

## External Option : Resin Connector

Master Cylinder  
model **SWRZ0J0-M**

Tool Adapter  
model **SWRZ0J0-T**

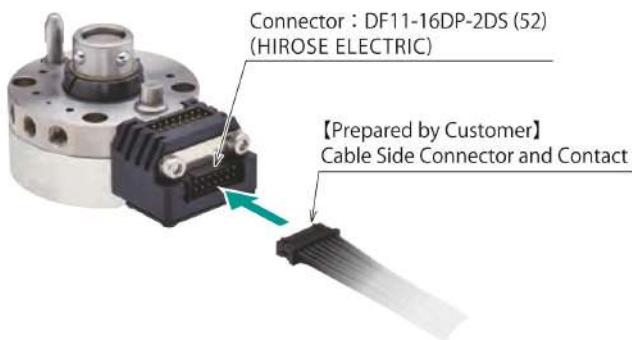


## Specifications

Rated Value (per contact)	DC 24V 2A : Pin 1,3,5,7,9,11,13,15 1A : Pin 2,4,6,8,10,12,14,16	
Resin Connector	DF11-16DP-2DS(52) (HIROSE ELECTRIC)	
Contact Resistance (Initial Value)	30mΩ or less	
Total Current Capacity	10A	
Number of Poles (per electrode)	16	
Connector Pin Coating	Gold Coating	
Weight*1	Master Cylinder Side	Electrode 13g
	Tool Adapter Side	Electrode 11g
Cable with Applicable Connector (Sold Separately)		SWZ0J0-CL□

\*1. Weight per electrode.

## Connecting Cable



The cable side (connector, contact, cable) is not included.

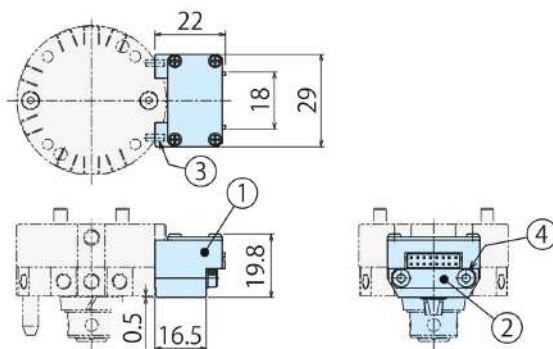
Please prepare the cable with applicable connector (SWZ0J0-CL□) on P.39, or design them yourself referring to the following list.

Cable Side Connector Model No.	Cable Side Contact Model No.	Recommended Wire Size	Protective Tool		Maker
			Manual Crimping Tool	Contact Removal Tool	
DF11-16DS-2C	DF11-22SCA	AWG22	DF11-TA22HC	DF-C-PO(B)	HIROSE ELECTRIC
	DF11-2428SCA	AWG24 ~ 28	DF11-TA2428HC		

- Notes : 1. Refer to HIROSE ELECTRIC catalogs for the detailed specifications and the rated current based on wire size.  
2. The model number of connector required for the master cylinder and the tool adapter is the same.

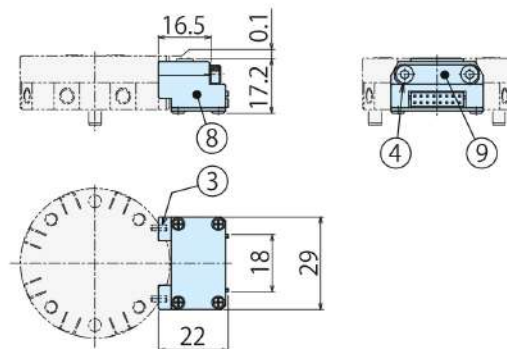
## External Dimensions (KWR0070/KWR0120/KWR0250/KWR0500)

Master Cylinder Side



Model No.	No.	Name	Quantity
			J: 16 poles
SWRZ0J0-M	①	Electrode (Master Side)	1
	②	Spacer	1
	③	Parallel Pin φ1.5×4 B Type (SUS)	2
	④	Hexagon Socket Bolt M3×0.5×20 (SUS)	2

Tool Adapter Side

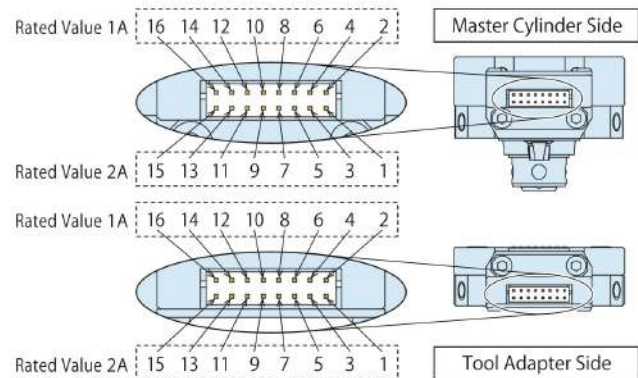


Model No.	No.	Name	Quantity
			J: 16 poles
SWRZ0J0-T	⑧	Electrode (Tool Side)	1
	⑨	Spacer	1
	③	Parallel Pin φ1.5×4 B Type (SUS)	2
	④	Hexagon Socket Bolt M3×0.5×20 (SUS)	2

Notes :

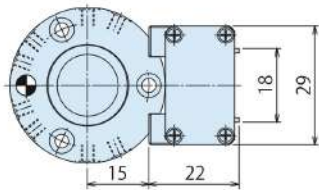
1. Prepare additional mounting bolts by customer when extending another electrode. See the main unit drawing for mounting thread depth.

## Pin Number

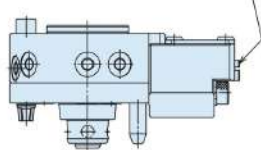


● External Dimensions (KWRV0010)

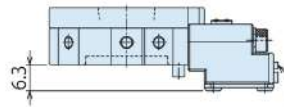
Master Cylinder Side



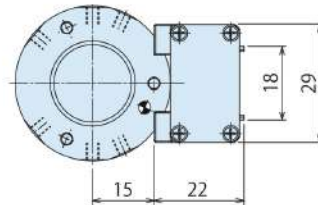
Connector (16 poles : HIROSE ELECTRIC)  
DF11-16DP-2DS



Tool Adapter Side



Connector (16 poles : HIROSE ELECTRIC)  
DF11-16DP-2DS



Model No.	No.	Name	Quantity
SWRZ0J0-M	①	Electrode (Master Side)	1
	②	Spacer	1
	③	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	④	Hexagon Socket Bolt M3 $\times$ 0.5 $\times$ 20 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0J0-T	⑧	Electrode (Tool Side)	1
	⑨	Spacer	1
	③	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	④	Hexagon Socket Bolt M3 $\times$ 0.5 $\times$ 20 (SUS)	2

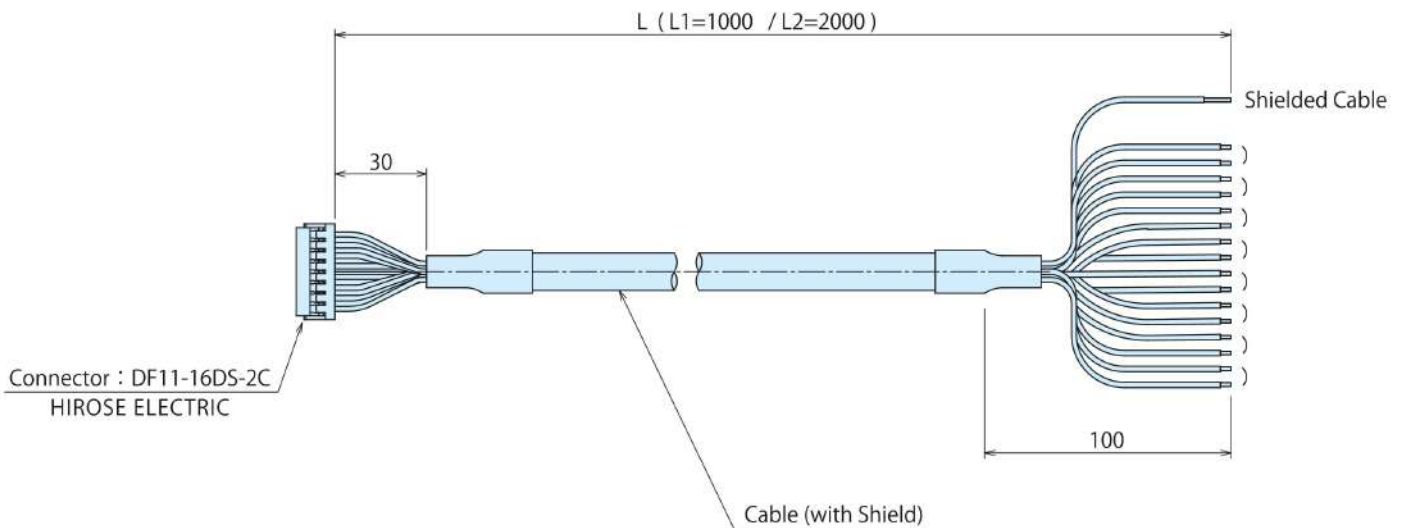
● External Option : Cable with Connector for Resin Connector

This cable is an optional cable applicable to the Resin Connector Electrode.

Model No. Indication

**SWZ0J0-C** **L1**  
**L2**

Cable Length  
L1 : 1m  
L2 : 2m



● Pin Numbers and Wire Colors

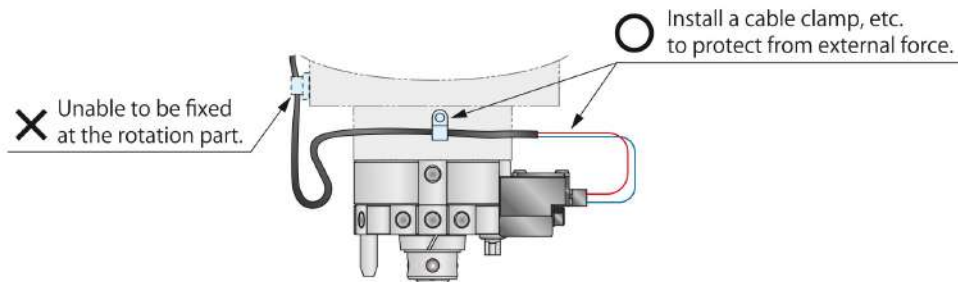
HIFLON SD-SB/20276 Black AWG24X8P (with Shield)  
 NISSEI ELECTRIC Weight : 76g /m (Weight per meter)  
 Conductor Cross-Sectional Area : 0.2mm<sup>2</sup> (AWG24)  
 Number of Cores : 16



Rated Current	2A								1A							
Pin Number	1	3	5	7	9	11	13	15	2	4	6	8	10	12	14	16
Wire Color	Black	White	Red	Green	Yellow	Brown	Blue	Orange	Gray	Violet	Light Blue	Pink	White/Black	White/Red	White/Blue	Yellow/Black
	Twisted Pair		Twisted Pair		Twisted Pair		Twisted Pair		Twisted Pair		Twisted Pair		Twisted Pair		Twisted Pair	

● Note : Wire/Cable Procedure and Wiring

- Make sure to fix the wire and cable so that they are not pulled while a robot is moving or turning around.  
 External force should not be applied on the connector part since it leads to breaking of wire, detaching of connector and contact failure.





