DATA SHEET

T 4747 EN

Type 4747 Limit Switch

CE EAC Ex certified

Application

Limit switch with inductive or electric limit contacts in type of protection Ex d (flameproof enclosure) or Ex ia (intrinsic safety) for attachment to pneumatic linear and rotary actuators according to VDI/VDE 3845

The Type 4747 Limit Switch issues an electric signal when the valve travel exceeds or falls below an adjusted limit. The signal is suitable for switching control signals, issuing visual and audible alarms or for connection to central control or alarm systems.

Versions

Continuously adjustable limit contacts, switching functions and mounting kits allow the Type 4747 Limit Switch to be optimally adapted for the specific task:

General

- Electrical connection using M20x1.5 or ½ NPT cable gland to terminals
- Corrosion-resistant, rugged enclosure with degree of protection IP66 for adverse environmental conditions
- Maximum permissible ambient temperature -40 to +80 °C
- Mounting kits for linear actuators according to IEC 60534-6-1, rotary actuators with interface according to VDI/VDE 3845 or SAMSON direct attachment

Limit contacts:

- Maximum two limit contacts, continuous and easy adjustment
- Inductive proximity sensors or electric microswitches

Type of protection:

- Flameproof enclosure
  II 2G Ex d IIC T6 and II 2D Ex tD A21 IP66 T 80°C
- Intrinsic safety
  II 2G Ex ia IIC T6 Gb and II 2D Ex tb IIIC T85°C Db IP66



Fig. 1: *Type 4747 Limit Switch*



Fig. 2: *Type 4747 Limit Switch for linear actuators*

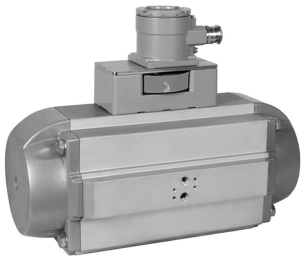


Fig. 3: *Type 4747 Limit Switch for rotary actuators*

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Function

General

The limit switch is equipped with a maximum of two inductive proximity switches or two electric microswitches.
For most applications the contacts are adjusted to issue a signal when the actuator has reached one of its end positions. The switching point can be adjusted to any position within the rotational angle or travel range to signalize intermediate positions (see EB 4747).

The shaft (4) of the limit switch is connected to the actuator by a follower pin (5). The shaft has a maximum of two metal tags or cam disks (3).

Limit switch with inductive proximity switches

The limit switch has adjustable metal tags (3) on the shaft (4). When the tag (3) is inside the magnetic field of the proximity switch, the proximity switch is attenuated and the output has a high impedance (switching function “Contact open”). When the tag (3) leaves the magnetic field, the proximity switch is unattenuated and the output has a low impedance (switching function "Contact closed"). The tag (3) can be adjusted to a switching point between 0 and 100° at the adjustment screw (2).

Limit switch with electric microswitches

The limit switch has a maximum of two adjustable metal cam disks (3) on the shaft (4). The cam disk (3) activates the electric microswitch over the roller on the switch lever. The cam disks (3) can be adjusted to a switching point between 0 and 100° at the adjustment screws (2).



1 Terminal block
2 Adjustment screw
3 Cam disk or metal tag
4 Shaft
5 Follower pin

Fig. 4: *Type 4747 Limit Switch*

Technical data

Type 4747 Inductive Limit Switch **The technical data for the explosion-protected devices may be restricted by the limits specified in the test certificates.**	
Control circuit	Switching amplifier according to EN 60947-5-6: 2000
Inductive proximity sensor	NCB2-V3-NO
Switching element	NAMUR NC contact
Contacts	1 or 2
Permissible ambient temperature	-25 to +80 °C
Electrical connection	M20x1.5 or ½ NPT
Degree of protection	IP66
Weight	Approx. 0.65 kg
Type 4747-xxx1 Electric Limit Switch · Specifications apply to silver and gold-plated contacts	
Switching element	Electric limit contact: changeover contact/SPDT (single-pole/double-throw type)
Permissible load	AC voltage
	250 V/10 A
Contacts	2
Permissible ambient temperature	-40 to +80 °C
Electrical connection	M20x1.5 or ½ NPT
Degree of protection	IP66
Weight	Approx. 0.65 kg
Materials	
Enclosure and cover	Aluminum, powder coated, gray beige RAL 1019 or stainless steel 1.4409
External parts	Stainless steel 1.4301/1.4310/1.4409
Conformity	CE · EAC

