



Suzhou Soft Robot Tech Co.,Ltd.

E-mail: srt@softrobottech.com

Website: www.softrobottech.com

Address: Building E, Science and Technology Pioneering Park, No. 1 Guotai North Road, Zhangjiagang Economic and Technological Development Zone, Suzhou

Beijing Soft Robot Tech Co.,Ltd

Tel:010-86467770

Address: Second Floor of City Inspiration Space, No. 6 Fufeng Road, Fengtai District, Beijing

Shenzhen Soft Robot Tech Co.,Ltd.

Address: Block B, Huihai Plaza, Heping Road, Longhua Street, Longhua District, Shenzhen



SRT Website



SRT WeChat

SELECTION MANUAL

SOFT ROBOT TECH CO.,LTD



CATALOGUE

- 01 About SRT**
- 02 Product**
- 03 Application**
- 04 Soft Gripper**
- 05 SCF Combined Soft Fixture**
- 06 Soft Finger**
- 07 Code & Order**
- 08 Guide Case**
- 09 Van Der Waals Pads**
- 10 ISC Airbag Internal Bracing Fixture**
- 11 SLG Indirect Linear Drive Soft Fixture**
- 12 Controller**
- 13 Mounting Dimension**
- 14 Solution**
- 15 Honor**

1 About SRT

| Introduction

Soft Robot Tech Co.,Ltd (SRT) is an innovative technological company, whose core is soft robot technologies. The core members are from Harvard University, Northeastern University, Beihang University etc.

SRT is devoted to the promotion and application in industrial automation field, providing users for easy and reliable solutions for complex products and continuously create value for users. The company have obtained National High-tech Enterprise Certification, Zhongguancun High-tech Enterprise Certification, ISO9001 Quality System Certification, EU AP Certification, EU RoSH Safety Testing Certification, US and Japan FDA Certification and Europe CE Certification. It also has more than 60 intellectual properties domestically and abroad. It is a member company of Chinese Food Package and Machinery Association.

Through years of concentrated on studies, SRT has developed soft gripper series products, which can solve grasping problems on products of different sizes, shapes, and fragile products, especially suitable for food sorting, 3C, fixtures and comprehensive packaging and sorting for multiple categories products.

By virtue of reliable products and good-quality service, SRT has been cooperated with Foxconn, Delta, Schneider, BYD, CATL, KFC, Wuxi Well Foods, Huamei Mooncakes, Faurecia, Valeo, Bosch and other leading enterprises in 3C, power battery, foods, and automotive components. The products have been sold to Hongkong, Taiwan, USA, Japan, Korea and Europe.



HARVARD
UNIVERSITY



北京航空航天大学
BEIHANG UNIVERSITY



Northeastern University



ISO9001 international quality certification



EU AP Food Testing Certification



EU RoHS Safety Testing Certification



EU CE safety certification

2 Product

| Introduction

The soft gripper is a new type of flexible actuator launched by SRT that can simulate the grasping action of human hand and manipulate objects of different size, shape and weight with a single gripper.

Distinguished from the traditional rigid gripper, soft gripper has soft pneumatic 'fingers', which can adaptively wrap the object without presetting according to the exact size and shape of the object, getting rid of size requirements of products on traditional assembly. Additionally, the fingers are made of soft materials and the grasping action is so gently that will not cause any damage to the workpiece, therefore the gripper is especially suitable for vulnerable and soft amorphous objects.

In gripping industry, it is common to use mechanical grippers and vacuum suckers and other traditional grasping equipment. However, these tools are easily affected by shape, material and position of the products. Soft grippers provided by SRT based on soft robotic tech, can perfectly solve this problem, making a big stride to assembly automation.



| Operating Principle

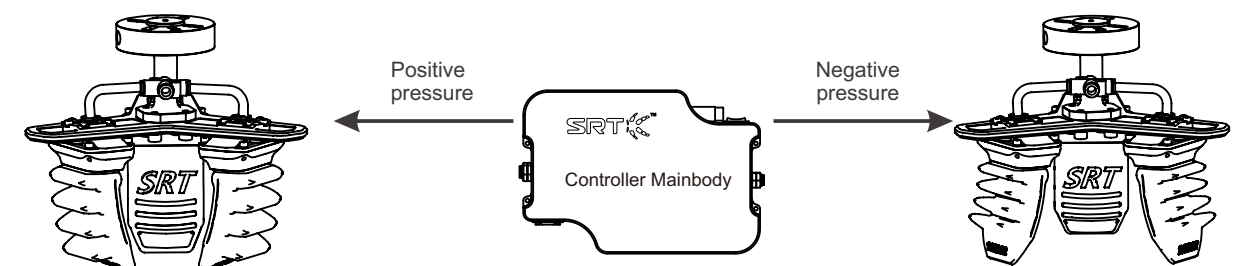
Soft gripper owns special inner sturcture with air bags so it will achieve different actions as the input of differntial pressure changes.

Positive pressure

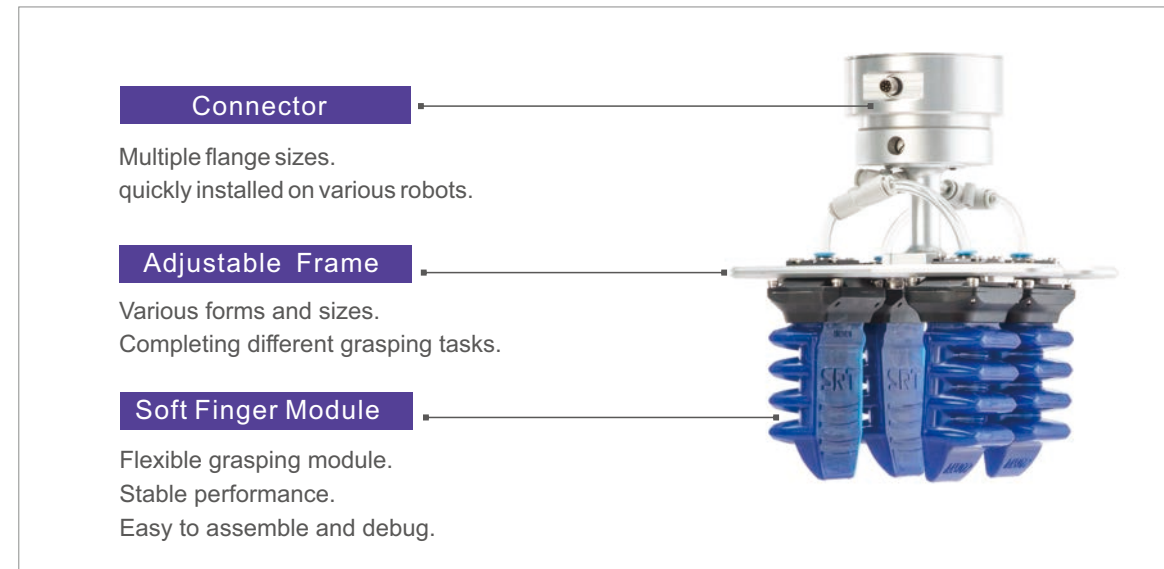
grasping,
wrapping the outer surface of the object,
and completing the grasping action;

Negative pressure

releasing,
in some special occasions,
it can pick object from inner side.

