

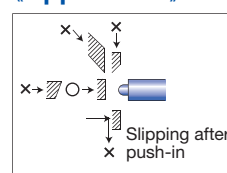
- Slim design allows side by side installation, wide range of variations.

From M5 / long stroke / water-resistant

- High performance at reasonable price

0.5 micron in repetitive accuracy

《Application》



Representative specification

unit:mm

	Product name	Output mode	Stroke	Size	Contacting part	Protective structure	with LED
Treaded/ Non-threaded	CSJ055A	A : NO	2	M5×0.5	φ2 plunger, SR1.5	IP65	CSJ055A-L
	CSJS50A			φ5	SUS, Hardened HRc50		CSJS55A-L
	CS065A	A : NO	2.8	M6×0.5	φ2 plunger, SR1.5 SUS, Hardened HRc50	IP65	CS065 A -L
	CSS60 A / B	A : NO		φ6			CSS60 A / B -L
	CS067 A / B	B : NC		M6×0.75			CS067 A / B -L
	CSS80A	A : NO	2.8	φ8	φ3.5 plunger, SR3 SUS, Hardened HRc50	IP65	CSS80A-L
	CS087A			M8×0.75			CS087A-L
Long stroke	CSK087 A / B	A : NO	5	M8×0.75	Sφ2 SUS, Hardened HRc50	IP67	CSK087 A / B -L
Water-resistant	CSP087 A / B-A	B : NC	2.8				CSP087 A / B -AL

-A : Contacting part, SUS, Hardened HRc50

-L : LED indicator (120mm from the switch)

Common specification

unit:mm

Switch structure	Dry contact
Output mode	A : Normally open / B : Normally close
Pretravel	0.3
Repeatability	Both On→Off, Off→On/ 0.005 (At operating speed 50~200mm/min) *
Movement differential	0
Contact life time	10million (If no specified bungle caused by vibration and used under voltage and current rating)
Contact force	1N
Case material	SUS HRc50

* Operating speed slower than 10mm/min is not recommended.

Cable (Refer to P2-9)	Standard length 3m Oil resistant φ2.8 / 2 cores, Tensile strength 30N, minimum bending R7 Cable protector (Detachable) for CSJ
Operating temperature range	0°C~80°C (Ice-free)
Temperature drift	0
Oscillation	10~55Hz total amplitude 1.5 for X,Y,Z each direction
Impact	300m/s ² for X,Y,Z each direction
Contact rating	DC5V~DC24V Steady current: 10 mA or less (rush current: 20 mA or less)
Standard accessory	Two fixing nuts for threaded type

◎The following options are available.

- Transistor output (Refer to P2-4)

- Reverse connect protection.
- Level conversion.
- Output current is increased to 100mA.

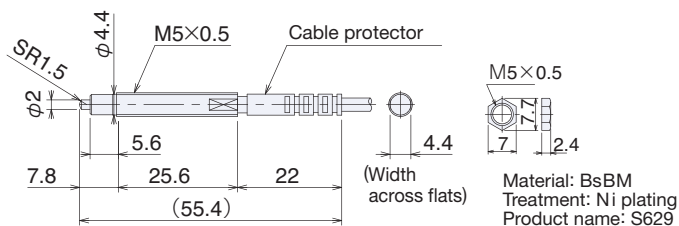
- Shape of contacting part

- Protective cover
- LED indicator
- Contact force
- Cable direction
- Cable
- Heat-resistance (P6-4)

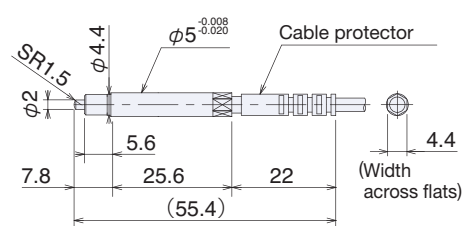
■ Outer dimension

Cylindrical type M5 / $\phi 5$

CSJ055A (A: NO)

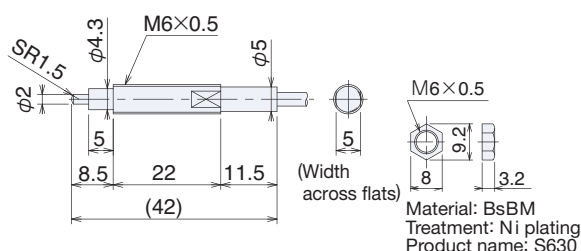


CSJS50A (A: NO)



