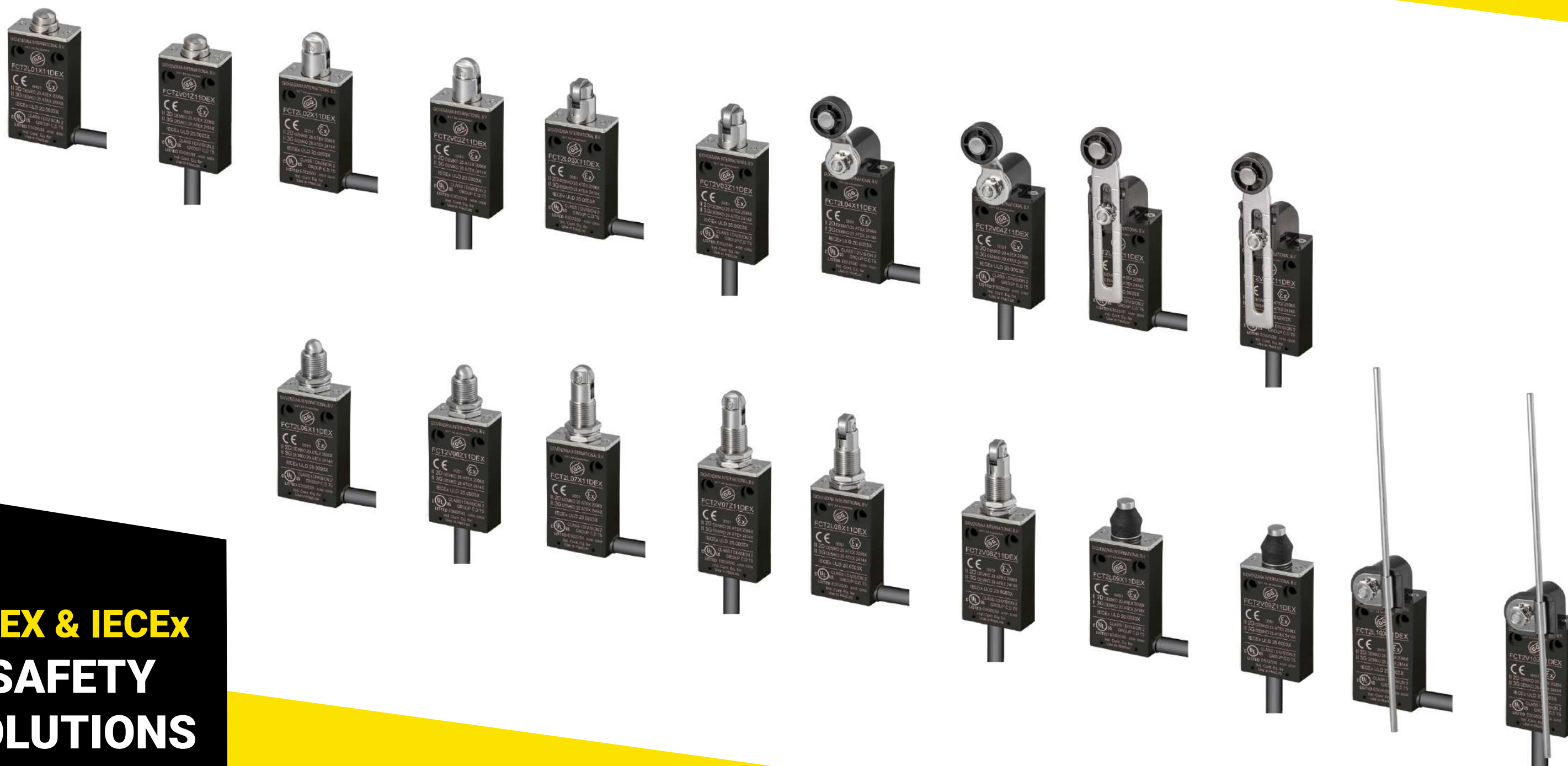




# FCT-Ex SERIES

Pre-wired thermoplastic limit switches



**ATEX & IECEx**  
**SAFETY**  
**SOLUTIONS**



FCT-Ex SERIES  
Pre-wired thermoplastic limit switches  
ATEX & IECEx



CLASSIFICATION OF THE EQUIPMENT IN ACCORDANCE WITH INTENDED USE

The FCT-EX series are classified as follows:

CE	0051	Ex	II 3G	Ex dc ec	IIB	T5	Gc
CE	0051	Ex	II 2D	Ex tb	IIIC	T95°C	Db

All the models of the series are verified to be in compliance with the follows:

- Apparatus Category 3 G, suitable for installation hazardous areas:  
Zone 2 according to EN/IEC 60079-10-1.
- Apparatus Category 2 D, suitable for installation hazardous areas:  
Zone 21 and 22 according to EN/IEC 60079-10-2.