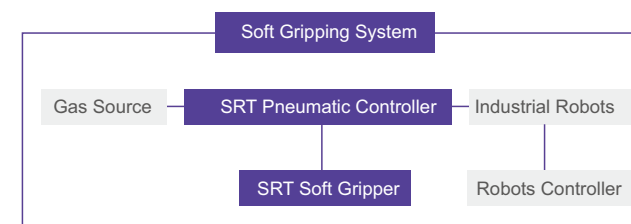


| Gripper Structure



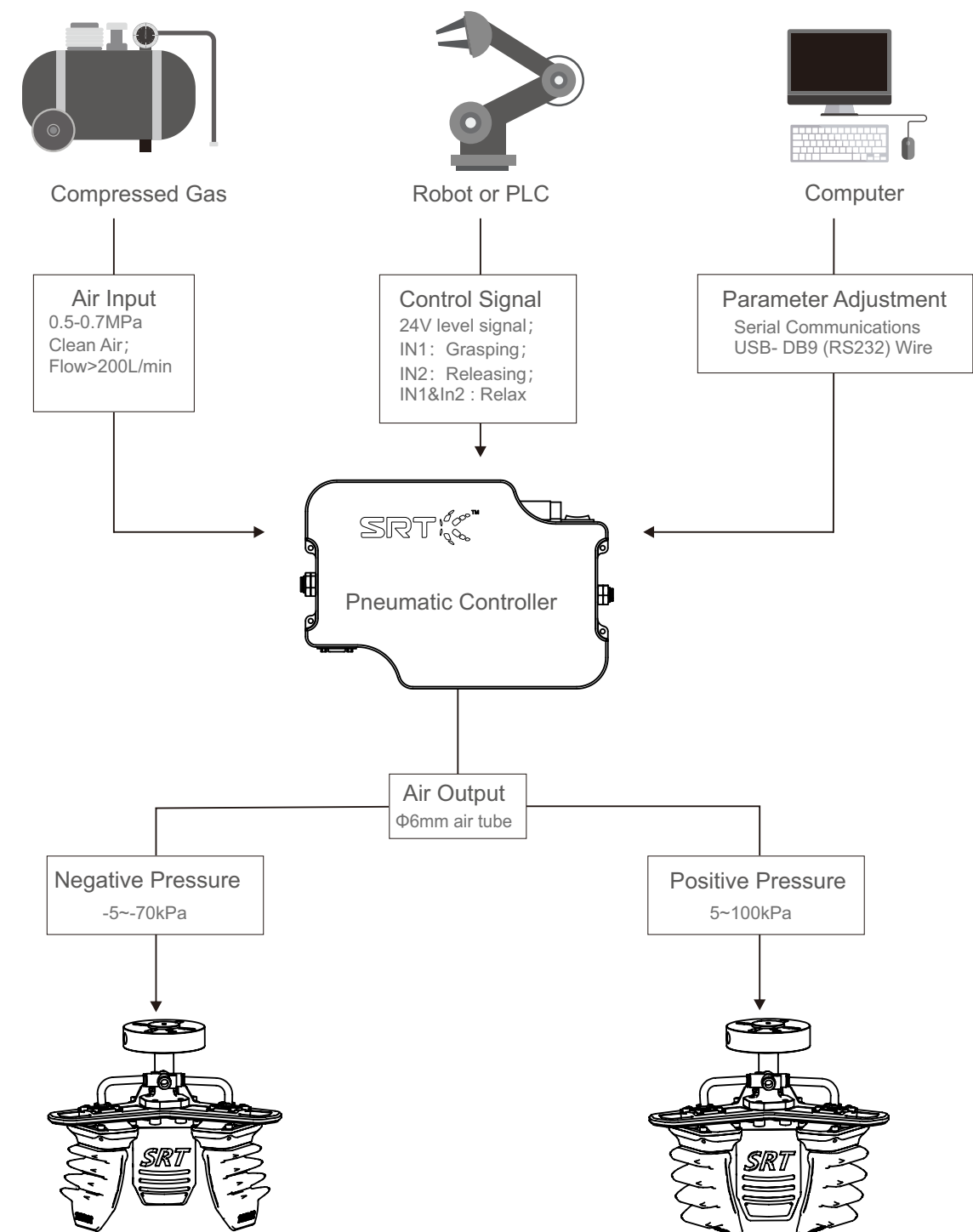
| Soft Gripping System

Soft gripping system is composed of soft gripper, pneumatic controller, compressed gas source, industrial robot and its control system. By communication protocol provided by SRT, industrial robots can work well with the soft gripper and complete complex grasp task smoothly.



The SRT soft gripping system does not include compressed gas source, industrial robot and its control system, which requires users to purchase separately.

| Control System



| Gripper

SRT has designed multiple grippers to better accomplish the grasping tasks of different objects. Depending on distribution form of fingers, the grippers can be divided into three categories: circular gripper, symmetric gripper and compact gripper. Furthermore, the fingers of the gripper have two colors, the M30 finger is blue and 30mm in width, the M50 finger is red and 50mm in width.

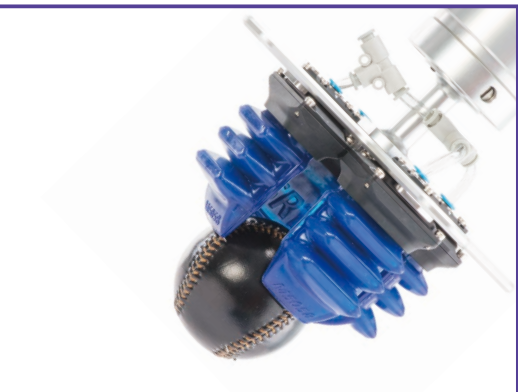
Compact Gripper SFG-FTN

The Compact structure is particularly suitable for small volume and special-shaped objects.



Circular Gripper SFG-FCA

The circular-distributed and adjustable structure suits sphere and flat cylinder workpiece.