## External Option : Solder Terminal with Cable

Master Cylinder  
model SWLZ0C0-M 01/02



Tool Adapter  
model SWLZ0C0-T 01/02

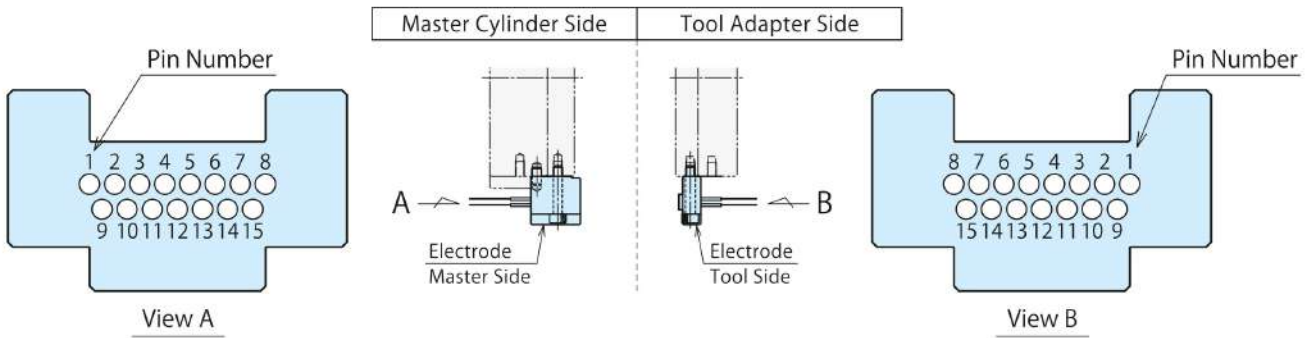


## Specifications

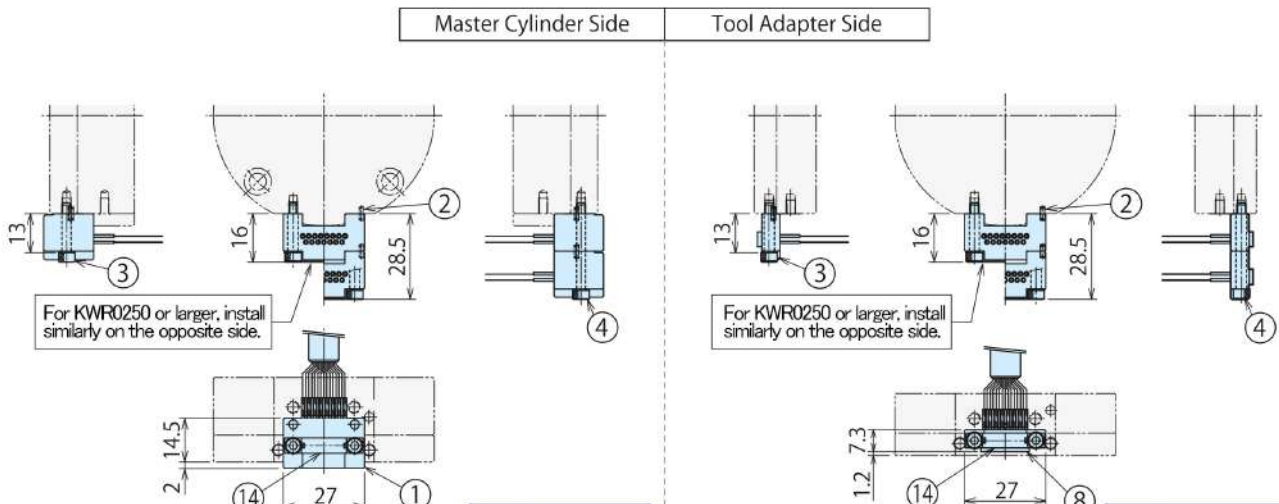
Rated Value (per contact)	DC 24V 3A	
Contact Resistance (Initial Value)	100mΩ or less	
Total Current Capacity	10A	
Number of Poles (per electrode)	15	
Lead Wire Length	01	1m
	02	2m
Weight※1	Master Cylinder Side	Electrode 01 : 120g / 02 : 230g
	Tool Adapter Side	Electrode 01 : 110g / 02 : 220g

※1. Weight per electrode.

## Pin Numbers



## External Dimensions (KWR0070/KWR0120/KWR0250/KWR0500)



Model No.	No.	Name	Quantity	
			15 poles	30 poles KWR0120 or smaller / KWR0250 or larger
SWRZ0C0 -M01/M02	①	Electrode (Master Side)	1	2
	②	Parallel Pin φ1.5×4 B Type(SUS)	2	4
	⑬	Bolt Cover	1	1 2
	③	Hexagon Socket Bolt M3×0.5×16(SUS)	2	- 4
- ※3	④	Hexagon Socket Bolt M3×0.5×30(SUS)	-	2 -

Model No.	No.	Name	Quantity	
			15 poles	30 poles KWR0120 or smaller / KWR0250 or larger
SWRZ0C0 -T01/T02	⑧	Electrode (Tool Side)	1	2
	②	Parallel Pin φ1.5×4 B Type(SUS)	2	4
	⑬	Bolt Cover	1	1 2
	③	Hexagon Socket Bolt M3×0.5×16(SUS)	2	- 4
- ※3	④	Hexagon Socket Bolt M3×0.5×30(SUS)	-	2 -

- Notes : 1. The connected part of the solder terminal and lead wire is isolated with a thermal contraction tube.  
 2. For SWRZ0C0-□01/02 the lead wire length is different. (SWRZ0C0-□01 : Lead Wire Length 1m, SWRZ0C0-□02 : Lead Wire Length 2m)  
 3. Customers must provide the mounting bolts for expansion with KWR0120 or less.  
 4. This option can be expanded up to 30 poles.



## External Option : Waterproof Electrode (Simple Waterproof Option)

Master Cylinder  
model SWRZ0U0-M<sup>01</sup>/<sub>02</sub>

Tool Adapter  
model SWRZ0U0-T<sup>01</sup>/<sub>02</sub>



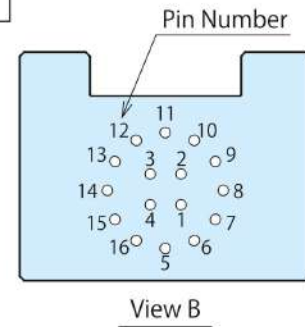
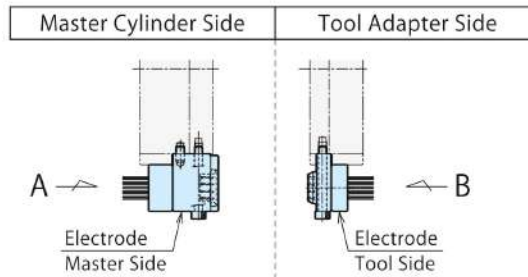
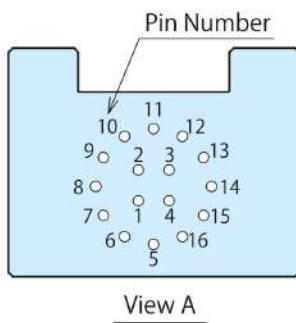
### Specifications

Rated Value (per contact)	DC 24V 3A
Contact Resistance (Initial Value)	100mΩ or less
Total Current Capacity	10A
Number of Poles (per electrode)	16
Lead Wire Length	01 : 1m 02 : 2m
Weight ※1	Master Cylinder Side Electrode -U01 : 140g / -U02 : 260g
	Tool Adapter Side Electrode -U01 : 140g / -U02 : 250g
Protection Grade ※2	Equivalent to IP54

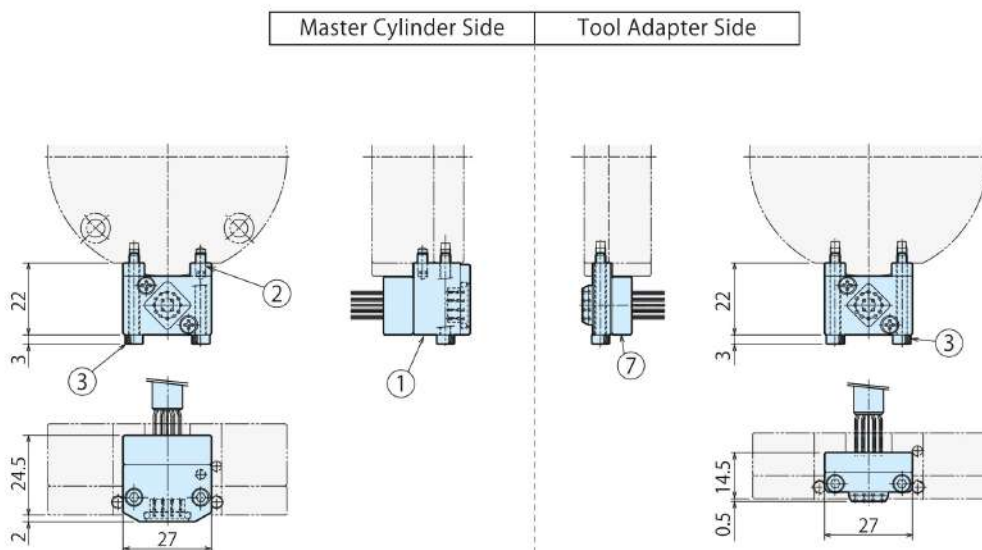
※1. Weight per electrode.

※2. The protection grade is equivalent to IP54 at connected state (fit state) of the master cylinder and tool adapter.

### Pin Numbers



### External Dimensions (KWR0070/KWR0120/KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWRZ0U0-M01/M02	①	Electrode (Master Side)	1
	②	Parallel Pin φ3×6 B Type (SUS)	1
	③	Hexagon Socket Bolt M3×0.5×25 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0U0-T01/T02	⑦	Electrode (Tool Side)	1
	②	Parallel Pin φ3×6 B Type (SUS)	1
	③	Hexagon Socket Bolt M3×0.5×25 (SUS)	2

Notes : 1. For SWRZ0U0-□01/02 the lead wire length is different. (SWRZ0U0-□01 : Lead Wire Length 1m, SWRZ0U0-□02 : Lead Wire Length 2m)





## External Option : D-SUB Connector

Master Cylinder  
model SWRZ0D0-M



Tool Adapter  
model SWRZ0D0-T



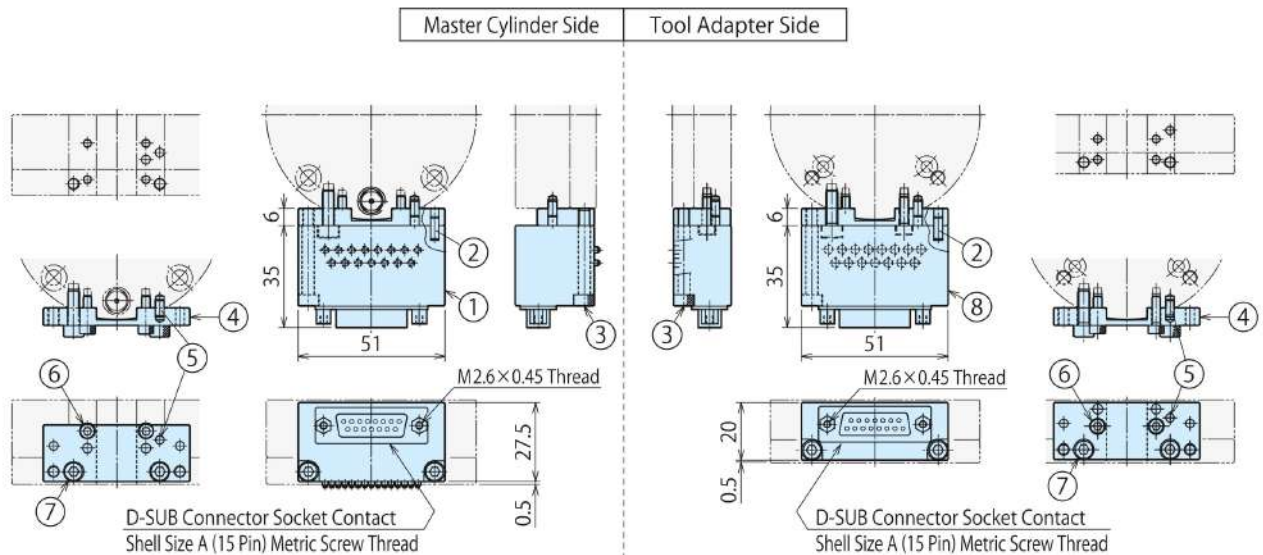
### Specifications

Rated Value (per contact)	DC 24V 3A	
Contact Resistance (Initial Value)	100mΩ or less	
Total Current Capacity	10A	
Number of Poles (per electrode)	15	
Weight ※1	Master Cylinder Side	Electrode 80g / Bracket 17g
	Tool Adapter Side	Electrode 70g / Bracket 17g

※1. Weight per electrode.