The FCT-EX apparatus complying with the ATEX Directive 2014/34/EU, IECEx Scheme and UL HazLoc.

Complying with the standards:

IEC 60079-0:2017	EN IEC 60079-0:2018
IEC 60079-7:2015 AMD1:2017	EN IEC 60079-7:2015/A1:2018
IEC 60079-1:2014	EN IEC 60079-1:2014
IEC 60079-31: 2013	EN 60079-31: 2014

NFPA70 (NEC) art. 500 classification:  
Class I, Division 2, Group C,D, T5

Complying with the standards:

UL 121201, 9th Ed., Rev. 2019-08-26  
CSA C22.2 No. 213-17, 3rd Ed., Issued 2017-09 + Update No. 1:2018-08 + Update No. 2:2019-08-26

SPECIFICATIONS

Positive opening operation	EN60947-5-1	NC contact
Rated thermal current	Ith	10A
Rated insulation voltage	Ui	500 V AC/DC
Rated impulse withstand voltage	Uimp	4 kV
Insulation resistance	min	100 MΩ (DC 500 V)
Contact resistance	max	25 mΩ (initial)
Enclosure material		self-extinguishing, shock-proof glass fibre reinforced technopolymer
Operating temperature		-25 ... +60°C (-18 ... +140°F)
Resistance to impact		4 J (low mechanical risk)
Enclosure protection	IEC 60079 IEC 60529	IP6X and IPX4 (Hazardous Locations) IP67 (not classified areas)
Pollution degree		3
Protection against electric shock		class II (double insulation)
Mechanical life expectancy	min	1×10 <sup>7</sup> cycles
Electrical life expectancy	min	150.000 cycles
Vibration	IEC 68-2-6 excursion	10-55 ±1 Hz 0.35 mm, 1 octave/min
Fixing		2 × M4 screws

DESCRIPTION OF THE APPARATUS

The FCT-EX LIMIT SWITCHES are a series of thermoplastic pre-wired limit switches with an indissociable cable. The cable could be with lateral or vertical entry.

The limit switch is designed to be equipped with two different types of inner microswitch, as follows:

- CONTACT ELEMENTS DIRECT ACTING (Or Slow Break – X11 type)

the contact element of a device for manual or automatic control circuits where speed of movement of the contact depends on the speed of motion of the actuator

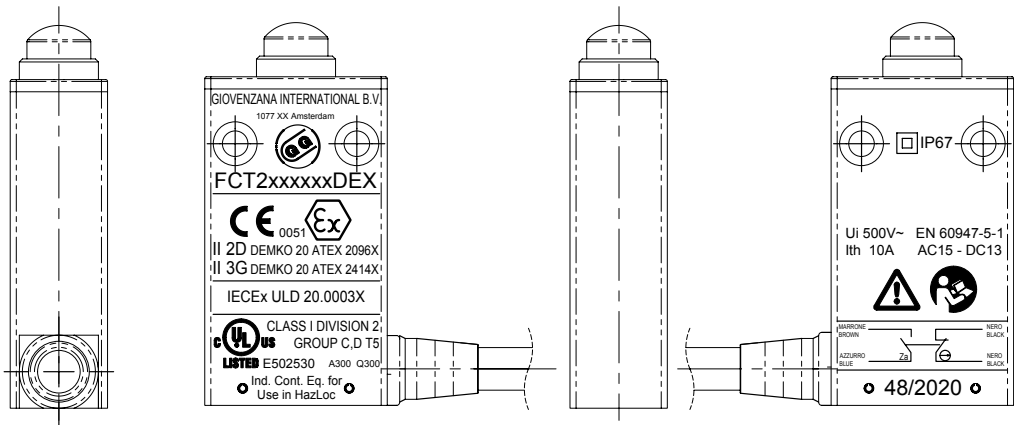
- CONTACT ELEMENTS ACTING INDIPENDENTLY (Or Snap Action – Z11 type)

the contact element of a device for manual or automatic control circuits where the speed of motion of the contact is virtually independent of the speed of motion of the actuator. Commonly called “quick trigger” the electrical behavior of these elements means that the contact is fast in order even in the slow movements of the actuator. These contact elements have position doesn’t coincide with the release of drive (differential stroke).