Symmetric Gripper SFG-FMA

The mirror-distributed and adjustable structure suits cuboid and long cylinder items.



| Feature



One Gripper for All Sorts of Products

Soft grippers can grasp all kinds of goods of different shapes, sizes and weight, totally covering the range of traditional grippers can grasp. Due to its soft properties, success grasping can be guaranteed although the object moves within some positions, which significantly decreasing locating precision of gripping system. Also, the grippers have good stability and sealing, so they can work under conditions where dust, oil/liquid exist.



Cladding for Multiple Security

Integrated with biomimic mechanism, the covering grasp can simulate human hands to grasp, which is more stable. Soft fingers are totally made of soft materials, and will not produce rigid impulse when touching goods. Not only doesn't cause damage to products being grasped, but also be safe to operators. In the meantime, our products have passed US FDA food certificate, and can directly contact with foods without contaminating.



High Accuracy and Speed

Frequency of operation can be 90CPM, and the maximum repeating accuracy can be 0.08mm. The maximum load can be 5kg and its lifespan can be more than 3million, which can satisfy the needs of most assemblies.



Lower Costs and Higher Returns

The design of soft grippers totally subverts traditional one. Only one support bracket and circuit can control. No need to adjust original assembly so the cost of producing and maintenance can be minimized.



Extremely Convenient

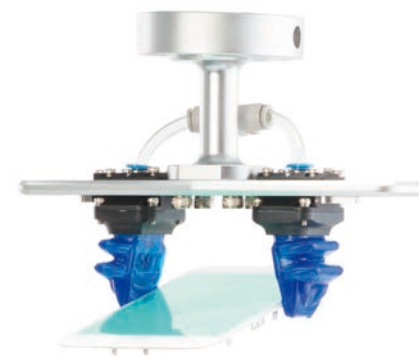
Modularization design of fingers, extremely simplifies the installation, modification and maintenance of complicated mechanical arm. Only one support bracket is needed to be installed and only one pneumatic circuit is needed to modify. Disassembling the finger module to do maintenance.

※ The grasping force is related to the grasping posture, the number of fingers, fingers size,etc.
 ※ There is a little discrepancy in working frequency between different grippers with diverse sizes. The bigger gripper is, the lower frequency is.



3 Applications

The grasping motion of soft gripper is similar to human fingers, which is flexible and can adaptively wrap objects without causing any physical damage. It is the ideal choice for customers who demand intelligent, undamaged, highsecurity and high adaptability gripping.



Electronics

Easy to protect the objects from scratches, applicable to assembly, testing, packaging, and sorting electronic products, and also used as jig and fixture of mobile phones.



Food

Small and medium food processing enterprises with various products. Applicable to garden stuff, seafood, pastry, beverage, etc.



Medicine

Suitable for automated sorting and packaging of medical consumables, injections, and medicines. Applied to production and disinfection of surgical instruments.

Daily Chemical

Daily chemical industry with a great variety of special-shaped products. Application applied sorting and packaging Suitable for big bottle of shampoo, shower gel, etc.



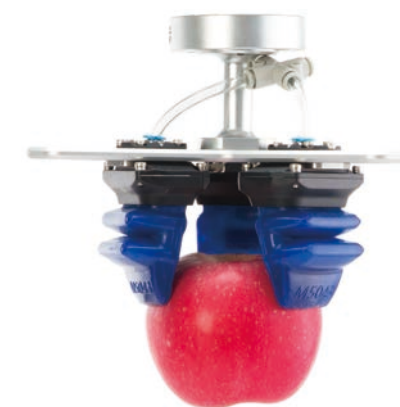
Automobile

Automobile industry with various special-shaped, easy-scratched and fragile parts. And suitable for parts manufacturer to sort and handle mold.



The Fresh

Can be used for sorting and packing of seafood, fruit, vegetables, cooked food etc. Be applicable to the automation production line on which the product to be produced change frequently or the product has several types.



logistics Storage

Be applicable to different size and different material of package, soft gripper can grab it gently and firmly. Moreover it can finish a series of action like marking, sorting and inbox effectively and efficiently.



Industry

The improved soft gripper can not only guarantee its flexibility but also prevent it from tilting and turning, so that it can be vertically inserted into the isordered part box, grab multiple parts at one time, complete the load -ing and unloading, and can be applie -dto processes of different shapes and sizes object.



Others

Glass industry Toy manufacturing. Logistics storage industry .Catering and Service.



4 Soft Gripper

Compact Gripper SFG-FTN

Clamped installation gripper is specifically designed for small volume goods with special shape. It has small finger spacing, good grasping adaptivity, high accuracy and stability.



Application Fields



| Specification

Ambient temperature	-40~150°C
Driving medium	Clean Air
Lifespan	>3 million cycles
Input air pressure	-100~100kPa
Repeatability	0.08mm

※ The standard working life is measured at room temperature and varies at other temperatures.

