in mm)

8.4. Mounting Bracket



TI-Fig. 22 Mounting Bracket

8.5. Mounting Point Detector CrystalSENS



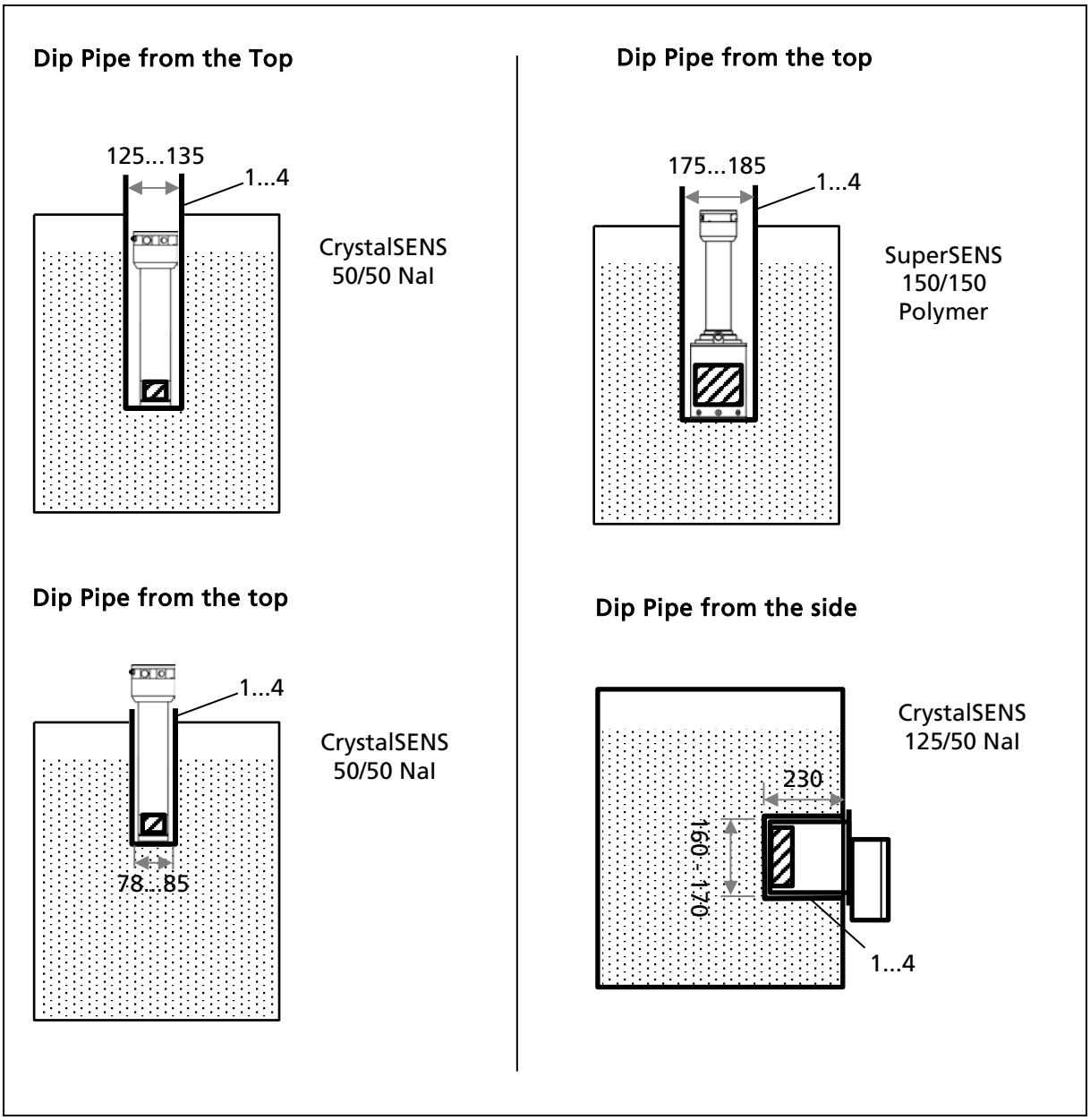
TI-Fig. 23 Mounting Point Detector CrystalSENS (Dimensions in mm)

NOTICE

Direct sun radiation can overheat the detector. If the detector temperature can reach more than 50°C, a suitable sun roof must be installed. The heating of the detector by thermal radiation from the vessel can also be moderated by a thermal sheet, e.g. by a thin metal plate. For each detector a water cooling (option) is available!