Electric data for connection to intrinsically safe current circuits (Ex ia)			
Limit switch		Type 4747-11x01	
Limit contacts		Inductive	
Output voltage [2]	Ui	16 V	16 V
Output current [2]	Ii	25 mA	52 mA
Power dissipation [2]	Pi	64 mW	169 mW
Outer capacitance [2]	Ci	100 nF	
Outer inductance [2]	Li	100 µH	
Permissible ambient temperature		-25 to +80 °C (temperature class T4) -25 to +80 °C (temperature class T5) -25 to +65 °C (temperature class T6)	-25 to +80 °C (temperature class T4) -25 to +60 °C (temperature class T5) -25 to +45 °C (temperature class T6)

1) Permissible maximum values when connected to a certified intrinsically safe circuit.

Dimensions in mm

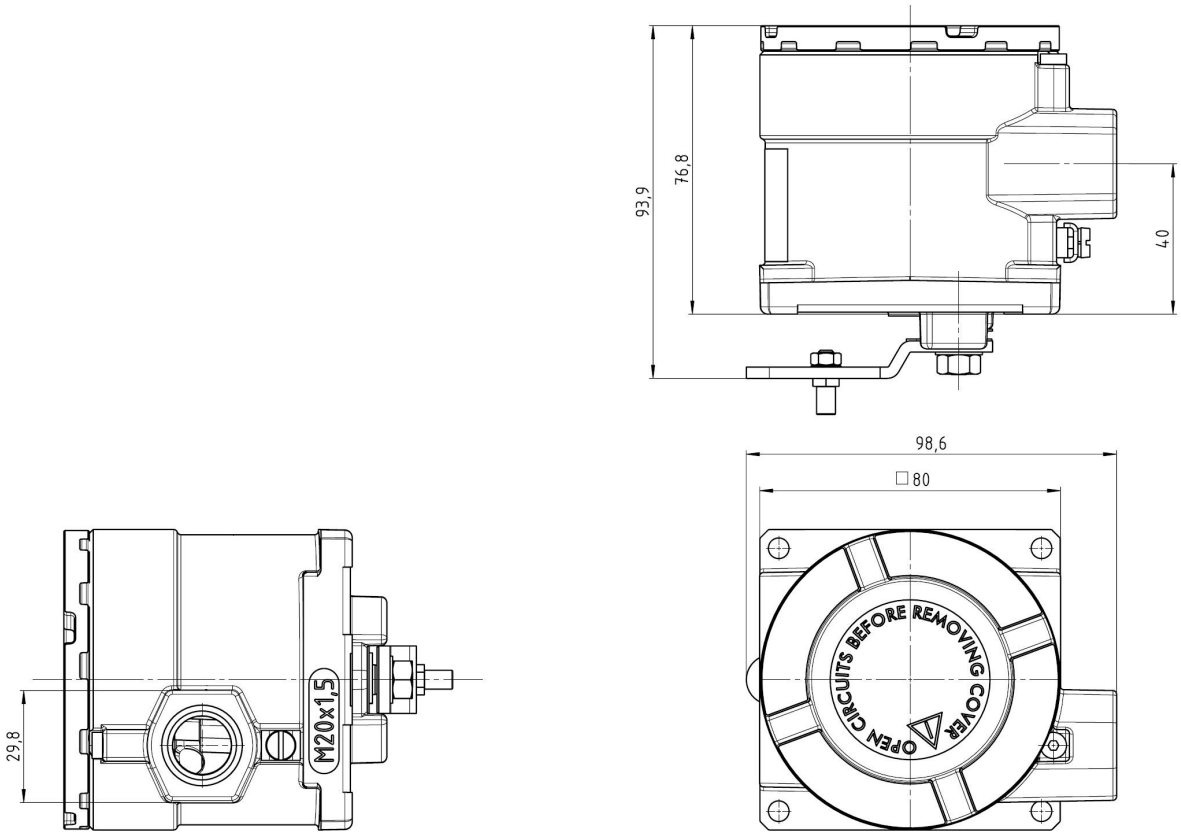


Fig. 5: *Type 4747 Limit Switch*

Dimensions in mm

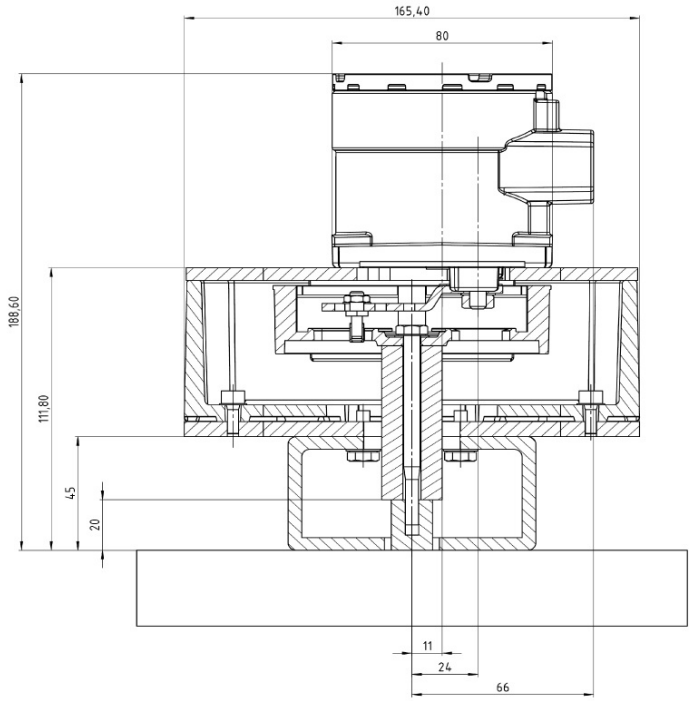


Fig. 6: *Attachment to rotary actuators according to VDI/VDE 3845 (09-2010), fixing level 2 (heavy-duty version)*

Dimensions in mm

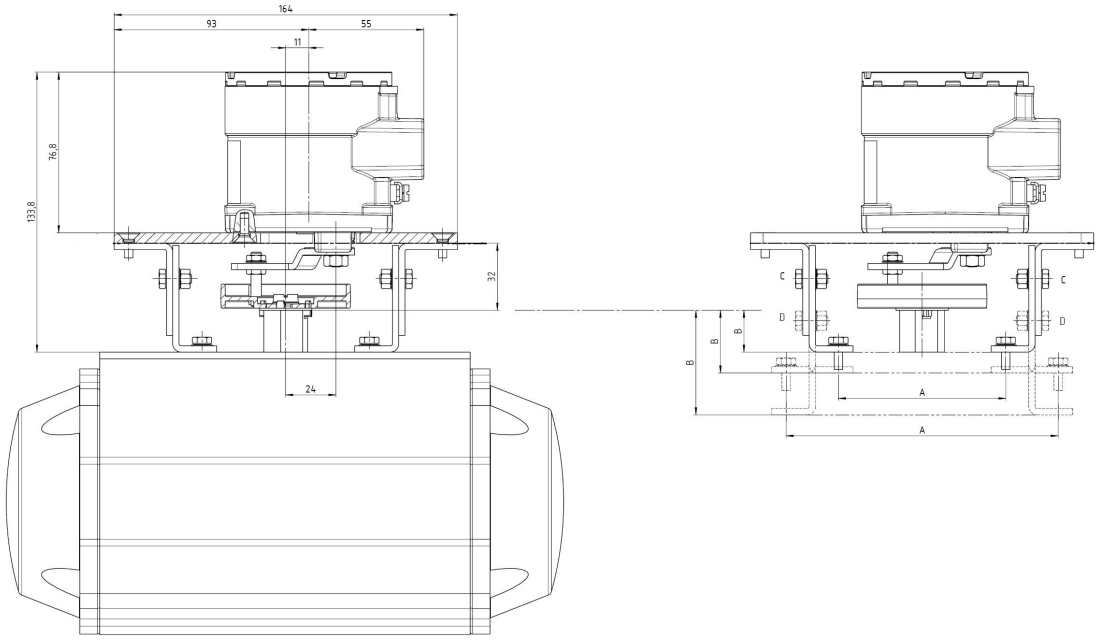


Fig. 7: *Attachment to rotary actuators according to VDI/VDE 3845 (09-2010), fixing level 1 (light version)*

