

Rod Source Shields LB 8300

Technical Information



Table of Contents

1.	Maximum permissible activities during transport	3
2.	Ambient conditions during mounting	3
3.	Technical data.....	4
3.1.	Variant 100.....	4
3.2.	Variant 100 with pneumatic actuator.....	5
3.3.	Variant 150.....	6
3.4.	Variant 150 with pneumatic actuator.....	7
3.5.	Variant 200.....	8
3.6.	Variant 200 with pneumatic actuator.....	9
3.7.	Variant 270.....	10
3.8.	Variant 270 with pneumatic actuator.....	11
3.9.	Dimensions variant 100 / 150.....	12
3.10.	Dimensions variant 100 / 150 with pneumatic actuator	13
3.11.	Dimensions variant 200 / 270.....	14
3.12.	Dimensions variant 200 / 270 with pneumatic actuator	15
3.13.	Dimensions of optional limit switches	16
3.14.	Pneumatic actuator for variant 100/150/200	17
3.15.	Pneumatic actuator for variant 270	20
3.16.	Limit switch non-ATEX	23
3.17.	Limit switch ATEX „flameproof enclosure“	25
3.18.	Limit switch ATEX "Intrinsically safe"	27
3.19.	Mounting base for LB 8300	30
3.20.	Mounting kit adapter plate.....	31
4.	Rod source cascade.....	32
4.1.	Mounting variant stacked rod source cascaded	33
4.2.	Mounting variant staggered rod source cascade	34
5.	EU-Declaration of Conformity.....	35

1. Maximum permissible activities during transport

The activities indicated here are the maximum activities with which the individual shields can be loaded according to the international dose rate limit for the transport of radioactive substances. National dose rate limits for the operation of measurement systems are usually significantly lower and only allow loading with significantly lower activities. The national provisions must be complied with.

Shield model	Maximum activity (Co-60)		Maximum activity (Cs-137)	
Variant 100	1.38 MBq/mm	max. 0.037 mCi/mm	49.71 MBq/mm	max. 1.34 mCi/mm
Variant 150	11.94 MBq/mm	max. 0.32 mCi/mm	1657.29 MBq/mm	44.79 mCi/mm
Variant 200	67.44 MBq/mm	max. 1.82 mCi/mm	43166 MBq/mm	1166 mCi/mm
Variant 270	475.60 MBq/mm	max. 12.85 mCi/mm	43166 MBq/mm	1166 mCi/mm
	calculated values			

2. Ambient conditions during mounting

The shield must be attached to the lifting equipment using the two lifting eye nuts. The minimum permissible temperature during assembly is -20 °C. Follow the instructions in the operating manual.

3. Technical data

3.1. Variant 100

Variant	Housing	Shielding	Number of support plates	Source length	Weight	Operating temperature	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69540-01	Carbon steel S235	43 mm lead (rotatable cylinder), 40 mm lead (filled side structure)	-	500 mm	97 kg	-40°...+130°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69540-02			-	600 mm	110 kg			
Mat. No. 69540-03			-	700 mm	123 kg			
Mat. No. 69540-04			-	800 mm	136 kg			
Mat. No. 69540-05			1	900 mm	150 kg			
Mat. No. 69540-06			1	1000 mm	163 kg			
Mat. No. 69540-07			1	1100 mm	176 kg			
Mat. No. 69540-08			1	1200 mm	189 kg			
Mat. No. 69540-09			1	1240 mm	193 kg			

3.2. Variant 100 with pneumatic actuator

Variant	Housing	Shielding	Number of support plates	Source length	Weight (without limit switch)	Operating temperature (without limit switch)	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69540-21	Carbon steel S235	43 mm lead (rotatable cylinder), 40 mm lead (filled side structure)	-	500 mm	107 kg	-20°...+80°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69540-22			-	600 mm	121 kg			
Mat. No. 69540-23			-	700 mm	134 kg			
Mat. No. 69540-24			-	800 mm	147 kg			
Mat. No. 69540-25			1	900 mm	162 kg			
Mat. No. 69540-26			1	1000 mm	175 kg			
Mat. No. 69540-27			1	1100 mm	188 kg			
Mat. No. 69540-28			1	1200 mm	201 kg			
Mat. No. 69540-29			1	1240 mm	206 kg			

3.3. Variant 150

Variant	Housing	Shielding	Number of support plates	Source length	Weight	Operating temperature	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69550-01	Carbon steel S235	70 mm lead (rotatable cylinder), 63 mm lead (filled side structure)	-	500 mm	249 kg	-40° ... +130°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69550-02			-	600 mm	274 kg			
Mat. No. 69550-03			-	700 mm	303 kg			
Mat. No. 69550-04			-	800 mm	338 kg			
Mat. No. 69550-05			1	900 mm	368 kg			
Mat. No. 69550-06			1	1000 mm	397 kg			
Mat. No. 69550-07			1	1100 mm	426 kg			
Mat. No. 69550-08			1	1200 mm	456 kg			
Mat. No. 69550-09			1	1240 mm	466 kg			

3.4. Variant 150 with pneumatic actuator

Variant	Housing	Shielding	Number of support plates	Source length	Weight (without limit switch)	Operating temperature (without limit switch)	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69550-21	Carbon steel S235	70 mm lead (rotatable cylinder), 63 mm lead (filled side structure)	-	500 mm	261 kg	-20°...+80°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69550-22			-	600 mm	286 kg			
Mat. No. 69550-23			-	700 mm	316 kg			
Mat. No. 69550-24			-	800 mm	351 kg			
Mat. No. 69550-25			1	900 mm	382 kg			
Mat. No. 69550-26			1	1000 mm	411 kg			
Mat. No. 69550-27			1	1100 mm	440 kg			
Mat. No. 69550-28			1	1200 mm	471 kg			
Mat. No. 69550-29			1	1240 mm	481 kg			

3.5. Variant 200

Variant	Housing	Shielding	Number of support plates	Source length	Weight	Operating temperature	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69560-01	Carbon steel S235	88 mm lead (rotatable cylinder), 73 mm lead (filled side structure)	-	500 mm	412 kg	-40° ... +130°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69560-02			-	600 mm	456 kg			
Mat. No. 69560-03			-	700 mm	500 kg			
Mat. No. 69560-04			-	800 mm	563 kg			
Mat. No. 69560-05			2	900 mm	607 kg			
Mat. No. 69560-06			2	1000 mm	652 kg			
Mat. No. 69560-07			2	1100 mm	697 kg			
Mat. No. 69560-08			2	1200 mm	741 kg			
Mat. No. 69560-09			2	1240 mm	757 kg			

3.6. Variant 200 with pneumatic actuator

Variant	Housing	Shielding	Number of support plates	Source length	Weight (without limit switch)	Operating temperature (without limit switch)	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69560-21	Carbon steel S235	88 mm lead (rotatable cylinder), 73 mm lead (filled side structure)	-	500 mm	425 kg	-20°...+80°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69560-22			-	600 mm	469 kg			
Mat. No. 69560-23			-	700 mm	514 kg			
Mat. No. 69560-24			-	800 mm	578 kg			
Mat. No. 69560-25			2	900 mm	622 kg			
Mat. No. 69560-26			2	1000 mm	668 kg			
Mat. No. 69560-27			2	1100 mm	713 kg			
Mat. No. 69560-28			2	1200 mm	758 kg			
Mat. No. 69560-29			2	1240 mm	774 kg			

