SPECIFICATIONS

Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	Contact your OMRON representative for information on approved models.
CSA	CSA C22.2 No.14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353, J9950023, J9950959	
CCC (CQC)	GB14048.5	2004010305128675	

General-purpose/Weather-proof Switches

Ratings

Standard-load Switches

Item	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
Basic models, overtravel models	125 VAC 250 VAC 500 VAC	10 10 10		3 2 1.5	1.5 1 0.8	10 10 3		5 3 1.5	2.5 1.5 0.8
	8 VDC 14 VDC 30 VDC 125 VDC 250 VDC	10 10 6 0.8 0.4		6 6 4 0.2 0.1	3 3 3 0.2 0.1	10 10 6 0.8 0.4		6 6 4 0.2 0.1	

Note: For details of The WL high-sensitivity, high-precision models, refer to Limit Switch WL-N/WL Datasheet (Cat. No. C151-E1).

Note: 1. The above figures are for steady-state currents.
2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. A lamp load has an inrush current of 10 times the steady-state current.
4. A motor load has an inrush current of 6 times the steady-state current.
5. For PC loads, use the microload models.

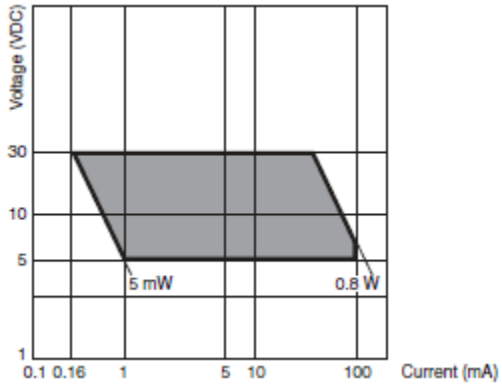
Inrush current	NC	30 A max.
	NO	20 A max.
Minimum applicable load		5 VDC 160 mA

Microload Switches (Refer to these ratings before using the product.)

Rated voltage (V)	Rated current (A) - Resistive load
AC 125	0.1
DC 30	

Operation in the following ranges will produce optimum performance.

Recommended load range	5 to 30 VDC 0.5 to 100 mA



Recommended load range	5 VDC 1 mA

Approved Standard Ratings

UL/CSA

Standard-load Switches: A600, NEMA

Rated voltage	**Carry current**	**Current (A)**		**Volt-amperes (VA)**	
		Make	**Break**	**Make**	**Break**
120 VAC **240 VAC** **480 VAC** **600 VAC**	10 A	60 30 15 12	6 3 1.5 1.2	7,200	720

Microload Switches

0.1 A 125 VAC, 0.1 A 30 VDC

TÜV (EN60947-5-1) (Only models with ground terminals are approved.)

Model	**Application category and ratings**	**Thermal current (Ithe)**	**Indicator**
WL[]	AC-15: 2 A/250 V DC-12: 2 A/48 V	10 A	—
WL01[]	AC-14: 0.1 A/125V DC-12: 0.1 A/48 V	0.5 A	—
WL[]-LE	AC-15: 2 A/250 V	10 A	Neon lamp
WL01[]-LE	AC-14: 0.1 A/125 V	0.5 A	Neon lamp
WL[]-LD	AC-15: 2 A/115 V DC-12: 2 A/48 V	10 A	LED
WL01[]-LD	AC-14: 0.1 A/115 V DC-12: 0.1 A/48 V	0.5 A	LED

Note: As an example, AC-15: 2 A/250 V means the following:

Application category	AC-15
Rated operating current (Ie)	2A
Rated operating voltage (Ue)	250V

Indicator-equipped Switches

Item		Max. rated voltage (V)	Leakage current (mA)
WL-LE	**Neon lamp**	125 AC	Approx. 0.6
		250 AC	Approx. 1.9
WL-LD	**LED**	115 AC/DC	Approx. 0.5
		10 to 24 AC/DC	Approx. 0.4

Characteristics

Degree of protection		IP67
Durability *1	**Mechanical**	15,000,000 operations min. *2
	Electrical	750,000 operations min. *3
Operating speed		1 mm/s to 1 m/s (in case of WLCA2)
Operating frequency	**Mechanical**	120 operations/minute min.
	Electrical	30 operations/minute min.
Rated frequency		50/60 Hz
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance		25 mΩ max. (initial value for the built-in switch when tested alone) *6
Dielectric strength	**Between terminals of the same polarity**	1,000 VAC, 50/60 Hz for 1 min
	Between current-carrying metal part and ground	2,200 VAC, 50/60 Hz for 1 min/Uimp 2.5 kV
	Between each terminal and non-current-carrying metal part	2,200 VAC, 50/60 Hz for 1 min/Uimp 2.5 kV
Rated insulation voltage (Ui)		250 V (EN60947-5-1)
Pollution degree (operating environment)		3 (EN60947-5-1)
Short-circuit protective device (SCPD)		10 A, fuse type gG or gI (IEC60269)
Conditional short-circuit current		100 A (EN60947-5-1)
Conventional enclosed thermal current (Ithe)		10 A, 0.5 A (EN60947-5-1)
Protection against electric shock		Class I
Vibration resistance	**Malfunction**	10 to 55 Hz, 1.5-mm double amplitude *4
Shock resistance	**Destruction**	1,000 m/s^2 max.
	Malfunction	300 m/s^2 max. *4
Ambient operating temperature		-10°C to +80°C (with no icing) *5
Ambient operating humidity		35% to 95% RH
Weight		Approx. 275 g (in case of WLCA2)

Note: 1. The above figures are initial values.
2. The figures in parentheses for dielectric strength are those for the microload models.
*1. The values are calculated at an operating temperature of +5°C to +35°C and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.
*2. Durability is 10,000,000 operations min. for general-purpose overtravel models, and for flexible rod models. 500,000 operations min. for weather-proof models.
*3. Microload models are 1,000,000 operations min. 500,000 operations min. for weather-proof models.
*4. Except flexible rod models. The shock resistance (malfunction) for microload models is 200 m/s2 max.
*5. For low-temperature models this is –40°C to +40°C (with no icing). For heatresistant models the range is +5°C to +120°C.
*6. For microload models, the contact resistance is 50 mΩ max. (initial value for built-in switch).

Spatter-prevention Switches

Ratings

Screw terminals

Item	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
WL[]-LES	125 VAC 250 VAC	10 10		3 2	1.5 1	10 10		5 5	2.5 1.5
WL[]-LDS	115 VAC	10		3	1.5	10		5	2.5
	12 VDC 24 VDC 48 VDC	10 6 3		6 4 2	3 3 1.5	10 6 3		6 4 2	

Note: 1. The above figures are for steady-state currents.
2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. A lamp load has an inrush current of 10 times the steady-state current.
4. A motor load has an inrush current of 6 times the steady-state current.

Inrush current	NC	30 A max.
	NO	20 A max.
Operating temperature		-10°C to +80°C (with no icing)
Operating humidity		35% to 95%RH max.

Approved Standard Ratings

UL/CSA

LE Switches (Neon lamp): A300

Rated voltage	Carry current	Current (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC 240 VAC	10 A	60 30	6 3	7,200	720

LD Switches (LED)

Rated voltage	Carry current
115 VAC	10 A
115 VDC	0.8 A

CCC (GB14048.5)

Model	Application category and ratings
WL[]	AC-15: 2 A/250 V DC-12: 2 A/48 V
WL01[]	AC-14: 0.1 A/125V DC-12: 0.1 A/48 V
WL[]-LE	AC-15: 2 A/250 V
WL01[]-LE	AC-14: 0.1 A/125 V
WL[]-LD	AC-15: 2 A/115 V DC-12: 2 A/48 V
WL01[]-LD	AC-14: 0.1 A/115 V DC-12: 0.1 A/48 V

Note: As an example, AC-15: 2 A/250 V means the following:

Application category	AC-15
Rated operating current (Ie)	2 A
Rated operating voltage (Ue)	250 V

Characteristics

Degree of protection		IP67
Durability *1	**Mechanical**	15,000,000 operations min. *2
	Electrical	750,000 operations min. *3
Operating speed		1 mm/s to 1 m/s (in case of WLCA2)
Operating frequency	**Mechanical**	120 operations/minute min.
	Electrical	30 operations/minute min.
Rated frequency		50/60 Hz
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance		25 mΩ max. (initial value for the built-in switch when tested alone)
Dielectric strength	**Between terminals of the same polarity**	1,000 VAC, 50/60 Hz for 1 min
	Between current-carrying metal part and ground	2,200 VAC, 50/60 Hz for 1 min/Uimp 2.5 kV
	Between each terminal and non-current-carrying metal part	2,200 VAC, 50/60 Hz for 1 min/Uimp 2.5 kV
Rated insulation voltage (Ui)		250 V (EN60947-5-1)
Pollution degree (operating environment)		3 (EN60947-5-1)
Short-circuit protective device (SCPD)		10 A, fuse type gG or gI (IEC60269)
Conditional short-circuit current		100 A (EN60947-5-1)
Conventional enclosed thermal current (Ithe)		10 A, 0.5 A (EN60947-5-1)
Protection against electric shock		Class I
Vibration resistance	**Malfunction**	10 to 55 Hz, 1.5-mm double amplitude

Shock resistance	**Destruction**	1,000 m/s² max.
	Malfunction	300 m/s² max.
Ambient operating temperature		-10°C to +80°C (with no icing)
Ambient operating humidity		35% to 95%RH
Weight		Approx. 275 g (in case of WLCA2)

Note: The above figures are initial values.
*1. The values are calculated at an operating temperature of +5°C to +35°C and an operating humidity of 40% to 70%RH.
Contact your OMRON sales representative for more detailed information on other operating environments.
*2. Durability is 10,000,000 operations min. for general-purpose overtravel models.
*3. Microload models are 1,000,000 operations min.

Long-life Switches

Ratings

General Ratings (Refer to these ratings before using the product.)