Bracket weight shows the weight of SWRZ0Z0.

### External Dimensions (KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWRZ0D0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×30 (SUS)	2
Bracket SWRZ0Z0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0D0-T	⑧	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×30 (SUS)	2
Bracket SWRZ0Z0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2



## External Option : Circular Connector (Connector Based on JIS C 5432)

Master Cylinder  
model SWRZ0G0-M

Tool Adapter  
model SWRZ0G0-T



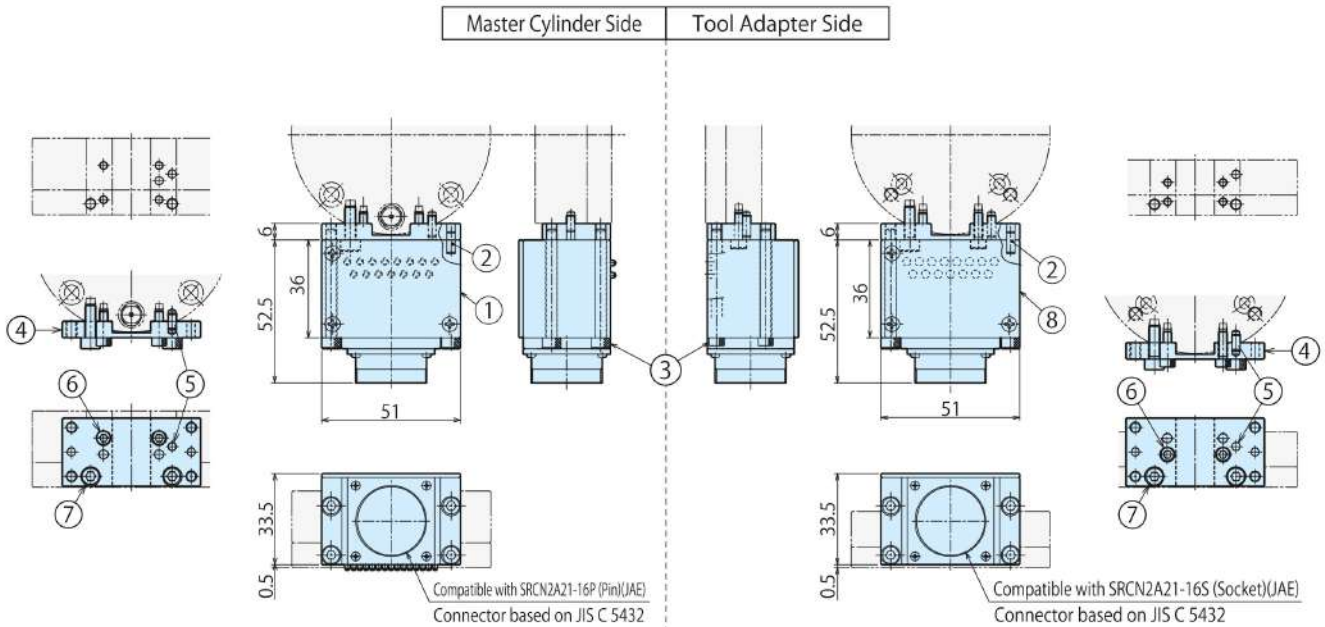
### Specifications

Rated Value (per contact)	DC 24V 3A
Contact Resistance (Initial Value)	100mΩ or less
Total Current Capacity	17A
Number of Poles (per electrode)	15
Weight ※1	Master Cylinder Side Electrode 100g / Bracket 21g
	Tool Adapter Side Electrode 120g / Bracket 21g

※1. Weight per electrode.

Bracket weight shows the weight of SWRZ0E0.

### External Dimensions (KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWRZ0G0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×40 (SUS)	4
Bracket SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0G0-T	⑧	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×40 (SUS)	4
Bracket SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

## External Option : Compact Electric Power Transmission

Extensible Options :  
Resin Connector, Solder Terminal

Master Cylinder  
model SWLZ0K0-M

Tool Adapter  
model SWLZ0K0-T

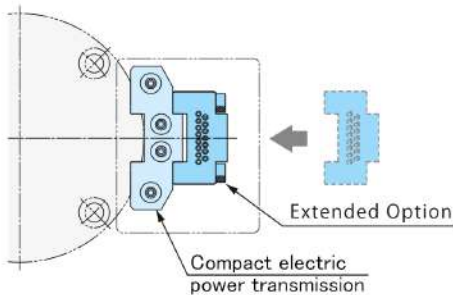


### Specifications

Rated Value (per contact)	AC/DC 200V 5A	
Total Current Capacity	12A	
Number of Poles (per electrode)	4	
Weight ※1	Master Cylinder Side	Electrode 17g
	Tool Adapter Side	Electrode 13g
Cable with Applicable Terminal (Sold Separately)	SWZ0K0-CL□ -CL1 : 1m、61g -CL2 : 2m、126g	

※1. Weight per electrode.

### Extensible Options Additional electrode can be extended.



Expandable optional explode	Main unit type				
	KWRY 0010	KWR 0070	KWR 0120	KWR 0250	KWR 0500
SWRZ0J0-□: Resin connector	N/A	●	●	●	●
SWLZ0C0-□01/02: Solder terminal with cable	N/A	●	●	●	●

Please contact us for detailed dimensions for expansion.

### Applicable Cable

The cable with applicable terminal and applicable terminal are not included.

Please prepare the cable with applicable terminal (SWZ0K0-CL□) or design it yourself referring to the applicable terminal.

### External Dimensions (KWR0070/KWR0120/KWR0500)

Master Cylinder Side				Tool Adapter Side			
Model No.	No.	Name	Quantity	Model No.	No.	Name	Quantity
SWLZ0K0-M	①	Electrode (Master Side)	1	SWLZ0K0-T	⑤	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2		②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Bolt Cover	1		③	Bolt Cover	1
	④	Hexagon Socket Bolt M3×0.5×16 (SUS)	2		④	Hexagon Socket Bolt M3×0.5×16 (SUS)	2

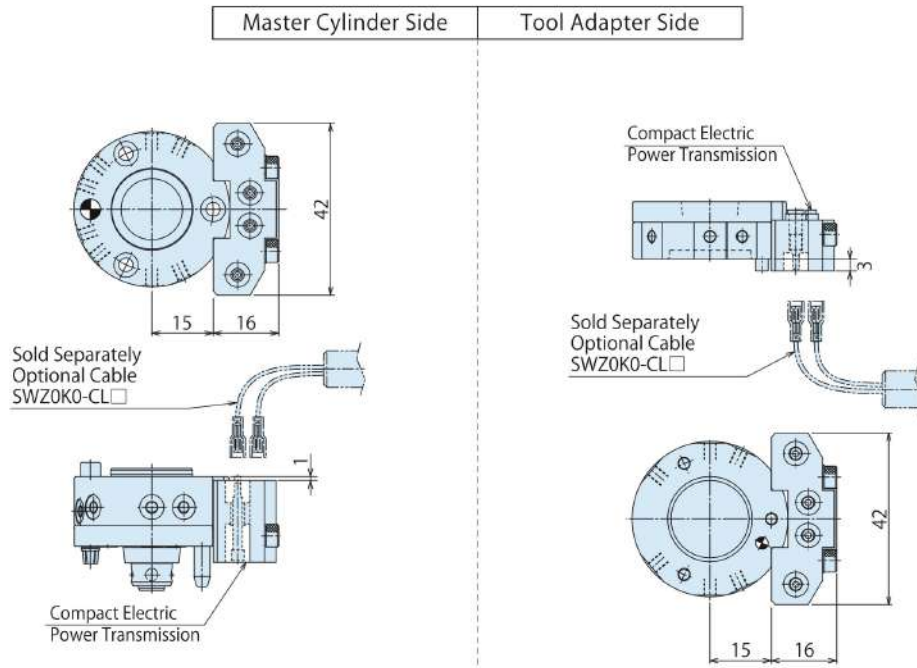
Notes : 1. The electrode probe on master side strokes 1.5mm (※2) when connecting with KWR.

When fixing the cable, make sure there is enough space for the probe operation.

2. The electrode stays connected when released, because its connecting stroke requires 1.5mm which is longer than KWR lift stroke.

※3. The optional cable and terminal are not included in the electrode. Please prepare them separately.

● External Dimensions (KWR0010)



Model No.	No.	Name	Quantity
SWLZ0K0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Bolt Cover	1
	④	Hexagon Socket Bolt $M3 \times 0.5 \times 16$ (SUS)	2

Model No.	No.	Name	Quantity
SWLZ0K0-T	⑤	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Bolt Cover	1
	④	Hexagon Socket Bolt $M3 \times 0.5 \times 16$ (SUS)	2

- Notes : 1. The electrode probe on master side strokes 1.5mm (※2) when connecting with KWR.  
 When fixing the cable, make sure there is enough space for the probe operation.
2. The electrode stays connected when released, because its connecting stroke requires 1.5mm which is longer than KWR lift stroke.
- ※3. The optional cable and terminal are not included in the electrode. Please prepare them separately.



● External Option : Cable with Terminal for Compact Electric Power Transmission

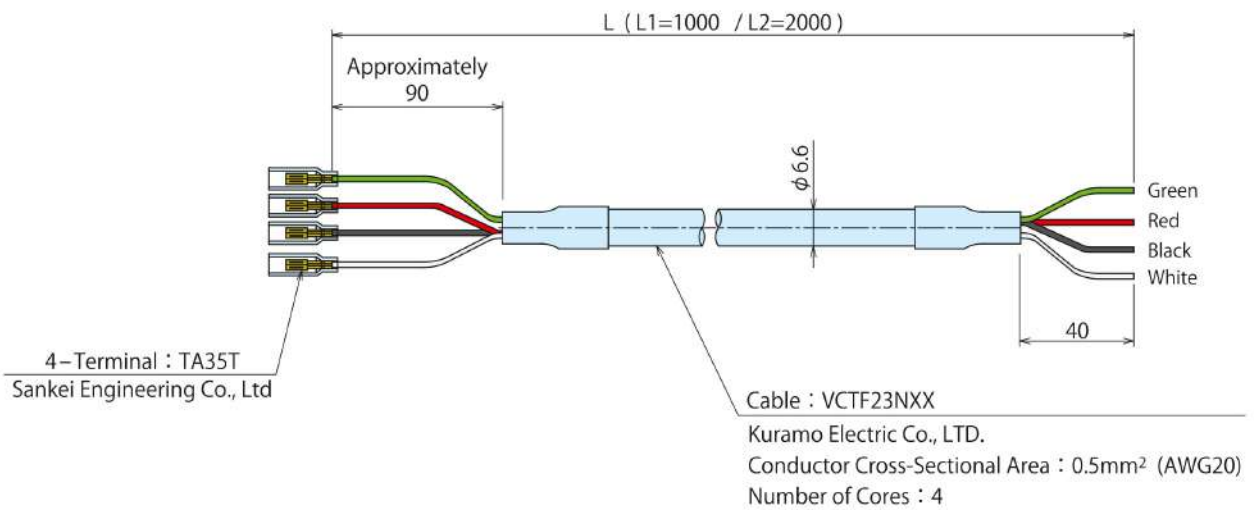
This cable is an optional cable applicable to the Compact Electric Power Transmission.