Both microswitches are equipped with NO contact and NC contact, the cable is composed by n. 4 wires:

- Blue/brown for NO contact
- Black/black for NC contact

The series is designed with 10 different types of actuators.



WORKING PRINCIPLE

Working principle:

No. 1 NO-NC microswitch with thermoplastic case, protected by a thermoplastic external enclosure with an external actuator to make action on the actuator of the inner micro (ON-OFF action transferred from the outside to inside).

The inner microswitch is equipped with connection pins for the external circuit where the single wires of the cable are soldered. The connection compartment is protected by sealing compound.

The cable in this way in not separable from the equipment and is no need to open the equipment to power it.

The terminals soldered and the cable sealing are protected by a non-metallic bottom case were the cable could be placed with a vertical ingress (V) or lateral (L) ingress. The connection to the external circuits is intended directly by the cable.



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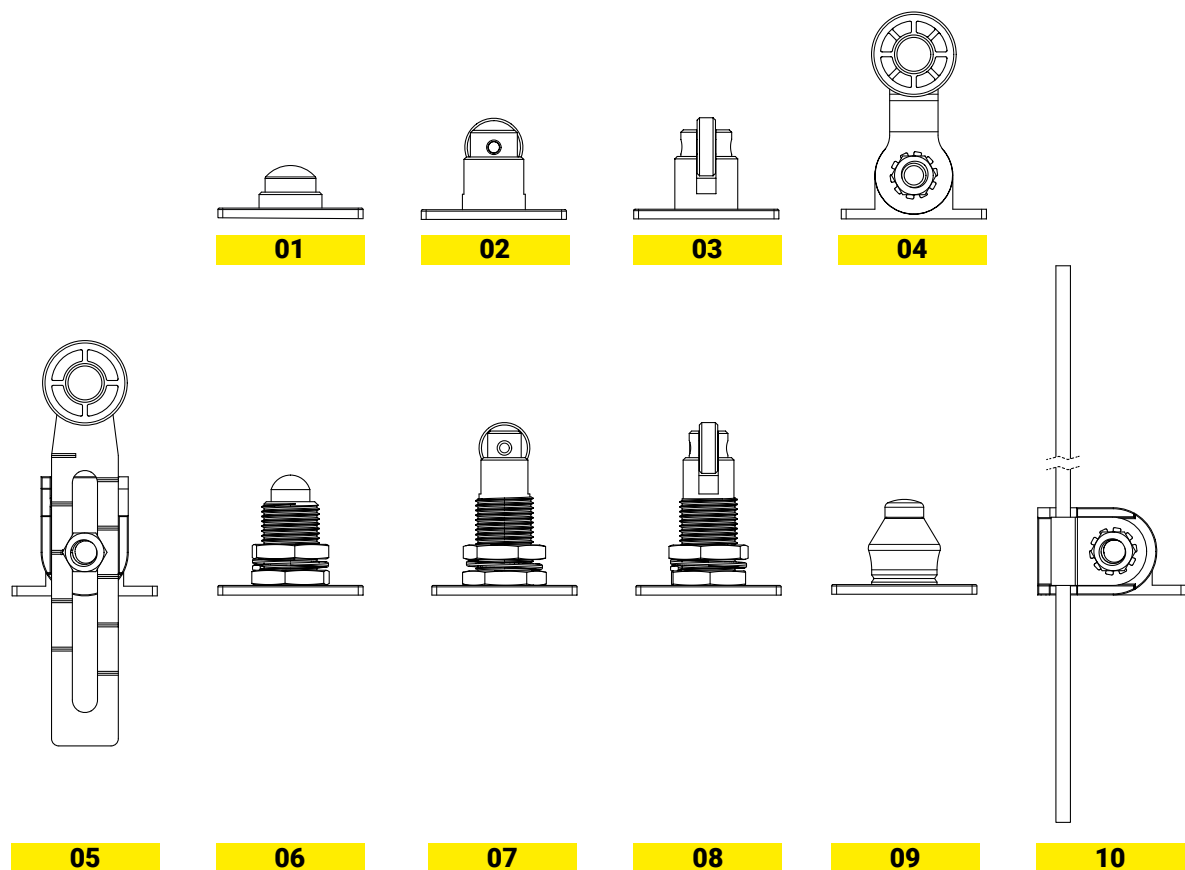