Screw Terminal Switches

Item	**Rated voltage (V)**	**Non-inductive load (A)**				**Inductive load (A)**			
		Resistive load		**Lamp load**		**Inductive load**		**Motor load**	
		NC	**NO**	**NC**	**NO**	**NC**	**NO**	**NC**	**NO**
Basic models, overtravel models	**115 AC**	10		3	1.5	10		5	2.5
	12 DC **24 DC** **48 DC** **115 DC**	10 6 3 0.8		6 4 2 0.2	3 3 1.5 0.2	10 6 3 0.8		6 4 2 0.2	

Inrush current	**NC**	30 A max.
	NO	20 A max.

Direct-wired Connector and Pre-wired Connector Switches

Model	**Rated voltage (V)**	**Non-inductive load (A)**				**Inductive load (A)**			
		Resistive load		**Lamp load**		**Inductive load**		**Motor load**	
		NC	**NO**	**NC**	**NO**	**NC**	**NO**	**NC**	**NO**
DC	**12 DC**	3	3	3	3	3	3	3	3
	24 DC	3	3	3	3	3	3	3	3
	48 DC	3	3	3	3	3	3	3	3
	115 DC	0.8	0.8	0.2	0.2	0.8	0.8	0.2	0.2
AC	**115 AC**	3	3	3	1.5	3	3	3	2.5

Note: 1. The above figures are for steady-state currents.
2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. A lamp load has an inrush current of 10 times the steady-state current.
4. A motor load has an inrush current of 6 times the steady-state current.

Characteristics

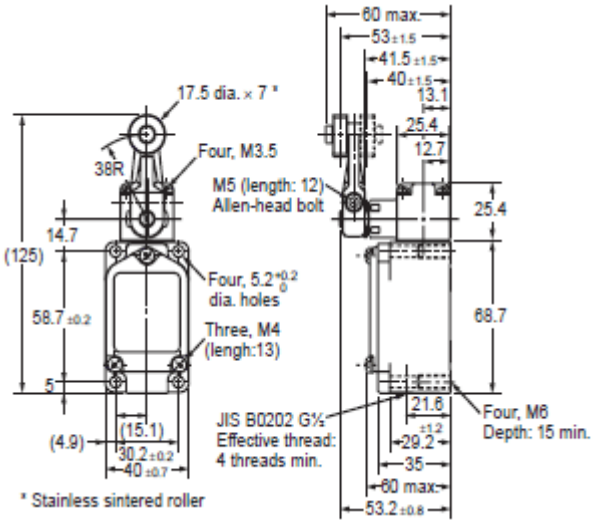
Degree of protection		IP67
Durability *	**Mechanical**	30,000,000 operations min.
	Electrical	30,000,000 operations min. (10 mA at 24 VDC, resistive load) 750,000 operations min. (10 A at 115 VAC, resistive load)
Operating speed		1 mm/s to 1 m/s (in case of WLCA2)
Operating frequency	**Mechanical**	120 operations/minute
	Electrical	30 operations/minute
Rated frequency		50/60 Hz
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance		25 mΩ max. (initial value for the built-in switch when tested alone)
Dielectric strength (50/60 Hz for 1 min)	**Between terminals of the same polarity**	1,000 VAC (except connector models)
	Between current-carrying metal part and ground	2,200 VAC (1,500 V)
	Between each terminal and non-current-carrying metal part	2,200 VAC (1,500 V)
Vibration resistance	**Malfunction**	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	**Destruction**	1,000 m/s^2 max.
	Malfunction	300 m/s^2 max.
Ambient operating temperature		-10°C to +80°C (with no icing)
Ambient operating humidity		35% to 95%RH
Weight		Approx. 275 g (in case of WLCA2)

Note: The figures in parentheses for dielectric strength, are those for connector models.
* The values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH.
Contact your OMRON sales representative for more detailed information on other operating environments.

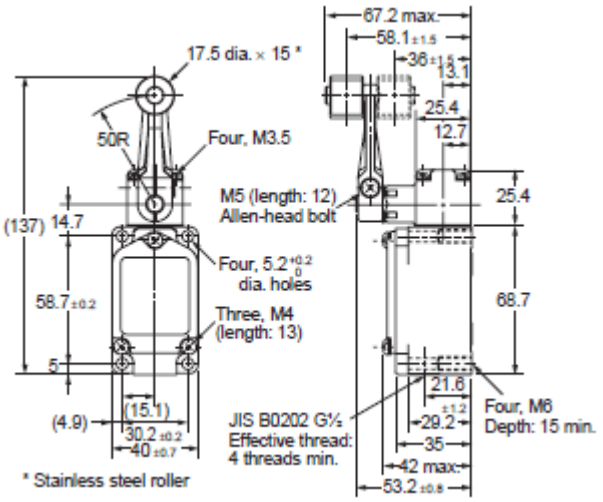
DIMENSIONS

For all models WL[] indicates a standard-load model and WL01[] indicates a microload model.

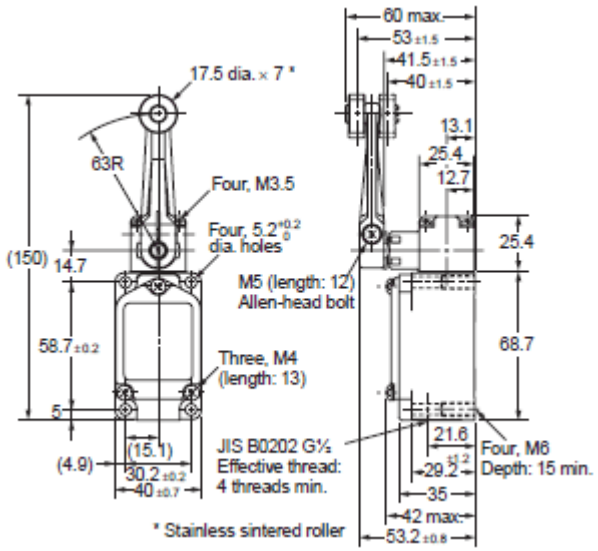
Roller lever R38
WLCA2
WL01CA2



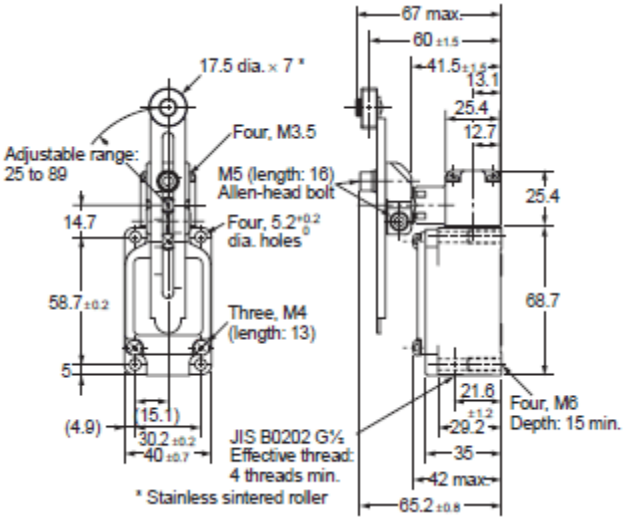
Roller lever R50
WLCA2-7
WL01CA2-7



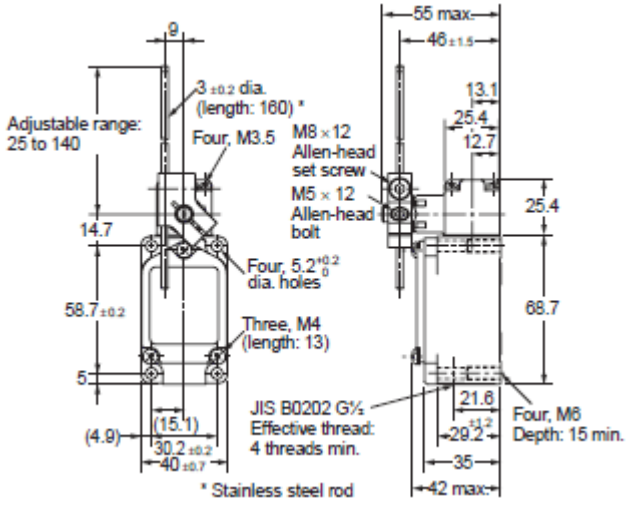
Roller lever R63
WLCA2-8
WL01CA2-8



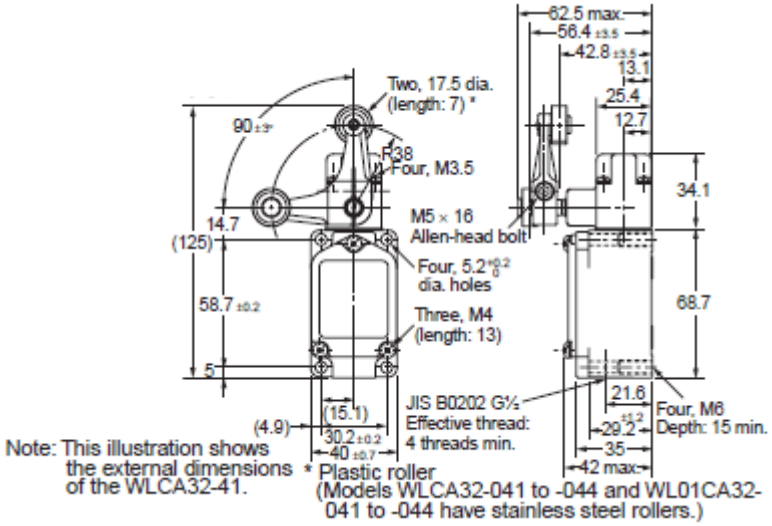
Adjustable Roller Lever
WLCA12
WL01CA12



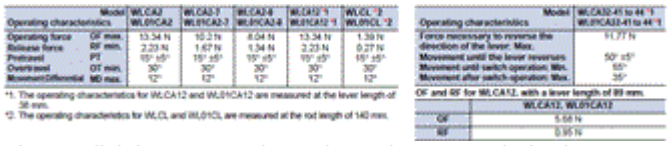
Adjustable Rod Lever (25 to 140 mm)
WLCL
WL01CL



Fork Lever Lock
WLCA32-41 to 44
WL01CA32-41 to 44



Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

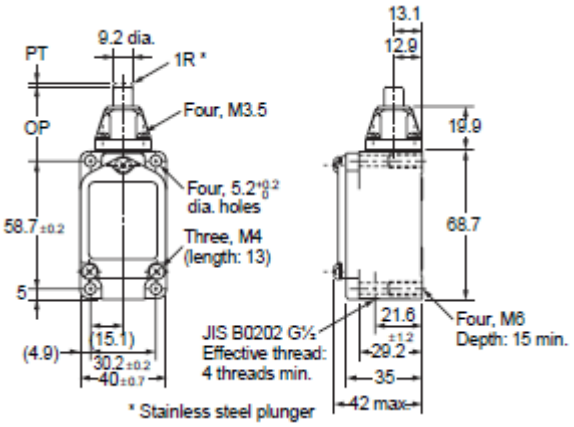


Please click image to enlarge (open in a new window).