Model No. Indication

**SWZ0K0-C**

**L1**  
**L2**

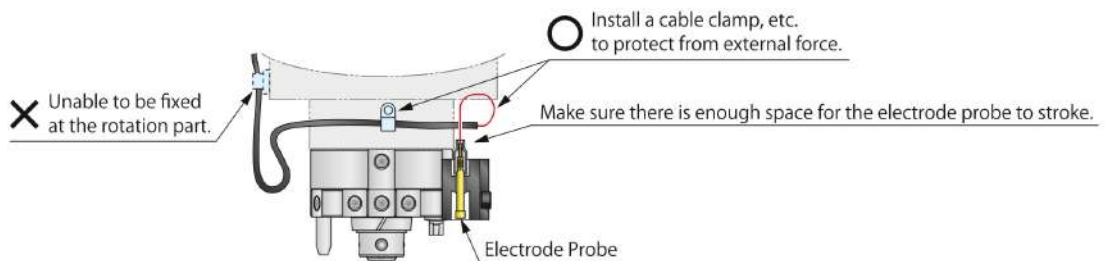
Cable Length  
L1 : 1m  
L2 : 2m



※ A crimp tool for crimping the applicable terminal (TA35T) is required when preparing a cable by yourself referring to this drawing.

**【Notes on Wire/Cable Procedure and Wiring】**

- Make sure to fix the wire and cable so that they are not pulled while a robot is moving or turning around.  
External force should not be applied on the connector part since it leads to breaking of wire, detaching of connector and contact failure.  
However, the electrode probe on master side strokes 1.5mm when connecting with KWR. When fixing the cable, make sure there is enough space for the probe to stroke.



- As for Compact Electric Power Transmission option, the electrode probes on both master cylinder and tool adaptor are exchangeable.  
The electrode probes will be fallen out if pushed from the cable connecting side with power stronger than a certain level.  
In case the electrode probes are pushed out after connecting the cable, make sure to push them back from the seating surface side before use.

■ External Option : Power Transmission Option (Connector Based on MIL-DTL-5015)

Master Cylinder  
model SWRZ0E0-M



Tool Adapter  
model SWRZ0E0-T



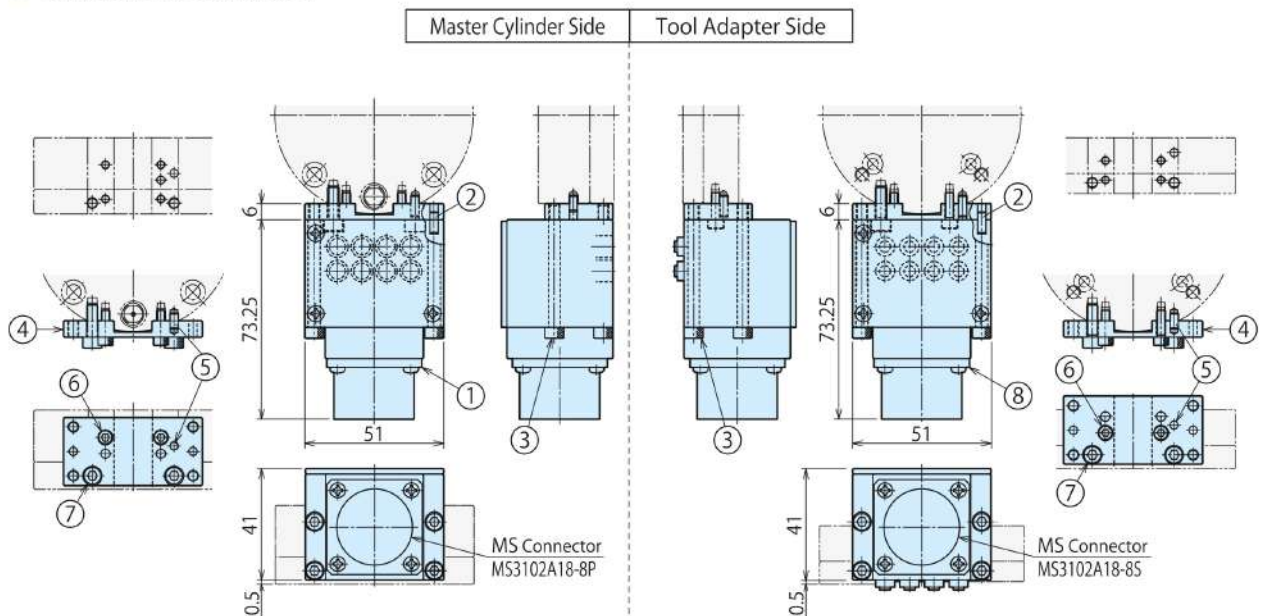
● Specifications

Rated Value (per contact)	AC/DC 200V 5A
Total Current Capacity	24A
Number of Poles (per electrode)	8
Weight※1	Master Cylinder Side Electrode 140g / Bracket 21g
	Tool Adapter Side Electrode 150g / Bracket 21g

※1. Weight per electrode.

Bracket weight shows the weight of SWRZ0E0.

● External Dimensions



Model No.	No.	Name	Quantity
SWRZ0E0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×45 (SUS)	4
SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0E0-T	⑧	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×45 (SUS)	4
SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

■ External Option : High Current Transmission Option (Connector Based on MIL-DTL-5015)

Master Cylinder  
model SWRZ0H0-M



Tool Adapter  
model SWRZ0H0-T



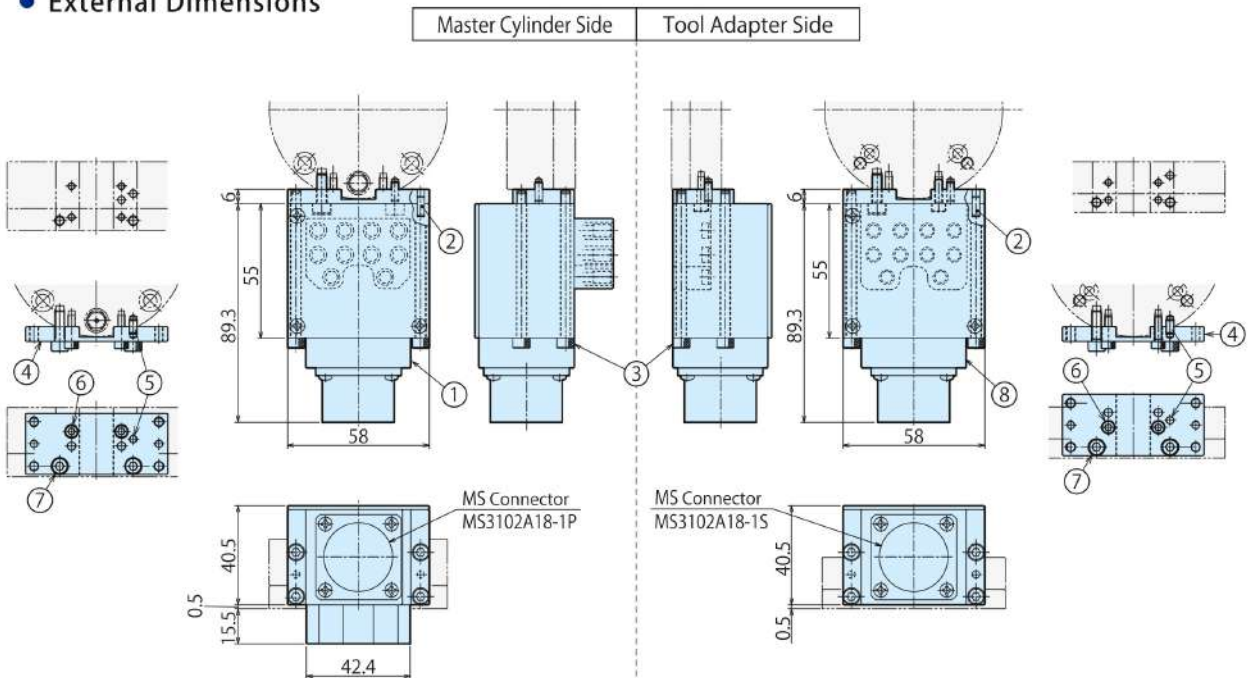
● Specifications

Rated Value (per contact)	AC/DC 200V 13A	
Total Current Capacity	57A	
Number of Poles (per electrode)	10	
Weight ※1	Master Cylinder Side	Electrode 280g / Bracket 24g
	Tool Adapter Side	Electrode 210g / Bracket 24g

※1. Weight per electrode.

Bracket weight shows the weight of SWRZ0H0.