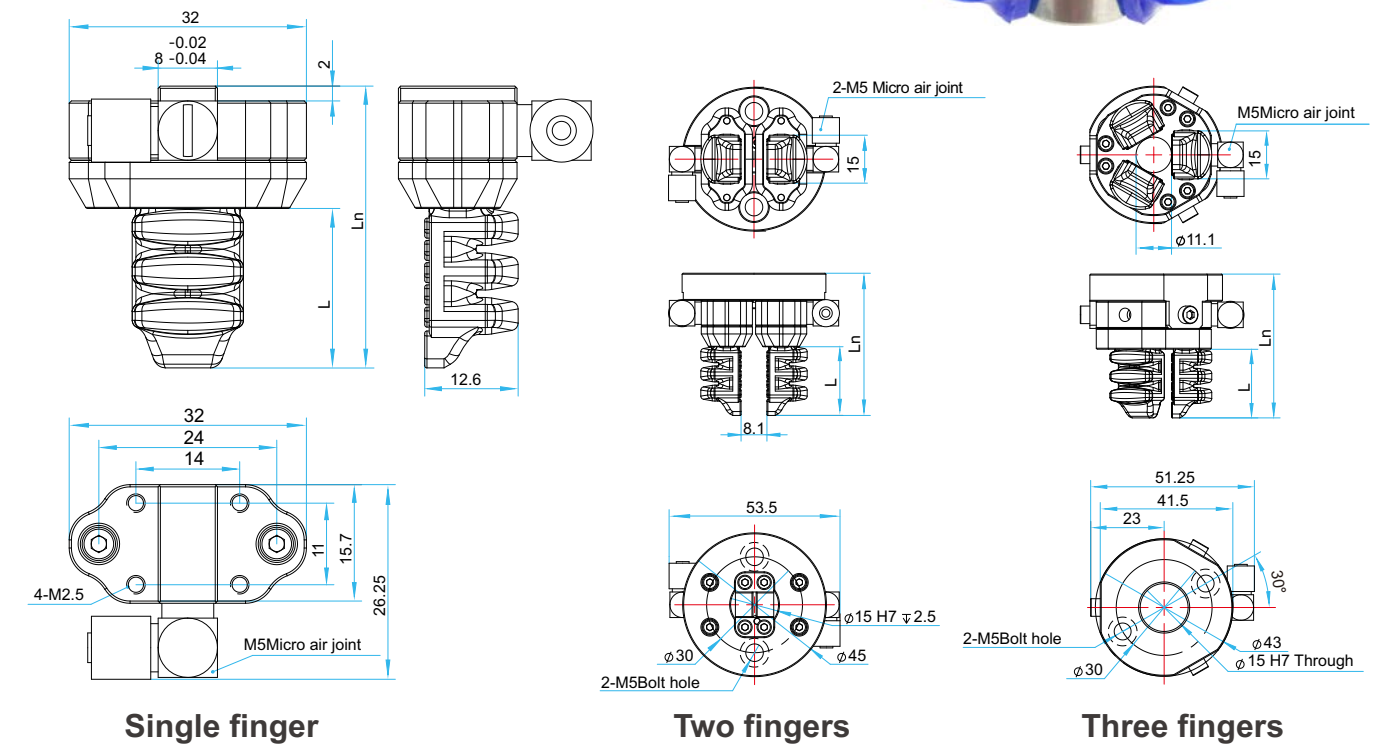
Application Examples



Compact Gripper

SFG-FTN-M1520

M1520 series gripper is specially designed for light weight and small size products. The gripper is small in shape and size, and can be applied in small space grabbing with strong adaptability, high precision and high stability.

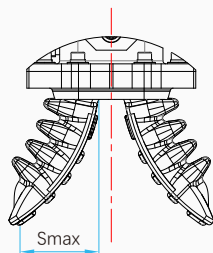
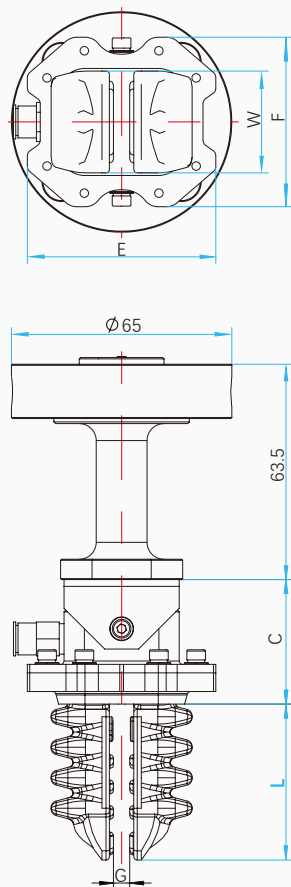


| Specification

Finger Type	M1515			M1520		
Compound Mode	Singlefinger	Two fingers	Three fingers	Singlefinger	Two fingers	Three fingers
L/mm	15.5			21.5		
Ln/mm	32	38.5	39	38	44.5	45
Load/g	——	≤100	≤150	——	≤100	≤150
Net weight/g	22	73	77	23	75	80
Ambient temperature/	-40~150					
Lifespan/million cycles	> 300					
Repeatability/mm	0.08					
Frequency/cpm	≤110					
Input air pressure/kPa	-100~100					
Driving medium	Clean Air					

Compact Gripper

Model: SFG - FTN2



Unit: mm

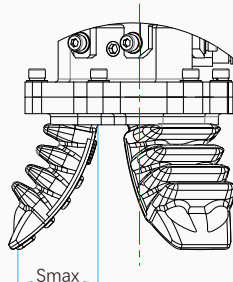
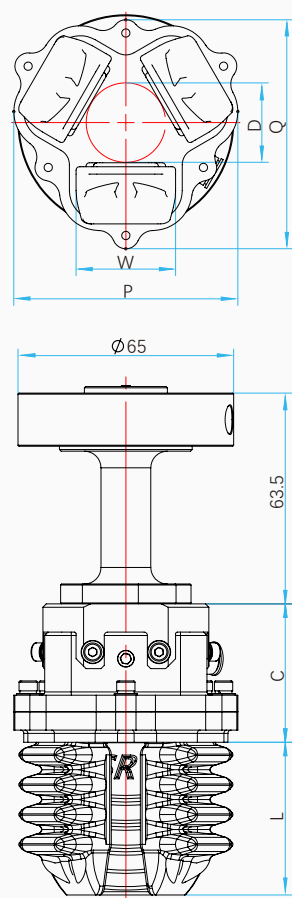
Specification

Model		Dimensions(mm)							Gripping Capacity			Net weight (g)
		W	L	C	E	F	G	Smax*	G+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FTN2-	M3028	30	28	40	56	50	5	8	21	250	≤110	352
	M3037		37					13	31	300		357
	M3046		46					21	47	200		365
	M3064		64					42	89	150		375
	M5043	50	43	43	75	70	11	20	51	800	≤80	542
	M5058		58					30	71	900		563
	M5072		72					42	95	700		589
	M5086		86					55	121	600		613
	M50115		115					85	181	400		639

Smax is the fingertip unilateral offset when negative pressure is -70KPa, and for reference only.

Compact Gripper

Model: SFG - FTN3



Unit: mm

Specification

Model		Dimensions(mm)							Gripping Capacity			Net weight (g)
		W	L	C	P	Q	D	Smax	D+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FTN3-	M3028	30	28	42	68	69	24	8	40	350	≤110	458
	M3037		37					13	50	400		467
	M3046		46					21	66	300		476
	M3064		64					42	108	250		494
	M5043	50	43	47	104	101	43	20	83	1200	≤80	805
	M5058		58					30	103	1300		837
	M5072		72					42	127	1100		858
	M5086		86					55	153	1000		894
	M50115		115					85	213	900		933

Smax is the fingertip unilateral offset when negative pressure is -70KPa, and for reference only.

Circular Adjustable Gripper SFG-FCA

Fingers are circular distributed, and the spacing of fingers are adjustable so it has very strong self-adaptivity. It can adaptively grasp various of special sized and fragile goods, especially spherical like and plain cylindrical goods.