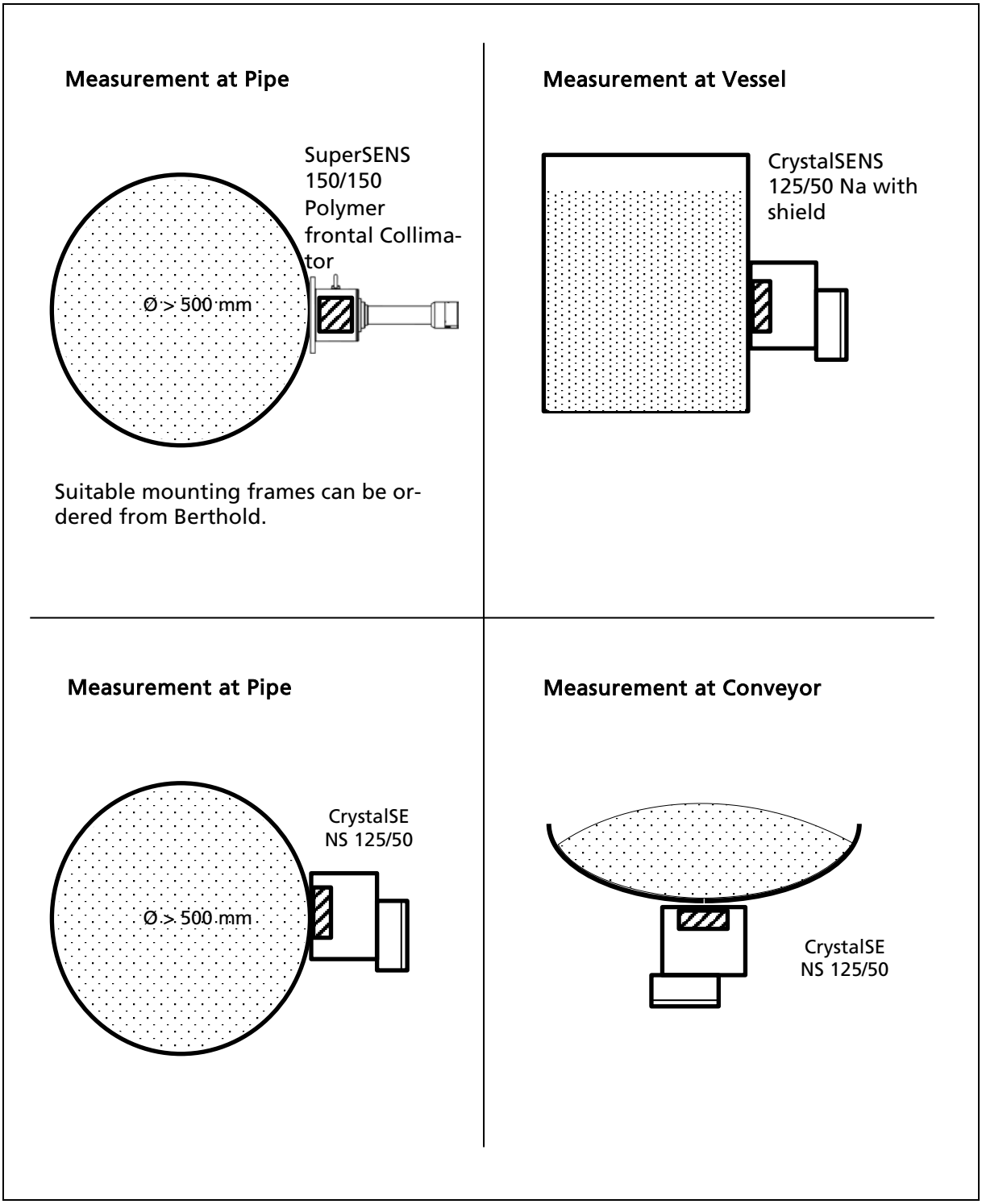
9. Potassium Measurement

9.1. Examples for Arrangements inside the Vessel



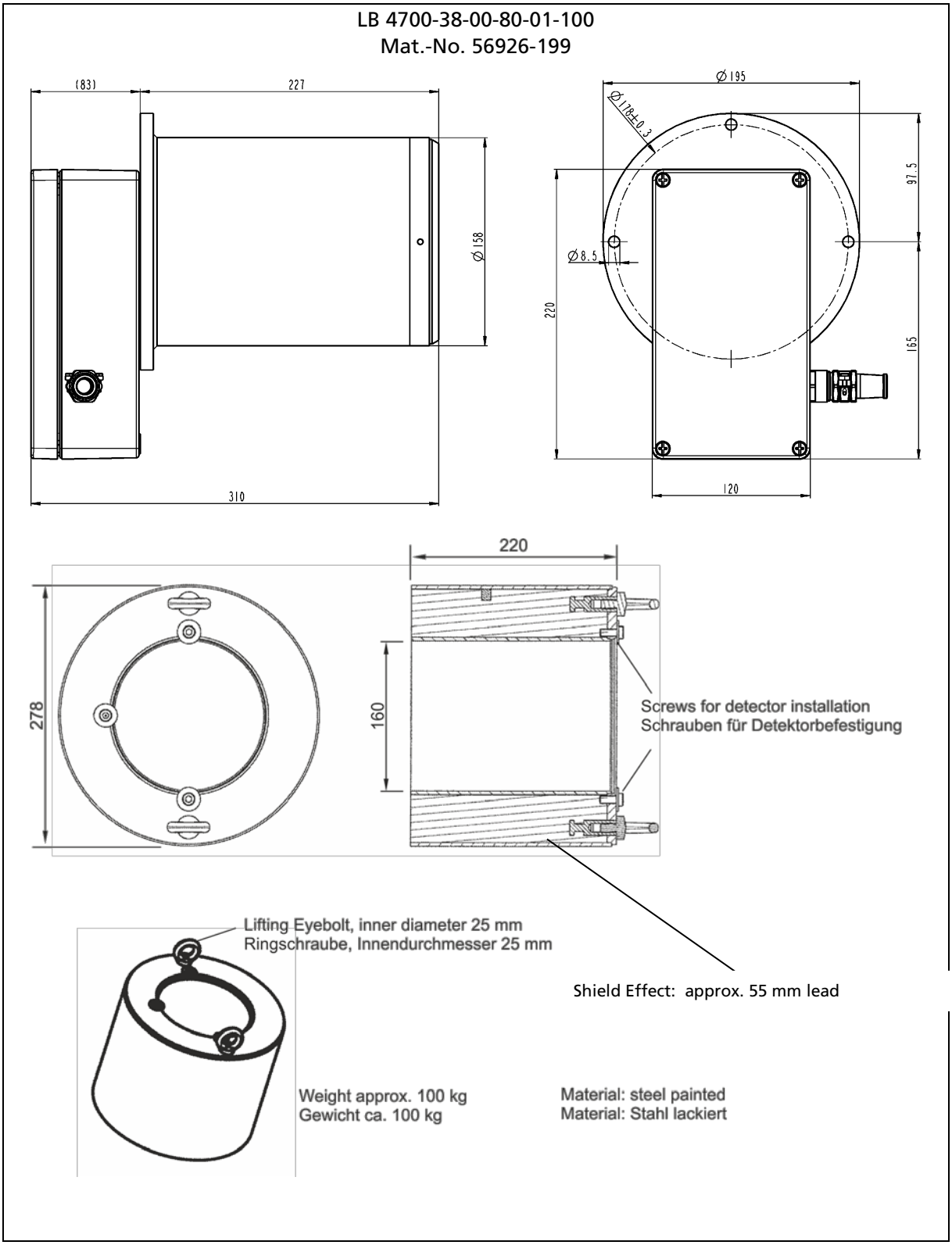
TI-Fig. 24 Examples for Arrangements inside the Vessel (Dimensions in mm)

9.2. Potassium, Examples for Surface Measuring Arrangements



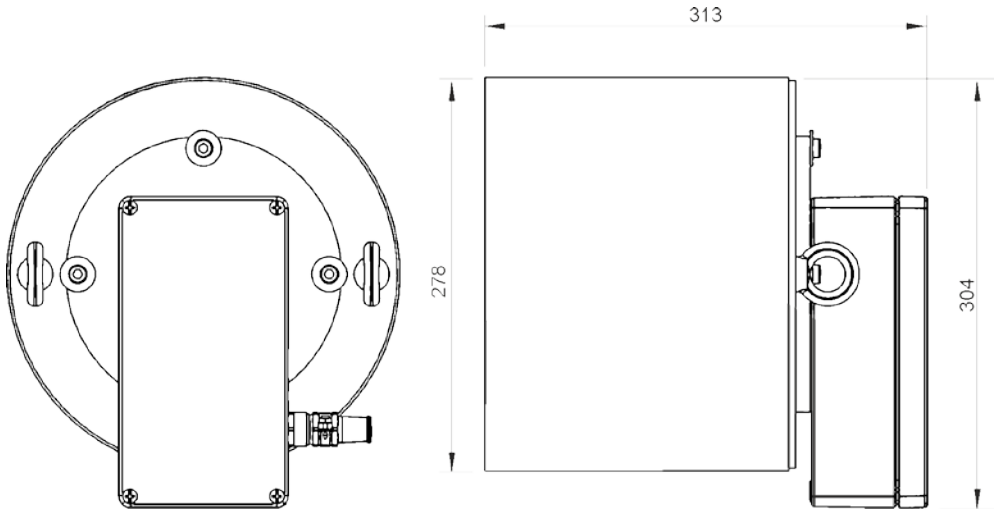
TI-Fig. 25 Examples for Arrangements Surface Measurement (Dimensions in mm)

9.3. CrystalSENS 125/50



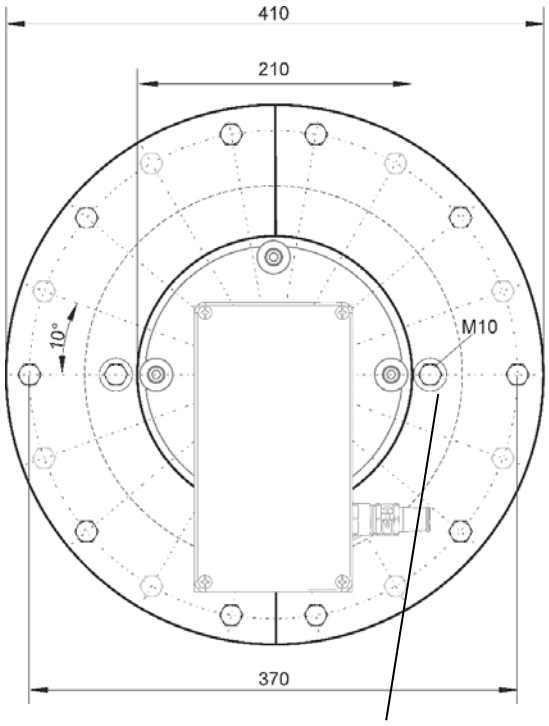
TI-Fig. 26 CrystalSENS 125/50 for potassium measurement (Dimensions in mm)

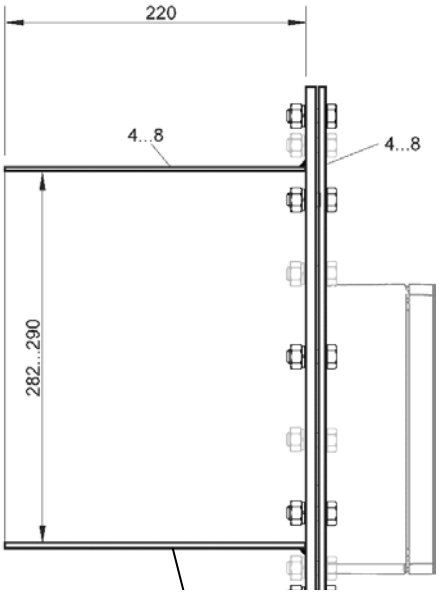
9.4. CrystalSENS 125/50 installed in Shield



Weight approx. 121 kg

Installation Example for CrystalSENS 125/50 with shield (to be made by the customer)





Weld the pipe at the vessel or install it at a appropriate support

Devide the top flange ring into two half shells.
Unscrew the eybolts and use the threated hole to fix the flange.