● External Dimensions



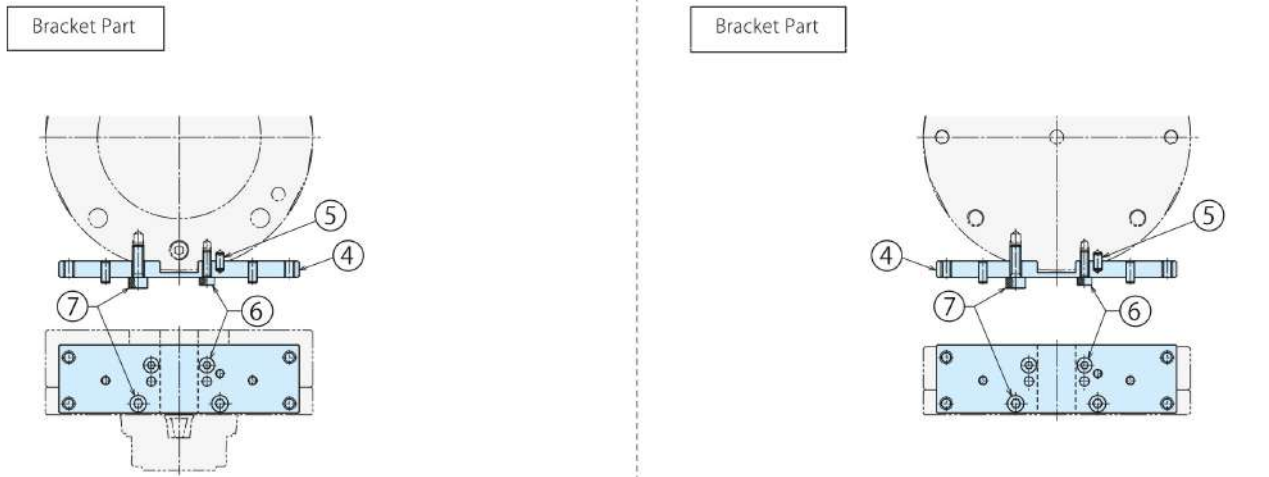
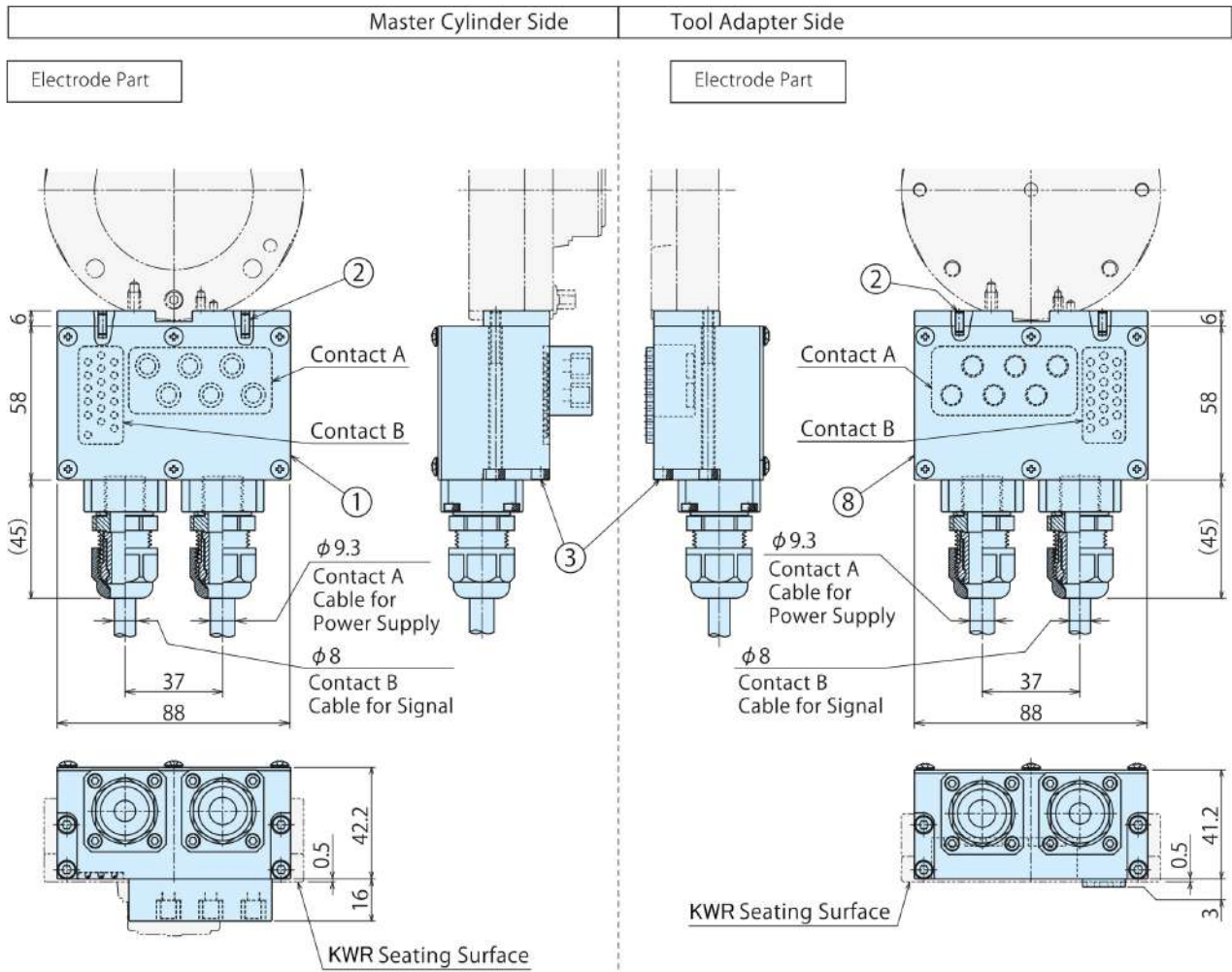
Model No.	No.	Name	Quantity
SWRZ0H0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4 $\times$ 0.7 $\times$ 60 (SUS)	4
SWRZ0H0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3 $\times$ 0.5 $\times$ 10 (SUS)	2
	⑦	Hexagon Socket Bolt M4 $\times$ 0.7 $\times$ 12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0H0-T	⑧	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	1
	③	Hexagon Socket Bolt M4 $\times$ 0.7 $\times$ 60 (SUS)	4
SWRZ0H0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3 $\times$ 0.5 $\times$ 10 (SUS)	2
	⑦	Hexagon Socket Bolt M4 $\times$ 0.7 $\times$ 12 (SUS)	2





● External Dimensions



Model No.	No.	Name	Quantity
SWRZ0F0 -M01/M02/M05	①	Electrode (Master Side)	1
	②	Parallel Pin φ3×8 B type (SUS)	2
	③	Hex. Socket Bolt M4×0.7×60 (SUS)	4
	④	Bracket (Common for Master/Tool Side)	1
SWRZ0F0	⑤	Parallel Pin φ3×6 B type (SUS)	1
	⑥	Hex. Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hex. Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0F0- -T01/T02/T05	⑧	Electrode (Tool Side)	1
	②	Parallel Pin φ3×8 B type (SUS)	2
	③	Hex. Socket Bolt M4×0.7×60(SUS)	4
	④	Bracket (Common for Master/Tool Side)	1
SWRZ0F0	⑤	Parallel Pin φ3×6 B type (SUS)	1
	⑥	Hex. Socket Bolt M3×0.5×10(SUS)	2
	⑦	Hex. Socket Bolt M4×0.7×12(SUS)	2

Notes : 1. For SWRZ0F0-□01/02/05 the lead wire length is different from its shown in the specifications.  
 (SWRZ0F0-□01 : Lead Wire Length 1m, SWRZ0F0-□02 : Lead Wire Length 2m, SWRZ0F0-□05 : Lead Wire Length 5m)



## External Option : Compact Waterproof Electrode (Noncontact Waterproof Option) IP67



### Specifications

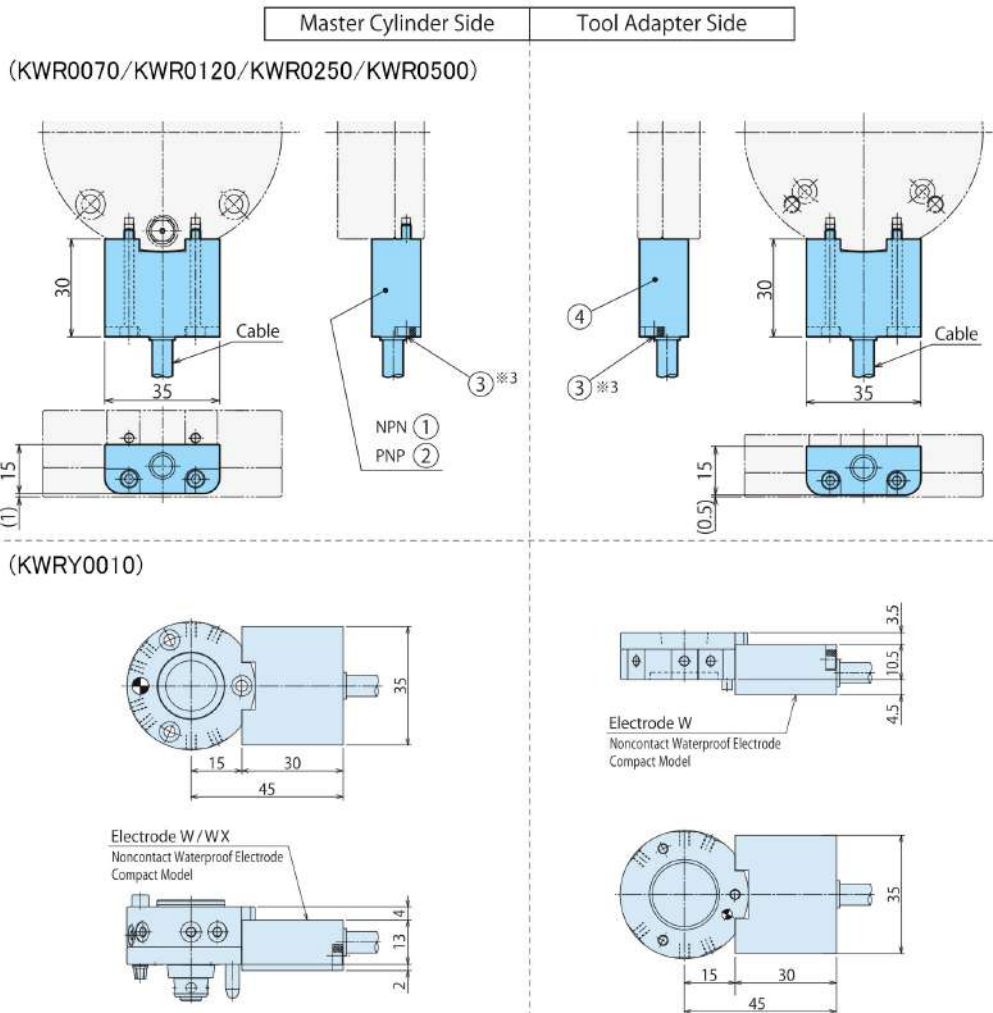
Number of Signals (per electrode)		4
Protection Grade ※1		IP67
Cable		PUR $\phi$ 6.3 7×0.259mm <sup>2</sup>
Cable Length	Master Cylinder Side	2m
	Tool Adapter Side	1m
Weight ※2	Master Cylinder Side	Electrode 20g Cable 60g/m × 2m Bracket for SWR0030 8g
	Tool Adapter Side	Electrode 20g Cable 60g/m × 1m Bracket for SWR0030 8g

※1. Protection grade of the electrode part.

※2. Weight per electrode.

Bracket weight shows the weight of SWRZ0S0-T.

### External Dimensions



Model No.	No.	Name	Quantity
SWRZ0W0-M	①	Electrode (Master Side) <b>NPN</b> (B & Plus)	1
	③	Hexagon Socket Bolt M3×0.5×30 (SUS)※1	2
SWRZ0WX0-M	②	Electrode (Master Side) <b>PNP</b> (B & Plus)	1
	③	Hexagon Socket Bolt M3×0.5×30 (SUS)※1	2

Model No.	No.	Name	Quantity
SWRZ0W0-T	④	Electrode (Tool Side)	1
	③	Hexagon Socket Bolt M3×0.5×30 (SUS)※1	2

Notes : 1. The tightening torque for M3 mounting bolts marked with ※1 should be 0.63 N · m.



## ● Details and Notes on External Option : Compact Noncontact Waterproof Electrode

Applicable Sensor		Electrode Specifications (Tool Adapter Side)		Electrode Specifications (Master Cylinder Side)		LED Indication Status LED : Green	
Supply Voltage	12V DC	Model No.	SWRZ0W0-T	Model No.	NPN SWRZ0W0-M	LED	Meaning
Total Current Consumption	≤60mA	Applicable Sensor	DC 3-Wire Sensor	No.	PNP SWRZ0WX0-M	ON	The power is supplied.
Residual Voltage	≤3.5V	Output Voltage	12V ±1.5V DC	Supply Voltage (Input Voltage)	24V DC ±10% (including Ripple)	OFF	The power is not supplied.
		No. of Input Signals	4	Current Consumption	≤200mA	Blink	Blinks in case of abnormality.
		Total Output Current	≤30mA / ≤60mA	No. of Output Signals	4 + 1 (Inzone)		
		Operating Distance	0~3mm / 0~2mm	Load Current	≤50mA / 1 Output		
		Operating Temperature	0 ~ 50°C	Operating Temperature	0 ~ 50°C		
		Protection Grade	IP67	Protection Grade	IP67		
		Material	ABS	Material	ABS		
			PUR φ6.3 / 7×0.259mm <sup>2</sup>		PUR φ6.3 / 7×0.259mm <sup>2</sup>		
		Cable	Hitachi Metals, Ltd. RBT-VUCTF	Cable	Hitachi Metals, Ltd. RBT-VUCTF		

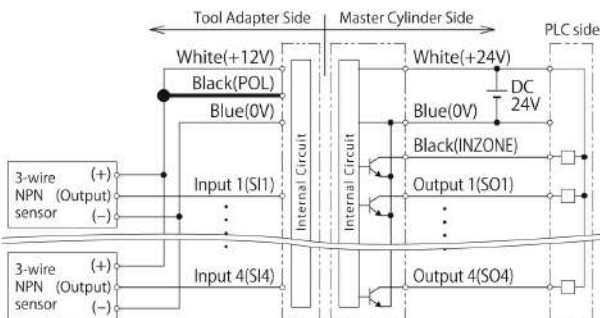
※ Total current consumption of sensors must not exceed the total rated output current.

■ LED Indication Inzone LED : Orange  
The master cylinder and tool adapter are opposed, LED is lit when you can communicate.