Application Fields



Specification

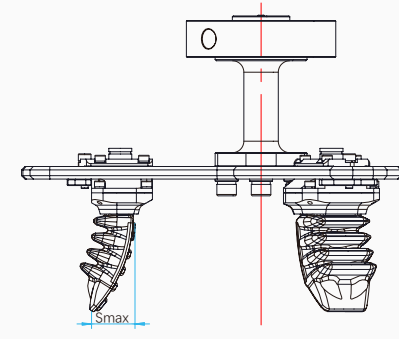
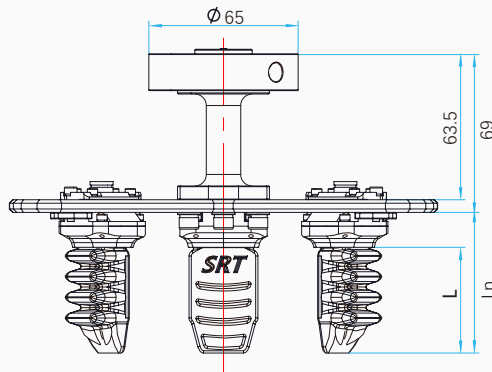
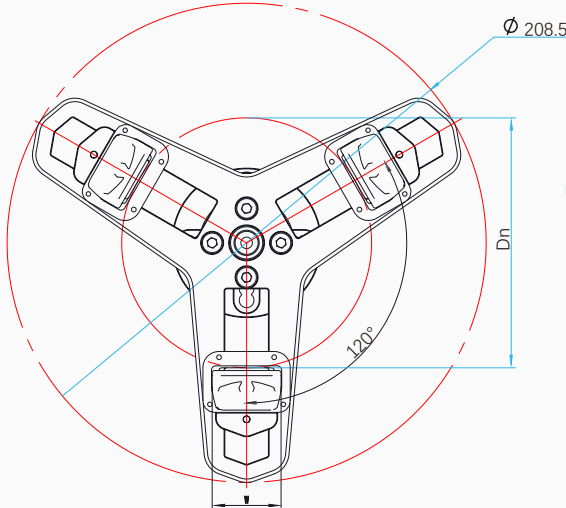
Ambient temperature	-40~150℃
Driving medium	Clean Air
Lifespan	>3 million cycles
Input air pressure	-100~100kPa
Repeatability	0.08mm

※ The standard working life is measured at room temperature and varies at other temperatures.

Application Examples



Circular Adjustable Gripper Model: SFG - FCA3



Unit: mm

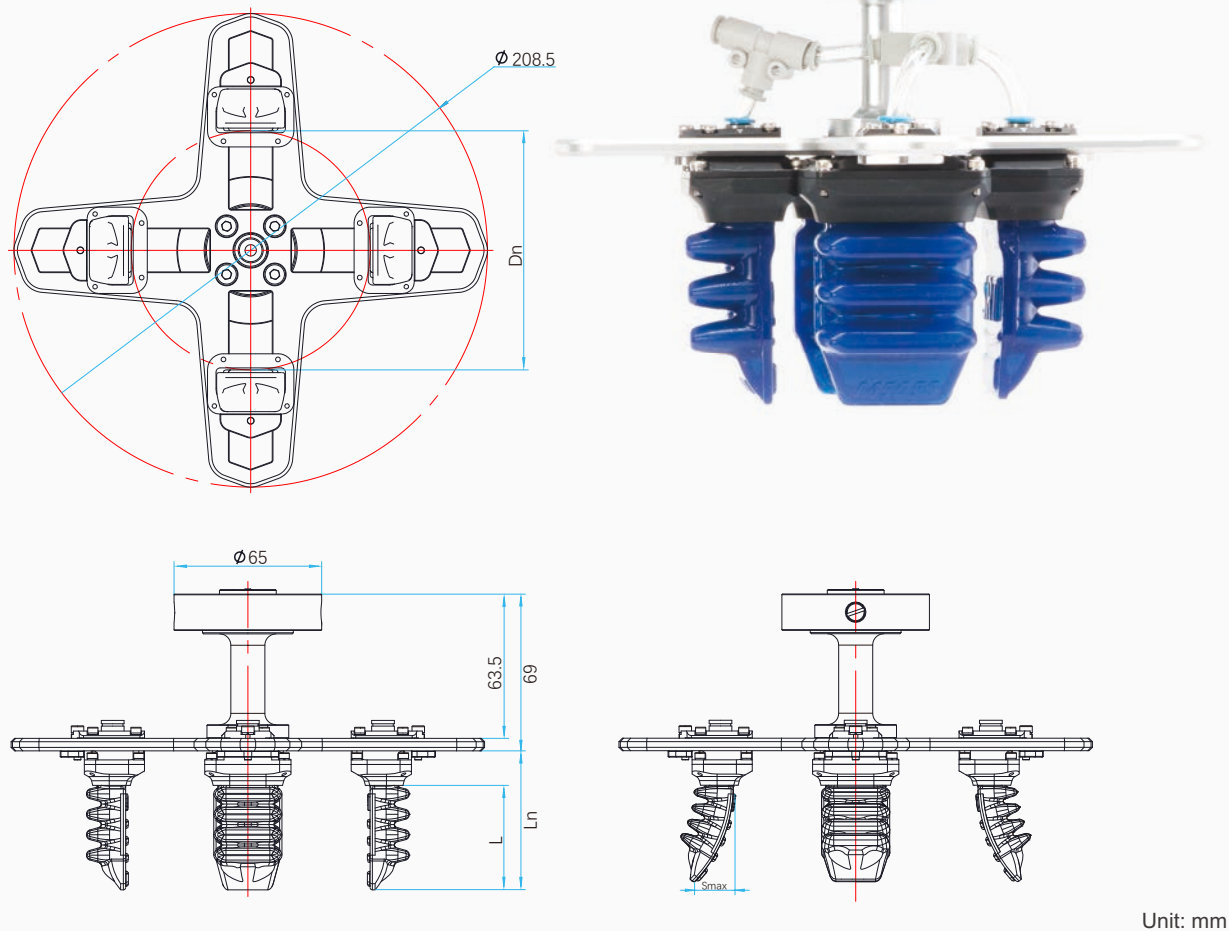
Specification

Model		Dimensions(mm)					Gripping Capacity			Net weight (g)
		W	L	Ln	Dn	Smax	Dn+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FCA3-	M3028	30	28	43	54-141	8	70-157	300	≤110	460
	M3037		37	53		13	80-167	400		469
	M3046		46	61		21	96-183	500		478
	M3064		64	79		42	138-225	600		496
	M5043	50	43	64	61-135	20	100-175	2000	≤80	655
	M5058		58	78		30	121-195	2500		691
	M5072		72	93		42	145-221	2000		730
	M5086		86	107		55	171-245	1800		766
	M50115		115	136		85	231-305	1500		805