Dimensions in mm

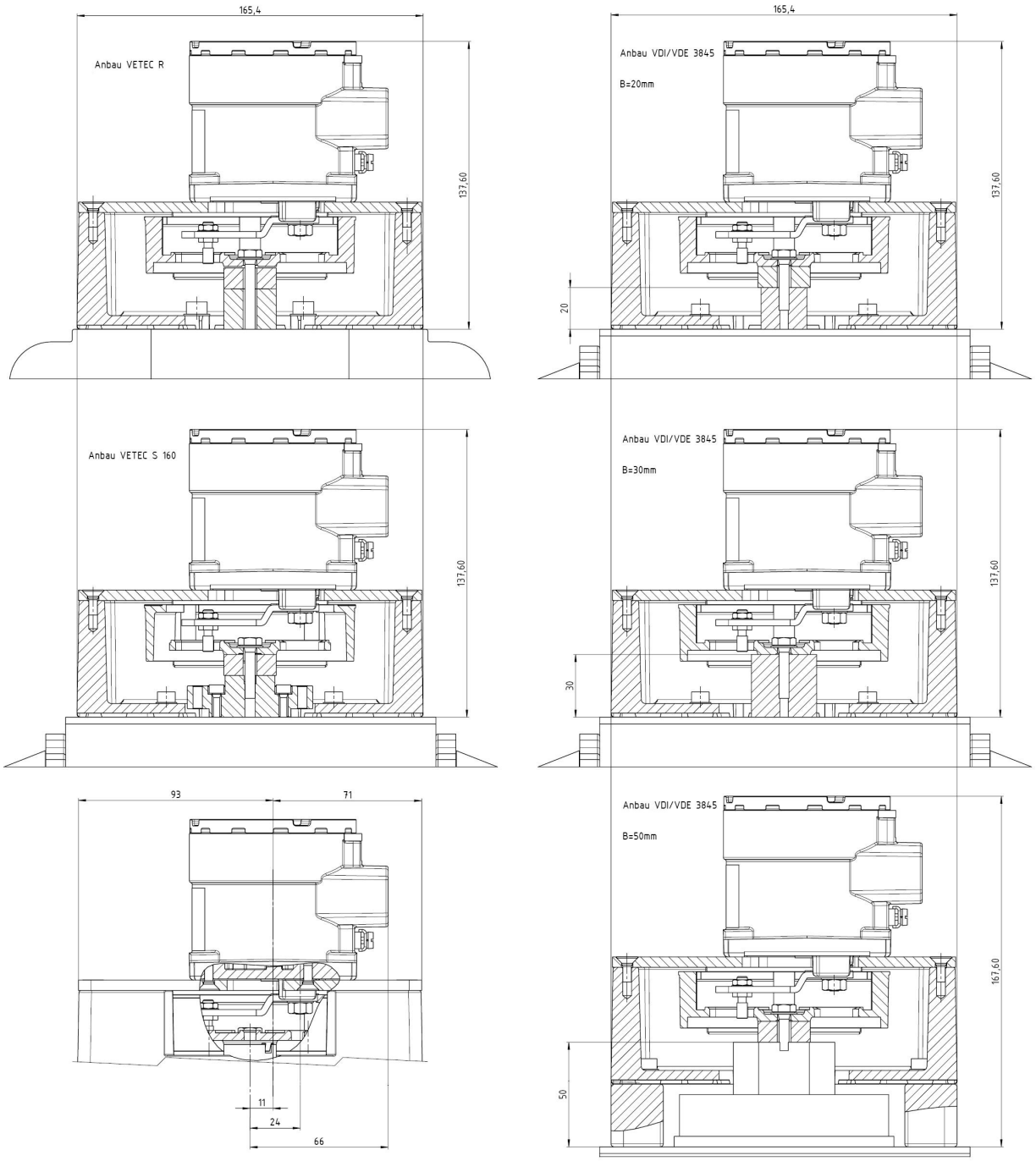


Fig. 8: *Attachment to rotary actuators according to VDI/VDE 3845 (09-2010), fixing level 1 (heavy-duty version)*