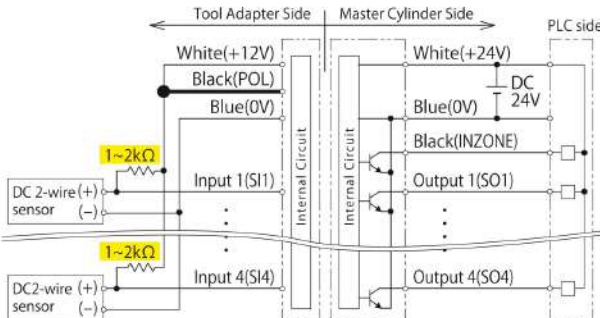
### Wiring Diagram

#### SWRZ0W0-M (NPN)

##### ■ For DC 3-wire NPN sensor connection



##### ■ For DC 2-wire sensor connection (when NPN is set)

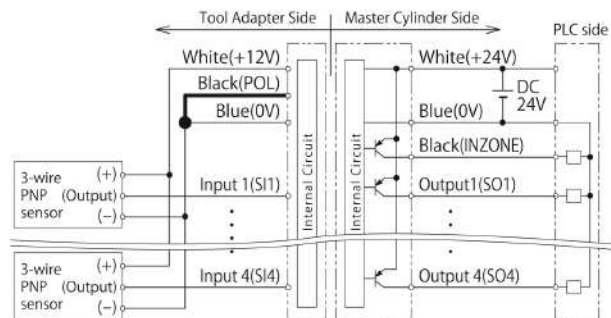


■ When connecting a DC 2-wire sensor, ensure to wire a resistor of about 1 to 2 kΩ.

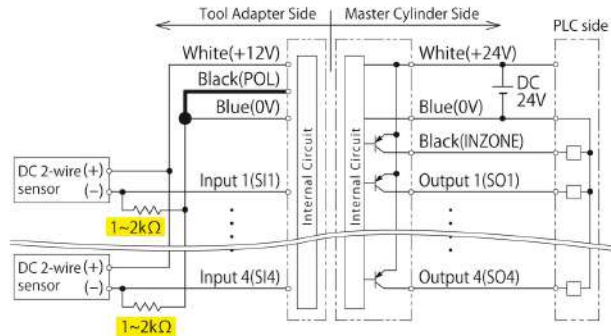
■ POL is wiring for switching the polarity (NPN/PNP) of the sensor.

#### SWRZ0WX0-M (PNP)

##### ■ For DC 3-wire PNP sensor connection



##### ■ For DC 2-wire sensor connection (when PNP is set)



### Wiring Color

#### ■ Electrode for Tool Adapter side

Output +12V	White
Output 0V	Blue
Polarity Switching POL	Black
Input 1 (SI1)	Brown
Input 2 (SI2)	Red
Input 3 (SI3)	Yellow
Input 4 (SI4)	Green

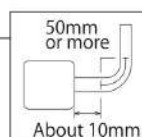
#### ■ Electrode for Master Cylinder side

Input +24V	White
Input 0V	Blue
INZONE	Black
Output 1 (SO1)	Brown
Output 2 (SO2)	Red
Output 3 (SO3)	Yellow
Output 4 (SO4)	Green

### Bending Radius of Cable

The minimum bending radius for the sensors are 50mm.

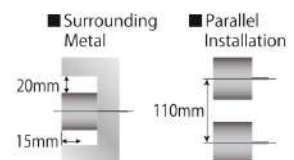
※ Do not pull the cable with excessive force.



### Attention for Installation

(Read this section thoroughly before installation.)

- ◆ Ensure the power is switched off during installation or maintenance operations.
- ◆ Use a regulated power supply, e.g. switch-model type. Simpler power supplies, such as a full-wave rectification type, will cause the permissible ripple rating to be exceeded and may cause malfunction.
- ◆ Do not put metal objects between electrodes during operation. Failure to do so may cause heat generation, ignition, or malfunction.
- ◆ Ensure correct connections by referencing the wiring diagram.
- ◆ To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cable.
- ◆ The control communication device in the product may affect electronic devices and medical devices. Persons wearing pacemakers should stay away from this product.
- ◆ In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described on the right.



The information above is quoted from B & Plus K.K. Remote System User's Guide (No.T315201G).

Please contact B & Plus K.K. (TEL 81(0)-493-71-5160) for further information about electrodes (Model No. SWRZ0W0-M-\_\_ / SWRZ0W0-T-\_\_).

## External Option : Waterproof Electrode (Noncontact Waterproof Option) IP67

Master Cylinder  
model SWRZ0 V 0 - M M05  
V : NPN  
VX: PNP

Tool Adapter  
model SWRZ0 V 0 - T  
For both  
NPN and PNP



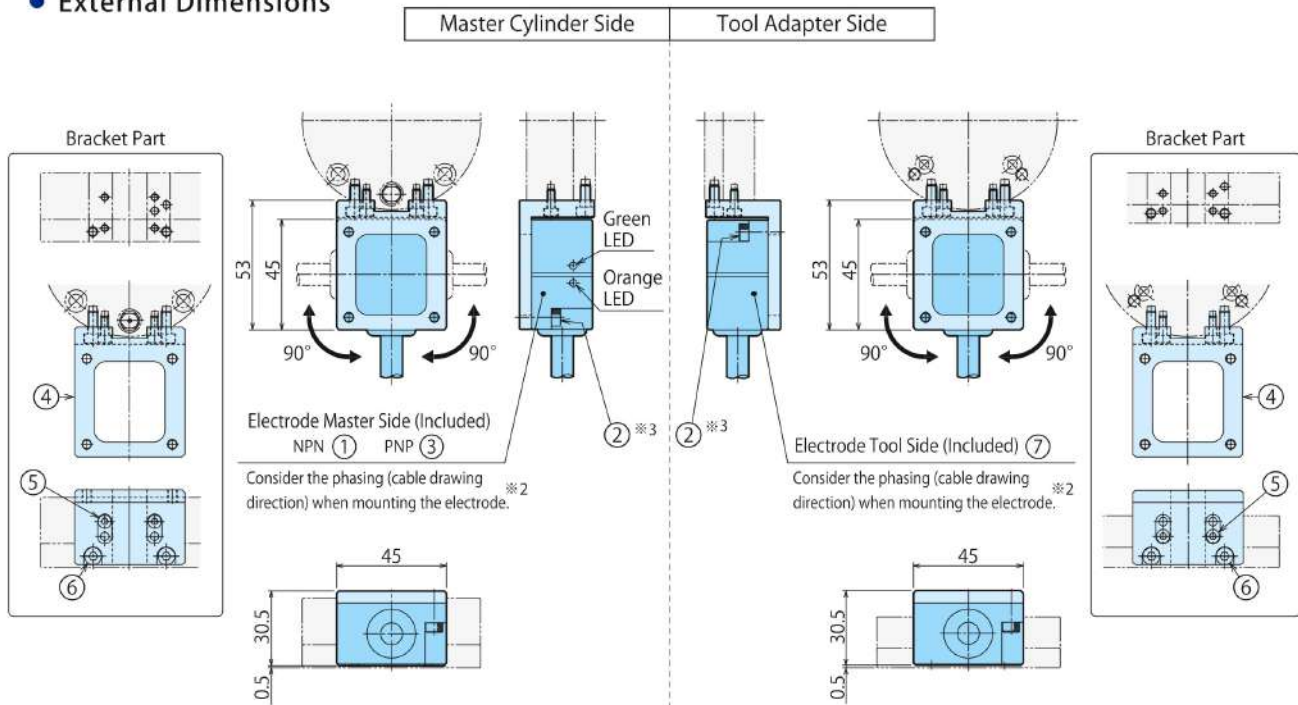
### Specifications

Number of Signals (per electrode)	12	
Protection Grade <sup>※1</sup>	IP67	
Cable	PUR φ8.6 2×0.5mm <sup>2</sup> +13×0.18mm <sup>2</sup>	
Cable Length	- M	2m
	- M05	5m
	- T	1m
Weight <sup>※2</sup>	Master Cylinder Side	Electrode + Bracket 130g
	- M (Cable 2m)	Cable 210g
	Master Cylinder Side	Electrode + Bracket 130g
- M05 (Cable 5m)	Cable 525g	
Tool Adapter Side	Electrode + Bracket 130g	
	Cable 105g	

※1. Protection grade of the electrode part.

※2. Weight per electrode.

### External Dimensions



Model No.	No.	Name	Quantity
SWRZ0V0 -M/M05	①	Electrode (Master Side) NPN Made by B & Plus RS12E-422N-PU-02/05	1
	②	Hexagon Socket Bolt M4×0.7×12 (SUS) <sup>※3</sup>	2
SWRZ0VX0 -M/M05	③	Electrode (Master Side) PNP Made by B & Plus RS12E-422P-PU-02/05	1
	②	Hexagon Socket Bolt M4×0.7×12 (SUS) <sup>※3</sup>	2
SWRZ0V0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Hexagon Socket Bolt M3×0.5×8 (SUS)	2
	⑥	Hexagon Socket Bolt M4×0.7×8 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0V0-T	⑦	Electrode (Tool Side) Made by B & Plus RS12T-422-PU-01	1
	⑧	Hexagon Socket Bolt M4×0.7×12 (SUS)	2
SWRZ0V0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Hexagon Socket Bolt M3×0.5×8 (SUS)	2
	⑥	Hexagon Socket Bolt M4×0.7×8 (SUS)	2

Notes: 1. For SWRZ0V0-M/M05 and SWRZ0VX0-M/M05, cable length of -M is 2m, and cable length of -M05 is 5m.

※2. Even if the mounting phase of electrode on master and tool sides is different, signals can be transmitted.  
Determine the mounting phase of electrodes based on the cable drawing direction.

※3. The tightening torque for M4 mounting bolts marked with ※3 should be 1.5 N · m.



## ● Details and Notes on External Option : Noncontact Waterproof Electrode

Applicable Sensor		Electrode Specifications (Tool Adapter Side)		Electrode Specifications (Master Cylinder Side)		LED Indication Status LED : Green	
Supply Voltage	12V DC	Model No.	SWRZ0V0-T	Model No.	NPN SWRZ0V0-M/M05	LED	Meaning
Total Current Consumption	≤230mA	Applicable Sensor	DC 3-Wire Sensor	No.	PNP SWRZ0VX0-M/M05	ON	The power is supplied.
Residual Voltage	≤3.5V	Output Voltage	12V ±1.5V DC	Supply Voltage (Input Voltage)	24V DC ±10% (Including Ripple)	OFF	The power is not supplied.
		Total Output Current	≤230mA	Current Consumption	≤600mA	Blink	Blinks in case of abnormality.
		No. of Input Signals	12	No. of Output Signals	12 +1 (INZONE)		
		Operating Distance	2~5mm	Load Current	≤50mA / 1 Output		
		Operating Temperature	0 ~ 50°C	Operating Temperature	0 ~ 50°C		
		Protection Grade	IP67	Protection Grade	IP67		
		Material	ABS	Material	ABS		
		Cable	PUR φ8.6 2×0.5mm <sup>2</sup> +13×0.18mm <sup>2</sup>	Cable	PUR φ8.6 2×0.5mm <sup>2</sup> +13×0.18mm <sup>2</sup>		

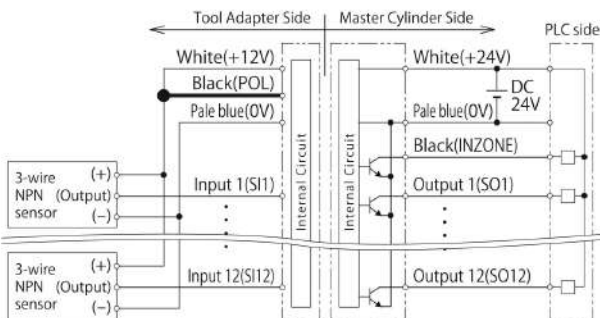
※ Total current consumption of sensors must not exceed the total rated output current.