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

Circular Adjustable Gripper

Model: SFG - FCA4



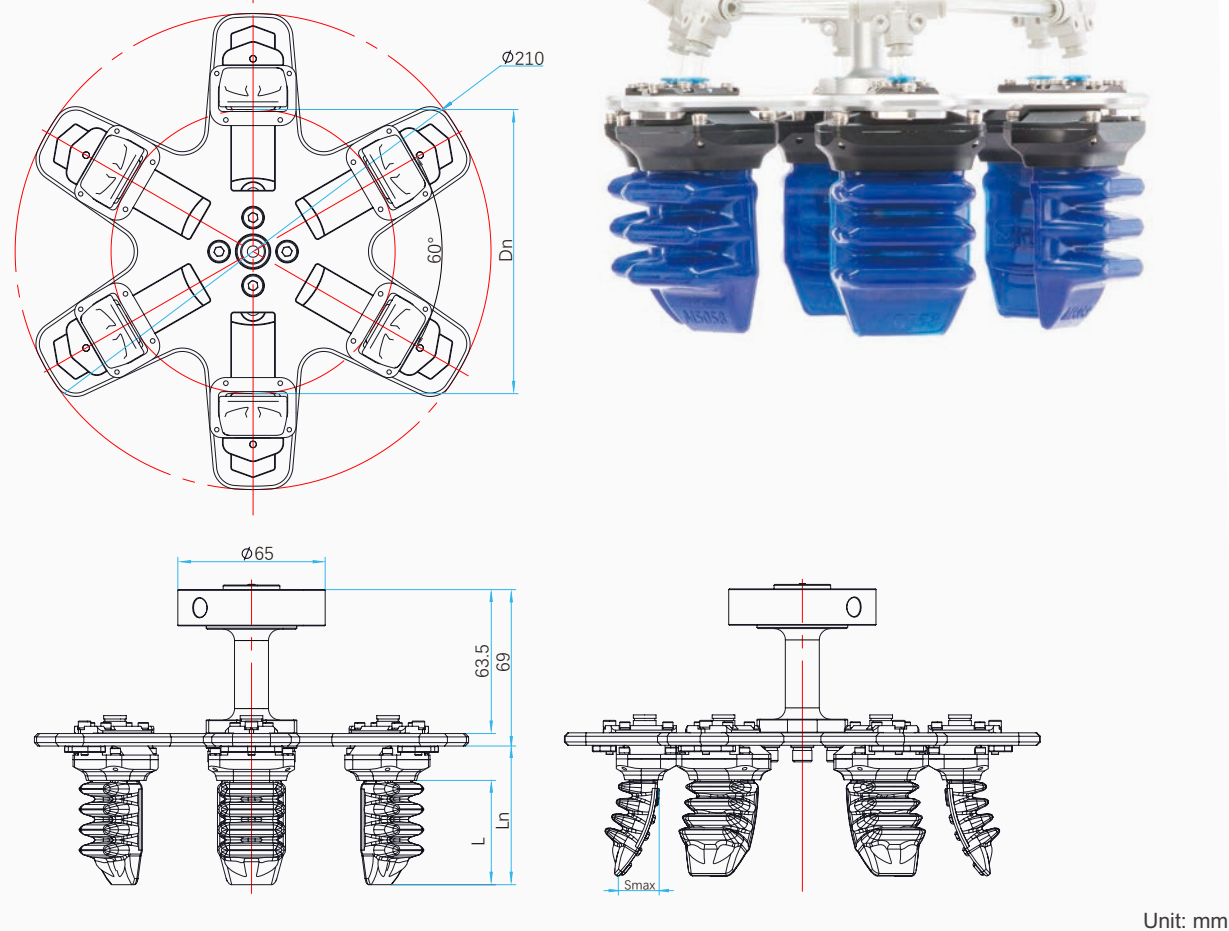
Specification

Model		Dimensions(mm)					Gripping Capacity			Net weight (g)
		W	L	Ln	Dn	Smax	Dn+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FCA4-	M3028	30	28	43	50-147	8	66-163	400	≤110	536
	M3037		37	53		13	76-173	550		548
	M3046		46	61		21	92-189	700		560
	M3064		64	79		42	134-231	800		584
	M5043	50	43	64	70-141	20	110-181	3000	≤80	796
	M5058		58	78		30	130-201	3500		844
	M5072		72	93		42	154-225	3000		896
	M5086		86	107		55	180-251	3000		944
	M50115		115	136		85	240-311	2500		996

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

Circular Adjustable Gripper

Model: SFG - FCA6



Specification

Model		Dimensions(mm)					Gripping Capacity			Net weight (g)
		W	L	Ln	Dn	Smax	Dn+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FCA6-	M3028	30	28	43	70-155	8	86-171	600	≤110	688
	M3037		37	53		13	96-181	800		706
	M3046		46	61		21	112-197	1000		724
	M3064		64	79		42	154-239	1200		760
	M5043	50	43	64	113-150	20	153-190	4500	≤80	1078
	M5058		58	78		30	173-210	5000		1150
	M5072		72	93		42	197-234	4000		1228
	M5086		86	107		55	223-260	4000		1300
	M50115		115	136		85	283-320	3500		1378

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

Meristic Adjustable Gripper SFG-FMA

Fingers are symmetric distributed, and the spacing of fingers are adjustable. It can adaptively grasp various of special sized and fragile goods, especially cubic like and long cylindrical goods.



Application Fields



Specification

Ambient temperature	-40~150℃
Driving medium	Clean Air
Lifespan	>3 million cycles
Input air pressure	-100~100kPa
Repeatability	0.08mm