Dimensions in mm

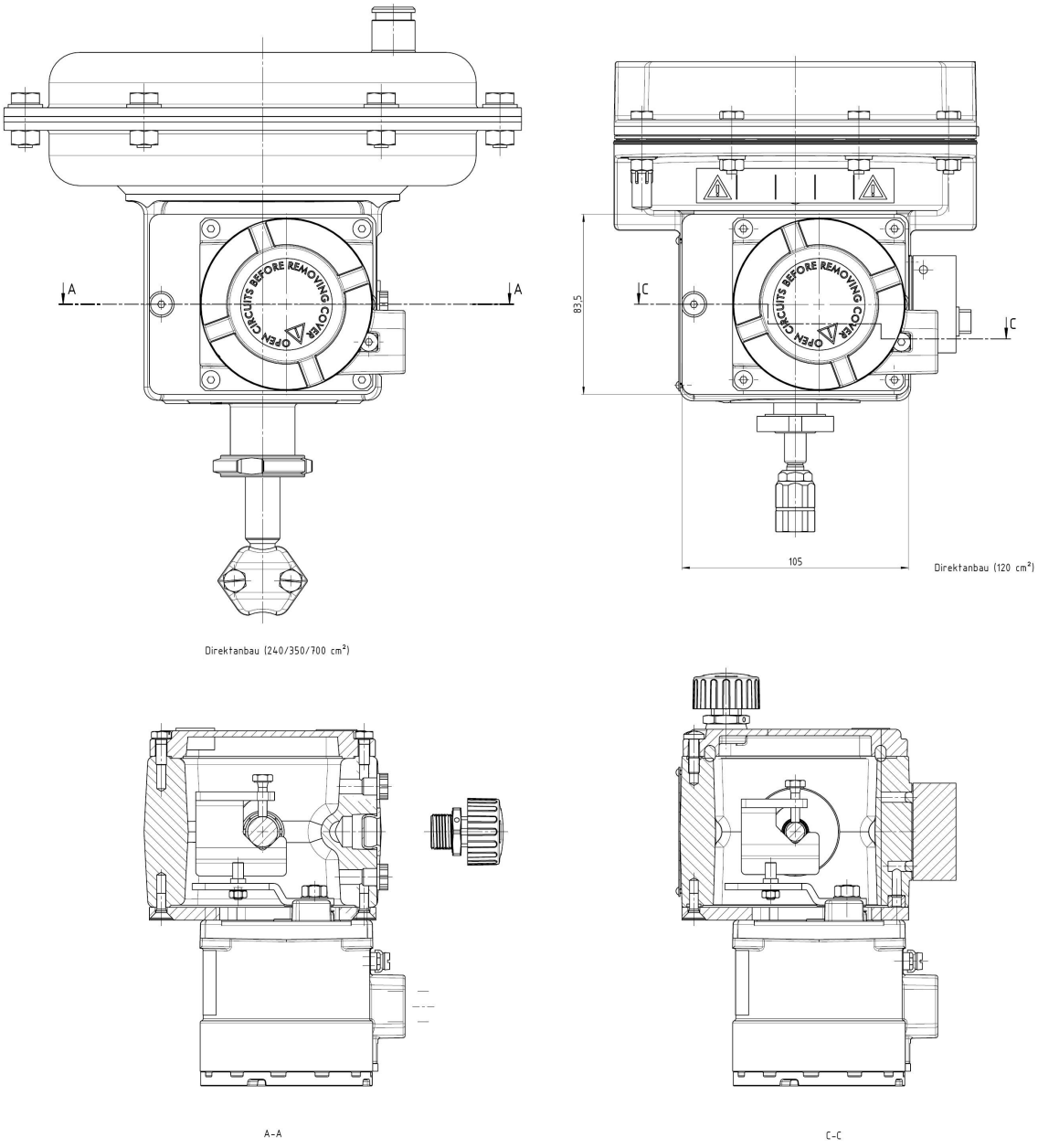


Fig. 9: *Direct attachment to linear actuators*

Dimensions in mm

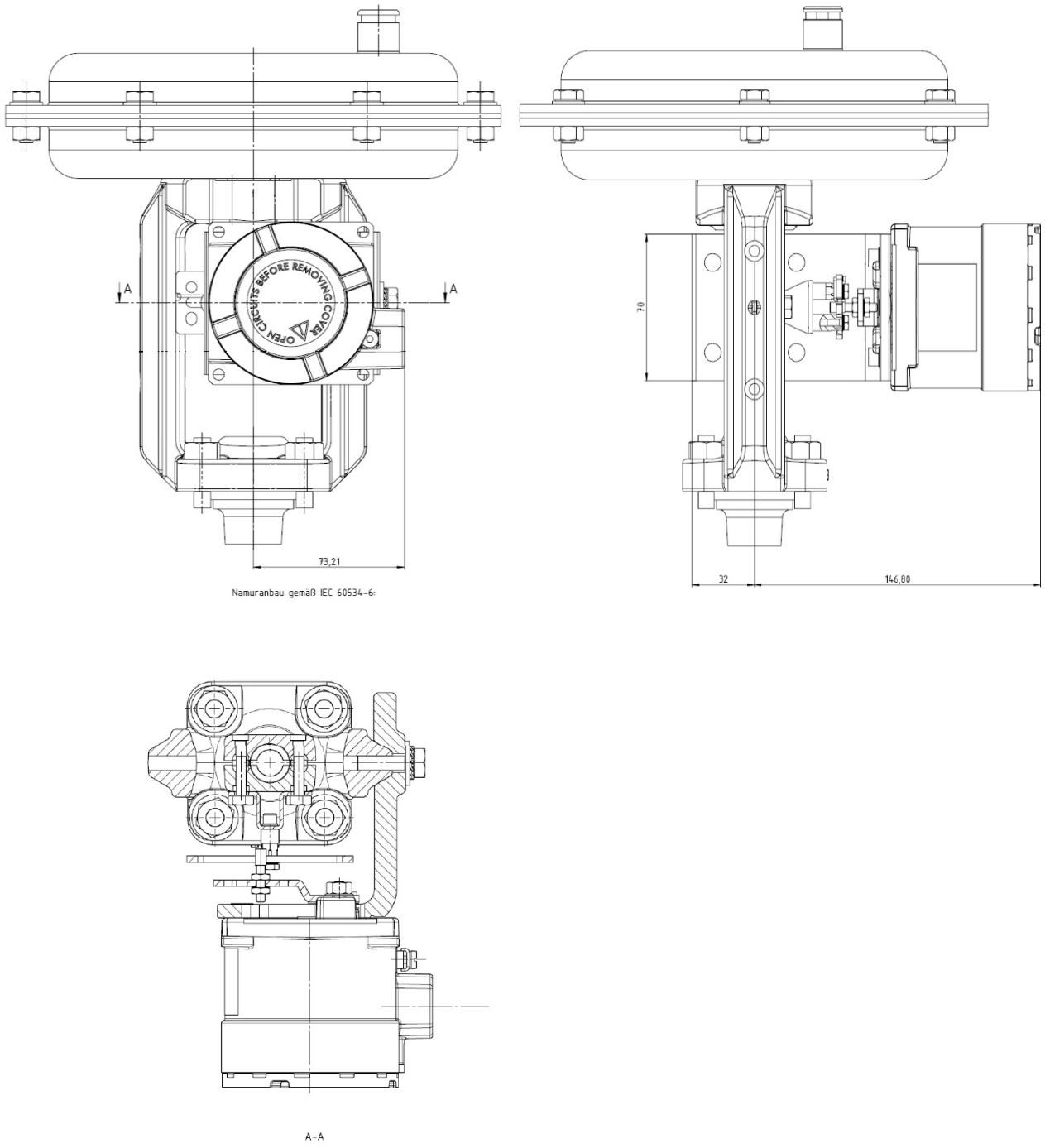


Fig. 10: *Attachment to linear actuators with NAMUR rib (IEC 60534-6)*

Versions and ordering data

Limit switch	Type 4747-	x	x	x	x	x	x	x	x	x	x	0	x	x	x	x	x
Type of protection																	
Without		**0**	**0**	**0**													
ATEX	II 2G Ex ia IIC T6 Gb; II 2D Ex ia IIIC T85°C Db IP66; II 2D Ex tb IIIC T85°C Db IP66	**1**	**1**	**0**													
EAC Ex	1Ex ia IIC T6 Gb; Ex ia IIIC T85°C Db; Ex tb IIIC T85°C Db	**1**	**1**	**3**													
TR CMU 1055	II 2G Ex ia IIC T6 Gb; II 2D Ex ia IIIC T85 °C Db IP66; II 2D Ex tb IIIC T85 °C Db IP66	**1**	**1**	**6**													
ATEX	II 2 G Ex db IIC T6...T4 Gb; II 2 D Ex tb IIC T80 °C Db	**2**	**1**	**0**													
IECEx	Ex d IIC T6,T5,rep.T4; Ex tD A21 IP66 T80°C	**2**	**1**	**1**													
CCC Ex	Ex d IIC T4 ~ T6 Gb; Ex tD A21 IP66 T80°C	**2**	**1**	**2**													