**CODE SELECTION**

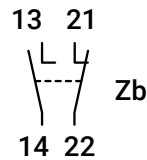
F C T			0 1	1 1	D	E X
SERIES	CONNECTION TYPE	CONNECTION ORIENTATION	HEAD AND ACTUATOR	CONTACT TYPE	HOUSING	MARKING
FCT thermoplastic limit switches	2 pre-wired with 2 m cable (standard) x pre-wired with custom cable length (length = x meters)	L horizontal output V vertical output	01 steel end plunger 02 roller plunger 03 90° roller plunger 04 metal revolving lever and Ø17.5 nylon roller 05 adjustable metal revolving lever and Ø17.5 nylon roller 06 steel end plunger with threaded flange 07 roller plunger with threaded flange 08 90° roller plunger with threaded flange 09 steel end plunger with rubber protection 10 rod lever type	X11 1NO+1NC slow action Zb Z11 1NO+1NC snap action Za	D plastic with 20 mm fixing holes spacing	ATEX IECEx UL HazLoc

**PRODUCT SELECTION**

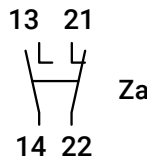
**1 ACTUATORS**



**2 CONTACT BLOCKS**



**X11**  
1 NO + 1 NC  
slow action (Zb)

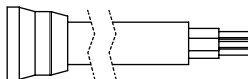


**Z11**  
1 NO + 1 NC  
snap action (Za)

CONTACT TYPES			CATEGORIES	RATINGS (Ue/Ie)
X11	1NO+1NC	slow action (Zb)	A300-Q300	AC15: 120 V - 6 A / 240 V - 3 A / 400 V - 2 A
Z11	1NO+1NC	snap action (Za)		DC13: 24 V - 2.5 A / 125 V - 0.55 A / 240 V - 0.27 A
				AC15: 120 V - 3 A / 240 V - 4 A / 400 V - 3 A
				DC13: 24 V - 2.5 A / 125 V - 0.55 A / 240 V - 0.27 A

**3 CONNECTION TYPE**

**CABLE**

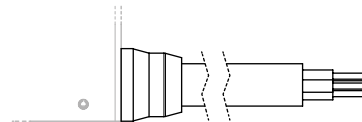


2 = pre-wired connection (standard with 2 m cable)

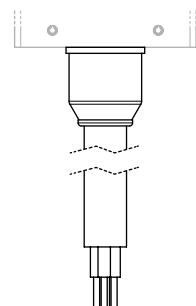
X = pre-wired connection (with custom cable length)

**CONNECTION ORIENTATION**

L = horizontal  
(side connection)



V = vertical  
(bottom connection)



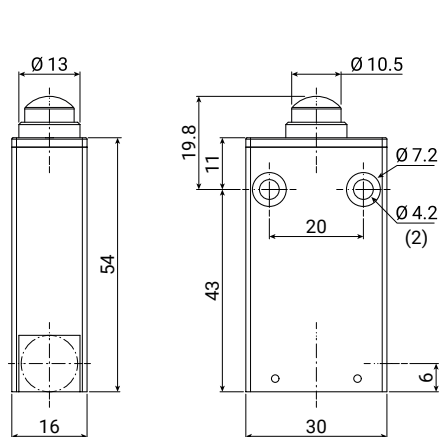


# FCT-Ex SERIES

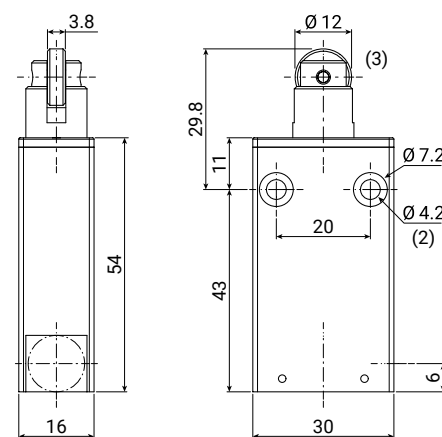
Pre-wired thermoplastic limit switches  
ATEX & IECEx



