



ISC Inner Soft Clamp

User Manual



Version: V3.0
Soft Robot Tech Co.,Ltd

Safety notes

Thank you for purchasing the ISC Inner Soft Clamp of SRT. Please read the installation manual carefully before use so as to operate and use this product correctly.

This manual provides a safe and effective way of operation for users. Please keep it properly after reading for future reference.



Warning!

- Please strictly follow the safety precautions !
- Maintenance or wiring operation should be carried out after 30 seconds of disconnecting the power supply to prevent electric shock risk !
- Please do not carry out maintenance operation during robot movement !
- Please avoid sharp items during the use and storage of ISC Inner Soft Clamp!
- When ISC Inner Soft Clamp needs to be repaired, please contact our company for sales, and rework if necessary.
- When discarding ISC Inner Soft Clamp, please treat them according to industrial waste standards to avoid pollution to the environment !
- When the product is used in equipment directly related to personal safety (medical equipment, entertainment equipment, industrial machinery and equipment, etc.), we must pay attention to the preparation of auxiliary protective measures to avoid possible personal injury !

Contents

1. Product Introduction	2
1.1 Working Principles	2
1.2 Product form	3
2. Technical Parameters	4
2.1 Standard sizes	4
2.2 Enter the air supply value	6
3. installation and use	6
3.1 Product installation	6
3.2 Product replacement	7
4. cleaning and maintenance	9
4.1 clean	9
4.2 Disinfect	9
4.3 Protection	9
5. The common fault analysis and the solution	10

1. Product Introduction

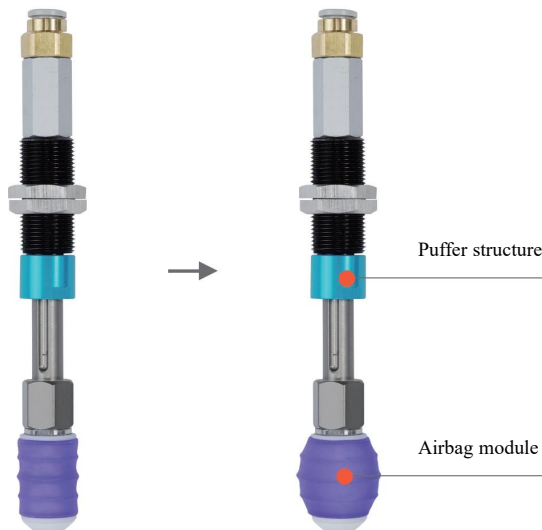
The Inner Soft Clamp is the latest developed micro gripper series of SRT. In industrial production and production lines, it is necessary to pick up some objects. Sometimes, because it is not convenient to directly contact the external surface, or because the wall thickness is thin, the internal surface is easy to damage, the internal space is small, and the outline is complex, it is impossible to use metal or other rigid fixtures for Inner Soft Clamping. The cost of developing a special rigid fixture is high, and it cannot be applied to other objects at the same time.

The Inner Soft Clamp product adopts soft anti skid and anti friction material, which has large expansion range, good flexibility and low cost. The clamping is carried out by holding the inner wall from the inside, and the object is internally supported or fixed without negative pressure, which has certain safety and stability.

1.1 Working Principles

Input positive pressure: Fixture extends, self-adaptively supporting at internal surface of the object and completing grasping.

Input negative pressure: Fixture presents natural state and releases the object.