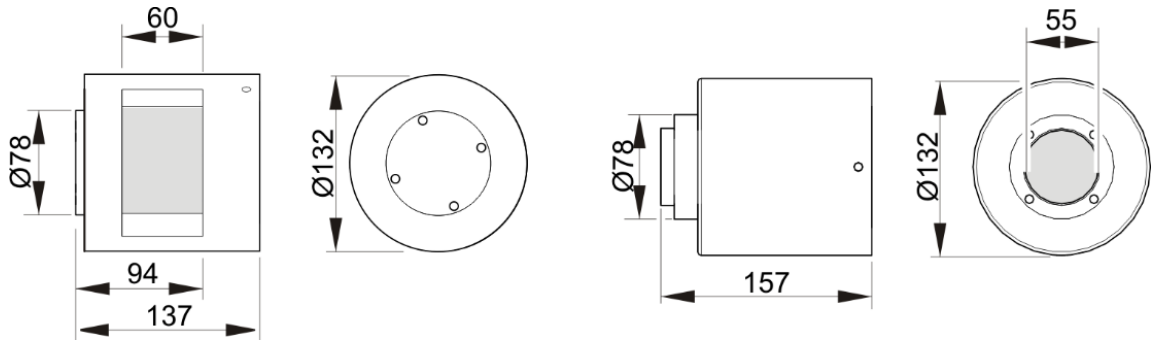
TI-Fig. 27 CrystalSENS 125/50 installed in shield (Dimensions in mm)

10. Collimators and Extension Shields

10.1. Collimator for CrystalSENS Detectors

Collimator for frontal irradation
Mat.-No. 11814

Collimator for side irradation
Mat.-No. **4506**

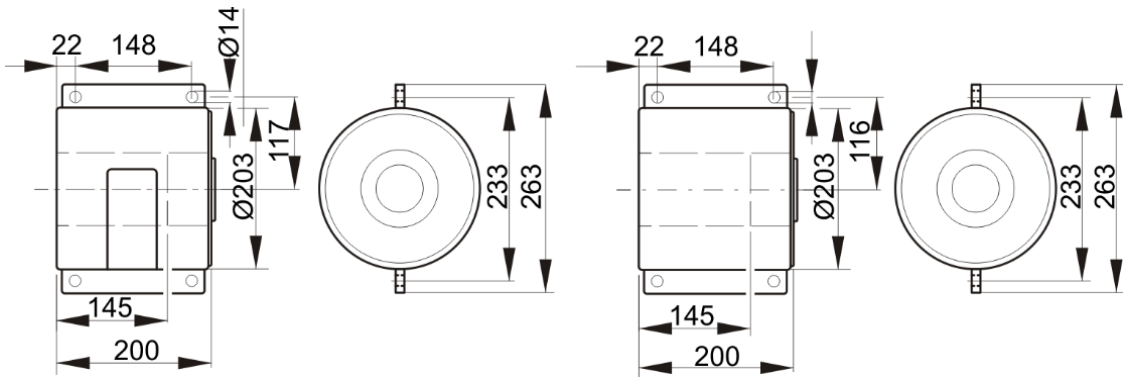


TI-Fig. 28 Collimator for CrystalSENS Detectors (Dimensions in mm)

10.2. Reinforced Collimator for CrystalSENS Detectors

Collimator for frontal irradation
Mat.-No. 48254

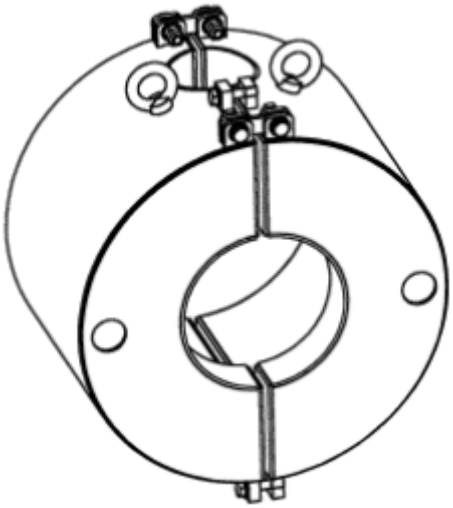
Collimator for side irradation
Mat.-No. 48925



TI-Fig. 29 Reinforced collimator for CrystalSENS (Dimensions in mm)

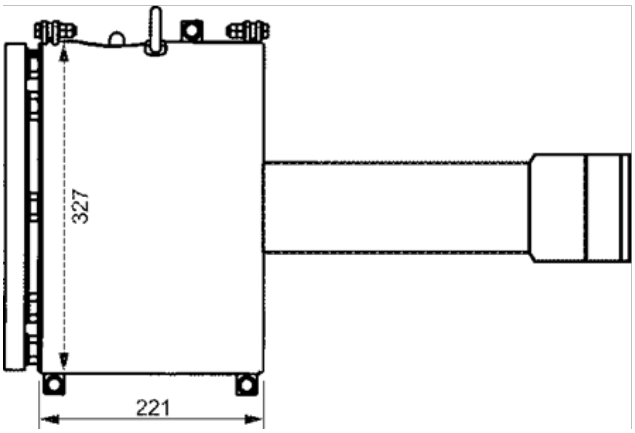
10.3. Extension Shield für SuperSENS with Frontal Irradiation