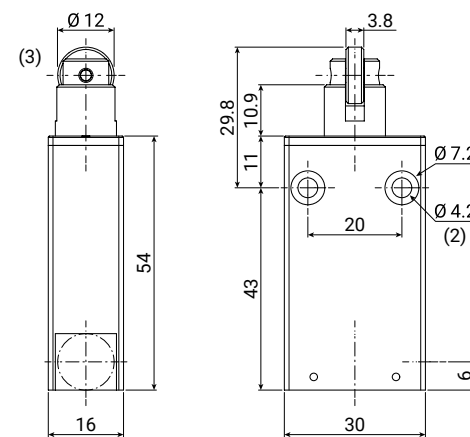
## TECHNICAL DRAWINGS



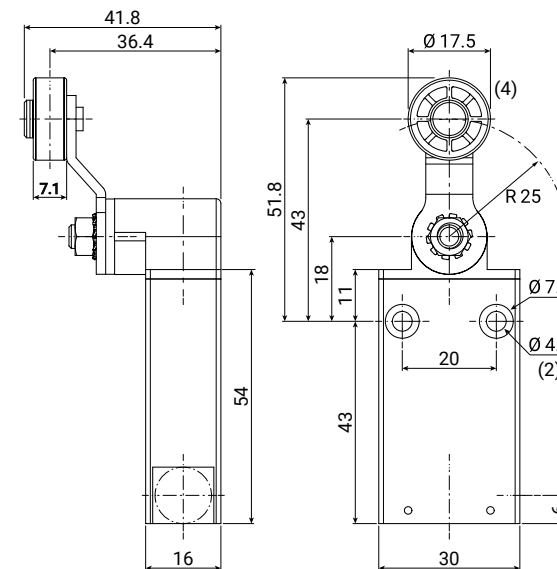
01 steel end plunger



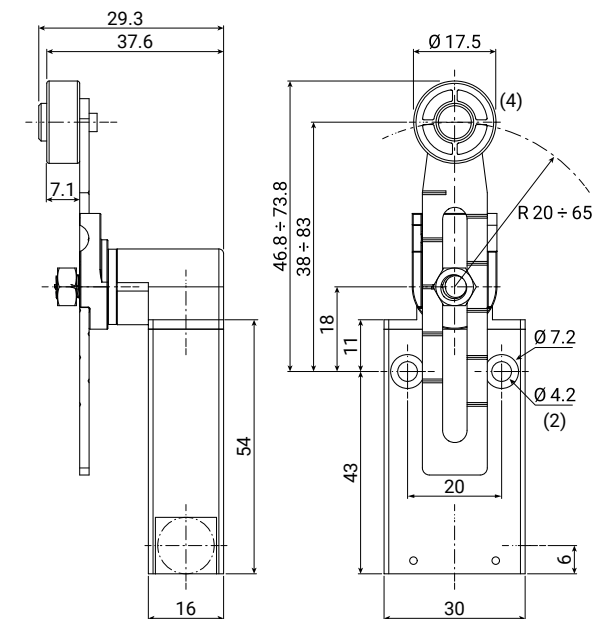
02 roller plunger



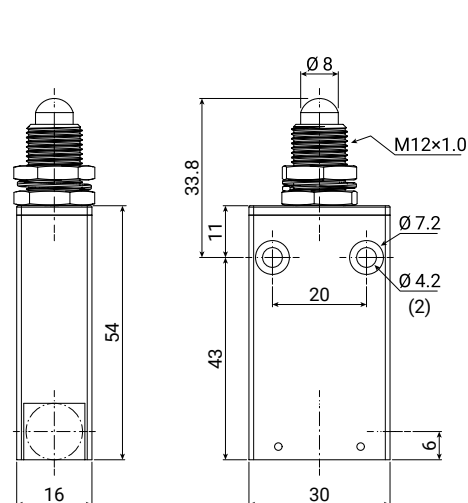
03 90° roller plunger



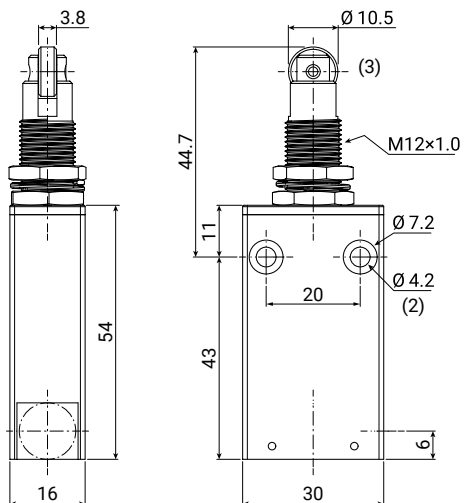
04 metal revolving lever and Ø17.5 nylon roller