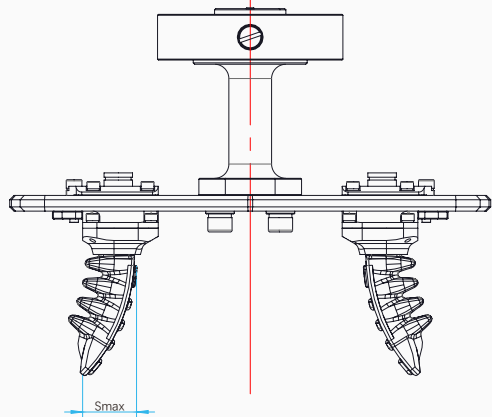
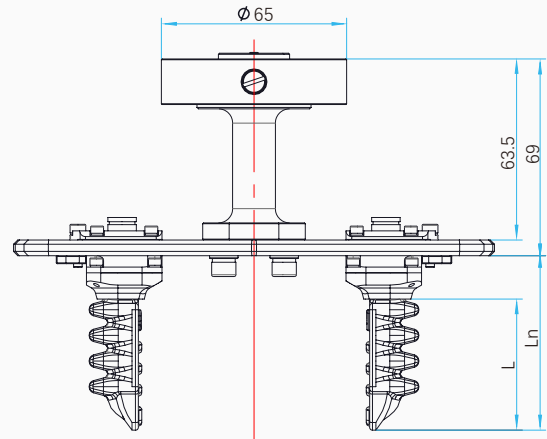
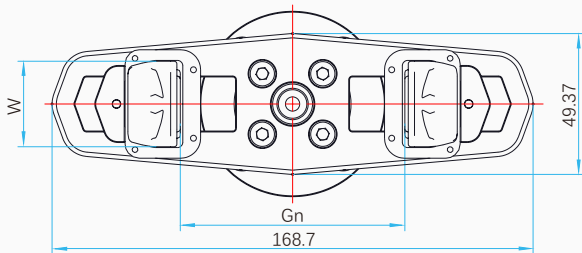
※ The standard working life is measured at room temperature and varies at other temperatures.

Application Examples



Meristic Adjustable Gripper

Model: SFG - FMA2



Unit: mm

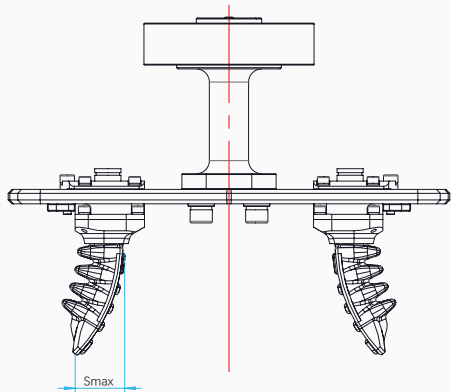
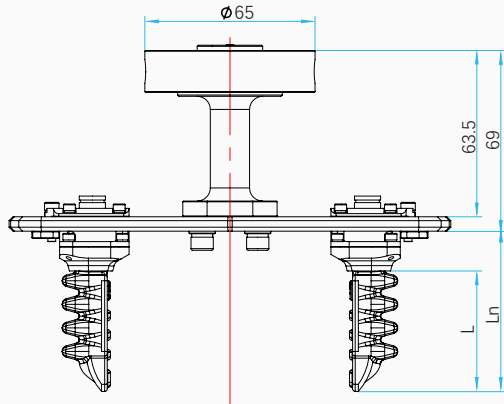
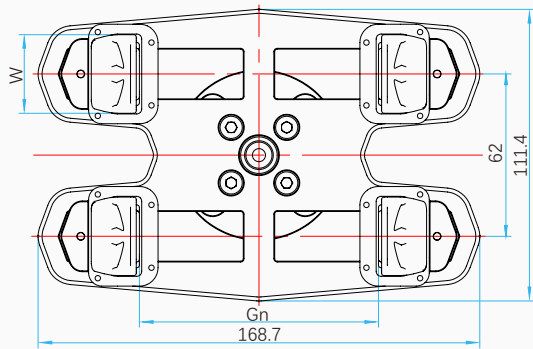
Specification

Model		Dimensions(mm)					Gripping Capacity			Net weight (g)
		W	L	Ln	Gn	Smax	Gn+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FMA2-	M3028	30	28	43	54-106	8	70-122	200	≤110	360
	M3037		37	53		13	80-132	300		366
	M3046		46	61		21	96-148	350		372
	M3064		64	79		42	138-190	400		384
	M5043	50	43	64	52-100	20	92-140	1500	≤80	490
	M5058		58	78		30	112-160	1600		514
	M5072		72	93		42	136-184	1400		540
	M5086		86	107		55	162-210	1300		564
	M50115		115	136		85	222-270	1000		590

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

Meristic Adjustable Gripper

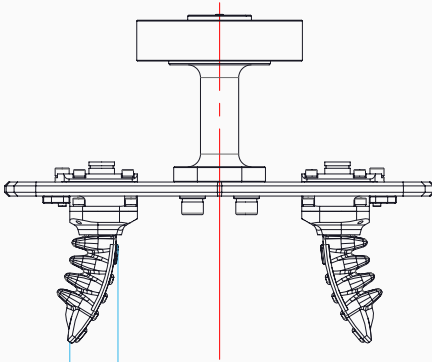
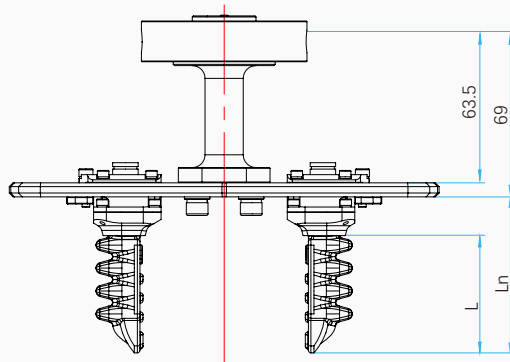
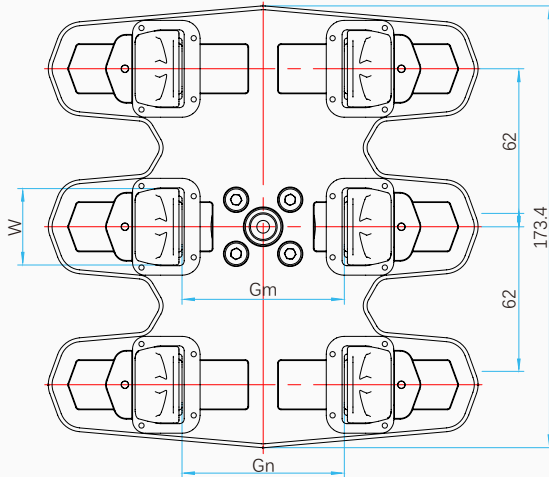
Model: SFG - FMA4



Unit: mm

Meristic Adjustable Gripper

Model: SFG - FMA6



Unit: mm

Specification

Model		Dimensions(mm)					Gripping Capacity			Net weight (g)
		W	L	Ln	Gn	Smax	Gn+2Smax (mm)	Load (g)	Frequency (cpm)	
SFG-FMA4-	M3028	30	28	43	35-102	8	51-118	400	≤110	542
	M3037		37	53		13	61-128	600		554
	M3046		46	61		21	77-144	700		566
	M3064		64	79		42	119-186	800		590
	M5043	50	42	64	52-100	20	92-140	3000	≤80	802
	M5058		58	78		30	112-160	3500		850
	M5072		72	93		42	136-184	3000		902
	M5086		86	107		55	162-210	2800		950
	M50115		115	136		85	222-270	2500		1002