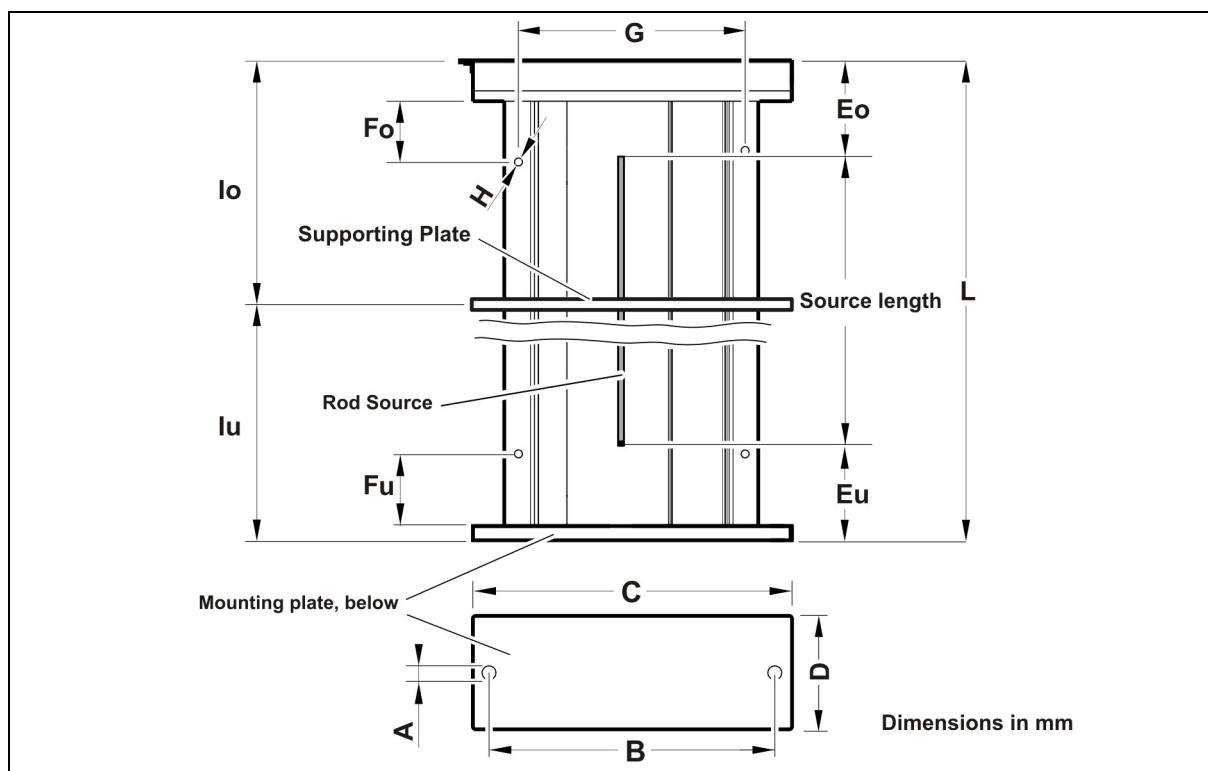
3.7. Variant 270

Variant	Housing	Shielding	Number of support plates	Source length	Weight	Operating temperature	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69570-01	Carbon steel S235	121 mm lead (rotatable cylinder), 100 mm lead (filled side structure)	-	500 mm	761 kg	-40°...+130°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69570-02			-	600 mm	838 kg			
Mat. No. 69570-03			2	700 mm	938 kg			
Mat. No. 69570-04			2	800 mm	1016 kg			
Mat. No. 69570-05			2	900 mm	1094 kg			
Mat. No. 69570-06			2	1000 mm	1171 kg			
Mat. No. 69570-07			2	1100 mm	1249 kg			
Mat. No. 69570-08			2	1200 mm	1327 kg			
Mat. No. 69570-09			2	1240 mm	1355 kg			

3.8. Variant 270 with pneumatic actuator

Variant	Housing	Shielding	Number of support plates	Source length	Weight (without limit switch)	Operating temperature (without limit switch)	Coating	Fire resistance class according to DIN EN 62598
Mat. No. 69570-21	Carbon steel S235	121 mm lead (rotatable cylinder), 100 mm lead (filled side structure)	-	500 mm	786 kg	-20°...+80°C	RAL 1004 2K polyurethane varnish	K
Mat. No. 69570-22			-	600 mm	864 kg			
Mat. No. 69570-23			2	700 mm	965 kg			
Mat. No. 69570-24			2	800 mm	1043 kg			
Mat. No. 69570-25			2	900 mm	1122 kg			
Mat. No. 69570-26			2	1000 mm	1199 kg			
Mat. No. 69570-27			2	1100 mm	1278 kg			
Mat. No. 69570-28			2	1200 mm	1356 kg			
Mat. No. 69570-29			2	1240 mm	1385 kg			

3.9. Dimensions variant 100 / 150



TI-Fig. 1 Dimension Variant 100 / 150

Variant	Mat. No.	Source length	L	A	B	C	D	Eu	Eo	Fu	Fo	G	H	lo*	lu*
100	69540-01	500	650											-	-
	69540-02	600	750											-	-
	69540-03	700	850											-	-
	69540-04	800	950											-	-
	69540-05	900	1050	Ø14	305	340	120	77	73	120	132	225	Ø12	531	519
	69540-06	1000	1150											581	569
	69540-07	1100	1250											631	619
	69540-08	1200	1350											681	669
	69540-09	1240	1390											701	689
150	69550-01	500	700											-	-
	69550-02	600	800											-	-
	69550-03	700	900											-	-
	69550-04	800	1000											511	489
	69550-05	900	1100	Ø18	425	465	180	102	98	125	137	332	Ø14	561	539
	69550-06	1000	1200											611	589
	69550-07	1100	1300											661	639
	69550-08	1200	1400											711	689
	69550-09	1240	1440											731	709

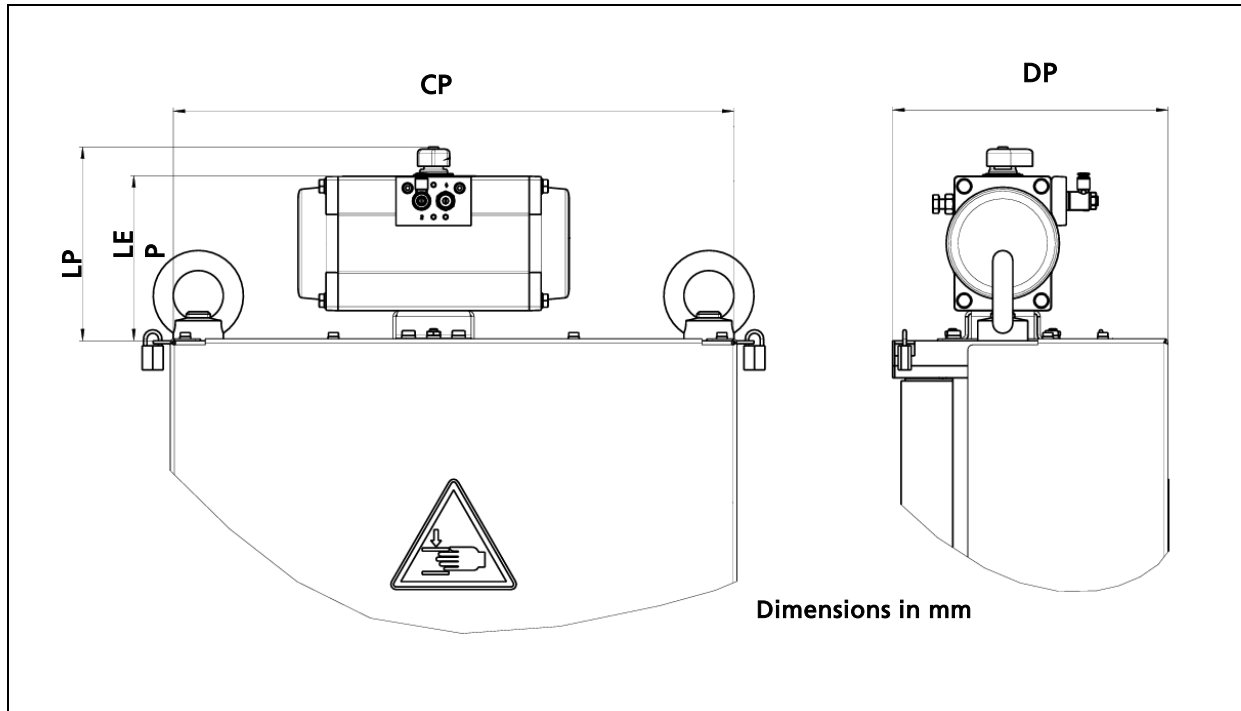
* Dimensional deviation due to welded construction

3.10. Dimensions variant 100 / 150 with pneumatic actuator

NOTICE



The dimensions in chapter 3.9 also apply to the version with a pneumatic actuator. The dimensions listed below represent the additional measurements that result specifically from the version with a pneumatic actuator.