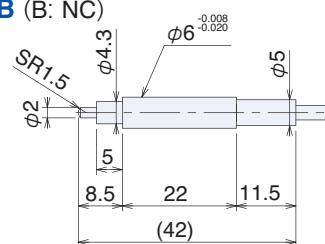
Cylindrical type M6 / $\phi 6$

CS065A (A: NO)



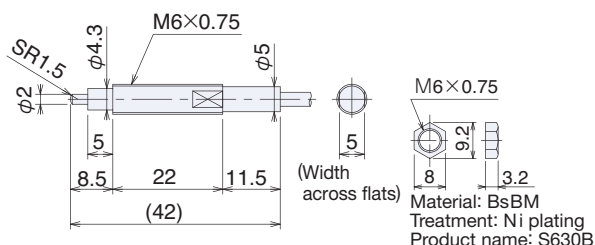
CSS60A (A: NO)

CSS60B (B: NC)

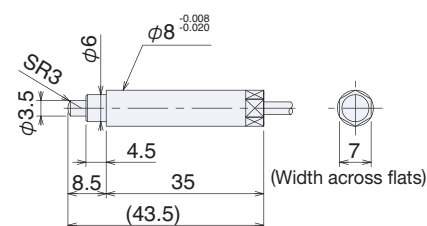


CS067A (A: NO)

CS067B (B: NC)

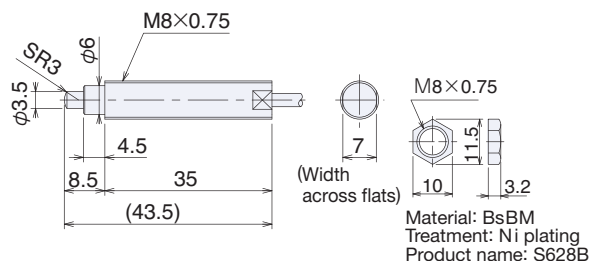


CSS80A (A: NO)



Cylindrical type M8 / $\phi 8$

CS087A (A: NO)

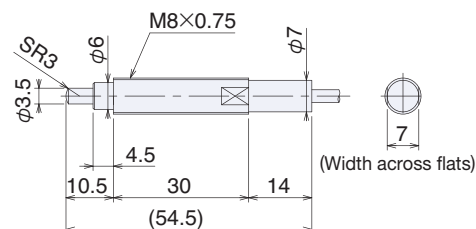


Long stroke type

CSK087A (A: NO)

CSK087B (B: NC)

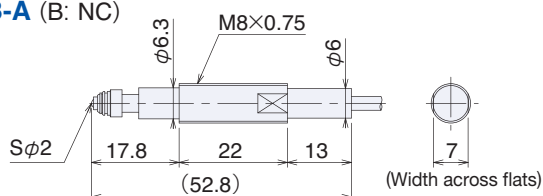
Stroke 5mm



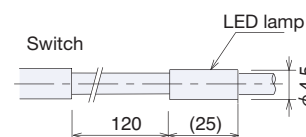
Water resistant type (IP67)

CSP087A-A (A: NO)

CSP087B-A (B: NC)



(-L: LED indicator)



Cable direction 90°(Option)



- Slim design allows side by side installation, wide range of variations.

From M5 / long stroke / water-resistant

- High performance at reasonable price

0.5 micron in repetitive accuracy without an amplifier

Representative specification (Cable direction 90°)

unit:mm

	Product name	Output mode	Stroke	Size	Contacting part	Protective structure	with LED
Treaded/ Non-threaded	CSJ055A-R	A : NO	2	M5×0.5	φ2 plunger, SR1.5 SUS, Hardened HRc50	IP65	CSJ055A-LR
	CSJS50A-R			φ5			CSJS55A-LR
	CS065A-R	A : NO	2.8	M6×0.5	φ2 plunger, SR1.5 SUS, Hardened HRc50	IP65	CS065 A -LR
	CSS60 A / B -R	A : NO		φ6			CSS60 A / B -LR
	CS067 A / B -R	B : NC		M6×0.75			CS067 A / B -LR
	CSS80A-R	A : NO	2.8	φ8	φ3.5 plunger, SR3 SUS, Hardened HRc50	IP65	CSS80A-LR
Long stroke	CS087A-R			M8×0.75			CS087A-LR
	CSK087 A / B -R	A : NO B : NC	5	M8×0.75			CSK087 A / B -LR

-R: Cable direction 90°

-L: LED indicator (120mm from the switch)

Caution: If the shape of contact is larger than the screw or case diameter, it cannot be inserted through the installation hole. In such case, please use either a split bush or by a bracket U-cut, etc.