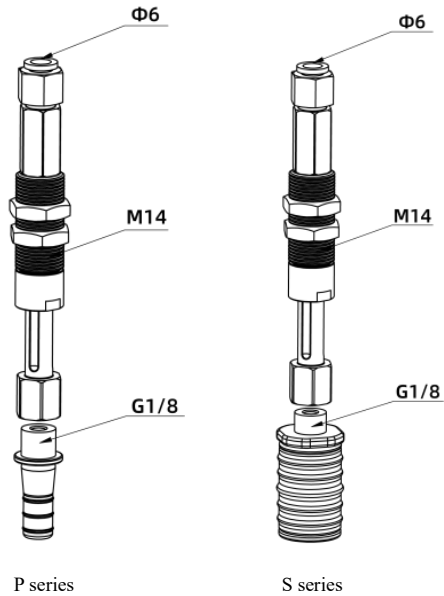
1.2 Product form

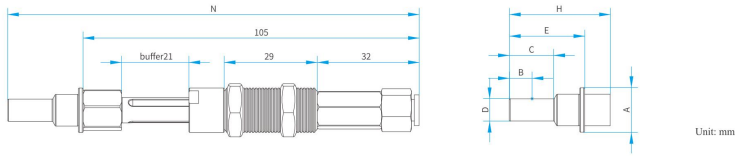


2. Technical Parameters

Driving media	Clean air
Maximum Operating frequency (cpm)	300
Whether can replace endently	√ P series × Sseries
Standard working Lifespan	>100,000times

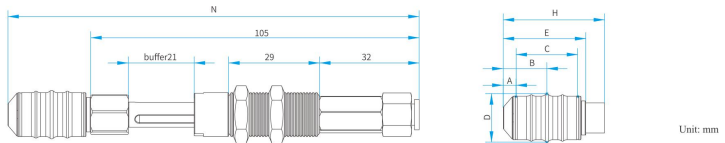
2.1 Standard sizes



P series


Unit: mm

Model	Total height of airbag module H	Contact surface diameter D	Diameter of structural part A	Height from the working diameter to the bottom B	Height of effective contact surface C	Working height of airbag module E	Total length N
ISC-P4.5E	25.5	4.5	14	4	8	17.5	E+105
ISC-P5E	27.5	5	14	5	10	19.5	E+105
ISC-P6E	30.5	6	14	6	12	22.5	E+105
ISC-P7E	31.5	7	14	7	14	23.5	E+105
ISC-P8E	31.5	8	14	7	14	23.5	E+105
ISC-P9E	32.5	9	14	7.5	15	24.5	E+105
ISC-P10E	32.5	10	14	7.5	15	24.5	E+105
ISC-P11E	34.5	11	14	7.5	15	26.5	E+105

S series


Unit: mm

Model	Total height of airbag module H	Contact surface diameter D	guide height A	Height from the working diameter to the bottom B	Height of effective contact surface C	Working height of airbag module E	Total length N
ISC-S14E	32.5	14	4	14	20	26.5	E+105
ISC-S15.5E	32.5	15.5	4	14	20	26.5	E+105
ISC-S18E	40.5	18	6	19	26	34.5	E+105
ISC-S20.5E	40.5	20.5	6	19	26	34.5	E+105
ISC-S23E	40.5	23	6	19	26	34.5	E+105

2.2 Enter the air supply value

Product number	Operating pressure range /kPa
ISC-SC6-P4.5E	0-120
ISC-SC6-P5E	0-120
ISC-SC6-P6E	0-100
ISC-SC6-P7E	0-100
ISC-SC6-P8E	0-100
ISC-SC6-P9E	0-100
ISC-SC6-P10E	0-100
ISC-SC6-P11E	0-100
ISC-SC6-S14E	0-100
ISC-SC6-S15.5E	0-100
ISC-SC6-S18E	0-85
ISC-SC6-S20.5E	0-85
ISC-SC6-S23E	0-85

3. installation and use

3.1 Product installation

After you confirm that all parts are complete and complete, prepare the following tools or raw materials and then assemble them according to the following steps. If you find the parts and accessories damaged or missing, please contact after-sales in time.

Preparation tools:

Adjustable wrench

a. P series

1. Align one end of the P series connector (threadless) to the opening of the P series airbag colloid;
2. After alignment hold the airbag colloid non-working face (thick part) slowly force insert until the top of the silicone airbag to the P series connector plane.
3. Cover the seal ring (translucent) into the thread side of the P series connector, and then install the P series connector on the buffer rod.
4. After installation, insert the gas pipe corresponding to the size of the pneumatic joint to test air tightness.

b. S Series

1. Cover the seal ring (translucent) into the thread side of the S series connector, and then install the S series internal support airbag on the buffer rod (black end).
2. In the thread of the pneumatic joint (G1 / 8), the active wrench is used to install it on the buffer rod (gray end).
3. After installation, insert the gas pipe corresponding to the size of the pneumatic joint to test air tightness.