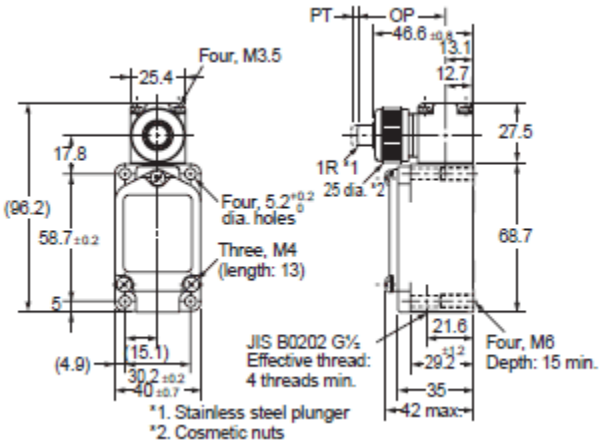
Plunger

For all models WL[] indicates a standard-load model and WL01[] indicates a microload model.

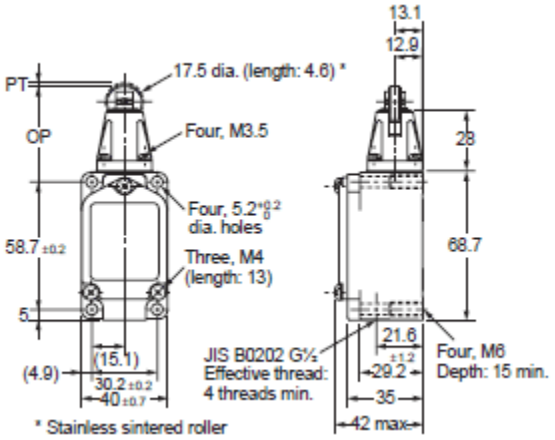
Top Plunger
WLD
WL01D



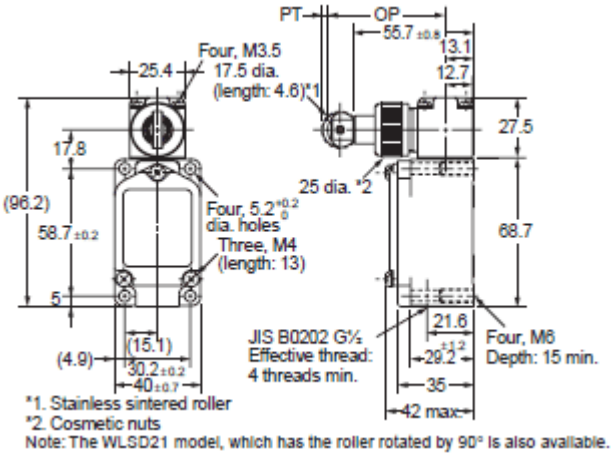
Horizontal Plunger
WLSD
WL01SD



Top-roller Plunger
WLD2
WL01D2

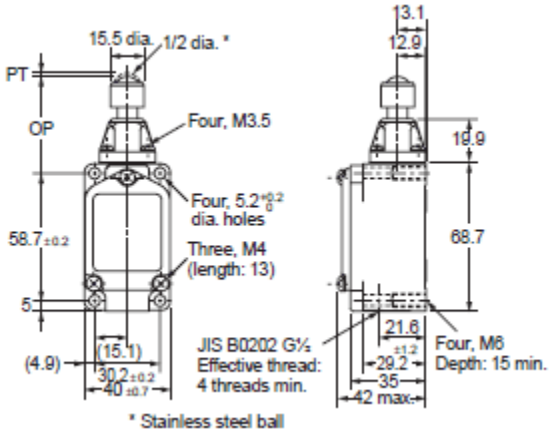


Horizontal-roller Plunger
WLSD2
WL01SD2

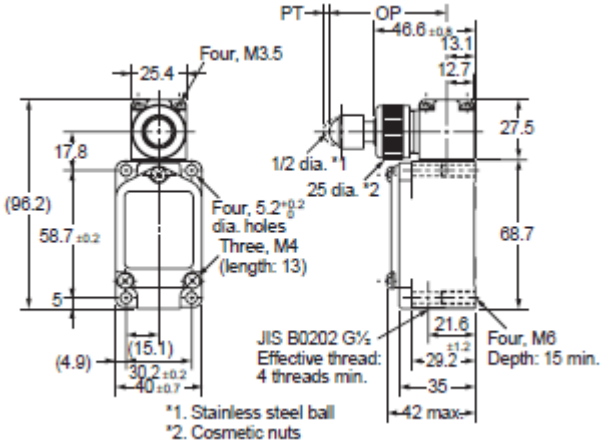


Note: The WLSD21 model, which has the roller rotated by 90° is also available.

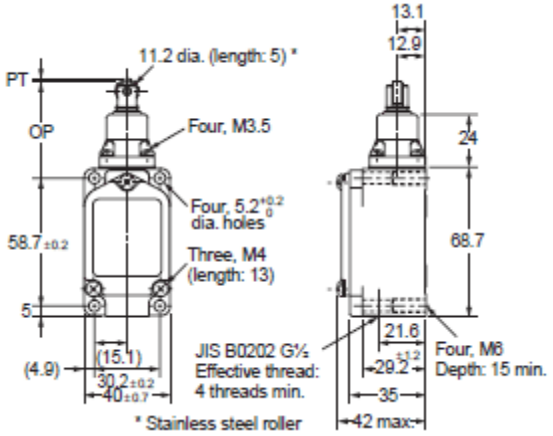
Top-ball Plunger
WLD3
WL01D3



Horizontal-ball Plunger
WLSD3
WL01SD3



Sealed Top-roller Plunger
WLD28
WL01D28



Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

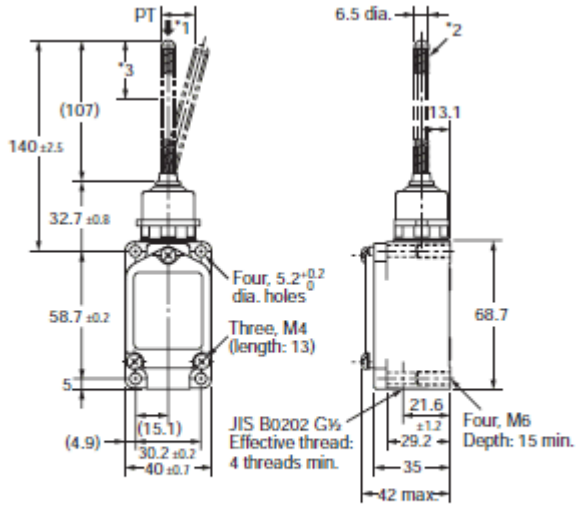
Operating characteristics	Model	WLD WL01D	WLD2 WL01D2	WLD3 WL01D3	WLD28 WL01D28	WLSD2 WL01SD2	WLSD3 WL01SD3	WLSD WL01SD
Operating force	OF max.	26.67 N	26.67 N	26.67 N	16.67 N	40.03 N	40.03 N	40.03 N
Release force	RF min.	8.92 N	8.92 N	8.92 N	4.41 N	8.89 N	8.89 N	8.89 N
Pretravel	PT max.	1.7 mm	1.7 mm	1.7 mm	1.7 mm	2.8 mm	2.8 mm	2.8 mm
Overtravel	OT min.	6.4 mm	5.6 mm	4 mm	5.6 mm	5.6 mm	4 mm	6.4 mm
Movement Differential	MD max.	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm
Operating Position	OP	34 ±0.8 mm	44 ±0.8 mm	44.5 ±0.8 mm	44 ±0.8 mm	54.2 ±0.8 mm	54.1 ±0.8 mm	40.6 ±0.8 mm
Total travel Position	TTP max.	29.5 mm	39.5 mm	41 mm	39.5 mm	—	—	—

Please click image to enlarge (open in a new window).

Flexible Rod

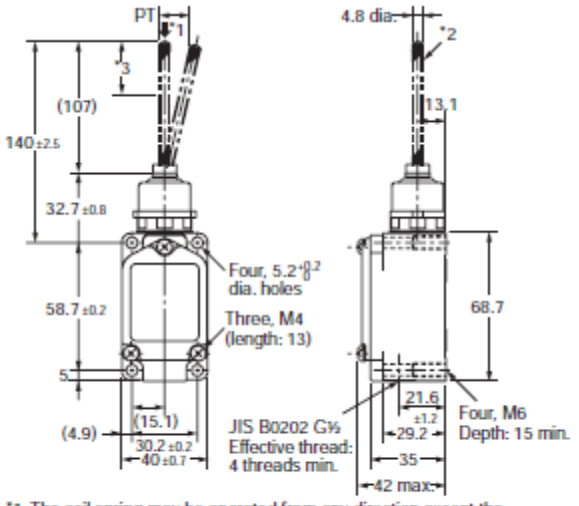
For all models WL[] indicates a standard-load model and WL01[] indicates a microload model.