■ LED Indication Inzone LED : Orange  
The master cylinder and tool adapter are opposed, LED is lit when you can communicate. When there is an output signal from each sensor, it flashes accordingly.

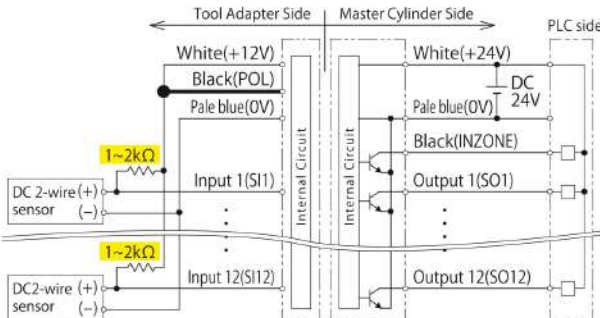
### Wiring Diagram

#### SWRZ0V0-M/M05 (NPN)

##### ■ For DC 3-wire NPN sensor connection



##### ■ For DC 2-wire sensor connection (when NPN is set)

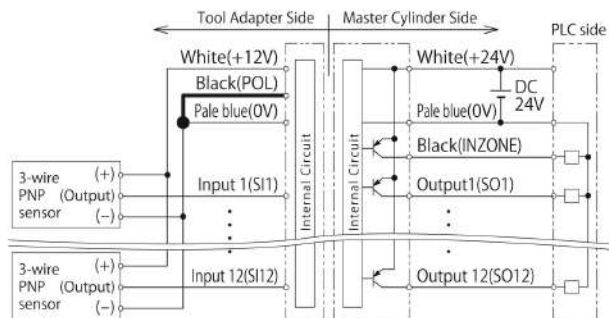


■ When connecting a DC 2-wire sensor, ensure to wire a resistor of about 1 to 2 k Ω.

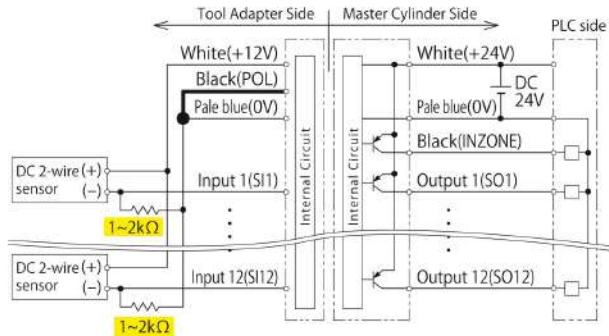
■ POL is wiring for switching the polarity (NPN/PNP) of the sensor.

#### SWRZ0VX0-M/M05 (PNP)

##### ■ For DC 3-wire PNP sensor connection



##### ■ For DC 2-wire sensor connection (when PNP is set)



### Wiring Color

#### ■ Electrode for Tool Adapter side

Output +12V	White
Output 0V	Pale blue
Polarity Switching POL	Black
Input 1 (SI1)	Brown
Input 2 (SI2)	Red
Input 3 (SI3)	Orange
Input 4 (SI4)	Yellow
Input 5 (SI5)	Green
Input 6 (SI6)	Blue
Input 7 (SI7)	Violet
Input 8 (SI8)	Gray
Input 9 (SI9)	Brown * ■ ■
Input 10 (SI10)	Red * ■ ■
Input 11 (SI11)	Orange * ■ ■
Input 12 (SI12)	Yellow * ■ ■

■ \* is the line where ■ ■ is printed on the core wire of each color. The unused lines are green \*, blue \*, and violet \*.

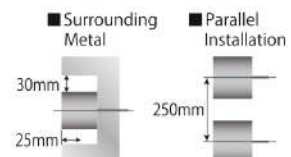
#### ■ Electrode for Master Cylinder side

Input +24V	White
Input 0V	Pale blue
INZONE	Black
Output 1 (SO1)	Brown
Output 2 (SO2)	Red
Output 3 (SO3)	Orange
Output 4 (SO4)	Yellow
Output 5 (SO5)	Green
Output 6 (SO6)	Blue
Output 7 (SO7)	Violet
Output 8 (SO8)	Gray
Output 9 (SO9)	Brown * ■ ■
Output 10 (SO10)	Red * ■ ■
Output 11 (SO11)	Orange * ■ ■
Output 12 (SO12)	Yellow * ■ ■

### Attention for Installation

(Read this section thoroughly before installation.)

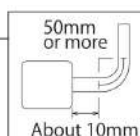
- ◆ Ensure the power is switched off during installation or maintenance operations.
- ◆ Use a regulated power supply, e.g. switch-model type. Simpler power supplies, such as a full-wave rectification type, will cause the permissible ripple rating to be exceeded and may cause malfunction.
- ◆ Do not put metal objects between electrodes during operation. Failure to do so may cause heat generation, ignition, or malfunction.
- ◆ Ensure correct connections by referencing the wiring diagram.
- ◆ To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cable.
- ◆ The control communication device in the product may affect electronic devices and medical devices. Persons wearing pacemakers should stay away from this product.
- ◆ In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described on the right.



### Bending Radius of Cable

The minimum bending radius for the sensors are 50mm.

※ Do not pull the cable with excessive force.



The information above is quoted from B & Plus K.K. Remote System User's Guide (No.T313A01Ue). Please contact B & Plus K.K. (TEL 81 (0)-493-71-5160) for further information about electrodes (Model No. RS12E-422□-PU-02/05 and RS12T-422-PU-01).



## External Option : Ethernet Electrode

Master Cylinder  
model SWRZ0L0-M



Tool Adapter  
model SWRZ0L0-T



### Specifications

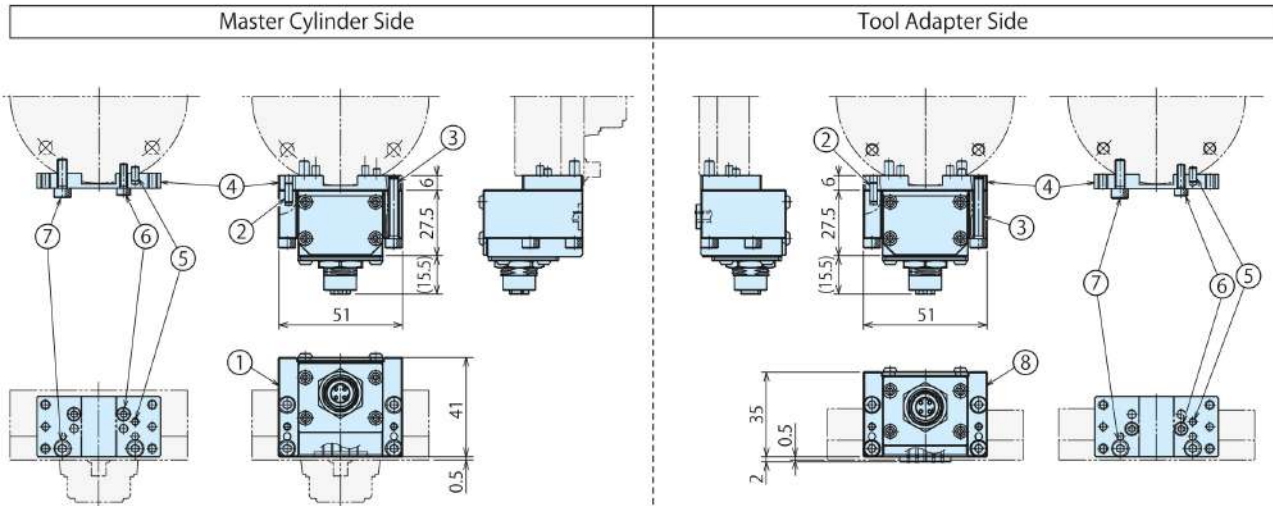
Rated Value (per contact)	DC 30V 0.5A	
Number of Poles (per electrode)	4	
Connector	M12 D-code 4 poles (female) (based on IEC61076-2-101)	
Ethernet Applicable Standard	100BASE-TX ※3	
Transmission Speed	100Mbps ※3	
Category	CAT5	
Applicable Fieldbus	EtherNet/IP EtherCAT PROFINET Modbus TCP CC-Link IE Field Network Basic ※2	
Weight※1	Master Cylinder Side	Electrode : 106g Bracket : 16g
	Tool Adapter Side	Electrode : 96g Bracket : 16g

※1. Weight per electrode. Bracket weight shows the weight of SWRZ0E0.

※2. Cannot be used with a fieldbus that requires a communication speed of 1Gbps such as CC-Link IE.

※3. In the case transmission speed of Ethernet applicable standard 1000BASE-T (transmission speed : 1 Gbps) is required, please contact us.

### External Dimensions (KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWRZ0L0-M	①	Electrode (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×25 (SUS)	4
SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0L0-T	⑧	Electrode (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×25 (SUS)	4
SWRZ0E0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 6$ B type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

■ External Option : Air Joint (3-Port Option (1 Port Rc1/8))

Extensible Options :  
Resin Connector, Solder Terminal

Master Cylinder  
model SWLZ0R0-M

Tool Adapter  
model SWLZ0R0-T

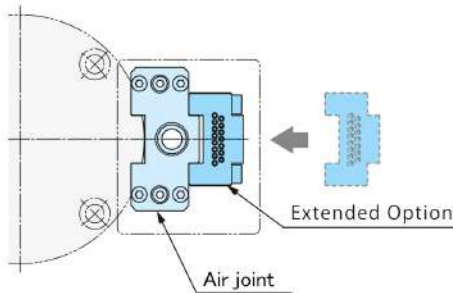


● Specifications

Port Size	Rc1/8	M5	
Number of Ports	1	2	
Operating Pressure	KWR0070 or larger	max. 0.7MPa (Vacuum Available)	
	KWR0030	max. 0.5MPa (Vacuum Available)	
Withstanding Pressure	1.1MPa		
Min. Passage Area	28.3mm <sup>2</sup>	3.1mm <sup>2</sup>	
Operating Temperature	0 ~ 70°C		
Usable Fluid	Dry Air		
Reaction Force (per port)	Pressure at: 0.7 MPa	0.13 kN	0.04kN
	Pressure at: 0.5 MPa	0.10 kN	0.03kN
	Pressure at: P MPa	0.154×P+0.019 kN	0.047×P+0.008 kN
Weight ※1	Master Cylinder Side	Air Joint 51g	
	Tool Adapter Side	Air Joint 25g	

※1. Weight per joint.