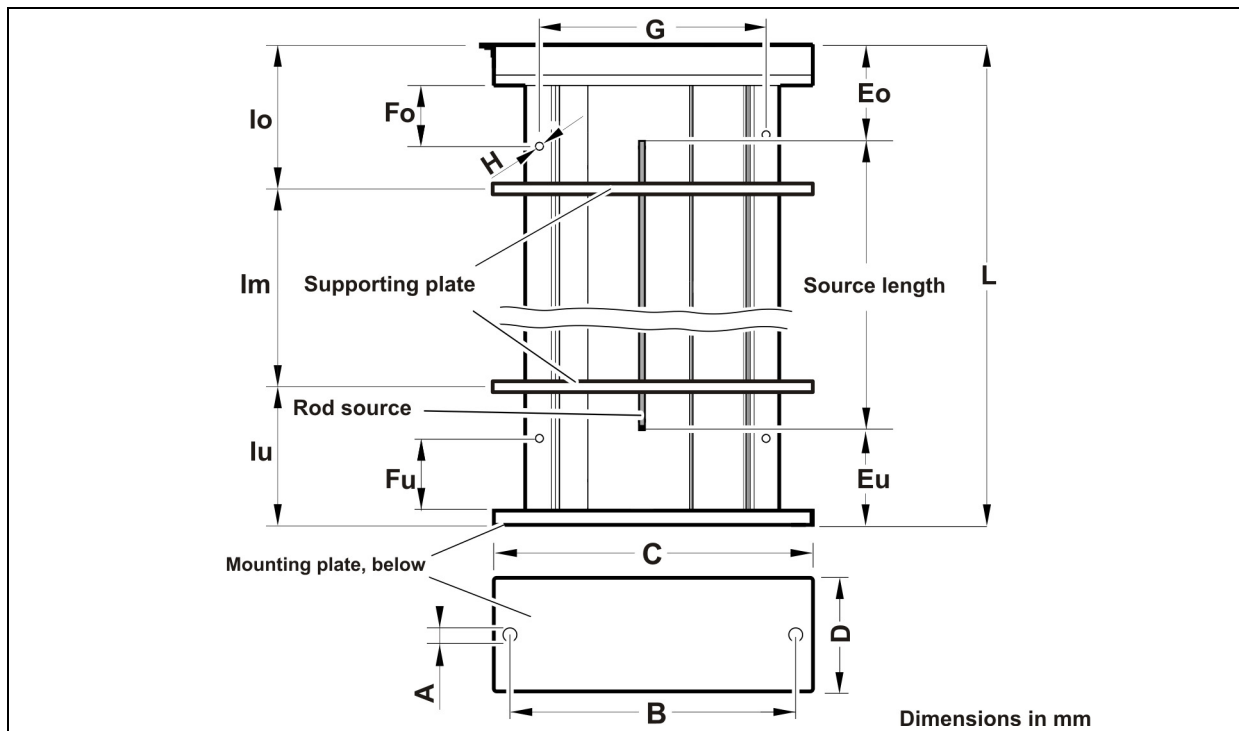


TI-Fig. 2 Dimension Variant 100/150 with pneumatic actuator and safety housing

Variant	Mat. No.	Source length	LP	LEP	CP	DP
100	69540-21	500	193	164	346	175
	69540-22	600				
	69540-23	700				
	69540-24	800				
	69540-25	900				
	69540-26	1000				
	69540-27	1100				
	69540-28	1200				
	69540-29	1240				
150	69550-21	500	193	164	471	235
	69550-22	600				
	69550-23	700				
	69550-24	800				
	69550-25	900				
	69550-26	1000				
	69550-27	1100				
	69550-28	1200				
	69550-29	1240				

* Dimensional deviation due to welded construction

3.11. Dimensions variant 200 / 270



TI-Fig. 3 Dimension Variant 200 / 270

Variant	Mat. No.	Source length	L	A	B	C	D	Eu	Eo	Fu	Fo	G	H	lo*	lu*	lm*
200	69560-01	500	750											-	-	-
	69560-02	600	850											-	-	-
	69560-03	700	950											-	-	-
	69560-04	800	1050											-	-	-
	69560-05	900	1150	Ø 26	510	560	220	127	123	130	144	398	Ø 14	401	387	362
	69560-06	1000	1250											434.3	420	395.3
	69560-07	1100	1350											467.6	453.6	428.6
	69560-08	1200	1450											501	487	462
	69560-09	1240	1490											514.3	500.3	475.3
270	69570-01	500	830											-	-	-
	69570-02	600	930											-	-	-
	69570-03	700	1030											365.6	385.8	318.6
	69570-04	800	1130											398	381	351
	69570-05	900	1230	Ø 26	510	600	300	167	163	120	137	497.5	Ø 14	431.3	413.3	384.3
	69570-06	1000	1330											464.6	447.6	417.6
	69570-07	1100	1430											498	481	451
	69570-08	1200	1530											531.3	514.3	484.3
	69570-09	1240	1570											544.6	527.6	497.6

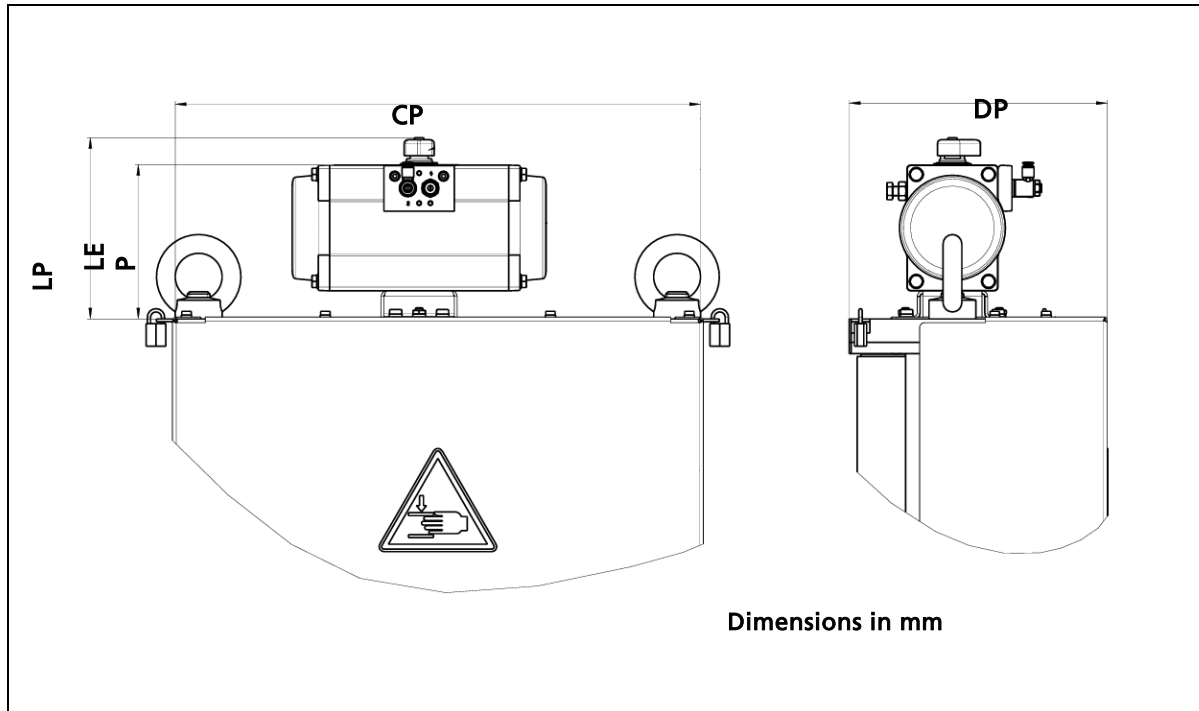
* Dimensional deviation due to welded construction

3.12. Dimensions variant 200 / 270 with pneumatic actuator

NOTICE



The dimensions specified in Chapter 3.11 also apply to the version with a pneumatic actuator. The dimensions listed below represent the additional measurements that result specifically from the version with a pneumatic actuator.