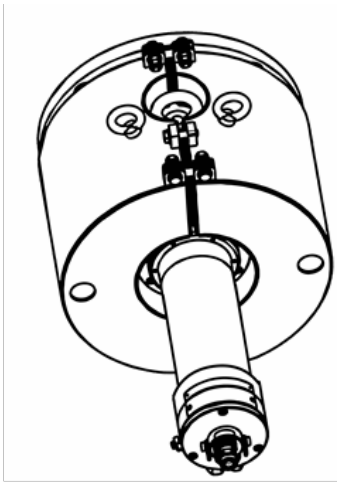
Extension shield Mat.-No. 49825



Shield effect: approx. 45 mm lead
Weight approx. 114 kg

Extension shield installed on SuperSENS

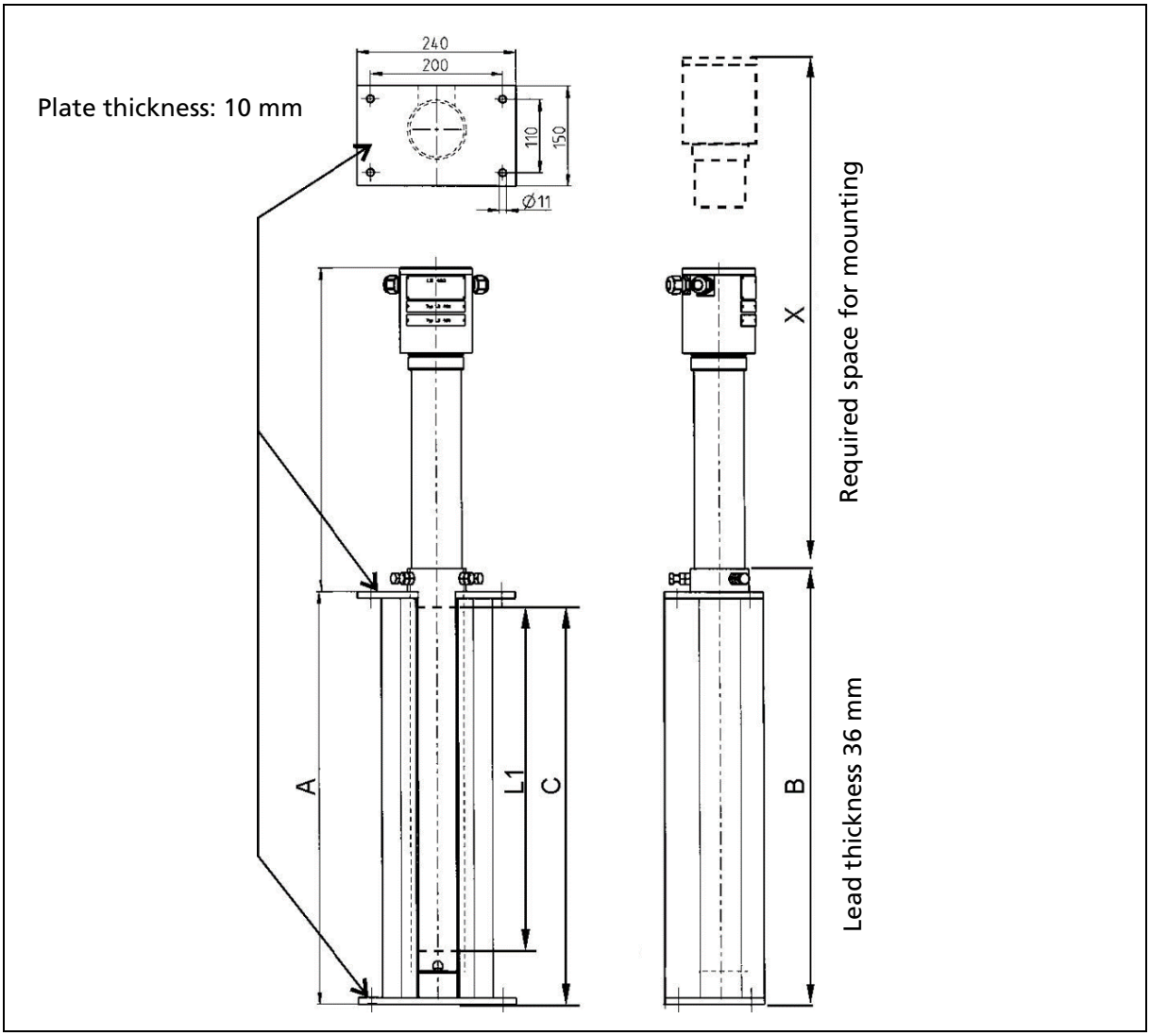




Gesamte Abschirmungswirkung: ca. 70 mm Blei
Gewicht ca. 124 kg

TI-Fig. 30 Extension Shield für SuperSENS (Dimensions in mm)

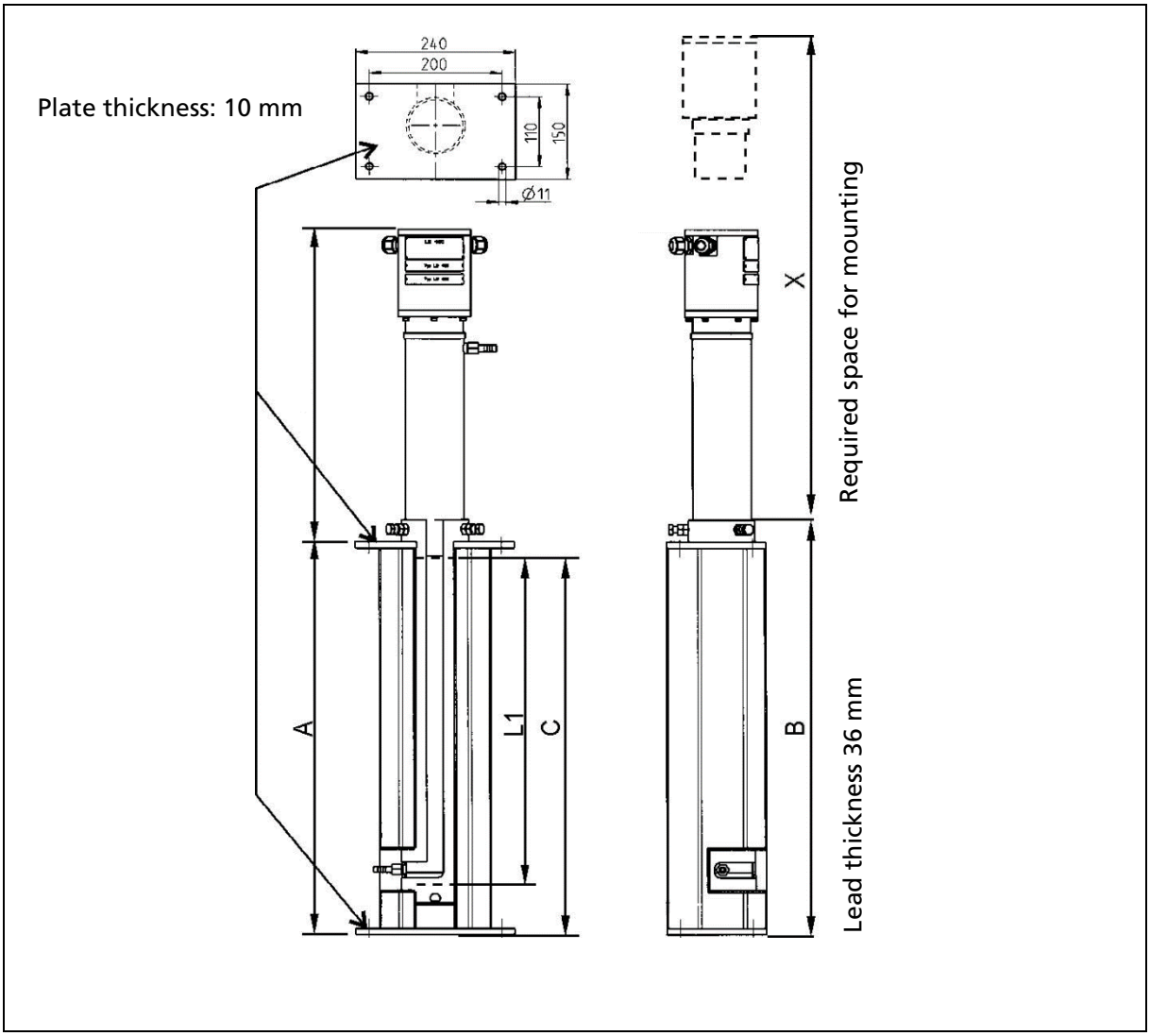
10.4. Collimator for UniSENS Detectors without Water-Cooling



TI-Fig. 31 Collimator for UniSENS without Water-Cooling (Dimensions in mm)

Mat.-No.	L1 sensitive length	A	B	C	X	Weight (kg)
59957-050	500	620	655	590	960	110
59957-100	1000	1120	1155	1090	1460	195
59957-150	1500	1620	1655	1590	1960	280
59957-200	2000	2120	2155	2090	2460	365

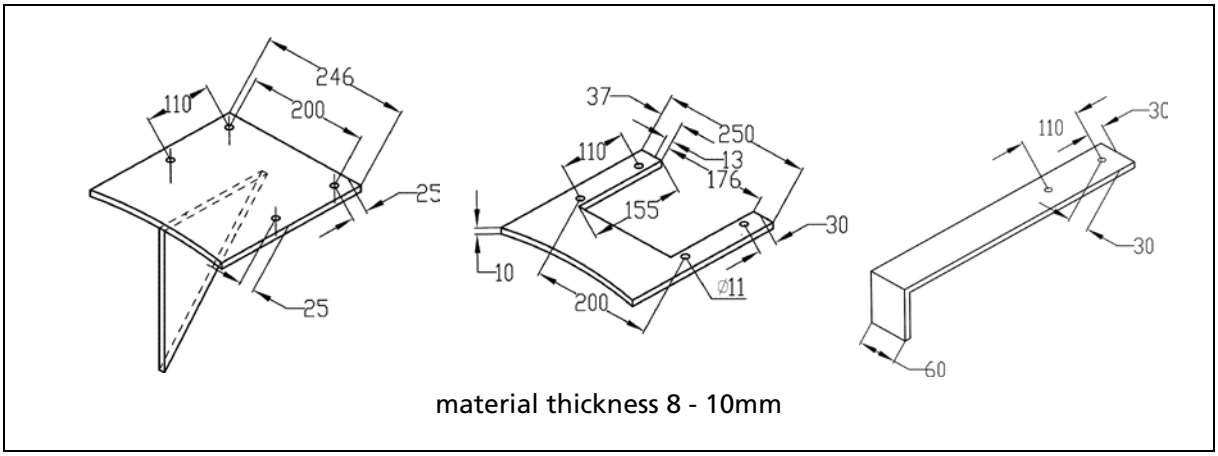
10.5. Collimator for UniSENS Detectors with Water-Cooling



TI-Fig. 32 Collimator for UniSENS with water-cooling (Dimensions in mm)