Coil Spring
WLNJ
WL01NJ



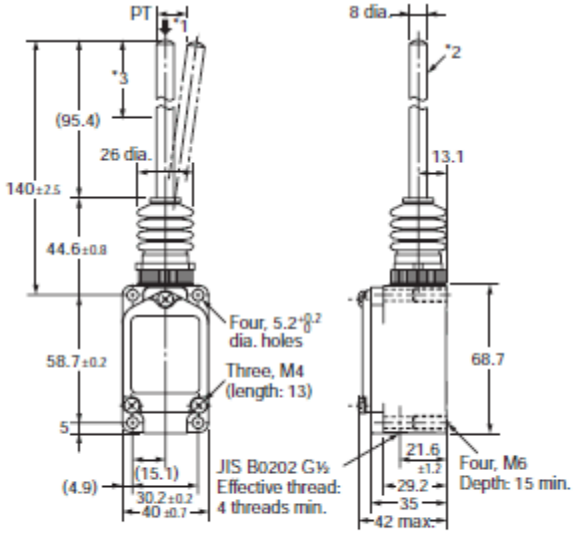
*1. The coil spring may be operated from any direction except the axial direction (↓).
*2. Stainless steel coil spring
*3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.

Coil Spring (Multi-wire)
WLNJ-30
WL01NJ-30



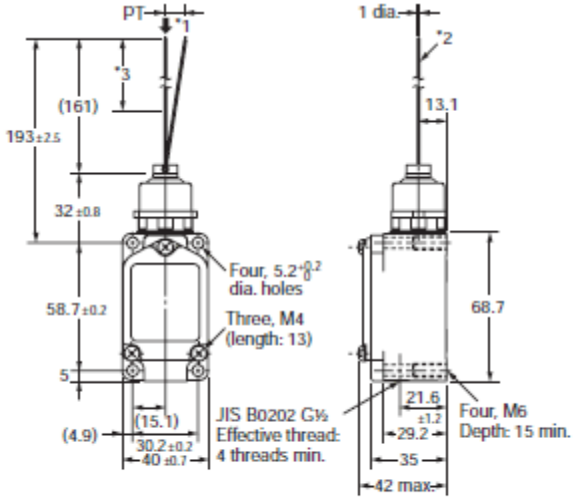
*1. The coil spring may be operated from any direction except the axial direction (↓).
*2. Piano wire coil
*3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.

Coil Spring (Resin Rod)
WLNJ-2
WL01NJ-2



*1. The resin rod may be operated from any direction except the axial direction (↓).
*2. Polyamide resin rod
*3. Optimum operating range of the resin rod is within 1/3 of the entire length from the top end.

Steel Wire
WLNJ-S2
WL01NJ-S2



*1. The steel wire may be operated from any direction except the axial direction (↓).
*2. Stainless steel wire
*3. Optimum operating range of the steel wire is within 1/3 of the entire length from the top end.

Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics / Model	WLNJ * WL01NJ *	WLNJ-30 * WL01NJ-30 *	WLNJ-2 * WL01NJ-2 *	WLNJ-S2 * WL01NJ-S2 *
Operating force OF max.	1.47 N	1.47 N	1.47 N	0.28 N
Pretravel PT	20 ±10mm	20 ±10mm	40 ±20mm	40 ±20mm

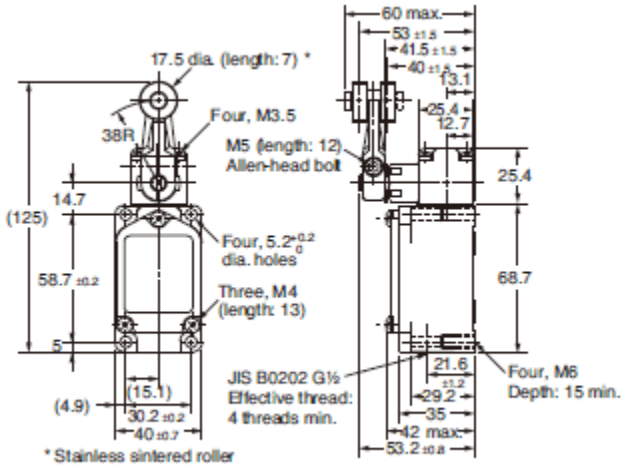
* These values are taken from the top end of the wire or spring.

Overtravel

General-purpose Models

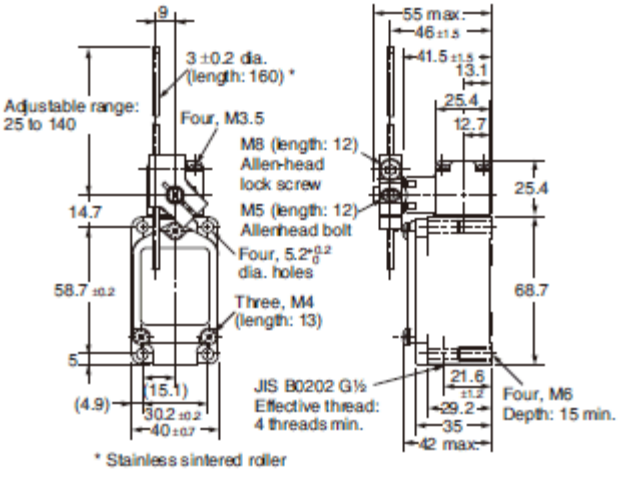
For all models WL[] indicates a standard-load model and WL01[] indicates a microload model.

Roller Lever R38
WLH2
WL01H2



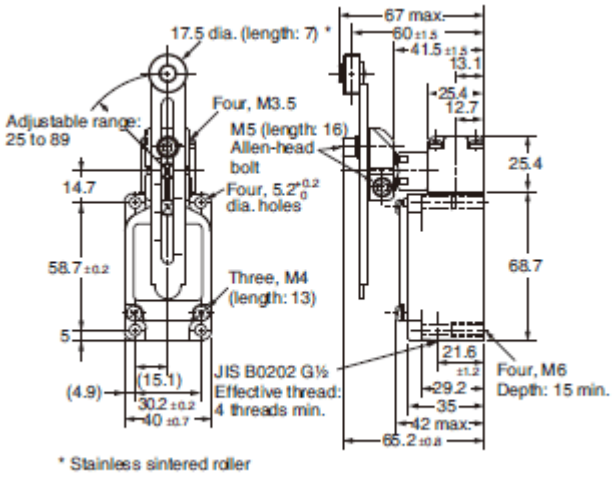
Note: The built-in switch for WLH2 is W-10FB3.

Adjustable Rod Lever
WLHL
WL01HL



Note: The built-in switch for WLHL is W-10FB3.

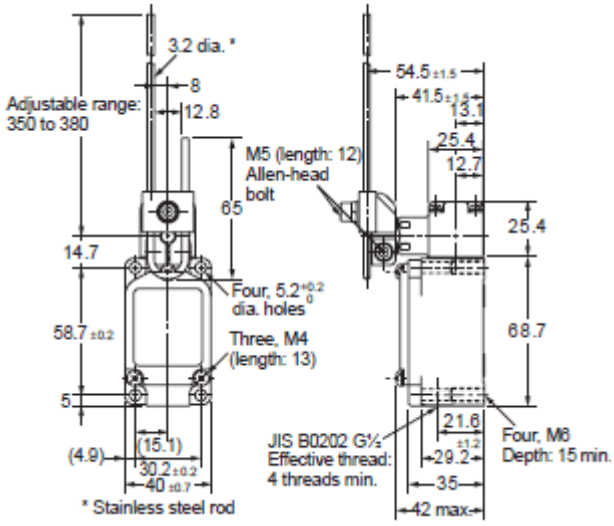
Adjustable Roller Lever
WLH12
WL01H12



* Stainless sintered roller

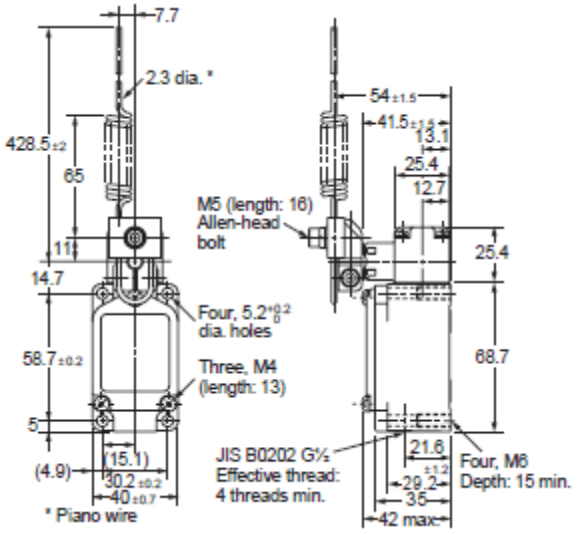
Note: The built-in switch for WLH12 is W-10FB3.

Adjustable Rod Lever
WLHAL4
WL01HAL4



* Stainless steel rod

Rod Spring Lever
WLHAL5
WL01HAL5



* Piano wire

Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	Model	WLH2 WL01H2	WLH12 *1 WL01H12 *1	WLHL *2 WL01HL *2	WLHAL4 *3 WL01HAL4 *3	WLHAL5 WL01HAL5
Operating force	OF max.	9.81 N	9.81 N	2.84 N	0.98 N	0.90 N
Release force	RF min.	0.98 N	0.98 N	0.25 N	0.15 N	0.09 N
Pretravel	PT	15° ±5°	15° ±5°	15° ±5°	15° ±5°	15° ±5°
Overtravel	OT min.	55°	55°	55°	55°	55°
Movement Differential	MD max.	12°	12°	12°	12°	12°

Note: With WLHAL4, WL01HAL4, WLHAL5, and WL01HAL5, the actuator's tare is large, so depending on the installation
direction, they may not be properly reset.
Always install so that the actuator is facing downwards.
*1. The operating characteristics of WLH12, and WL01HL12 are measured at the lever length of 38 mm.
*2. The operating characteristics of WLHL, and WL01HL are measured at the rod length of 140 mm.
*3. The operating characteristics of WLHAL4, and WL01HAL4 are measured at the rod length of 380 mm.