TI-Fig. 4 Dimension Variant 200 / 270 with pneumatic actuator (without limit switch) and safety housing

Variant	Mat. No.	Source length	LP	LEP	CP	DP
200	69560-21	500	193	164	566	275
	69560-22	600				
	69560-23	700				
	69560-24	800				
	69560-25	900				
	69560-26	1000				
	69560-27	1100				
	69560-28	1200				
	69560-29	1240				
270	69570-21	500	253	214	605	355
	69570-22	600				
	69570-23	700				
	69570-24	800				
	69570-25	900				
	69570-26	1000				
	69570-27	1100				
	69570-28	1200				
	69570-29	1240				

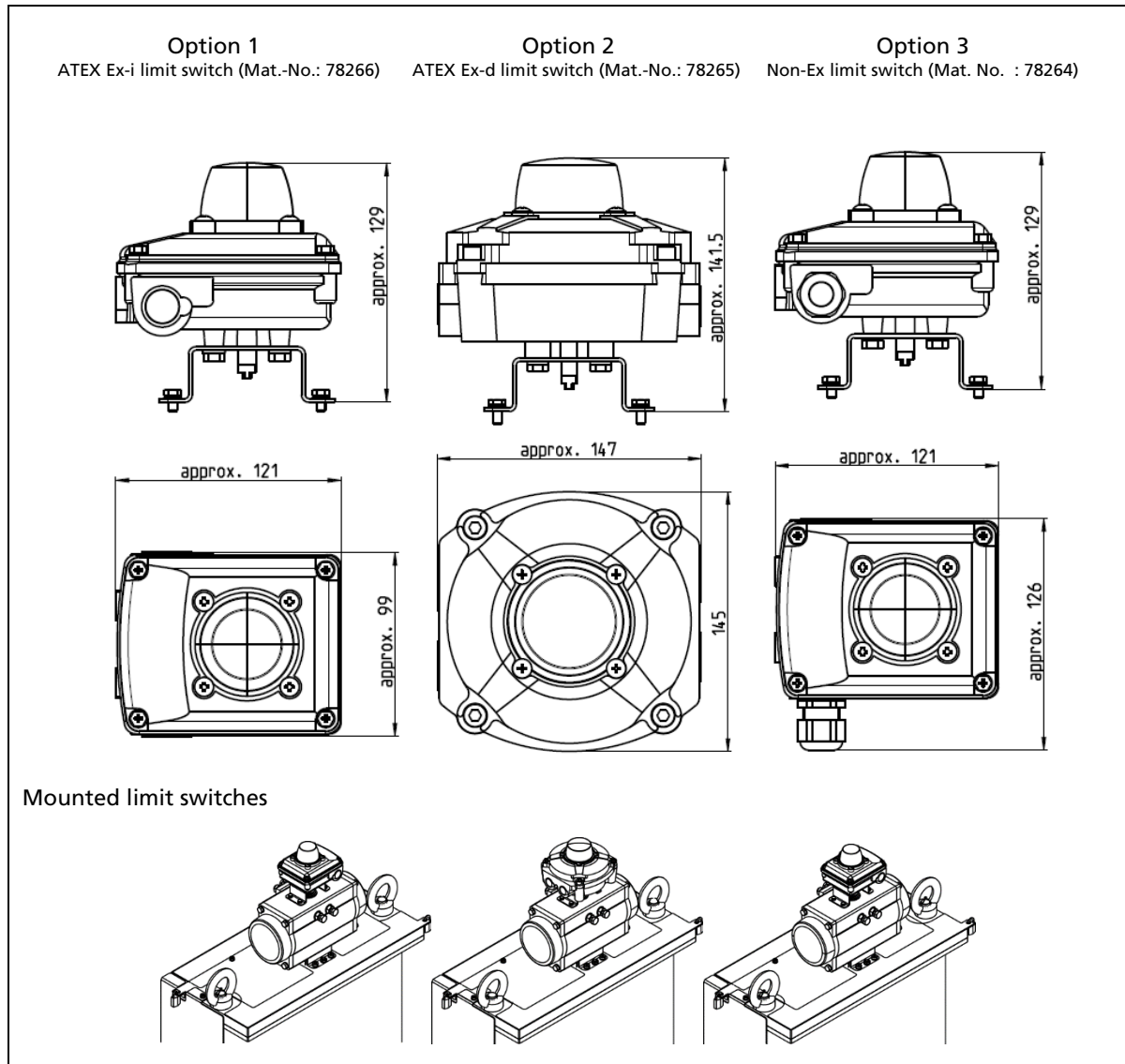
*Dimensional deviation due to welded construction

3.13. Dimensions of optional limit switches

NOTICE



The height dimensions specified in the figures below must be added to the length dimensions "LEP" from Table 3.10 or 3.12.



TI-Fig. 5 Dimensions of optional limit switches

3.14. Pneumatic actuator for variant 100/150/200



Specification	Value
Rotary actuator	DFPD-160-RP-90-RS55-F0710
Actuator size	160
Flange drilling pattern	F0710
Rotation angle	90°
End position adjustment at 0°	-5° ... +5°
End position adjustment at nominal rotation angle	-5° ... +5°
Shaft connection depth	24 mm
Valve mounting interface standard	ISO 5211
Mounting position	Any
Operating mode	Single-acting
Design principle	Rack and pinion
Closing direction	Clockwise closing
Valve interface standard	VDI/VDE 3845 (NAMUR)
Positioner/feedback interface standard	VDI/VDE 3845 Size AA 1
Device type according to VDMA 66413	Safety component
Safety Function	The safety function ensures that, when the compressed air supply is switched off and the spring chamber is vented, the actuator moves to a defined safety position. This movement is generated by the spring force of the spring package.
Safety Integrity Level (SIL)	Up to SIL 2 Low Demand mode Up to SIL 3 in a redundant architecture Up to SIL 1 High Demand mode
Certified for safety function according to ISO 13849 and IEC 61508 (SIL)	Product can be used in SRP/CS up to SIL 2 Low Demand Product can be used in SRP/CS up to SIL 1 High Demand Up to SIL 3 in a redundant architecture