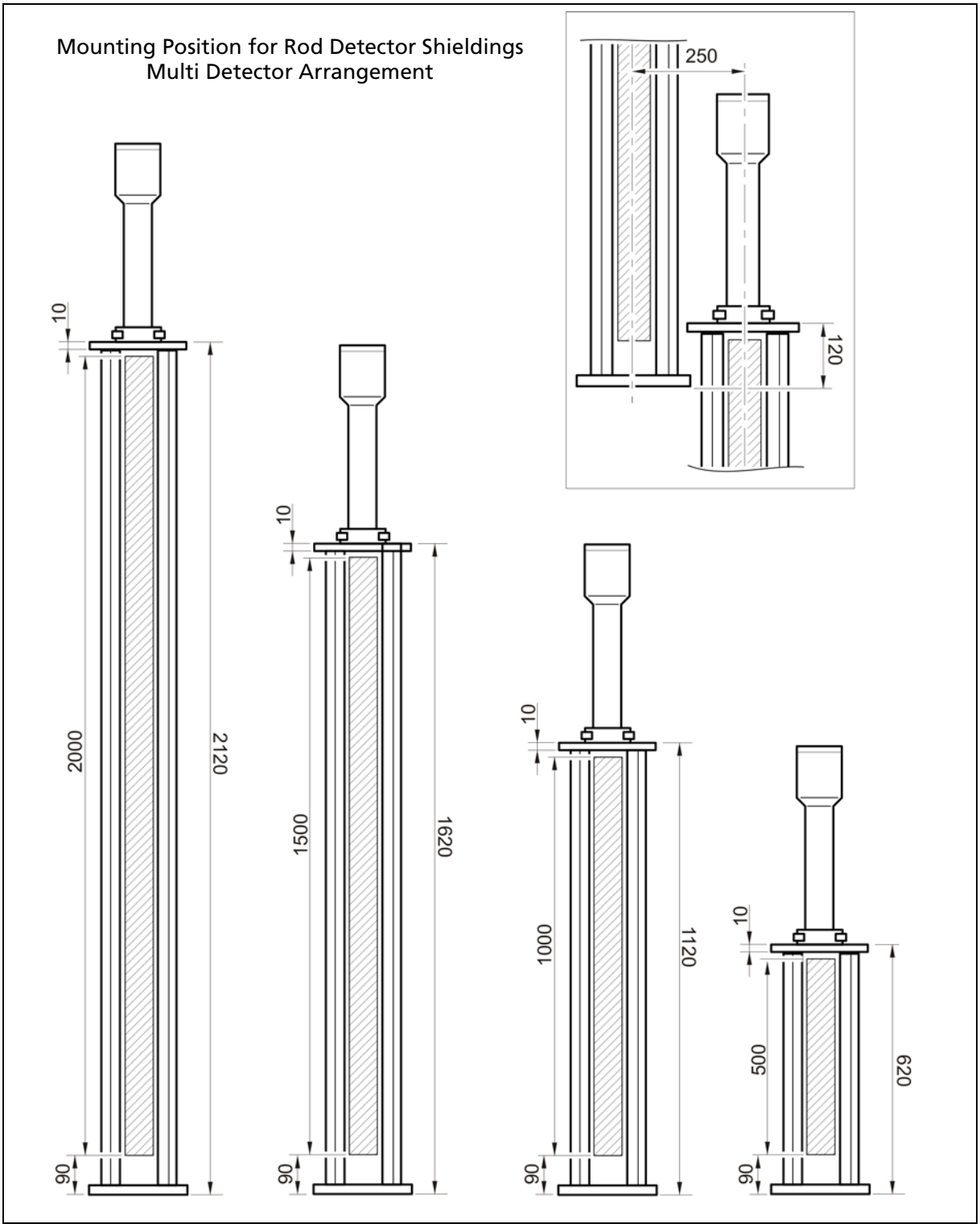
Mat.-No.	L1 sensitive length	A	B	C	X	Weight (kg)
60085-050	500	620	655	590	960	110
60085-100	1000	1120	1155	1090	1460	195
60085-150	1500	1620	1655	1590	1960	280
60085-200	2000	2120	2155	2090	2460	365

10.6. Mounting Parts UniSENS Collimator



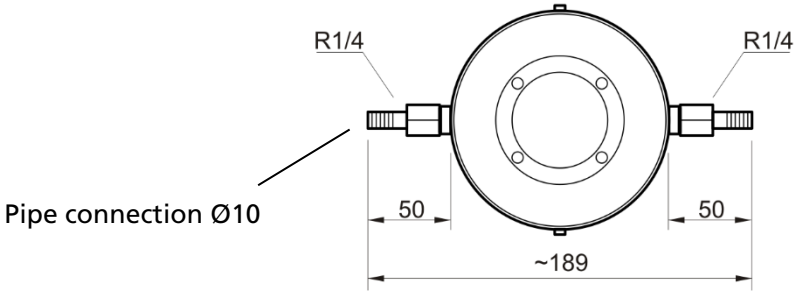
TI-Fig. 33 Mounting parts collimator (Dimensions in mm)

10.7. Mounting Points for UniSENS Shieldings

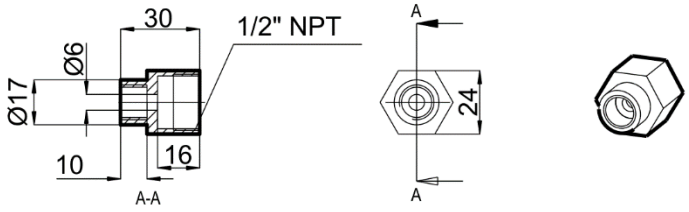


TI-Fig. 34 Mounting positions for UniSENS rod detector shieldings

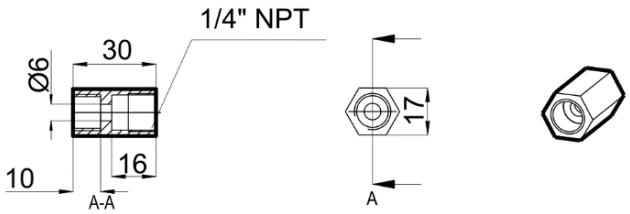
11. Water Cooling Jacket and Adaptor Fittings



Fitting adaptor for standard water cooling
Rp ¼" → ½" NPT female, stainless steel 1.4301 (AISI 304), Mat. No. 47189



Fitting adaptor for standard water cooling
Rp ¼" → ¼" NPT female, stainless steel 1.4301 (AISI 304), part no: 46743



Further fitting adaptors for standard water cooling jacket:
Rp ¼"→ ½" NPT male, stainless steel 304, part no: 6352
Rp ¼"→ ¼" NPT male, stainless steel 304, part no: 6349

TI-Fig. 35 Water cooling jacket and adaptor fittings

Fitting Connection	Mat. No. (material)
R ¼" pipe connection, male European standard Whitworth pipe thread	included in standard water cooling jacket
10 mm hose connection for water hose connection ID 10 mm	
fitting adaptor ½" NPT female	47189 (304/1.4301)
fitting adaptor ¼" NPT female	46743 (304/1.4301)
fitting adaptor ½" NPT male	6352 (304/1.4301)
fitting adaptor ¼" NPT male	6349 (304/1.4301)

12. Technical Data

Mechanical Design	
Operating temperature	extended temperature range with metallic cable glands: -40 ... +60 °C (-40 ... +140 °F) extended temperature range with water cooling system: -40 ... +100 °C (-40 … +212 °F) Observe the max. permissible ambient and surface temperatures for explosion protection (see Safety Manual / Explosion Protection Manual).
Genral ambient conditions	Pollution Degree: 2 Altitude: up to 2000 m Humidity: 90% or less
Housing material	Stainless steel ISO 1.4301/AISI 304 (other materials on request)
Environmental testing	IEC 60068-2-27: mechanical shock (30 g) IEC 60068-2-6: Vibration (1.9 g at resonance, sinusoidal) IEC 60068-2-38: Climate testing (-10 ... +65 °C; relative humidity 90% or less) IEC 60068-2-14 NA: Temperature shock (-45 °C ... 65 °C in 10 s)
Water cooling system	Optional, stainless steel ISO 1.4301/AISI 304 Water pressure up to 6 bar Tube connection R1/4”, d=10 mm Weight approx. 3 kg
Collimator	Optional, lead, painted Frontal or lateral radiation To reduce background radiation Weight approx. 10 kg
Supply voltage	by the connected evaluation unit: LB 44x or LB 47x
EMC	Emissions: according to EN 61326-1, Electrical Equipment Class B Immunity: according to EN 61326-1, according to EN 61326-3 (SIL2) according to NAMUR NE21
Core cross-section for the screw terminals	0.75 mm^2 to 2.5 mm^2
Max. cable length between detector and evaluation unit	1000 m with Berthold cables: Id. Nr. 32024: Signal cable, 2x1.0 mm^2, black Id. Nr. 46413: Signal cable Ex i, 2x1.0 mm^2, blue Line resistance less than 20 ohms/km
Count rate	max. 1,000,000 CPS
Temperature stability	≤ 0.01%/°C (-40 ...+60 °C) for rod detectors ≤ 0.002%/°C (-40 ...+60 °C) for point detectors
Pt100 input	-40°C to 200°C, 0.24°C accuracy