Common specification

unit:mm

Switch structure	Dry contact
Output mode	A : Normally open / B : Normally close
Pretravel	0.3
Repeatability	Both On→Off, Off→On/ 0.005 (At operating speed 50~200mm/min)*
Movement differential	0
Contact life time	10million (If no specified bungle caused by vibration and used under voltage and current rating)
Contact force	1N
Case material	SUS HRc50

*Operating speed slower than 10mm/min is not recommended.

Cable (Refer to P2-4)	Standard length 3m Oil resistant φ2.8 / 2 cores, Tensile strength 30N, minimum bending R7 Cable protector (Detachable)
Operating temperature range	0°C~80°C (Ice-free)
Temperature drift	0
Oscillation	10~55Hz total amplitude 1.5 for X,Y,Z each direction
Impact	300m/s ² for X,Y,Z each direction
Contact rating	DC5V~DC24V Steady current: 10 mA or less (rush current: 20 mA or less)
Standard accessory	Two fixing nuts for threaded type

◎The following options are available.

• Transistor output (Refer to P2-4)

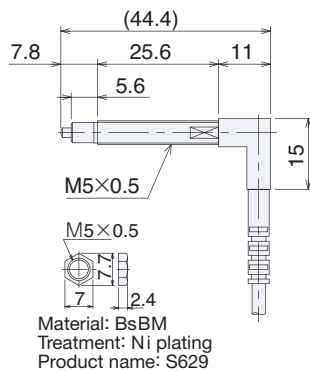
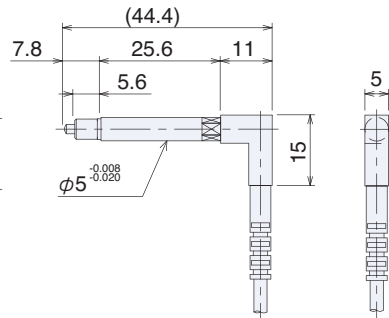
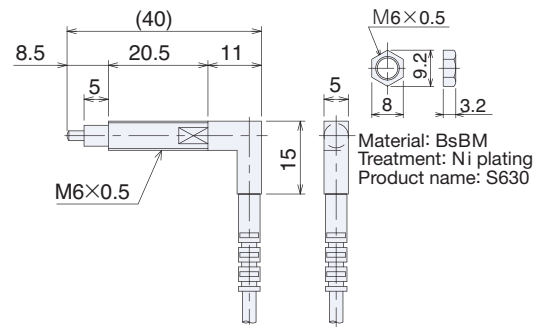
- Reverse connect protection.
- Level conversion.
- Output current is increased to 100mA.

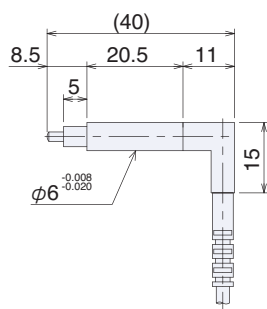
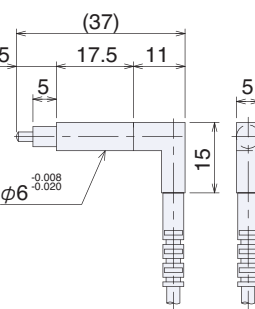
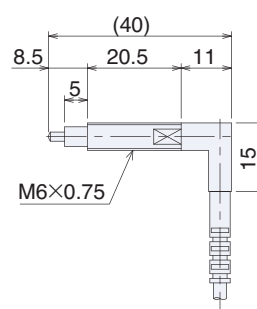
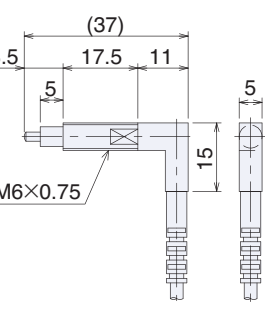
• Cable direction