Burst pressure	24 bar
Operating pressure (MPa)	0.2 ... 0.8 MPa
Operating pressure (bar)	2 ... 8 bar
Operating pressure (psi)	29 ... 116 psi
Nominal operating pressure (MPa)	0.55 MPa
Nominal operating pressure (bar)	5.5 bar
Nominal operating pressure (psi)	79.75 psi
CE mark (see declaration of conformity)	In accordance with EU Explosion Protection Directive (ATEX)
UKCA mark (see declaration of conformity)	In accordance with UK EX regulations
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
Explosion protection	Zone 1 (ATEX) Zone 1 (UKEX) Zone 2 (ATEX) Zone 21 (ATEX) Zone 21 (UKEX) Zone 22 (ATEX)
ATEX category gas	II 2G
ATEX category dust	II 2D
Explosion ignition protection type gas	Ex h IIC T4 Gb X
Explosion ignition protection type dust	Ex h IIIC T105°C Db X
Explosion ambient temperature	-20°C ≤ Ta ≤ +80°C
Operating medium	Compressed air according to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Dew point min. 10 °C below ambient and medium temperature Lubricated operation possible (required for further operation)
Storage temperature	-20 °C ... 60 °C
Ambient temperature	-20 °C ... 80 °C
Torque at nominal operating pressure and 0° swivel angle	108.1 Nm
Torque at nominal operating pressure and 90° swivel angle	56.3 Nm

Note on torque	The operating torque of the actuator must not be higher than the maximum permissible torque specified in ISO 5211, relative to the size of the mounting flange and the coupling.
Spring return torque at 0° swivel angle	52.9 Nm
Spring return torque at 90° swivel angle	104.7 Nm
Air consumption at 0.6 MPa (6 bar, 87 psi) per cycle 0°–nominal swivel angle–0°	5.9 l
Product weight	7110 g
Shaft connection	T22
Pneumatic connection	G1/4
Note on materials	RoHS-compliant
Material mounting plate	Wrought aluminium alloy, anodized
Material cover	Die-cast aluminium, coated
Material seals	NBR
Material spring	Spring steel
Material housing	Aluminium, anodized
Material piston	Die-cast aluminium
Material bearing	POM
Material cam	High-alloy stainless steel
Material screws	High-alloy stainless steel
Material shaft	Steel, nickel-plated

3.15. Pneumatic actuator for variant 270



Specification	Value
Rotary actuator	DFPD-480-RP-90-RS55-F1012
Actuator size	480
Flange drilling pattern	F1012
Rotation angle	90°
End position adjustment at 0°	-5° ... 5°
End position adjustment at nominal rotation angle	-5° ... 5°
Shaft connection depth	29 mm
Valve mounting interface standard	ISO 5211
Mounting position	Any
Operating mode	Single-acting
Design principle	Rack and pinion
Closing direction	Closes to the right
Valve interface standard	VDI/VDE 3845 (NAMUR)
Positioner/feedback interface standard	VDI/VDE 3845 size AA 2
Device type according to VDMA 66413	Safety component
Safety Function	The safety function consists of the actuator switching to the defined safety switching position when compressed air is switched off and the spring chamber is vented. This switching movement is realized by the spring force of the spring assembly.
Safety Integrity Level (SIL)	Up to SIL 2 Low Demand mode Up to SIL 3 in a redundant architecture Up to SIL 1 High Demand mode
Certified for safety function according to ISO 13849 and IEC 61508 (SIL)	Product can be used in SRP/CS up to SIL 2 Low Demand Product can be used in SRP/CS up to SIL 1 High Demand Up to SIL 3 in a redundant architecture

Burst pressure	24 bar
Operating pressure (MPa)	0.2 ... 0.8 MPa
Operating pressure (bar)	2 ... 8 bar
Operating pressure (psi)	29 ... 116 psi
Nominal operating pressure (MPa)	0.55 MPa
Nominal operating pressure (bar)	5.5 bar
Nominal operating pressure (psi)	79.75 psi
CE mark (see declaration of conformity)	In accordance with EU Explosion Protection Directive (ATEX)
UKCA mark (see declaration of conformity)	In accordance with UK EX regulations
Explosion protection certification outside the EU	EPL Db (GB) EPL Gb (GB)
Explosion protection	Zone 1 (ATEX) Zone 1 (UKEX) Zone 2 (ATEX) Zone 21 (ATEX) Zone 21 (UKEX) Zone 22 (ATEX)
ATEX category gas	II 2G
ATEX category dust	II 2D
Explosion ignition protection type gas	Ex h IIC T4 Gb X
Explosion ignition protection type dust	Ex h IIIC T105°C Db X
Explosion ambient temperature	-20°C ≤ Ta ≤ +80°C
Operating medium	Compressed air according to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Dew point min. 10 °C below ambient and medium temperature Lubricated operation possible (required for further operation)
Storage temperature	-20 °C ... 60 °C
Ambient temperature	-20 °C ... 80 °C
Torque at nominal operating pressure and 0° swivel angle	318.1 Nm
Torque at nominal operating pressure and 90° swivel angle	165.9 Nm

Note on torque	The operating torque of the actuator must not be higher than the maximum permissible torque specified in ISO 5211, relative to the size of the mounting flange and the coupling.
Spring return torque at 0° swivel angle	155.9 Nm
Spring return torque at 90° swivel angle	308.1 Nm
Air consumption at 0.6 MPa (6 bar, 87 psi) per cycle 0°–nominal swivel angle–0°	17.2 l
Product weight	18281 g
Shaft connection	T27
Pneumatic connection	G1/4
Note on materials	RoHS-compliant
Material mounting plate	Wrought aluminium alloy, anodized
Material cover	Die-cast aluminium, coated
Material seals	NBR
Material spring	Spring steel
Material housing	Aluminium, anodized
Material piston	Die-cast aluminium
Material bearing	POM
Material cam	High-alloy stainless steel
Material screws	High-alloy stainless steel
Material shaft	Steel, nickel-plated

3.16. Limit switch non-ATEX



Mat. No. : 78264

Specification	Value
Limit switch attachment	SRBC-CA3-YR90-MW-22A-1W-C2P20
CE mark (see declaration of conformity)	in accordance with the EU Low Voltage Directive in accordance with the EU RoHS Directive
UKCA mark (see declaration of conformity)	in accordance with UK RoHS regulations in accordance with UK regulations for electrical equipment
Note on materials	RoHS compliant
Safety Integrity Level (SIL)	SIL 3
Measuring principle	mechanical/electrical
Ambient temperature	-20 °C ... 80 °C
Switching output	contact-based
Switch element function	Single-pole changeover switch
Max. output current AC	3000 mA
Max. output current DC	3000 mA
Operating voltage range AC	0 V ... 230 V
Operating voltage range DC	0 V ... 30 V
Microswitch type	Omron SS-5
Electrical connection	Screw terminal
Electrical connection 1, connection type	Terminal strip
Electrical connection 1, cable outlet	Straight
Electrical connection 1, connection technology	Spring-loaded terminal
Electrical connection 1, number of poles/wires	10
Connectable conductor cross-section	0.25 mm ² ... 2.5 mm ²
Cable gland	M20x1.5
Allowable cable diameter	5 mm ... 13 mm
Dimensions W x L x H	127 mm x 98 mm x 122 mm

Mounting position	Any
Product weight	800g
Housing color	Grey
Material housing	Die-cast aluminium
Material seals	NBR
Material shaft	High-alloy stainless steel
Material screws	High-alloy stainless steel
Material blanking plug	PA
Material mounting bracket	High-alloy stainless steel
Material indicator	PC
Material cable gland	PA
Material retaining ring	High-alloy stainless steel
Material washer	High-alloy stainless steel
Material cover cap	PC
Position indicator	yellow / red
Setting range angle detection	0 deg ... 90 deg
Storage temperature	-20 °C ... 50 °C
Degree of protection	IP66; IP67; NEMA 4/4X
Shock resistance	Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6