12.1. Point Detectors CrystalSENS

Mechanical Design	
Weights	▪ CrystalSENS, 50x50, 40x35, 25x25 (NaI/Tl): approx. 9 kg ▪ CrystalSENS, 50x60 (polymer): approx. 9 kg with collimator (optional): additional approx. 10 kg with point detector water cooling (optional): additional approx. 3 kg
Installation lengths	▪ CrystalSENS, 50x50 (NaI/Tl): approx. 460 mm ▪ CrystalSENS, 50x60 (polymer): approx. 460 mm with collimator (optional): additional approx. 40 mm with point detector water cooling (optional): additional approx. 15 mm

12.2. Rod Detectors UniSENS

Mechanical Design	
Weights	▪ UniSENS, 50 x 500 (polymer): approx. 13 kg with rod detector water cooling 500 mm (optional): additional approx. 6 kg ▪ UniSENS, 50 x 1000 (polymer): approx. 17 kg with rod detector water cooling 1000 mm (optional): additional approx. 10 kg ▪ UniSENS, 50 x 1500 (polymer): approx. 21 kg with rod detector water cooling 1500 mm (optional): additional approx. 13 kg ▪ UniSENS, 50 x 2000 (polymer): approx. 27 kg with rod detector water cooling 2000 mm (optional): additional approx. 16 kg
Installation lengths	▪ UniSENS, 50 x 500 (polymer): approx. 930 mm ▪ UniSENS, 50 x 1000 (polymer): approx. 1430 mm ▪ UniSENS, 50 x 1500 (polymer): approx. 1930 mm ▪ UniSENS, 50 x 2000 (polymer): approx. 2430 mm with rod detector water cooling (optional): additional approx. 10 mm Class Divison variants additional approx. 30 mm

12.3. Point Detectors SuperSENS

Mechanical Design	
Weights	▪ SuperSENS with side irradiation: approx. 50 kg ▪ SuperSENS with frontal irradiation: approx. 60 kg with water cooling (optional): additional approx. 7 kg
Installation lengths	▪ SuperSENS with side irradiation: approx. 639 mm ▪ SuperSENS with frontal irradiation: approx. 619 mm

12.4. Rod Detectors TowerSENS

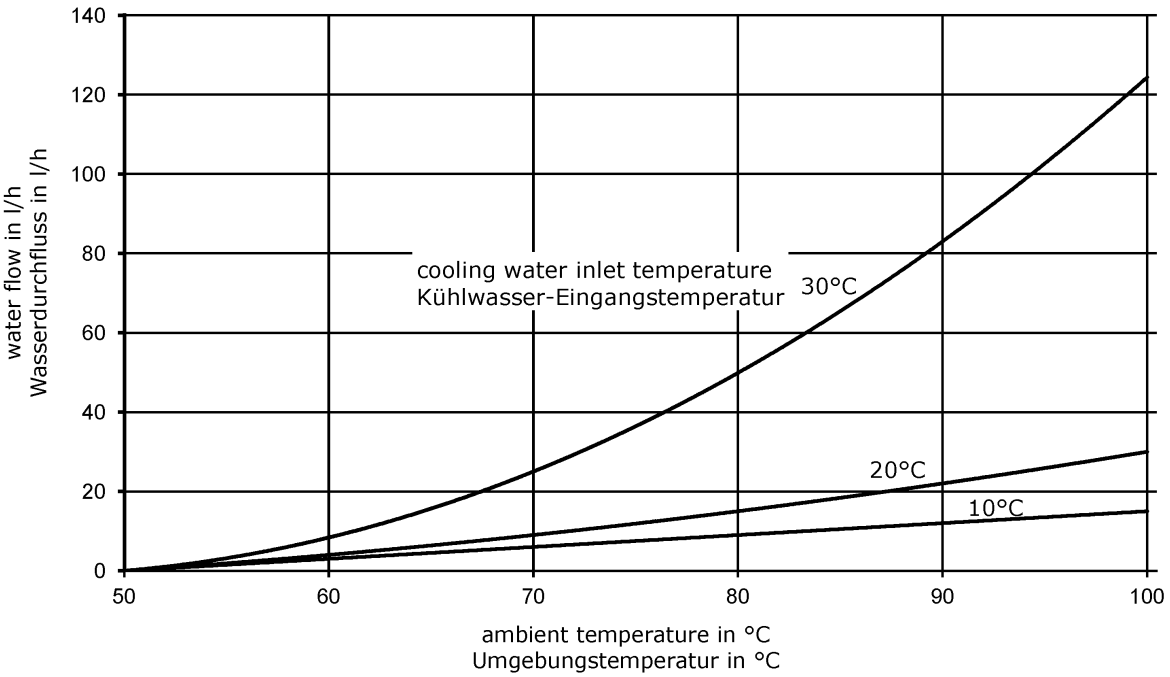
Mechanical Design	
Weights	▪ TowerSENS, 50 x 2000 (polymer): approx. 26 kg with rod detector water cooling 1000 mm (optional): additional approx. 15 kg ▪ TowerSENS, 50 x 3000 (polymer): approx. 34 kg with rod detector water cooling 3000 mm (optional): additional approx. 22 kg ▪ TowerSENS, 50 x 4000 (polymer): approx. 43 kg with rod detector water cooling 4000 mm (optional): additional approx. 30 kg ▪ TowerSENS, 50 x 5000 (polymer): approx. 51 kg with rod detector water cooling 5000 mm (optional): additional approx. 37 kg ▪ TowerSENS, 50 x 6000 (polymer): approx. 60 kg with rod detector water cooling 6000 mm (optional): additional approx. 45 kg ▪ TowerSENS, 50 x 7000 (polymer): approx. 68 kg with rod detector water cooling 7000 mm (optional): additional approx. 52 kg ▪ TowerSENS, 50 x 8000 (polymer): approx. 77 kg with rod detector water cooling 8000 mm (optional): additional approx. 60 kg
Installation lengths	▪ TowerSENS, 50 x 2000 (polymer) without and with water cooling: approx. 2530 mm ▪ TowerSENS, 50 x 3000 (polymer) without and with water cooling: approx. 3550 mm ▪ TowerSENS, 50 x 4000 (polymer) without and with water cooling: approx. 4530 mm ▪ TowerSENS, 50 x 5000 (polymer) without and with water cooling: approx. 5530 mm ▪ TowerSENS, 50 x 6000 (polymer) without and with water cooling: approx. 6530 mm ▪ TowerSENS, 50 x 7000 (polymer) without and with water cooling: approx. 7530 mm ▪ TowerSENS, 50 x 8000 (polymer) without and with water cooling: approx. 8530 mm