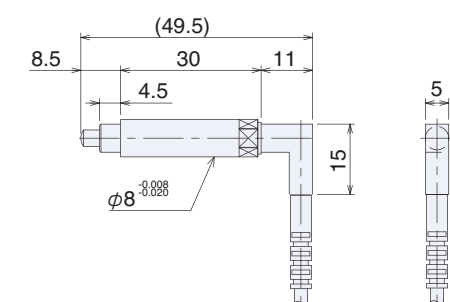
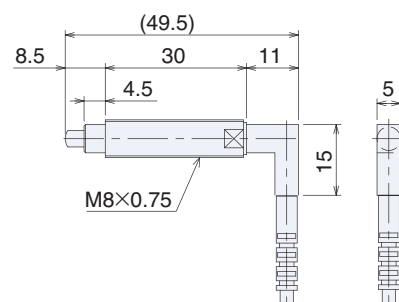
- Cable
- Protective cover
- LED indicator
- Contact force
- Shape of contacting part
- Heat-resistance (P6-4)

Outer dimension

M5 / $\phi 5$ Treaded / Non-threaded Cable direction: -R (90°)

CSJ055A - R (A: NO)

CSJS50A - R (A: NO)

CS065A - R (A: NO)

M6 / $\phi 6$ Treaded / Non-threaded Cable direction: -R (90°)

CSS60A - R (A: NO)

CSS60B - R (B: NC)

CS067A - R (A: NO)

CS067B - R (B: NC)

M8 / $\phi 8$ Treaded / Non-threaded Cable direction: -R (90°)

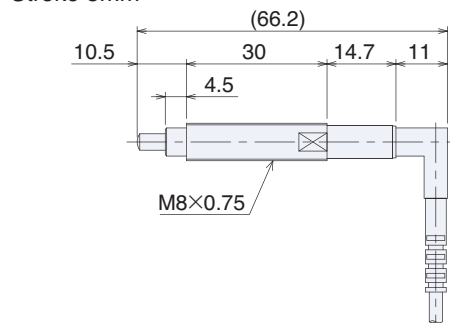
CSS80A - R (A: NO)

CS087A - R (A: NO)


Long stroke type Cable direction: -R (90°)

CSK087A - R (A: NO)

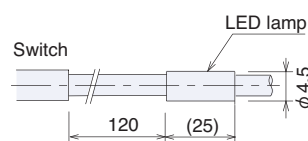
CSK087B - R (B: NC)

Stroke 5mm



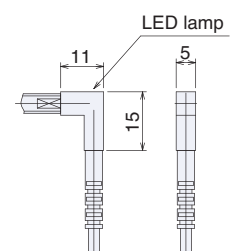
LED indicator

-L□R: Specify the position >120mm



LED indicator

-LD□R: Switch



Options

Product name	Shape of contacting part	Protective cover	LED indicator	Contact force	Cable direction	Cable
φ2 CSJ055A CSJS50A CS065A CSS60 A / B CS067 A / B	Blank: φ2 plunger SR1.5 A: φ2 flat B: φ4 flat C: Needle DP: Plastic	Blank: No protective	Blank: No LED L: 120mm from the switch LD *: Attached to the switch *Available only when perpendicular cable direction R is selected.	Blank: 1N S: 0.3N G: 0.5N H: 1.5N (The rubber scraper is not provided for "S". IP40) (Normally close type not acceptable for S and G)	Blank: Straight R: 90°	Blank: Standard (3m) Option: (Not selectable when transistor output is selected) •Connector CN-2H (Refer to P4-9)
φ3.5 CSS80A CS087A CSK087 A / B	Blank: φ3.5 SR3 B: φ3.5 flat T: Replaceable T□: Fixed contacting part T□A: Adjustable contacting part (Refer to P4-8)			Blank: 1N S: 0.3N G: 0.5N H: 1.5N (The rubber scraper is not provided for S,G . IP40) (Normally close type not acceptable for S and G)		
Water resistant type CSP087 A / B	A: S φ2 ball SUS, Hardened steel B: φ3 flat T□: Fixed contacting part T□A: Adjustable contacting part (Refer to P4-8)	Blank: No protective D: Downward U: Upward	Blank: No LED L: 120mm from the switch	Blank: 1N	Blank: Straight	

Transistor output

TNA Added to standard product name
 TNB
 TPA
 TPB

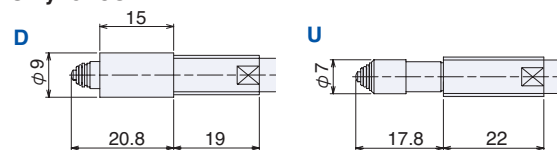
(Refer to P2-4)