3.2 Product replacement**a. P series**

1. Ensure that the gas source is closed and disconnect the trachea of P series internal support fixture.
2. P series airbag slowly rotating side pull out, replace the required P series airbag colloid, and in accordance with the correct installation method.

b. S series

1. Ensure that the gas source is closed and disconnect the trachea of S series internal support fixture.
2. Use the active wrench to remove the S series airbag, and install and use according to the correct installation method.

Note: The balloon gel cannot be replaced.

3.3 Airway construction guide

普通零件清单										
编 号										
依 据										
日 期										
零件名称										
数量										
日期										

SRT-ISC-01-V10

技术要求

- 1.气源清洁、干燥，气压为1-1bar。
- 2.气源压力和压力的测定值，按照现场工况测试确定。
- 3.气路系统在10bar以下连接。

序号	代号	名称	数量	材料	备注
1	AC20C-02CE-B	空气过滤器/节流组件	1		SMC
2	ITV0030-3CS	正压源比例阀	1		SMC
3	WK334-5G-01	方形电磁阀	1		SMC
4	ZSELD4E-01-R	大流量压力开关	1		SMC

北京软件机器人技术有限公司				SRT内藏夹具	
Beijing Software Robot Co., Ltd.				气动原理图	
设计	审核	日期	重量	张数	
				1/1	
SRT-ISC-01-V10					

4. cleaning and maintenance

4.1 clean

The slight dust can be wiped with dust-free cloth. The slight stains can be washed directly with water. The places that cannot be washed can be brushed gently with a brush. Cleaning agents can be used in the cleaning process. After cleaning, the water absorbent cloth is used to clean.

4.2 Disinfect

Steam disinfection is recommended, and the color change of products caused by temperature change is normal. When using alcohol disinfection, the dosage should not be too much, otherwise it will lead to yellowing. It is not recommended to use ultraviolet, ozone, 84 and other disinfection, and the resulting product aging needs to be borne by users themselves.

4.3 Protection

Silicone rubber has stable chemical properties and can resist weak acid and weak alkali at room temperature. However, long-term exposure to some strong acid and strong alkali and organic solvents will have a great impact on its performance and life.

5. The common fault analysis and the solution

If you encounter an exception when using this product, please refer to the following tips and processing methods. If the abnormal situation continues to occur, stop using this product immediately to prevent accidents. And immediately contact the sales staff, please do not repair this product by yourself.

Problem	Possible reason	Solution
Frequent inflation when the airbag is inflated	Air leakage of controller outlet pipe or airbag internal support fixture	Segmented Test Controller and Airtightness of Balloon Type Internal Fixture to Ensure Good Airtightness
The air bag leaks and cannot be inflated	Excessive air pressure or overload lead to life exhaustion	Replace the product according to the 3.2 instructions of this article
The air bag is not inflated uniformly or appears obvious whitening	Irreversible yield deformation resulting from the use of excess working pressure or friction with the outside world	Please contact after sales or replace by yourself in accordance with the product replacement instructions in 3.2 of this article

Warranty service

- ① Free maintenance within 6 months from shipment date;
- ② If malfunctions of the product occur and they are verified to originate from quality problems of the product, free repairing or product replacement will be provided by our company. However, if they originate from misoperation of the user, our company shall not take any responsibility. Losses or accident responsibilities caused by product malfunctions are not covered by this guarantee.
- ③ In addition, the warranty is not available if product damage or failure are caused by following causes:
 - Malfunctions and damages caused by fire, earthquakes, floods and other force majeure.
 - Misoperations and other operations that disobey the user's manual.
 - Disassembly without permission when product malfunctions.
- ④ If some parts are damaged, assembly damaged module (example: soft fingers and the bracket) should be mailed to our company for damage cause identifications, then measures are taken in accordance with article 1 of warranty service.

Note: Terms of service listed above are only available for guests purchased pneumatic controllers of our company.

* The right of final interpretation is reserved by our company.

Warranty card

Product name		
Product model		
Purchase date		
Guest name		
Guest phone number		
Guest address		
Maintenance time	Maintenance record	Signature of maintenance staff

* This card is the basic voucher of warranty, please fill in carefully and save this card properly.

Product certificate

This product is qualified according to the delivery inspection.

Product model: _____

Inspector: _____

Manufacturing date: _____



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AND A SUPPLIER OF INNOVATIVE PRODUCTS**

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