3.17. Limit switch ATEX „flameproof enclosure“



Mat. No. : 78265

Specification	Value
Limit switch attachment	SRBE-CA3-YR90-MW-22A-1W-C2M20-EX
CE mark (see declaration of conformity)	In accordance with EU Explosion Protection Directive (ATEX) In accordance with EU Low Voltage Directive In accordance with EU RoHS Directive
UKCA mark (see declaration of conformity)	In accordance with UK EX regulations In accordance with UK RoHS regulations In accordance with UK Electrical Equipment Regulations
Explosion protection	Zone 1 (ATEX) Zone 1 (CN) Zone 1 (IEC-EX) Zone 1 (UKEX) Zone 2 (ATEX) Zone 21 (ATEX) Zone 21 (BR) Zone 21 (CN) Zone 21 (IEC-EX) Zone 21 (UKEX) Zone 22 (ATEX)
ATEX category gas	II 2G
Explosion ignition protection type gas	Ex db IIC T6 Gb
ATEX category dust	II 2D
Explosion ignition protection type dust	Ex tb IIIC T...°C Db
Explosion protection certification outside the EU	EPL Db (BR) EPL Db (CN) EPL Db (GB) EPL Db (IEC-EX) EPL Gb (CN) EPL Gb (GB) EPL Gb (IEC-EX)
Explosion ambient temperature	-20°C ≤ Ta ≤ +60°C
Max. surface temperature	75 °C
Note on materials	RoHS-compliant
Safety Integrity Level (SIL)	SIL 3

Measuring principle	Mechanical/electrical
Ambient temperature	-20 °C ... 60 °C
Max. output current AC	3000 mA
Max. output current DC	6000 mA
Operating voltage range AC	0 V ... 230 V
Operating voltage range DC	0 V ... 30 V
Microswitch type	CHERRY D44
Electrical connection	Screw terminal
Connectable conductor cross-section	0.25 mm ² ... 2.5 mm ²
Cable gland	M20x1.5
Mounting position	Any
Product weight	1700g
Housing color	Silver
Material housing	Die-cast aluminium, painted
Material seals	NBR
Material shaft	High-alloy stainless steel
Material screws	High-alloy stainless steel
Material mounting bracket	High-alloy stainless steel
Material indicator	PC
Material retaining ring	High-alloy stainless steel
Material washer	High-alloy stainless steel
Position indicator	Yellow / red
Setting range angle detection	0 deg ... 90 deg
Storage temperature	-20 °C ... 60 °C
Degree of protection	IP67; NEMA 4/4X
Shock resistance	Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6

3.18. Limit switch ATEX "Intrinsically safe"



Mat. No.: 78266

IMPORTANT



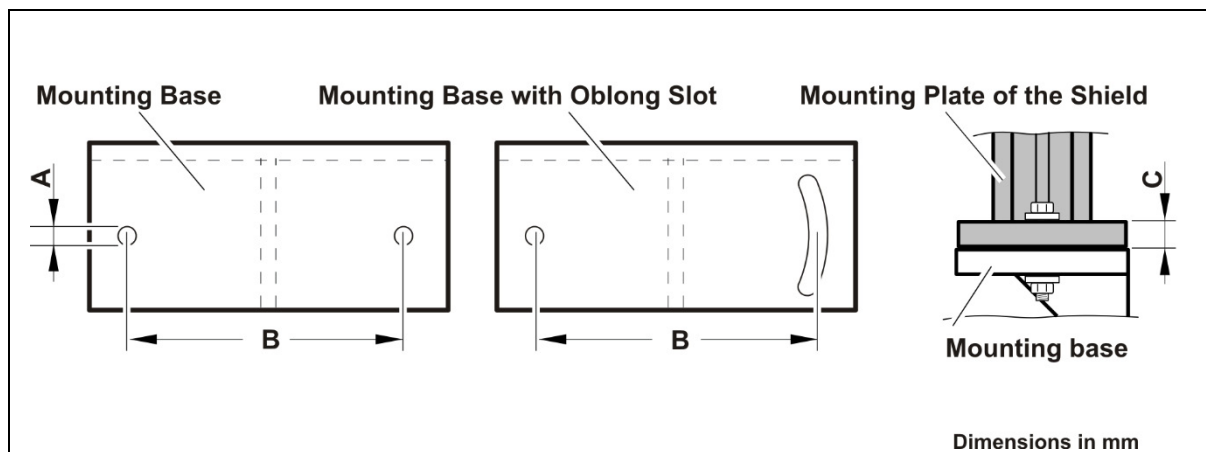
The pneumatic actuator is ATEX-certified for Zone 21 (dust) according to Ex h IIIC T105 °C Db X and for Zone 1 (gas) according to II 2G. In combination with limit switch (Mat. No.: 78266; SRBC-CA3-YR90-MW-1-1WG-C2-EX6), the actuator may only be used in Zone 1, even if the limit switch itself is approved for use in Zone 0. The information on the actuator and limit switch specified in the supplied documents must always be observed.

Specification	Value
Limit switch attachment	SRBC-CA3-YR90-MW-1-1WG-C2-EX6
CE mark (see declaration of conformity)	In accordance with EU Explosion Protection Directive (ATEX) In accordance with EU RoHS Directive
UKCA mark (see declaration of conformity)	In accordance with UK EX regulations In accordance with UK RoHS regulations
Explosion protection	Zone 0 (ATEX) Zone 0 (CN) Zone 0 (IEC-EX) Zone 0 (UKEX) Zone 1 (ATEX) Zone 2 (ATEX) Zone 20 (ATEX) Zone 20 (CN) Zone 20 (IEC-EX) Zone 20 (UKEX) Zone 21 (ATEX) Zone 22 (ATEX)
ATEX category gas	II 1G
Explosion ignition protection type gas	Ex ia IIC T6/T5 Ga
ATEX category dust	II 1D
Explosion ignition protection type dust	Ex ia IIIC Txx°C Da
Explosion protection certification outside the EU	EPL Da (CN) EPL Da (GB) EPL Da (IEC-EX) EPL Ga (CN) EPL Ga (GB) EPL Ga (IEC-EX)
Explosion ambient temperature	See ATEX certificate See IECEx certificate

Max. input voltage U_i	30 V
Effective internal inductance L_i	Negligible
Effective internal capacitance C_i	Negligible
Max. input parameters intrinsically safe circuit	See IECEx certificate See ATEX certificate
Note on materials	RoHS-compliant
Safety Integrity Level (SIL)	SIL 3
Measuring principle	Mechanical/electrical
Ambient temperature	-40 °C ... 80 °C
Switching output	Contact-based (gold)
Switch element function	Changeover switch, single-pole
Max. output current DC	100 mA
Operating voltage range DC	0 V ... 30 V
Microswitch type	Omron D2SW-01L1T
Electrical connection	Screw terminal
Electrical connection 1, connection type	Terminal strip
Electrical connection 1, cable outlet	Straight
Electrical connection 1, connection technology	Spring-loaded terminal
Electrical connection 1, number of poles/wires	10
Connectable conductor cross-section	0.25 mm ² ... 2.5 mm ²
Allowable cable diameter	6 mm ... 12 mm
Dimensions W x L x H	127 mm x 98 mm x 122 mm
Mounting position	Any
Product weight	800g
Housing color	Grey
Material housing	Die-cast aluminium
Material seals	VMQ (silicone)
Material shaft	High-alloy stainless steel
Material screws	High-alloy stainless steel
Material mounting bracket	High-alloy stainless steel
Material retaining ring	High-alloy stainless steel
Material washer	High-alloy stainless steel
Material cover cap	PC
Position indicator	Yellow / red

Setting range angle detection	0 deg ... 90 deg
Storage temperature	-20 °C ... 50 °C
Degree of protection	IP66
Shock resistance	Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6

3.19. Mounting base for LB 8300



TI-Fig. 6 Mounting base dimensions for LB 8300 Rod Source Shields

Variant	Mounting base	A	B	C
100	> 340 x 120	> Ø 14	305	15
150	> 465 x 180	> Ø 18	425	20
200	> 560 x 220	> Ø 26	510	25
270	> 600 x 300	> Ø 26	510	30