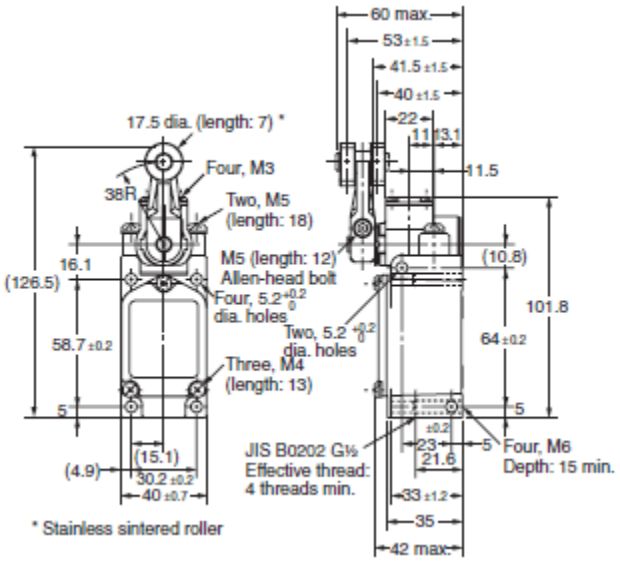
OF and RF for WLH12 and WL01H12, with a lever length of 89 mm.

	WLH12, WLA01H12
OF	4.18 N
RF	0.42 N

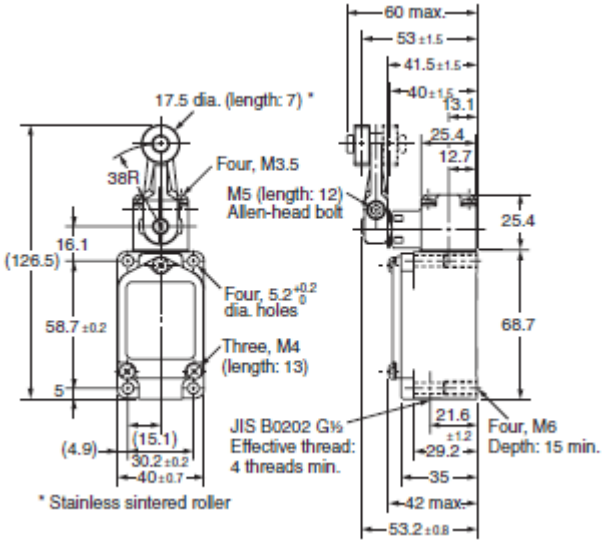
Side-installation Models

For all models WL[] indicates a standard-load model and WL01[] indicates a microload model.

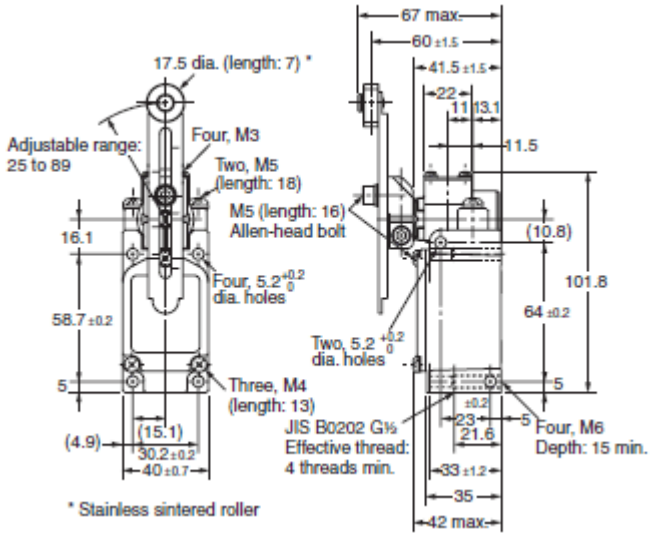
Roller Lever
WLCA2-2N
WL01CA2-2N



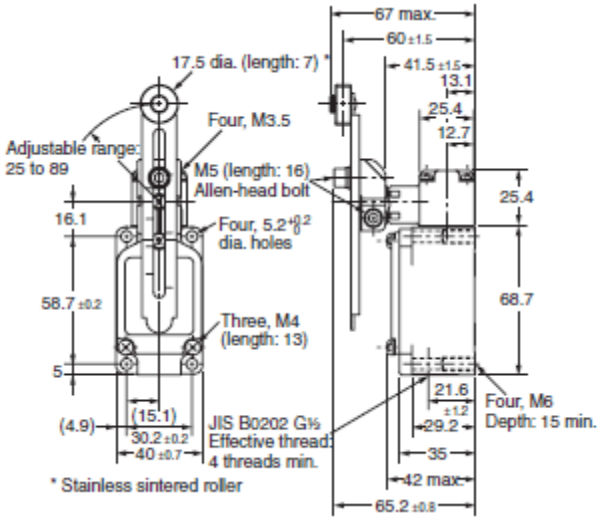
Roller Lever
WLCA2-2
WL01CA2-2



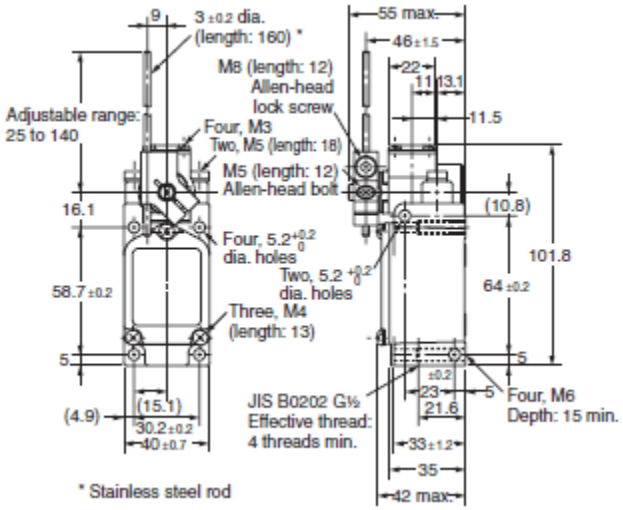
Adjustable Roller Lever
WLCA12-2N
WL01CA12-2N



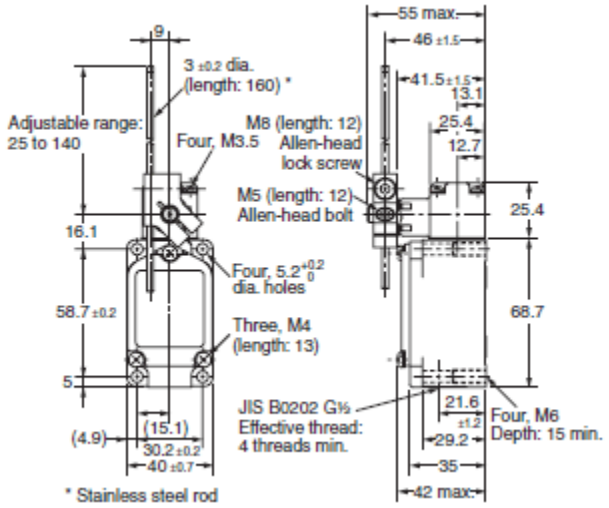
Adjustable Roller Lever
WLCA12-2
WL01CA12-2



Adjustable Rod Lever
WLCL-2N
WL01CL-2N



Adjustable Rod Lever
WLCL-2
WL01CL-2



Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics / Model		WLCA2-2N WL01CA2-2N	WLCA12-2N *1 WL01CA12-2N *1	WLCL-2N *2 WL01CL-2N *2	WLCA2-2 WL01CA2-2	WLCA12-2 *1 WL01CA12-2 *1	WLCL-2 *2 WL01CL-2 *2
Operating force	OF max.	9.61 N	9.61 N	2.84 N	8.83 N	8.83 N	2.55 N
Release force	RF min.	1.18 N	1.18 N	0.25 N	0.49 N	0.49 N	0.1 N
Pretravel	PT	20° max.	20° max.	20° max.	25° ±5°	25° ±5°	25° ±5°
Overtravel	OT min.	70°	70°	70°	60°	60°	60°
Movement Differential	MD max.	10°	10°	10°	16°	16°	16°

*1. The operating characteristics of WLCA12-2N and WL01CA12-2N are measured at the lever length of 38 mm.
*2. The operating characteristics of WLCL-2N and WL01CL-2N are measured at the rod length of 140 mm.

OF and RF for WLCA12-2N and WL01CA12-2N, with a lever length of 89 mm.

	WLCA12-2N, WLA01CA12-2N
OF	4.10 N
RF	0.50 N

Sensor I/O Connector Switches

Direct-wired Connector/Pre-wired Connector Models

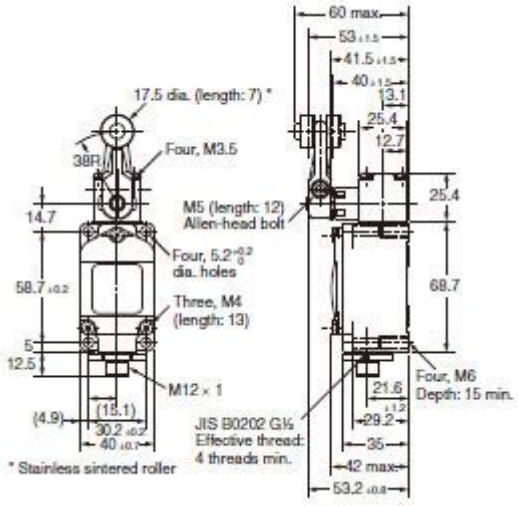
Refer to Data Sheet for the connecting cable.

Roller Lever Plungers

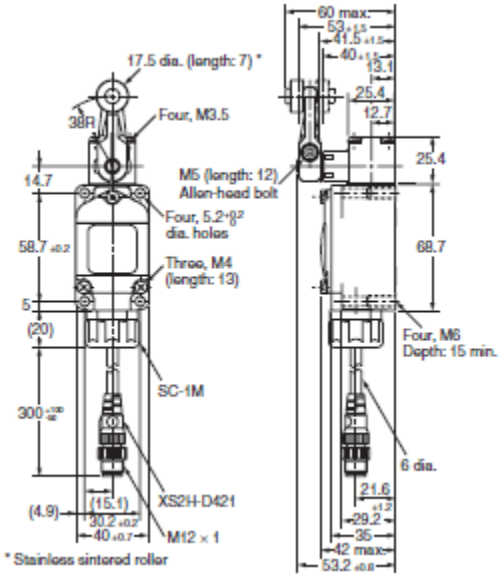
WL[] are Standard Models and WL01[] are Microload Models.