12.5. Scintillator

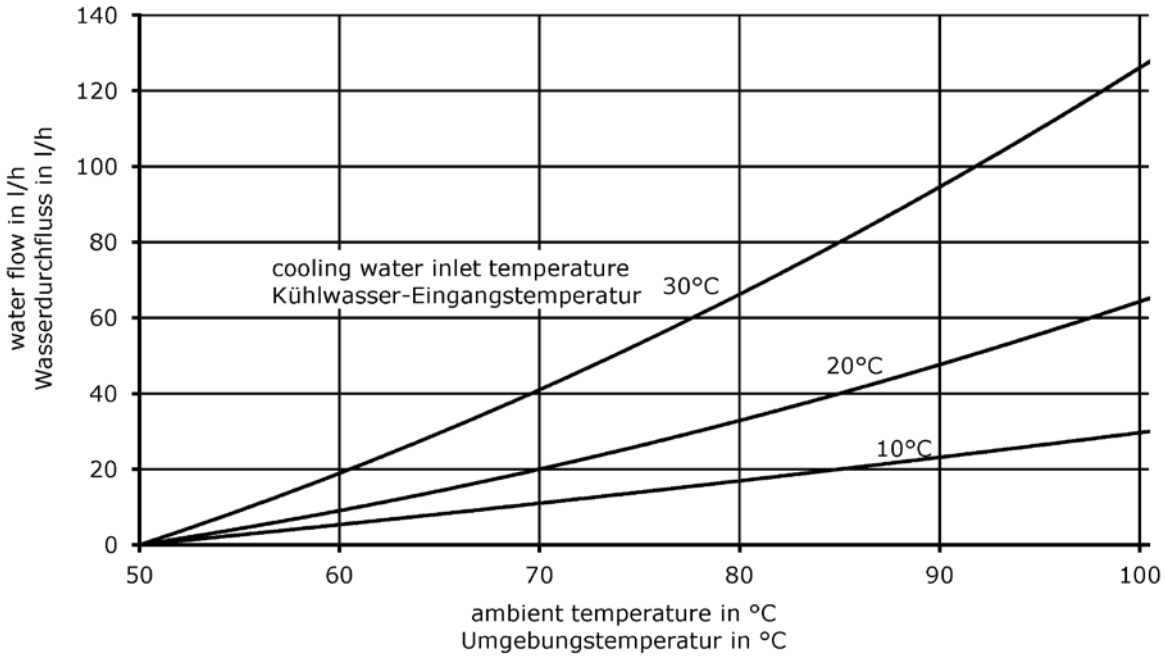
Mechanical Design	
Scintillator	Point detectors: NaI(Tl) crystal 50x50 mm NaI(Tl) Crystal 40x35 mm NaI(Tl) Crystal 25x25 mm Polymer scintillator 50x60 mm NaI(Tl) Crystal 125x50 mm Polymer scintillator 150x150 mm Rod detectors: Polymer scintillator 50x500 mm Polymer scintillator 50x1000 mm Polymer scintillator 50x1500 mm Polymer scintillator 50x2000 mm Polymer scintillator up to 50x8000 mm
Typical sensitivity (Cs-137)	Point detectors: CrystalSENS, 50 x 50 (NaI/Tl): ≥1200 cps / µSv/h CrystalSENS, 40 x 35 (NaI/Tl): ≥600 cps / µSv/h CrystalSENS, 20 x 20 (NaI/Tl): ≥200 cps / µSv/h CrystalSENS, 50 x 60 (polymer): ≥700 cps / µSv/h SuperSENS, 150 x 150 (NaI/Tl): ≥8200 cps / µSv/h Rod detectors: UniSENS, 50 x 500 (polymer): ≥6,000 cps / µSv/h UniSENS, 50 x 1000 (polymer): ≥11,000 cps / µSv/h UniSENS, 50 x 1500 (polymer): ≥17,000 cps / µSv/h UniSENS, 50 x 2000 (polymer): ≥25,000 cps / µSv/h TowerSENS, up to 50 x 8000 (polymer): ≥8000 cps / µSv/h per m

13. Cooling Water Demand

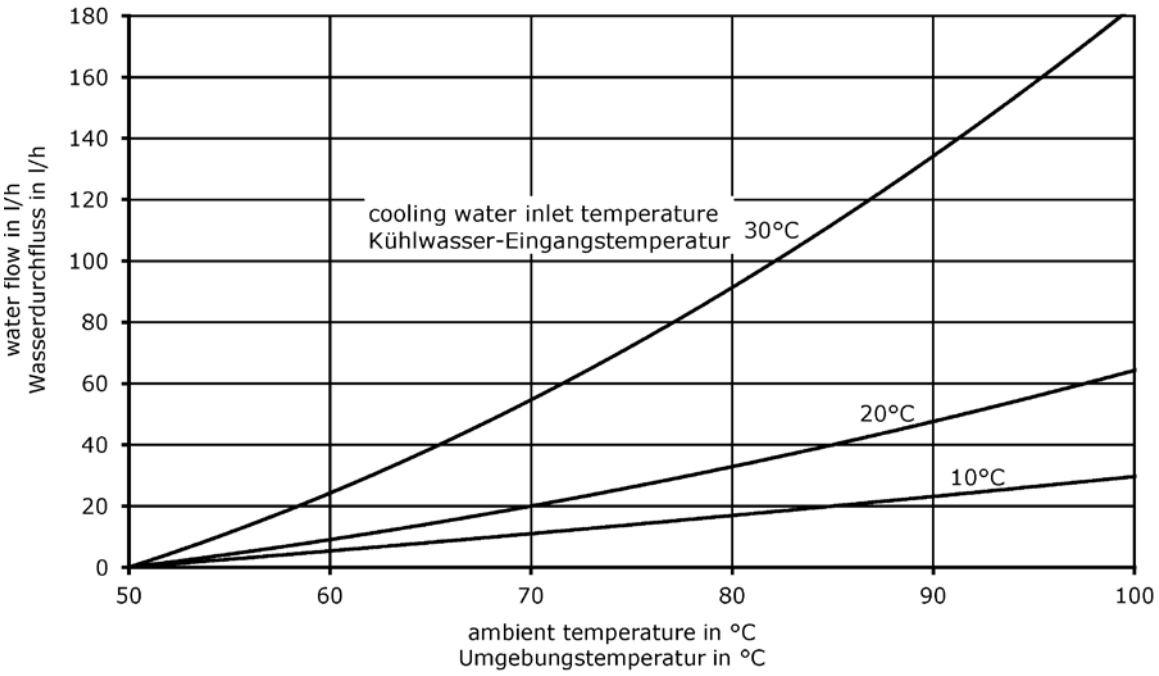
13.1. Cooling Water Demand Point Detector



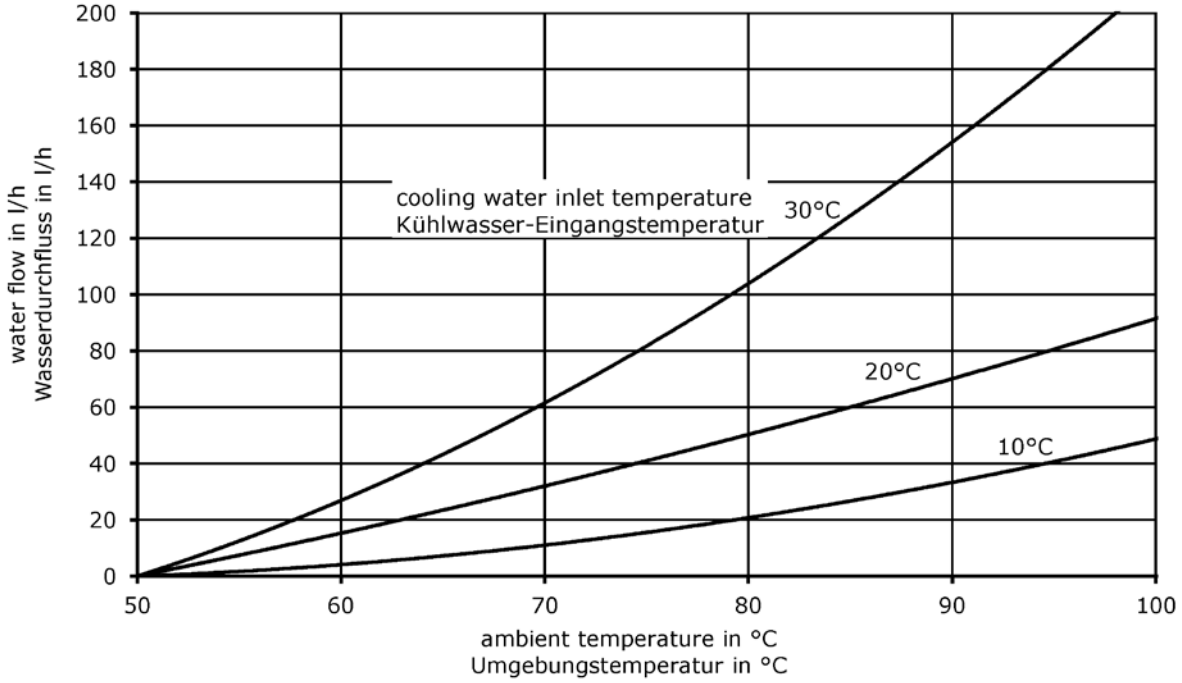
13.2. Cooling Water Demand Rod Detector 500mm