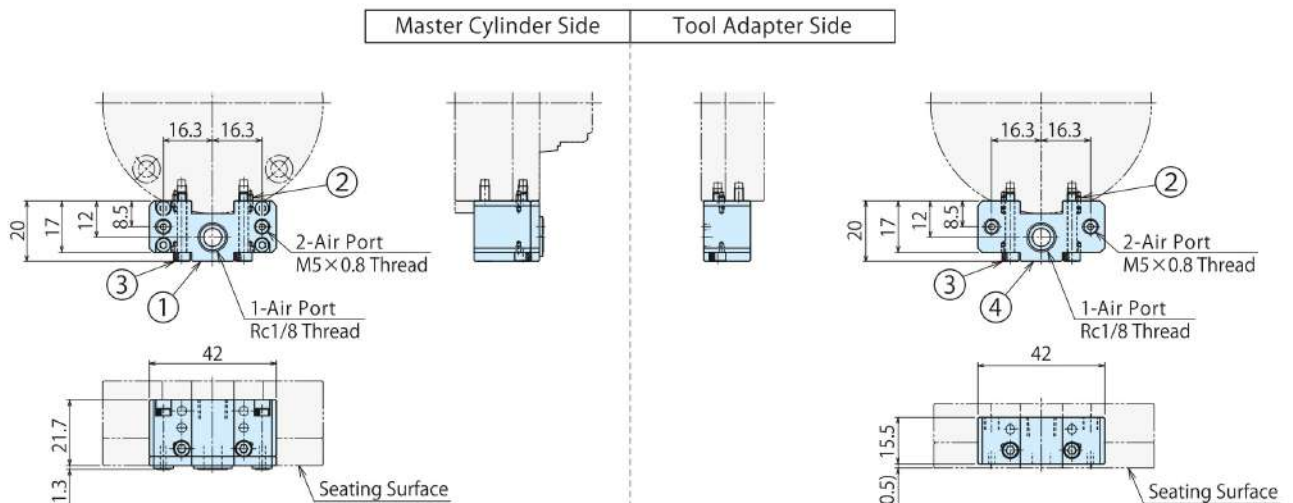
● Extensible Options Additional electrode can be extended to this option



Expandable optional explode	Main unit type				
	KWRY0010	KWR0070	KWR0120	KWR0250	KWR0500
SWRZ0J0-□: Resin connector		●	●	●	●
SWLZ0C0-□01/02: Solder terminal with cable	N/A	●	●	●	●

Please contact us for detailed dimensions for expansion.

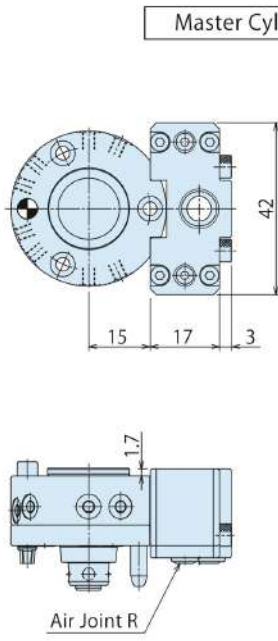
● External Dimensions (KWR0070/KWR0120/KWR0250/KWR0500)



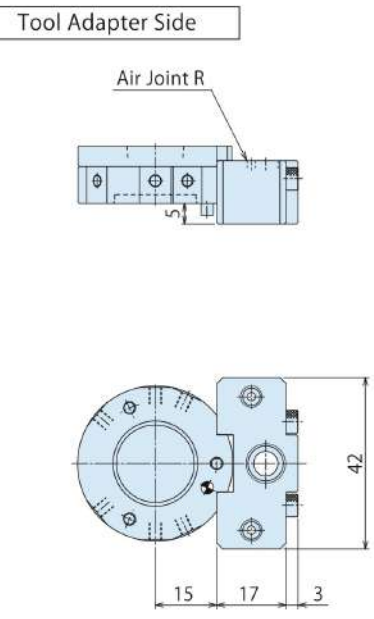
Model No.	No.	Name	Quantity
SWLZ0R0-M	①	Joint (Master Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Hexagon Socket Bolt M3×0.5×20 (SUS)	2

Model No.	No.	Name	Quantity
SWLZ0R0-T	④	Joint (Tool Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Hexagon Socket Bolt M3×0.5×20 (SUS)	2

● External Dimensions (KWR0010)



Model No.	No.	Name	Quantity
SWLZ0R0-M	①	Joint (Master Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Hexagon Socket Bolt M3 $\times 0.5 \times 20$ (SUS)	2



Model No.	No.	Name	Quantity
SWLZ0R0-T	④	Joint (Tool Side)	1
	②	Parallel Pin $\phi 1.5 \times 4$ B Type (SUS)	2
	③	Hexagon Socket Bolt M3 $\times 0.5 \times 20$ (SUS)	2



## External Option : Air Joint (4-Port, Solder Terminal Extensible Option)

Extensible Options :  
Resin Connector, Solder Terminal

Master Cylinder  
model SWLZ0P0-M



Tool Adapter  
model SWLZ0P0-T

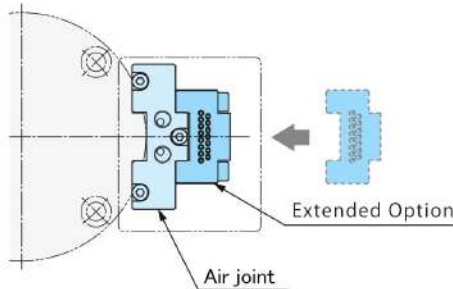


### Specifications

Number of Ports	4	
Operating Pressure	max. 1.0MPa (Vacuum Available)	
Withstanding Pressure	1.5MPa	
Min. Passage Area	2.0mm <sup>2</sup> (Equal to $\phi$ 1.6)	
Operating Temperature	0 ~ 70°C	
Usable Fluid	Dry Air	
Reaction Force (per port)	Pressure at 1 MPa	0.03 kN
	Pressure at 0.5MPa	0.02 kN
	Pressure at P MPa	$0.027 \times P + 0.004$ kN
Weight ※1	Master Cylinder Side	Joint 43g
	Tool Adapter Side	Joint 26g

※1. Weight per joint.

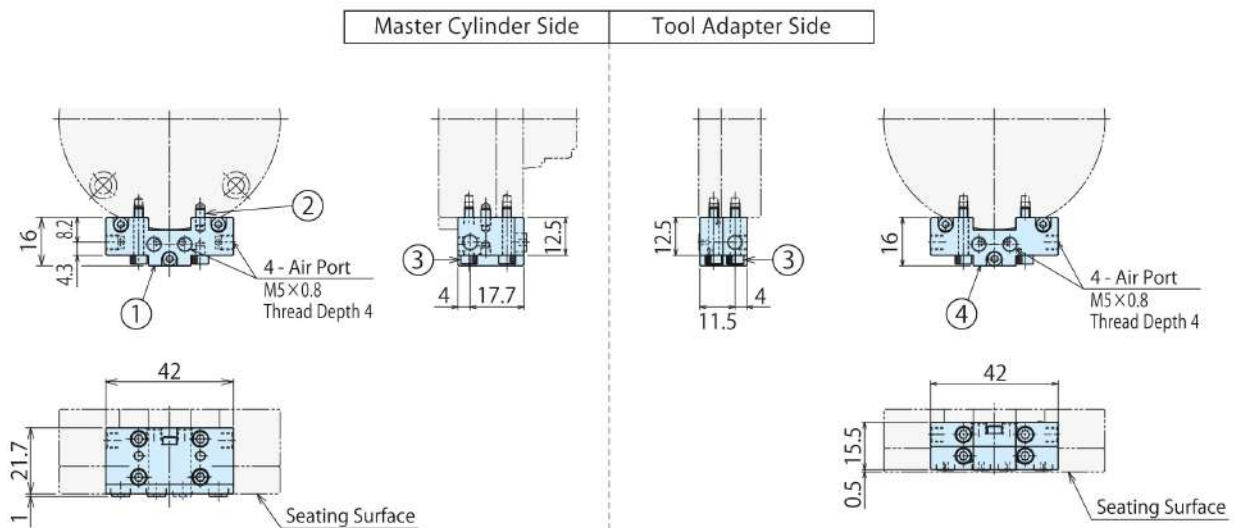
### Extensible Options Additional electrode can be extended to this option.



Expandable optional explode	Main unit type				
	KWRY 0010	KWR 0070	KWR 0120	KWR 0250	KWR 0500
SWRZ0J0-□: Resin connector	N/A	●	●	●	●
SWLZ0C0-□01/02: Solder terminal with cable	N/A	●	●	●	●

Please contact us for detailed dimensions for expansion.

### External Dimensions (KWR0070/KWR0120/KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWLZ0P0-M	①	Joint (Master Side)	1
	②	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	③	Hexagon Socket Bolt M3×0.5×16 (SUS)	4

Model No.	No.	Name	Quantity
SWLZ0P0-T	④	Joint (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 6$ B Type (SUS)	1
	③	Hexagon Socket Bolt M3×0.5×16 (SUS)	4

## External Option : Air Joint

Master Cylinder  
model SWRZ0Q0-M



Tool Adapter  
model SWRZ0Q0-T



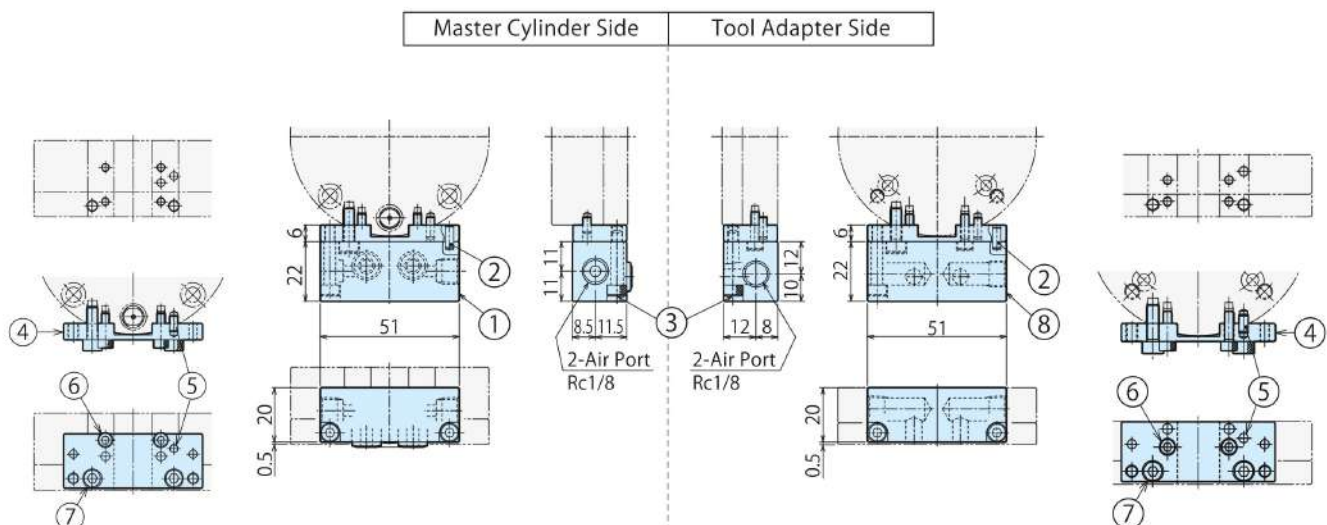
### Specifications

Number of Ports	2	
Operating Pressure	max. 1.0MPa (Vacuum Available)	
Withstanding Pressure	1.5MPa	
Min. Passage Area	12.6mm <sup>2</sup> (Equal to $\phi 4$ )	
Operating Temperature	0 ~ 70°C	
Usable Fluid	Dry Air	
Reaction Force (per port)	Pressure at 1 MPa	0.13 kN
	Pressure at 0.5MPa	0.07 kN
	Pressure at P MPa	$0.117 \times P + 0.01$ kN
Weight ※1	Master Cylinder Side	Joint 70g / Bracket 17g
	Tool Adapter Side	Joint 60g / Bracket 17g

※1. Weight per joint.

Bracket weight is the weight of SWRZ0Z0.

### External Dimensions (KWR0250/KWR0500)



Model No.	No.	Name	Quantity
SWRZ0Q0-M	①	Joint (Master Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×20 (SUS)	2
Bracket SWRZ0Z0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2

Model No.	No.	Name	Quantity
SWRZ0Q0-T	⑧	Joint (Tool Side)	1
	②	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	2
	③	Hexagon Socket Bolt M4×0.7×20 (SUS)	2
Bracket SWRZ0Z0	④	Bracket (Common for Master/Tool Side)	1
	⑤	Parallel Pin $\phi 3 \times 8$ B Type (SUS)	1
	⑥	Hexagon Socket Bolt M3×0.5×10 (SUS)	2
	⑦	Hexagon Socket Bolt M4×0.7×12 (SUS)	2