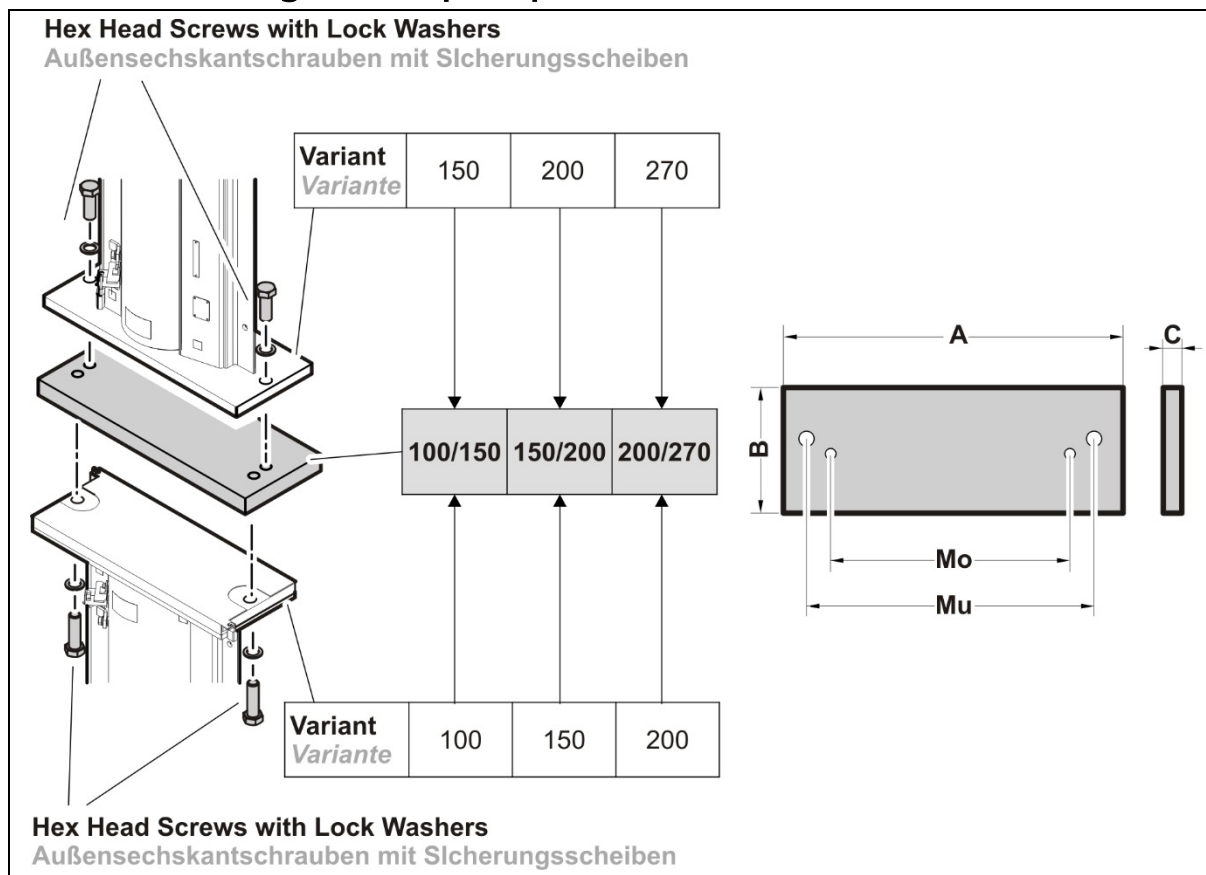
NOTICE

i Mounting base installed by the installation contractor or end user. The mounting base must be designed for the total load of the shield(s) and be secured to the vessel or supporting structure, e.g. by welding.

IMPORTANT

i The mounting base with the oblong slot allows the shield (source) to be rotated to better aim the radiation beam at the detector.

3.20. Mounting kit adapter plate



TI-Fig. 7 Mounting Kit Adapter Plate

Mat. No.	Description	A	B	C	Mo	Mu	Connection Elements
73291	Mounting Kit Adapter Plate 100/150	465	120	20	305	425	M12x35, M16x45 Lock washer NL12, NL16
73295	Mounting Kit Adapter Plate 150/200	560	180	25	425	510	M24x60, M16x45 Lock washer NL24, NL16
73301	Mounting Kit Adapter Plate 200/270	600	220	40	510	510	M24x60 Lock washer NL24

NOTICE



Only use the supplied screws and lock washers. Tightening torque recommendation:

- ▶ M12: 56 Nm
- ▶ M16: 136 Nm
- ▶ M24: 460 Nm

4. Rod source cascade

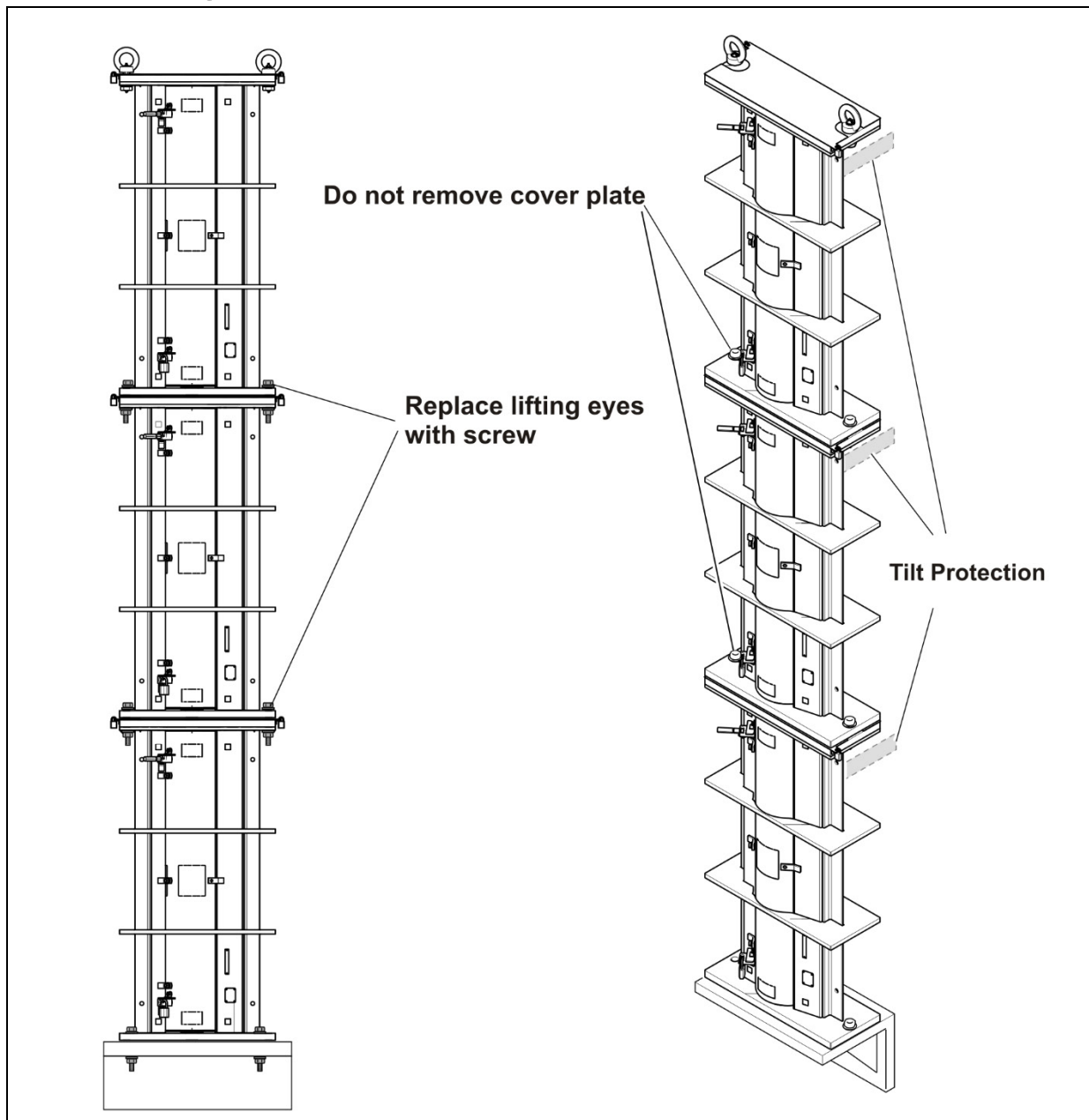
If several rod sources are needed, the individual shields are arranged directly on top of each other or staggered, described in chapter 4.1 and 4.2. Multi-part shields are marked by the letters A, B, C etc. from top to bottom.