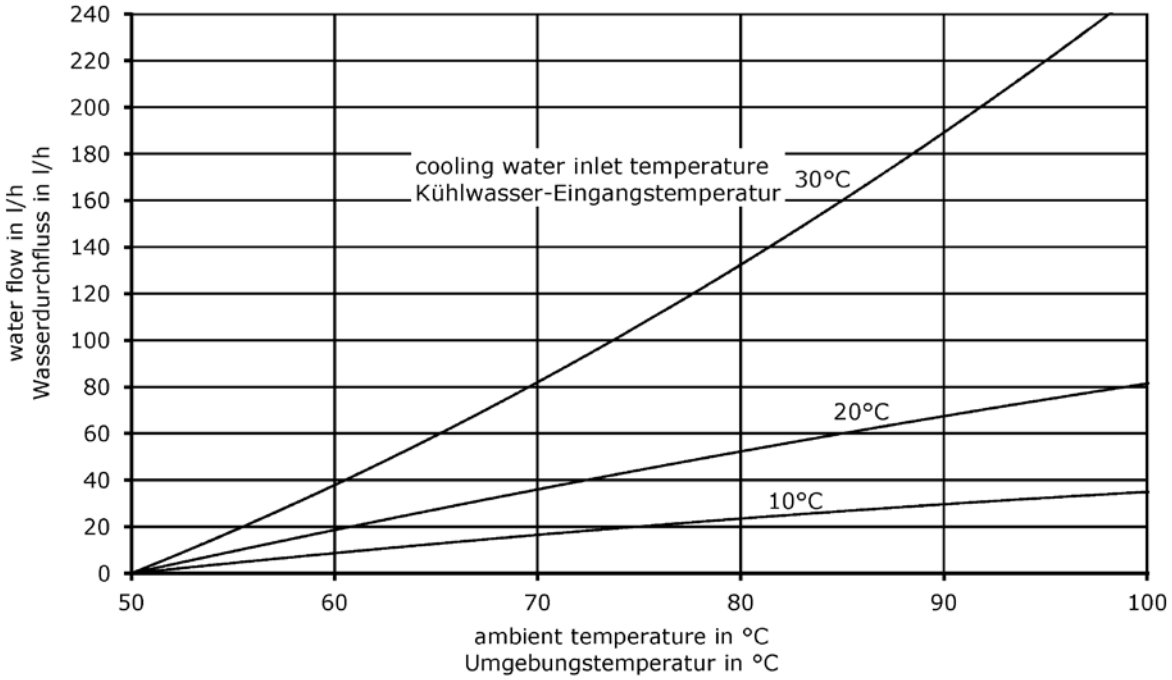
13.3. Cooling Water Demand Rod Detector 1000mm



13.4. Cooling Water Demand Rod Detector 1500mm



13.5. Cooling Water Demand Rod Detector 2000mm



14. Number Key LB 4700 Detectors

1	2	3	4	5	5a	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
L	B	4	7	0	0	-	1	1	-	1	A	-	1	1	-	r	1	-	0	0	0

Device family	
47	DuoSeries

Application	
00	none

Openings	
0	M12x1,5; M16x1.5; radial
1	2x 1/2" NPT; radial
3	M20x1.5; axial
6	1/2" NPT; axial

Temperature range	
1	extend

Housing material	
1	1.4301
3	316L

Collimator	
	none
a	axial (frontal)
r	radial (side)

Power Supply	
0	without separate supply

Signal	
8	FSK

Ex. Area (certification)	
0 0	No explosion protection; without certification
1 ☐	Zones (ATEX/IECEx/NEC/CEC); Ex-d/e/t
F ☐	Divisions (NEC/CEC); XP
I ☐	Zones (ATEX/IECEx/NEX/CEC); Ex-d/i/t

☐ = Ex version (A,B,...,Y)

Scintillator					
1 1	50/50 NaI Crystal SENS	2 A	500 mm UniSENS	3 1	150/150 SuperSENS
1 2	50/50 NaI Crystal SENS with WC	2 B	500 mm UniSENS with WC	3 2	150/150 SuperSENS with WC
1 3	40/35 NaI Crystal SENS	2 C	750 mm UniSENS	4 1	1000 mm TowerSENS
1 4	40/35 NaI Crystal SENS with WC	2 D	750 mm UniSENS with WC	4 2	1000 mm TowerSENS with WC
1 5	25/25 NaI Crystal SENS	2 E	1000 mm UniSENS	4 3	2000 mm TowerSENS
1 6	25/25 NaI Crystal SENS with WC	2 F	1000 mm UniSENS with WC	4 4	2000 mm TowerSENS with WC
1 A	50/60 NaI Crystal SENS	2 G	1250 mm UniSENS		
1 B	50/60 NaI Crystal SENS with WC	2 H	1250 mm UniSENS with WC		
		2 I	1500 mm UniSENS		
		2 J	1500 mm UniSENS with WC		
		2 K	2000 mm UniSENS		
		2 L	2000 mm UniSENS with WC		

WC = Water cooling
Only by the LB Number Key, the detector can be uniquely identified (Scintillator, size, certification, ect.).

15. Parts Overview

Mat. No.	Description
68640	Water cooling system for point detectors
61231	Water cooling system for rod detector 500 mm
61235	Water cooling system for rod detector 1000 mm
61238	Water cooling system for rod detector 1500 mm
61241	Water cooling system for rod detector 2000 mm
11814	Collimator with frontal irradiation
04506	Collimator with side irradiation
61624	Cable gland set for extended temperature range
31346	Set of mounting clamps for detectors without water cooling system
31347	Set of mounting clamps for detectors with water cooling system
39246	Holder for point detectors without water cooling system
32024	Signal cable
46413	Signal cable for intrinsically safe detectors
59957-050	Rod detector shield L=500
59957-100	Rod detector shield L=1000
59957-150	Rod detector shield L=1500
59957-200	Rod detector shield L=2000
60085-050	Rod detector shield L=500, with water-cooling
60085-100	Rod detector shield L=1000, with water-cooling
60085-150	Rod detector shield L=1500. with water-cooling
60085-200	Rod detector shield L=2000, with water-cooling
70515	TowerSENS shield L=1000 applicable for extension module applicable for TowerSENS with and without water cooling Material: 1.4301 (304)
70518	TowerSENS shield L=2000 applicable for basic module and extension module applicable for TowerSENS with and without water cooling Material: 1.4301 (304)
68188	Lid with axial cable entry for non-Ex detectors

74508	Suspension bracket for dip pipe installation
73859	TowerSENS extension module 1000 mm, 316L
73853	TowerSENS extension module 1000 mm, 316L with water cooling
51574	TowerSENS extension module 2000 mm, 1.4301
52434	TowerSENS extension module 2000 mm, 1.4301 with water cooling
67502	TowerSENS extension module 2000 mm, 316L
67464	TowerSENS extension module 2000 mm, 316L with water cooling

L = scintillator length

16. EU Declaration of Conformity

Berthold Technologies GmbH & Co. KG
Calmbacher Straße 22
75323 Bad Wildbad, Germany
info@berthold.com
www.berthold.com

EU-Declaration of Conformity (original) File No.: CE20027-8

We, hereby declare under our sole responsibility that the design of the following products / systems / units brought into circulation by us comply with the relevant harmonized rules of the EU.

This declaration loses its validity should modifications or unsuitable and improper use take place without our authorisation.

Description: ***detector for radiometrical measurement system in non hazardous environments***

Typ: ***LB 4700-xx-00-xx-xx-xxx***

x = all letters

	directive	applied standards	
EMC	2014/30/EU	EN 61326-1	2013
RoHS	2011/65/EG	EN 50581	2012

This declaration is issued by the manufacturer

BERTHOLD TECHNOLOGIES GmbH & Co. KG
Calmbacher Str. 22, D-75323 Bad Wildbad, Germany

released by

Dr. J. Briggmann

Head of R&D
Bad Wildbad, 23rd of May, 2019

Registergericht / Court of Registration: Stuttgart HRA 330991
Persönlich haftende Gesellschafterin / Fully liable Associates: Berthold Technologies Verwaltungs-GmbH
Registergericht / Court of Registration: Stuttgart HRB 331520
Geschäftsführung / Management: Andreas Dobratz
USt.-Id-Nr. / VAT Reg. No.: DE813050511
Deutsche Steuernummer / German Tax No.: 49038/08038
WEEE-Reg. No.: DE99468690

Bankverbindungen / Bank Details	IBAN	BLZ	Konto / Account	Swift BIC
Sparkasse Pforzheim-Calw	DE37	6665 0085	0008 0450 03	PZHSDE66
Volksbank Pforzheim	DE85	6669 0000	0000 9570 04	VBPFDE66
Commerzbank Pforzheim	DE05	6668 0013	0651 1120 00	DRESDEFF666

detect and identify