Standard Models (WLCA2), Overtravel General-purpose Models (WLH2)

Connector Models



Pre-wired Connector Models

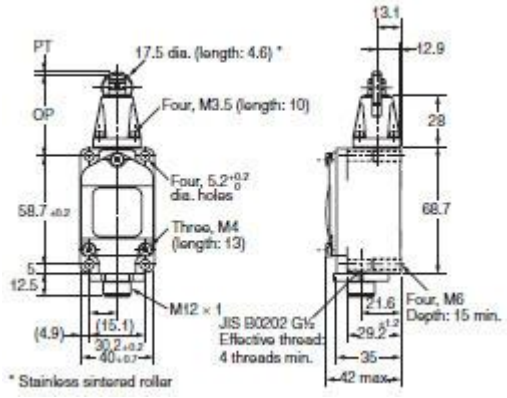


Note: 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.
2. The models with operation indicators are shown in the above diagrams.

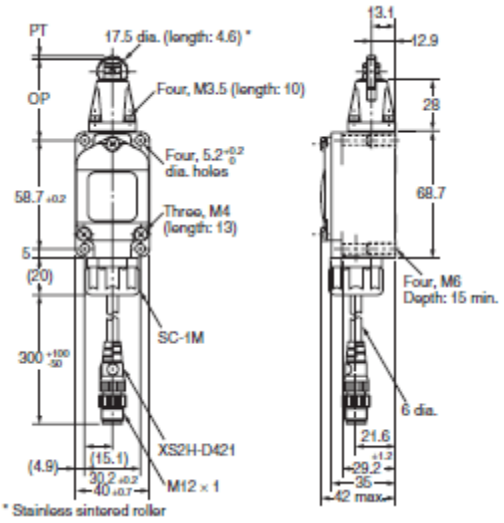
Operating characteristics	Actuator	Standard roller lever actuator	Overdrive general-purpose actuator
Operating force	OF max.	13.34 N	9.81 N
Release force	RF min.	2.23 N	0.98 N
Pretravel	PT	15° ±5°	15° ±5°
Overtravel	OT min.	30°	55°
Movement Differential	MD max.	12°	12°

Top-roller Plunger (WLD2)

Direct-wired Connector Models



Pre-wired Connector Models

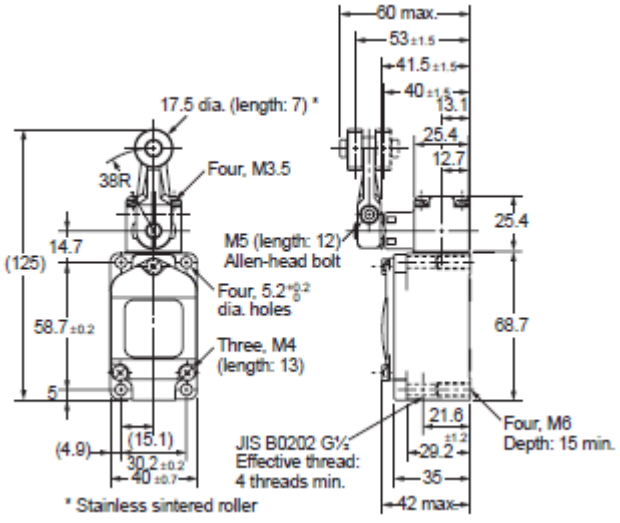


Note: 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.
2. The following diagrams are for a indicator-equipped models.

Operating characteristics	Actuator	Top-roller plunger
Operating force	OF max.	26.67 N
Release force	RF min.	8.92 N
Pretravel	PT max.	1.7 mm
Overtravel	OT min.	5.6 mm
Movement Differential	MD max.	1 mm
Operating Position	OP	44 ±0.8mm
Total travel Position	TTP max.	39.5 mm

Indicator-equipped Models

Roller Lever
WLCA2-LE/LD
WL01CA2-LE/LD

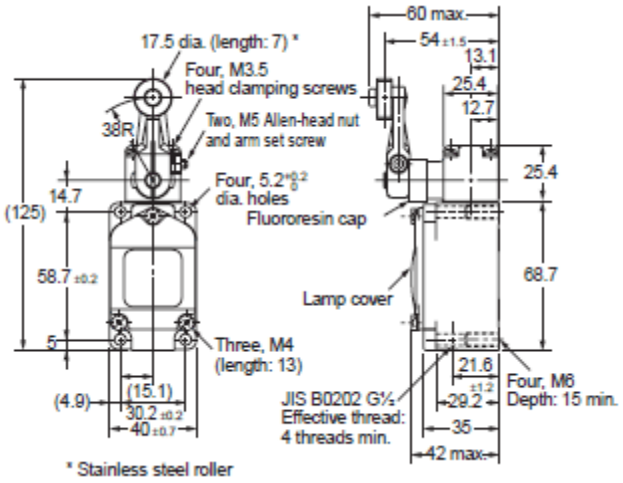


Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

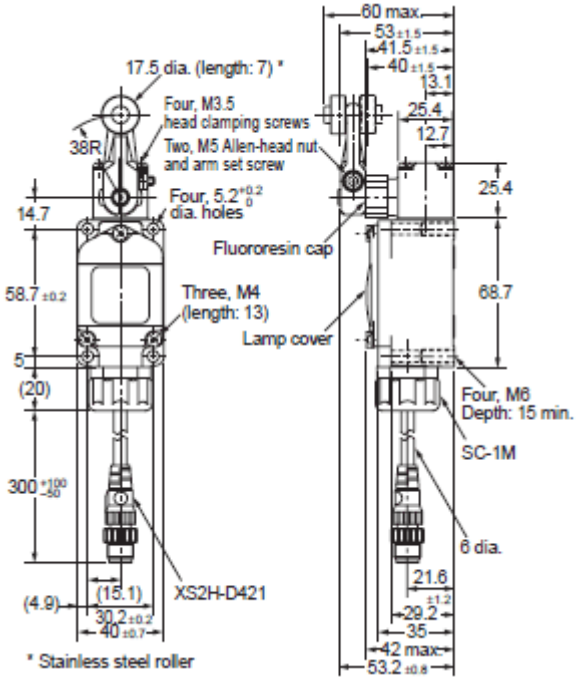
Operating characteristics	Actuator	WLCA2-LE/LD WL01CA2-LE/LD
Operating force	OF max.	13.34 N
Release force	RF min.	2.23 N
Pretravel	PT	15° ±5°
Overtravel	OT min.	30°
Movement Differential	MD max.	12°

Spatter-prevention Models

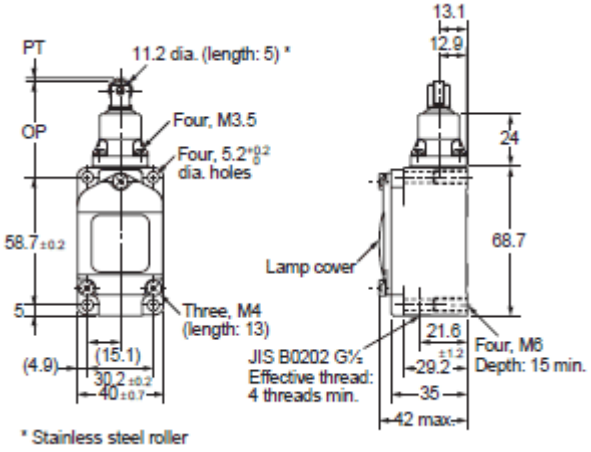
Roller Lever (Screw Terminals)
WLCA2-[]S/WL01[]-[]S
WLH2-[]S



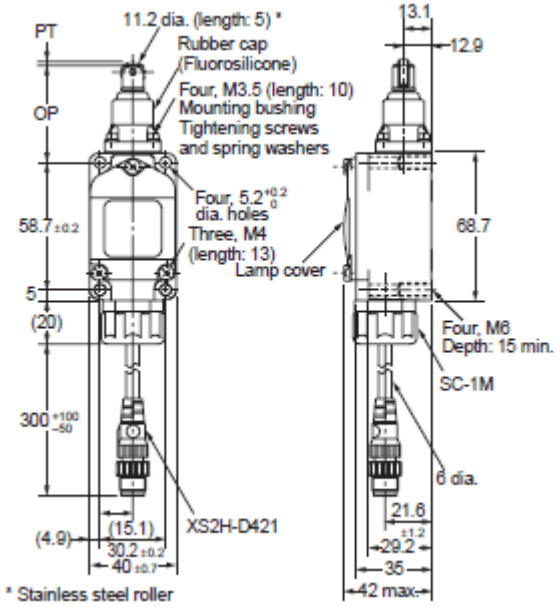
Roller Lever (Pre-wired connectors)
WLCA2-[]S-M1J*/WL01[]-[]S-M1J*
WLH2-[]S-M1J*
* External dimensions are the same even for different core wires.



Sealed Top-roller Plunger (Screw Terminals)
WLD28-[]S



Sealed Top-roller Plunger (Pre-wired connectors)
WLD28-[]S-M1J*
* External dimensions are the same even for different core wires.