NOTICE



Following installation of the shields, the function of the positioning mechanism has to be tested. The shutter check has to be carried out every six months and recorded.

4.1. Mounting variant stacked rod source cascaded



TI-Fig. 8 Mounting variant stacked (example illustration)

NOTICE



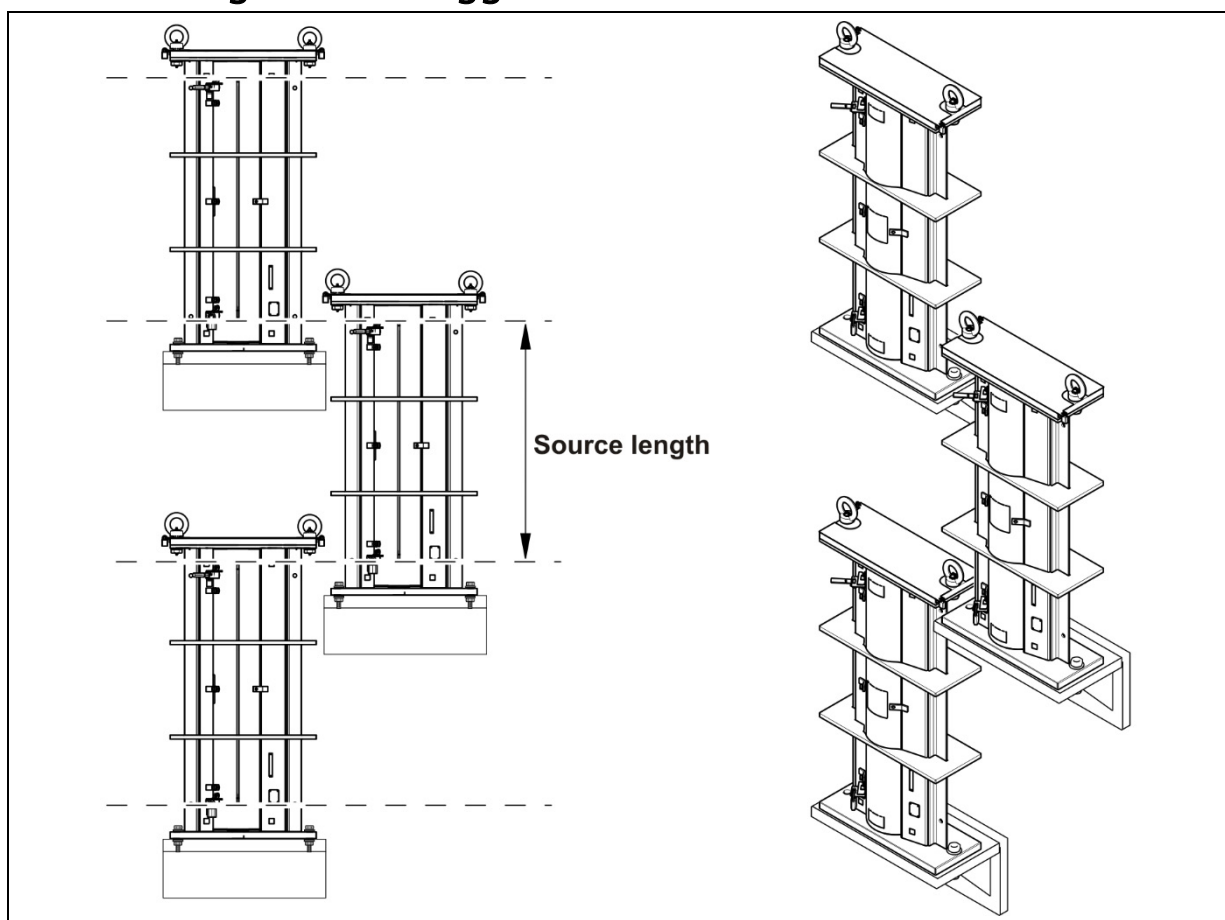
Tilt-protections should be installed by the installation contractor and affixed to the vessel or the supporting structure, e.g. welded. The anti-tipping measures must be installed on both sides and on each shield.

NOTICE



In the version with pneumatic actuator, a stacked arrangement is not intended. If a multi-part installation is required, the mounting option "Staggered rod source cascade" described in chapter 4.2 must be used.

4.2. Mounting variant staggered rod source cascade



TI-Fig. 9 Mounting variants staggered (example illustration)

5. EU-Declaration of Conformity



BERTHOLD TECHNOLOGIES GmbH & Co. KG

Calmbacher Straße 22
75323 Bad Wildbad, Germany

Phone +49 7081 177-0
Fax +49 7081 177-100
info@Berthold.com
www.Berthold.com

EU-Konformitätserklärung

EU-Declaration of Conformity

Nr./No.: CE20050-01

Hiermit erklären wir in alleiniger Verantwortung, dass die Bauart des nachfolgend bezeichneten Geräts, in der von uns in den Verkehr gebrachten Ausführung den unten genannten einschlägigen Harmonisierungs-vorschriften der EU entspricht.

Durch nicht mit uns abgestimmte Änderungen oder nicht bestimmungsgemäßen Gebrauch verliert diese Erklärung ihre Gültigkeit

We hereby declare, under our sole responsibility, that the design of the following device placed on the market by us complies with the relevant harmonized rules of the EU.

Unauthorized modifications or unintended use of the product makes this declaration invalid

Hersteller
Manufacturer

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

Produktbezeichnung
Product name

Stabstrahlerabschirmung mit pneumatischer Verschlussantrieb
rod source shield with pneumatic closure drive

Typenbezeichnung / Modell
Type / model

LB 8300 LB 8300-XX51-200-10001-XXXX – non ATEX

Richtlinie/Verordnung
directive/regulation

angewendete Normen
applied standards

Maschinenrichtlinie
Machinery directive

2006/42/EU

EN ISO 12100:2010

Mit einem Endschalter versehene Antriebe unterliegen zusätzlich den folgenden Richtlinie
Drives equipped with a limit switch are also subject to the following guidelines

EMV-Richtlinie
EMC Directive

2014/30/EU

EN 60947-5-2:2020

RoHS

2011/65/EU

Diese Erklärung wird in Verantwortung für den Hersteller ausgestellt durch
This declaration is issued by the manufacturer released by

Bad Wildbad, 20.04.2026

Ort und Datum
Place and date

Dr. Dirk Boguhn

Leiter F&E
Head of R&D

Registergericht / Court of Registration
Persönlich haftende Gesellschafterin / Fully liable Associates
Registergericht / Court of Registration
Geschäftsführung / Management
USt-Id-Nr. / VAT Reg. No.
Deutsche Steuernummer / German Tax No.
WEEE-Reg. No.

Sparkasse Pforzheim-Carl
Volksbank für eG
Commerzbank Pforzheim

DE37
DE37
DE05

6603 0083
6619 0000
6668 0013

Stuttgart HRA 330991
Berthold Technologies Verwaltung-GmbH
Stuttgart HRB 331520
Christian Stöck
DE813050511
48038/08038
DE99468690

0008 0430 03
0029 1282 31
0631 1120 00

PZHSDE66XXX
GENODE6JKA
DRESDEFFXXX