▶ e.g.) CSJ055A-ALSR

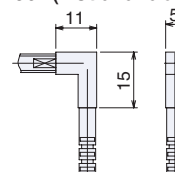
▶ Transistor output

e.g.) CSJ055ATNA-BDL-5

Only for CSP



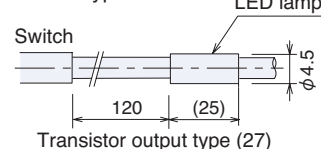
R: 90° (Not available for CSP)



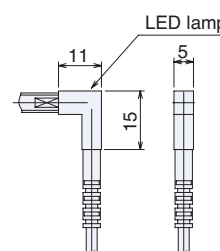
If the shape of contact is larger than the screw or case diameter, it cannot be inserted through the installation hole. In such case, please use either a split bush or by a bracket U-cut, etc.

φ2 CSJ055A CSJS50A CS065A CSS60 A / B CS067 A / B	A 	B 	C: Needle 	DP (Material: Plastic)
φ3.5 CSS80A CS087A CSK087 A / B	B 	T: Replaceable (Threaded M2.5) No contacting part 	TA~TE (Refer to P4-8) Compatible with contacting parts of commercially produced dial gauges	
Water resistant type (IP67) CSP087 A / B	A Rubber 	B 	T: Replaceable (Threaded M2.5) No contacting part 	TA~TE (Refer to P4-8) Compatible with contacting parts of commercially produced dial gauges

L: Tubular type



LD□R: Integrated with sensor
 (Not available for CSP)
 Cable direction 90°



*Available only when perpendicular cable direction **R** is selected.

■ Explanatory notes for options

Shape of contact part

Product name	Mark: Shape	Shape of detected objects
ϕ 2 plunger type CSJ055A CSJS50A CS065A CSS60 A/B CS067 A/B	Blank: ϕ 2 plunger SR1.5	Flat
	A: ϕ 2 flat	Convex,
	B: ϕ 4 flat	ball (Cutters, drills)
	C: Needle	Small detected surface
	DP: ϕ 3.5, SR3	Flat
ϕ 3.5 plunger type CSS80A CS087A CSK087 A/B	Blank: ϕ 3.5 plunger SR3	Flat
	B: ϕ 3.5 flat	Convex, ball (Cutters, drills)
	T: Replaceable (Threaded M2.5)	Specify mounting direction when using special shape or heavy contacting parts.
	No contacting part	

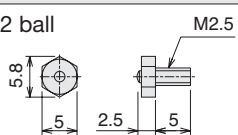
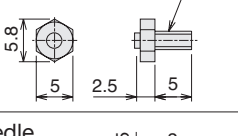
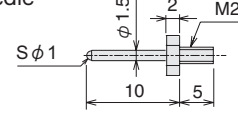
Product name	Mark: Shape	Shape of detected objects
Water-resistant (IP67) CSP087 A/B	A: S ϕ 2 ball carbide	Flat
	B: ϕ 3 flat	Convex, ball (Cutters, drills)
	T: Replaceable (Threaded M2.5)	Specify mounting direction when using special shape or heavy contacting parts.
	No contacting part	

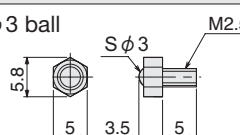
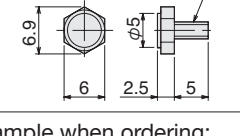
Contact force (Not available for CSP)

Mark: Shape	Operating condition
S: 0.3N	No chattering caused by vibration or impact
G: 0.5N	(No rubber boot is provided for "S", IP40)
H: 1.5N	Intense vibration or impact

Refer to P6-2 for low contact force type (0.1/0.2N)

■ Fixed contacting parts

Outer dimension	Mark: Product name
$S \phi$ 2 ball 	TA : F4130S Hardened steel (SUS) TAW : F4130W Carbide
ϕ 3 flat 	— TBW : F4131W Carbide
Needle 	TC : F4129S Hardened steel (SUS) TCW : F4129W Carbide

Outer dimension	Mark: Product name
$S \phi$ 3 ball 	TE : F4150S Hardened steel (SUS) TEW : F4150W Carbide
ϕ 5 flat 	— TDW : F4132W Carbide