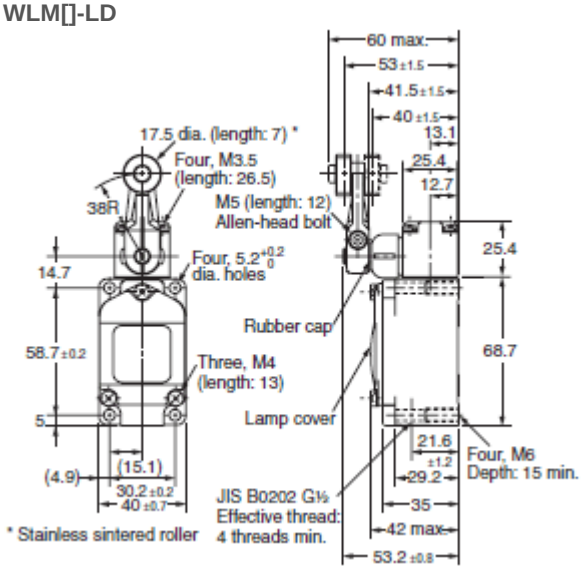
Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	Actuator	Roller Lever		Sealed Top-roller Plunger
		Basic	Overtravel models	
			General-purpose	
Operating force	OF max.	13.34 N	9.81 N	16.67 N
Release force	RF min.	2.23 N	0.98 N	4.41 N
Pretravel	PT	15° ±5°	15° ±5°	1.7 mm max.
Overtravel	OT min.	30°	55°	5.6 mm
Movement Differential	MD max.	12°	12°	1 mm
Operating Position	OP	—	—	44 ±0.8 mm
Total travel Position	TTP max.	—	—	39.5 mm

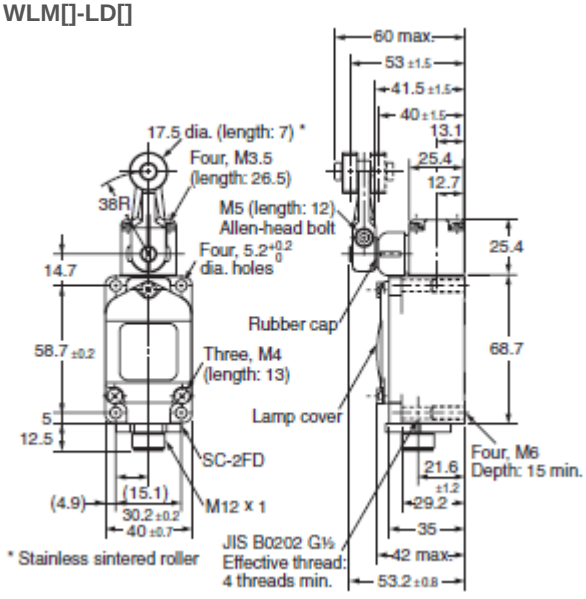
Long-life Models

Rotating Lever Models

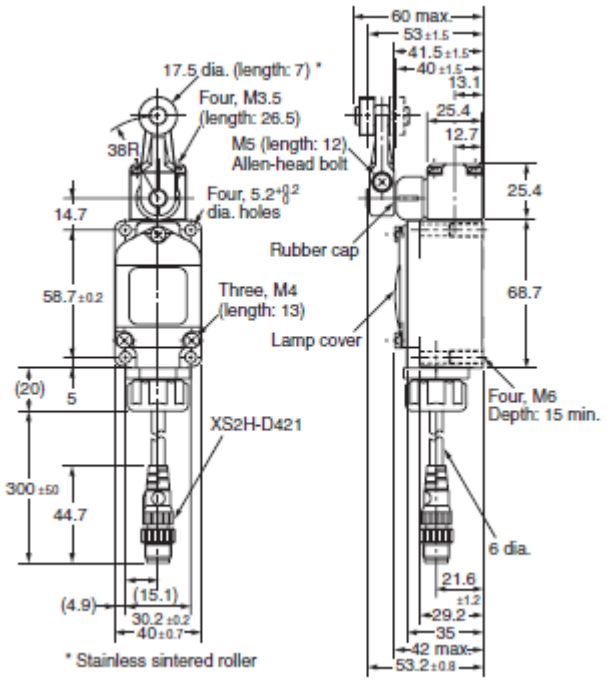
Roller Lever (Screw Terminals)
WLM[]-LD



Roller Lever (Direct-wired Connectors)
WLM[]-LD[]



Roller Lever (Pre-wired Connectors)
WLM[]-LD[]



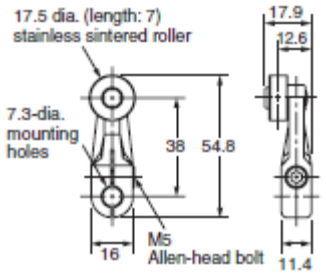
Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	Model	WLMCA2-LD□ Basic models	WLMH2-LD□ General-purpose overtravel models
Operating force	OF max.	9.81 N	9.81 N
Release force	RF min.	0.98 N	0.98 N
Pretravel	PT	15° ±5°	15° ±5°
Overtravel	OT min.	30°	55°
Movement Differential	MD max.	12°	12°

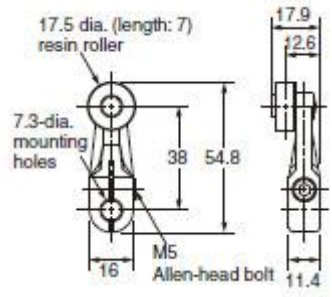
Actuators (Levers Only)

Lever: Only rotating lever models are illustrated.

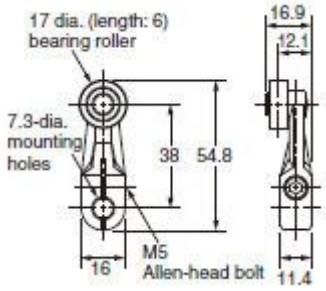
WL-1A100
Standard Lever



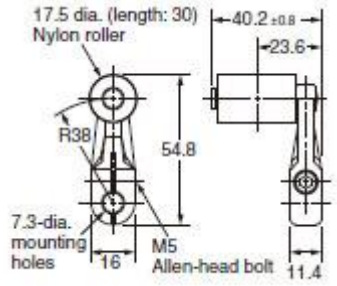
WL-1A115
Resin Roller



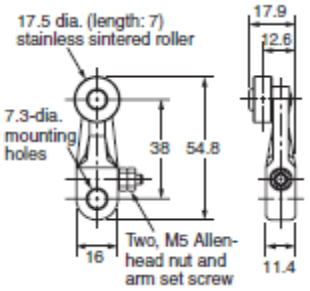
WL-1A400
Bearing Roller



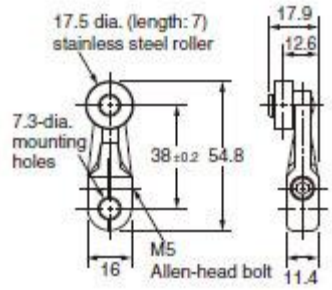
WL-1A118
Nylon Roller:
Roller Width: 30 mm



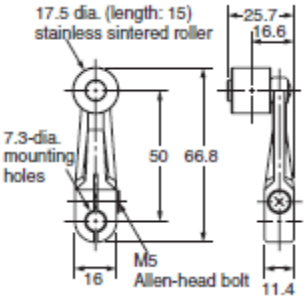
WL-1A105
Double Nuts



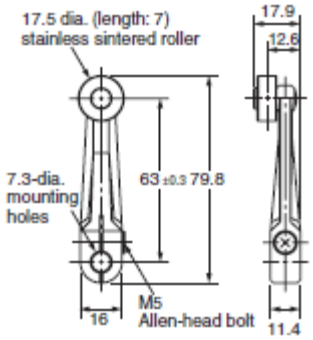
WL-1A103S
Spatter Prevention



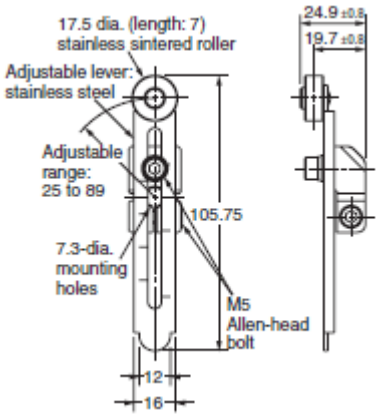
WL-1A200
Lever Length: 50
Roller Width: 15