NEPSI	Ex d IIC T4~T6 Gb; DIP A21 Ta, T4~T6	**2**	**1**	**2**													
EAC Ex	1Ex db IIC T6...T4 Gb X; Ex tb IIIC T80°C Db X	**2**	**1**	**3**													
TR CMU 1055	II 2G Ex db IIC T6...T4 Gb; II 2D Ex tb IIIC T80 °C Db	**2**	**1**	**6**													
FM	XP/I/1/ABCD/T6; DIP/II,III/EFG/T6; I/1/AEx d/IIC/T6; Type 4X, IP66	**2**	**3**	**0**													
CSA	Class I, Div 1 + 2, Groups A, B, C, D; Class II, Div 1 + 2, Groups E, F, G; Class III; Class I, Zone 1, Ex d IIC, T6...T4; Class II, Zone 21, Ex tb IIIC T85°C; Type 4X, IP66	**2**	**3**	**1**													
ATEX	II 3G Ex ic IIC T6 Gc; II 3G Ex nAc II T6 Gc; II 3D Ex tc IIIC T85°C Dc IP66	**8**	**1**	**0**													
TR CMU 1055	II 3G Ex ic IIC T6 Gc; II 3G Ex nAc II T6 Gc; II 3D Ex tc IIIC T85 °C Dc IP66	**8**	**1**	**6**													
Limit contact																	
Inductive proximity sensor NCB2-V3-NO (-25 to +80 °C)					**0**	**1**											
Microswitches with silver contacts (-40 to +80 °C)					**1**	**1**											
Microswitches with gold contacts (-40 to +80 °C)					**1**	**2**											
Number of contacts																	
1							**1**										
2							**2**										
Switching angle																	
< 100° adjustable								**0**									
Electrical connection																	
M20x1.5									**1**								
½ NPT									**2**								
Degree of protection																	
IP66										**0**							
Ambient temperature [1]																	
-25 to +80 °C (+65 °C in T6)											**0**						
-40 to +80 °C (+65 °C in T6)											**1**						
-25 to +70 °C (+65 °C in T6)											**2**						
Material																	
Aluminum													**0**				
Stainless steel													**1**				
Safety approval																	
Without														**0**			
Special version																	
Without															**0**	**0**	**0**

[1] The maximum permissible ambient temperature of the limit switch depends on the permissible ambient temperature of the components, type of protection and temperature class.