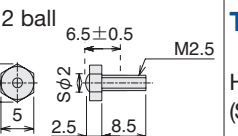
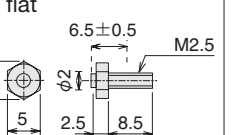
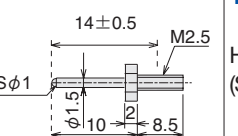
Example when ordering:

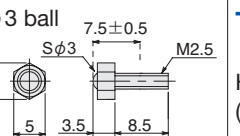
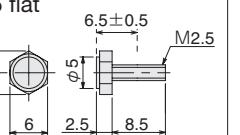
- Hardened steel : CSS80A-**T****A**
- Carbide : CSS80A-**T****B****W**

Mark: Shape of contacting part

■ Adjustable contacting parts

This can make installation process easier and eliminate the risk of twisting the cable when adjusting the signal point of the switch.

Outer dimension	Mark: Product name
$S \phi$ 2 ball 	TAA : F4130AS Hardened steel (SUS) TAAW : F4130AW Carbide
ϕ 3 flat 	— TBAW : F4131AW Carbide
Needle 	TCA : F4129AS Hardened steel (SUS) TCAW : F4129AW Carbide

Outer dimension	Mark: Product name
$S \phi$ 3 ball 	TEA : F4150AS Hardened steel (SUS) TEAW : F4150AW Carbide
ϕ 5 flat 	— TDW : F4132AW Carbide

Accessory for the adjustable contacting parts
: Locknut for adjustment and spanner

Example when ordering:

- Hardened steel : CSS80A-**T****A****A**
- Carbide : CSS80A-**T****B****AW**

Mark: Shape of contacting part

■ **Connector** (Only applicable for cabtyre cables, not usable when transistor output is selected.)

Mark	Product name	Cable		Protective Structure	Dimension	Pullout strength
CH	CN-2H	2cores	φ 2.8	IP65	<p>Only applicable for cabtyre cables, not usable when transistor output is selected.</p>	1.5N

e.g.) CSJ055A-1-**CH**-2
 (CS-Touch Switch CSJ055A / Switch side cable 1m / Connector **CN-2H** / Machine side cable 2m)

■ **Protective covers**

Choose the suitable cover according to switch mounting direction so that the metal cuttings and coolant can't enter from the gaps. (Refer to P7-7)

D: Mostly for downward installation	U: Mostly for upward installation

Note when installing on brackets, etc. :

When the diameter is large or a U shaped protection boot or special contact is used, pass the switch from the front side of the installation hole (remove the relay connector before installation).

■ **Tightening torque for case screws and nuts**

	Screw / Nut	Tightening torque	Applicable models
CS-Touch Switch	M5x0.5	2N · m	CSJ055
	M6x0.5	4N · m	CS065
	M6x0.75	4N · m	CS067
	M8x0.75	7N · m	CSP087

■ **Circuit diagram**

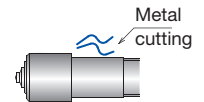
No LED	with LED
<p>Normally open</p> <p>Normally close</p>	<p>Normally open</p> <p>Normally close</p>

Electrical specification / circuit diagram. (Refer to P2-1)

When using the switches with LED option, limit the current below 10mA. (Refer to P7-3)

■ **For metal cuttings and coolant**

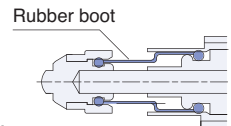
- Protective cover is strongly recommended to avoid damage from cuttings and coolant when the switch is used in machining environment. In addition, an extra cover is recommended to avoid direct hit by high-pressure coolant or heavy cuttings.
- For horizontal mounting, an extra cover prevents coolant or cuttings from entering inside and getting piled up on the body.
- Fabricate and place an extra cover to avoid metal chips adhering to the rubber boots during the grinding operation.



■ **Protect structure**

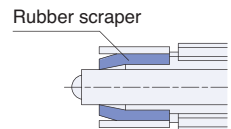
CSP type (IP67)

A rubber boot is applied to the plunger. Protective cover is available at the user's option to protect the rubber boot from cuttings.



Product other than CSP (IP65)

Rubber scraper is applied to the plunger.



When the lip of the scraper is damaged by cuttings, the water resistance becomes impaired.

■ **How to use**

Make contact with detected objects at right angle (within deflection angle $\pm 3^\circ$). Do not press the plunger to the stroke end. It may cause malfunction due to the impact.

If there is a possibility to press the plunger to the stroke end, install a stopper separately to prevent the malfunction.