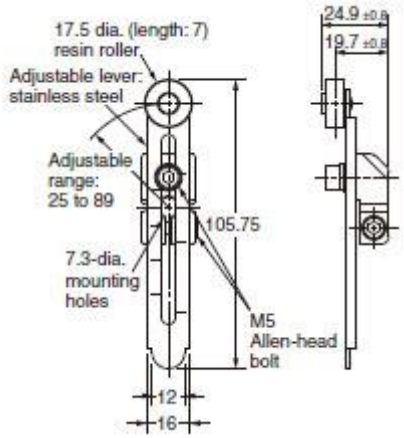
WL-1A300
Lever Length: 63



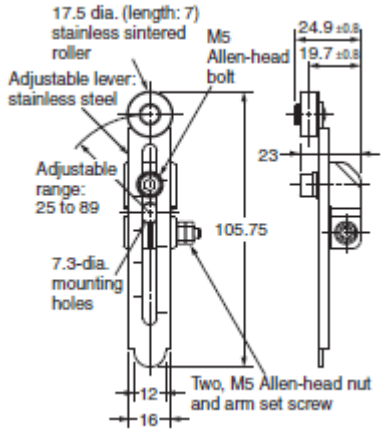
WL-2A100



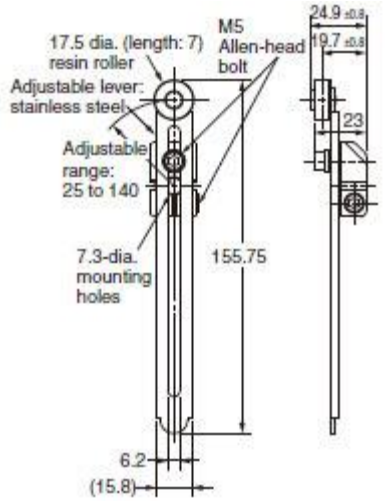
WL-2A111
Resin Roller



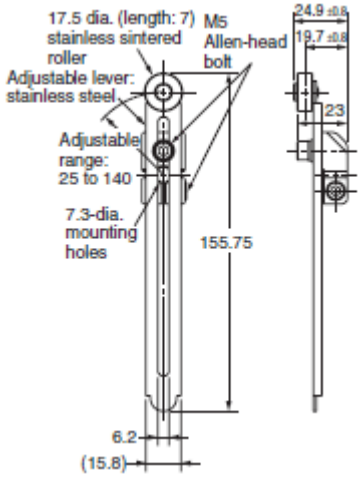
WL-2A107
Double Nuts



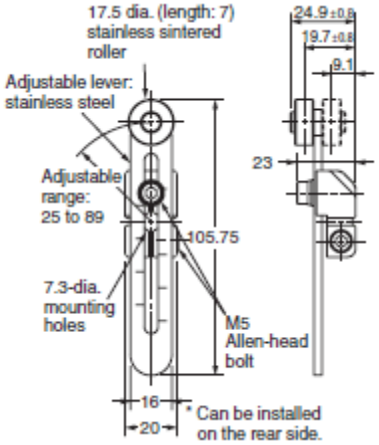
WL-2A108
Resin Roller



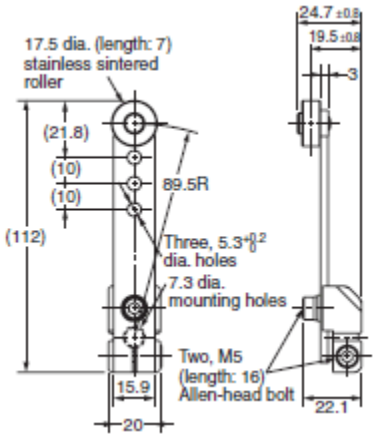
WL-2A122



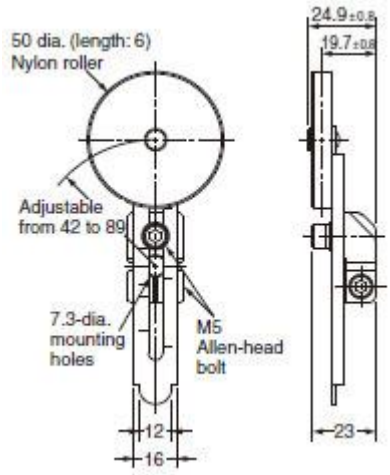
WL-2A106



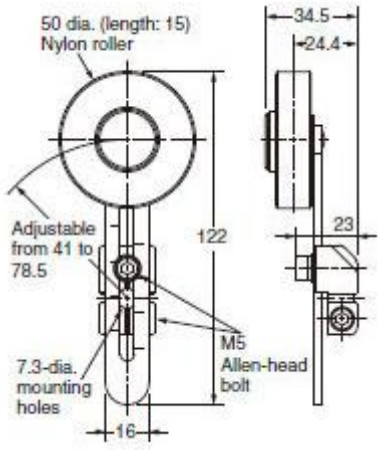
WL-2A130



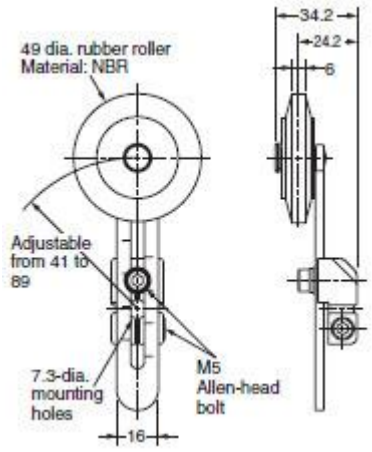
WL-2A104



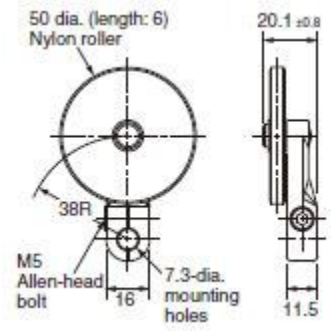
WL-2A110



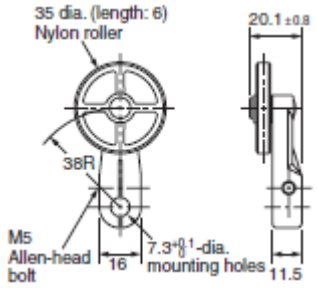
WL-2A105



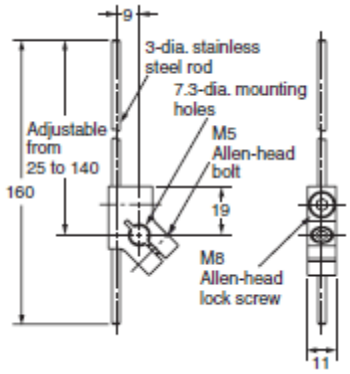
WL-1A106



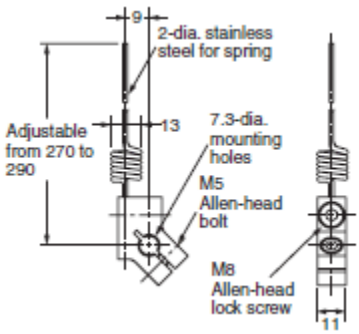
WL-1A110



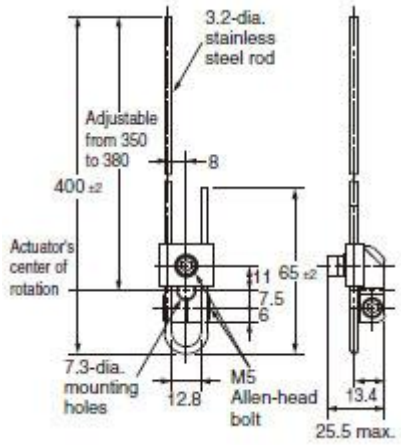
WL-4A100



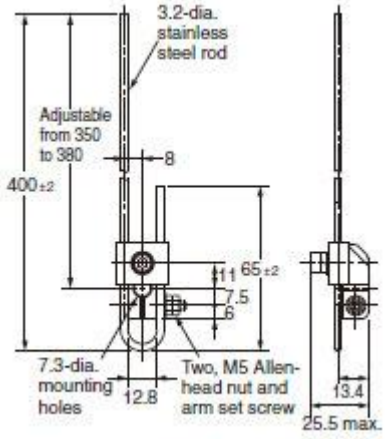
WL-4A201



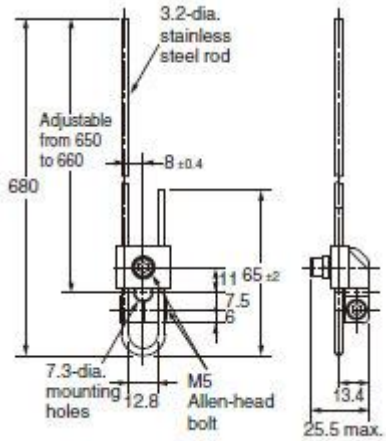
WL-3A100



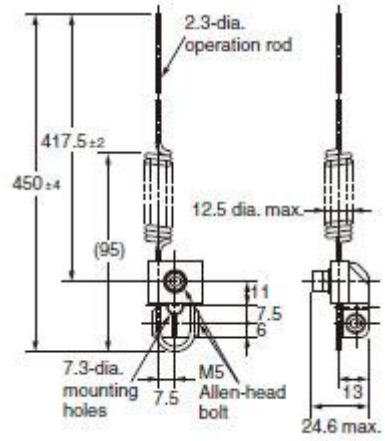
WL-3A106
Double Nut



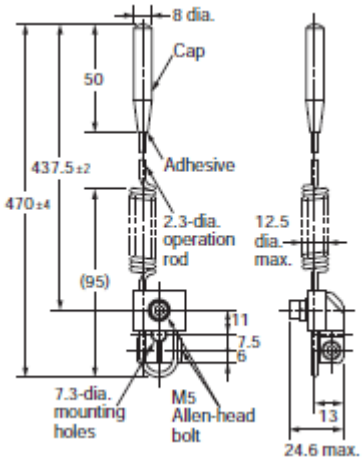
WL-3A108



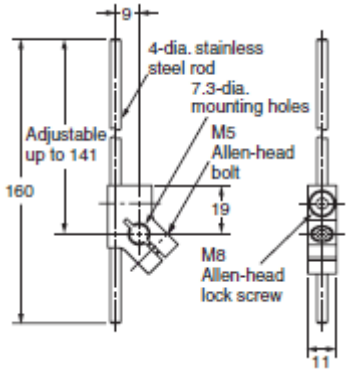
WL-3A200



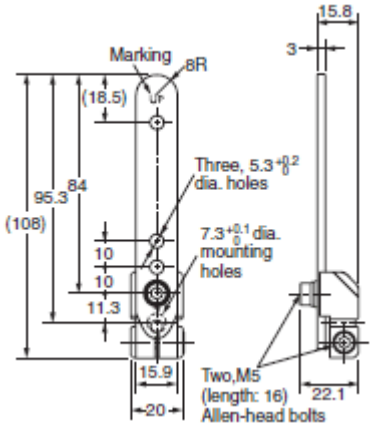
WL-3A203



WL-4A112

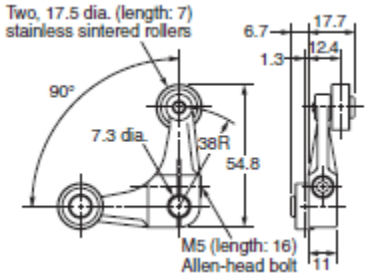


WL-2A129



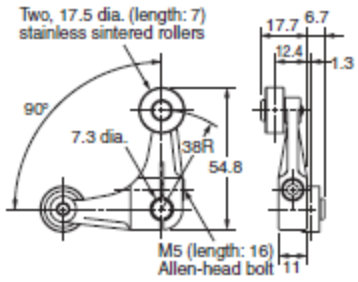
WL-5A101

WL-5A100 has a plastic roller



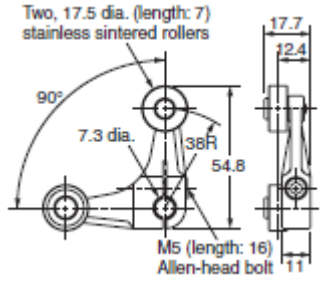
WL-5A103

WL-5A102 has a plastic roller



WL-5A105

WL-5A104 has a plastic roller



Note: 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.
2. When using the adjustable roller (rod) lever, make sure that the lever is facing downwards. Use caution, as telegraphing (the Switch turns ON and OFF repeatedly due to inertia) may occur.