Summary of explosion protection approvals

Type	Certification			Type of protection/comments
4747-110	**ATEX** [1]	Number	PTB 12 ATEX 2020	II 2G Ex ia IIC T6 Gb II 2D Ex ia IIIC T85°C Db IP66 II 2D Ex tb IIIC T85°C Db IP66
		Date	2013-04-26	
4747-113	**EAC Ex**	Number	KZ.7500525.01.01.02381	1Ex ia IIC T6 Gb Ex ia IIIC T85°C Db Ex tb IIIC T85°C Db
		Date	2026-01-28	
		Valid until	2031-01-27	
4747-116	**TR CMU 1055**	Number	ZETC/36/2021	II 2G Ex ia IIC T6 Gb II 2D Ex ia IIIC T85 °C Db IP66 II 2D Ex tb IIIC T85 °C Db IP66
		Date	2021-07-26	
4747-210	**ATEX** [1]	Number	KIWA 16ATEX0052 X	II 2 G Ex db IIC T4/T6 Gb II 2 D Ex tb IIC T80 °C Db
		Date	2009-11-20	
4747-211	**IECEx**	Number	PTB 09.0060X	Ex d IIC T6,T5,rep.T4 Ex tD A21 IP66 T80°C
		Date	2009-11-25	
4747-212	**CCC Ex**	Number	2020032231503131	Ex d IIC T4...T6 Gb Ex tb IIIC T80 °C Db
		Date	2025-10-23	
		Valid until	2030-10-22	
	NEPSI	Number	GYJ23.1087X	Ex db IIC T4...T6 Gb Ex tb IIIC T80 °C Db
		Date	2023-04-29	
		Valid until	2028-04-28	
4747-213	**EAC Ex**	Number	KZ.7500525.01.01.02381	1Ex db IIC T6...T4 Gb X Ex tb IIIC T80°C Db X
		Date	2026-01-28	
		Valid until	2031-01-27	
4747-216	**TR CMU 1055**	Number	ZETC/36/2021	II 2G Ex db IIC T6...T4 Gb II 2D Ex tb IIIC T80 °C Db
		Date	2021-07-26	
	TR CMU 1055	Number	ZETC/027/2024	Module D
		Date	2024-04-22	
		Valid until	2027-08-24	
4747-230	**FM**	Number	3037212	XP/I/1/ABCD/T6 DIP/II,III/EFG/T6 I/1/AEx d/IIC/T6 Type 4X, IP66
		Date	2011-03-08	
4747-231	**CSA**	Number	70004607	Class I, Div 1+2, Groups A, B, C, D Class II, Div 1+2, Groups E, F, G Class III Class I, Zone 1, Ex d IIC, T6...T4 Class II, Zone 21, Ex tb IIIC T85°C Type 4X, IP66
		Date	2016-06-02	
4747-810	**ATEX** [1]	Number	PTB 12 ATEX 2020	II 3G Ex ic IIC T6 Gc II 3G Ex nAc II T6 Gc II 3D Ex tc IIIC T85°C Dc IP66
		Date	2013-04-26	
4747-816	**TR CMU 1055**	Number	ZETC/36/2021	II 3G Ex ic IIC T6 Gc II 3G Ex nAc II T6 Gc II 3D Ex tc IIIC T85 °C Dc IP66
		Date	2021-07-26	
	TR CMU 1055	Number	ZETC/027/2024	Module D
		Date	2024-04-22	
		Valid until	2027-08-24	

[1] EU type examination certificate

Spare parts and accessories

Spare parts	
Designation	**Order no.**
Follower clamp	
M lever (including follower pin)	1380-1877
Retaining plate for shaft	0500-1208
Disk spring DIN 2039 - B 12.5	8392-0683
Hex nut A4-70	8350-0084
Grounding terminal	
Clamp	8804-0322
Spring washer	8392-0654
Pan head screw M4x8	8330-0688
Cover	
O-ring 66x2	0520-1494
Cap screw M4 x 10 (to fasten the cover)	8333-0774

Accessories	
Designation	**Order no.**
M20x1.5 **Ex d** cable gland, made of brass, with O-ring, for non-armored cable (6.5 to 14 mm cable diameter)	8808-0200
½ NPT **Ex d** cable gland, made of brass, with O-ring, for non-armored cable (6.5 to 14 mm cable diameter)	8808-2010
M20x1.5 **Ex e** cable gland, made of polyamide (black), with O-ring	8808-0178 [1]
M20x1.5 cable gland, made of brass, with O-ring	1890-4875 [1]
M20x1.5 cable gland, made of brass (blue), with O-ring	1890-4876 [1]
M20x1.5 cable gland, made of polyamide (black), without O-ring	8808-1011 [1]
M20x1.5 cable gland, made of polyamide (blue), without O-ring	8808-1012 [1]
O-ring 18x2	8421-0067

[1] The cable gland is not suitable for Ex d instrumentation.

Mounting kits	
Designation	**Order no.**
Attachment according to VDI/VDE 3845, level 2, heavy-duty version	1400-9974
Attachment according to VDI/VDE 3845, level 1, light version (AA1 to AA4 size)	1400-7473
Attachment according to VDI/VDE 3845, level 1, heavy-duty version (AA1 to AA4 size)	1400-9384
Attachment according to VDI/VDE 3845, level 1, heavy-duty version (AA5 size)	1400-9992
Attachment for VETEC S 160/R, heavy-duty version	1400-9385
Mounting kit for Type 3277 Linear Actuators (240, 350, 700 cm²)	1400-7471
Mounting kit for Type 3277 Linear Actuators (120 cm²)	1400-7472
Mounting kit for SED diaphragm valves (both mounting kits are required)	1402-1093 1400-7472
Mounting kit for control valves with NAMUR rib or attachment to valves with rod-type yokes according to IEC 60534-6 (20 to 35 mm rod diameter)	1400-7468
Mounting kit for Type 3510 Micro-flow Valve with 60 or 120 cm² actuator area	1400-7469