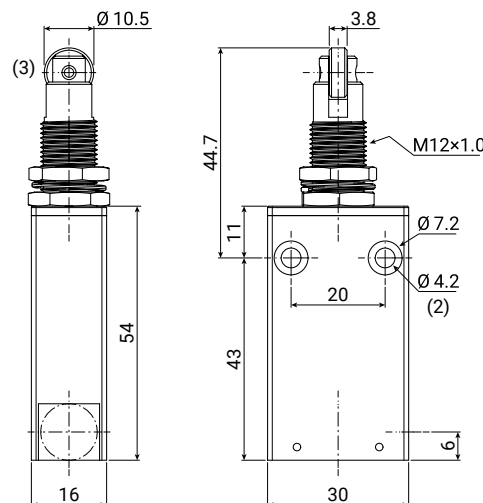
05 adjustable metal revolving lever and Ø17.5 nylon roller



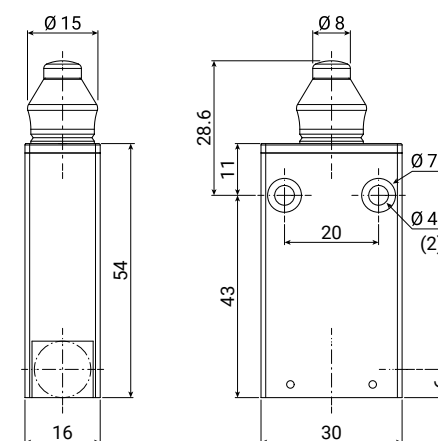
06 steel end plunger with threaded flange



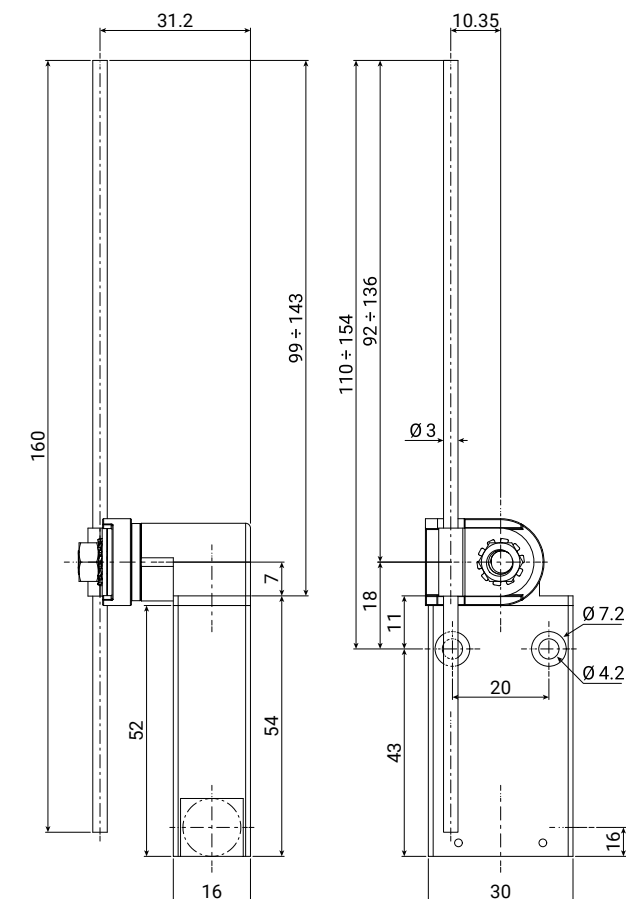
07 roller plunger with threaded flange



08 90° roller plunger with threaded flange



09 steel end plunger with rubber protection



10 rod lever type