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

Specification

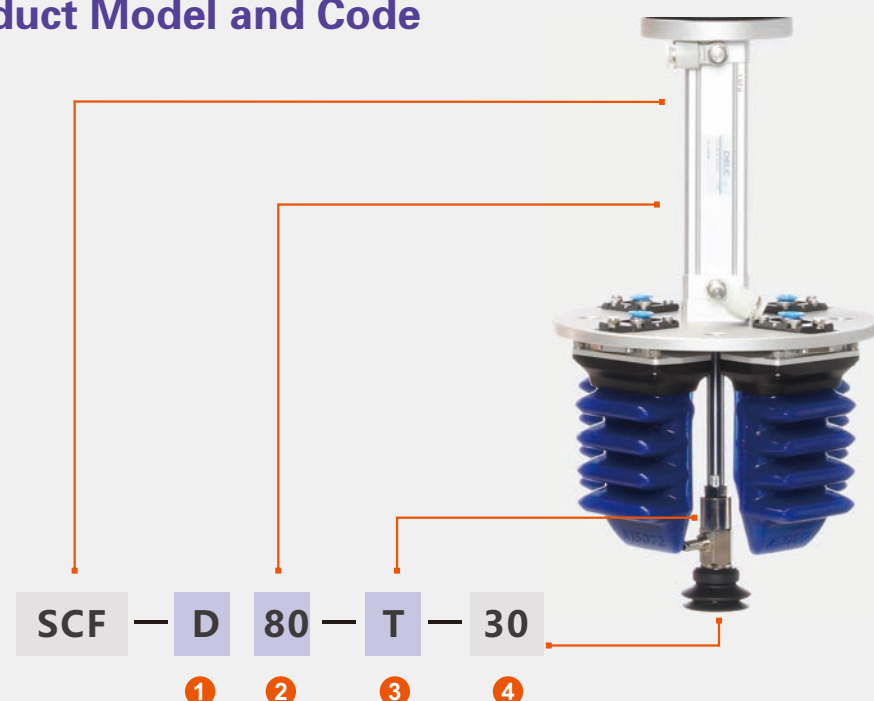
Model		Dimensions(mm)					Gripping Capacity			Net weight (g)	
		W	L	Ln	Gm	Gn	Smax	Gm+2Smax (mm)	Load (g)		Frequency (cpm)
SFG-FMA6-	M3028	30	28	43	54-103	26-103	8	70-119	600	≤110	744
	M3037		37	53			13	80-129	900		762
	M3046		46	61			21	96-145	1000		780
	M3064		64	79			42	138-187	1200		816
	M5043	50	43	64	52-100	21-100	20	92-140	4500	≤80	1134
	M5058		58	78			30	112-160	5000		1206
	M5072		72	93			42	136-184	4500		1284
	M5086		86	107			55	162-210	4200		1356
	M50115		115	136			85	222-270	4000		1434

Smax is the fingertip unilateral offset when negative pressure is -70kPa, and for reference only.

5 SCF Combined Soft Fixture

This set of soft fixture combines traditional sucker and pneumatic soft fixture organically. Through guidance and locating by the sucker to hold and move the workpiece, the fixture corrects the disadvantages of only using sucker or pneumatic soft gripper significantly. Even though under complicated working condition, the fixture still have extremely strong grasping behavior. It can be used in new agricultural picking, packing, taking out and sorting of dense workpieces.

| Product Model and Code



1 Cylinder type

Code	Description
D	Double-action cylinder
V	Vacuum cylinder

2 Cylinder stroke

Code	Description
80	Stroke 80
Other	Other strokes

3 Sucker bracket type

Code	Description
T	Lateral piping type

4 Size of vacuum pad

Code	Description
20	Diameter 20mm
30	Diameter 30mm
40	Diameter 40mm
50	Diameter 50mm

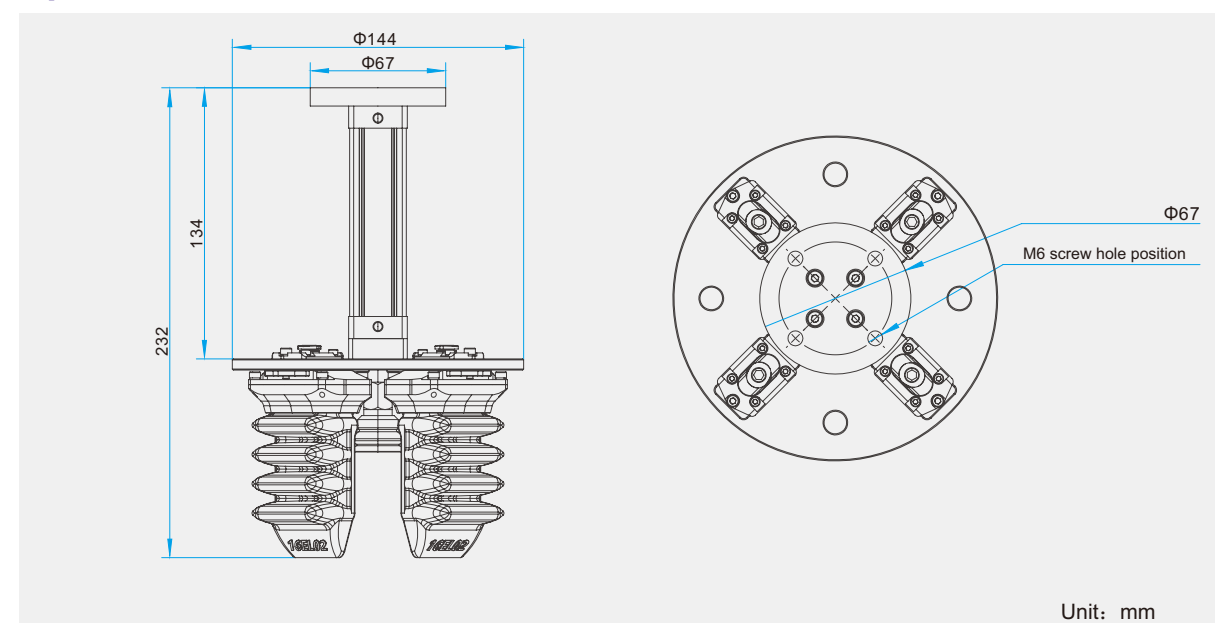
| Working Parameters

Maximum load	Working frequency	Working pressure	Working temperature
3000g	≤80cpm	0.5~0.7Mpa	-26~120℃

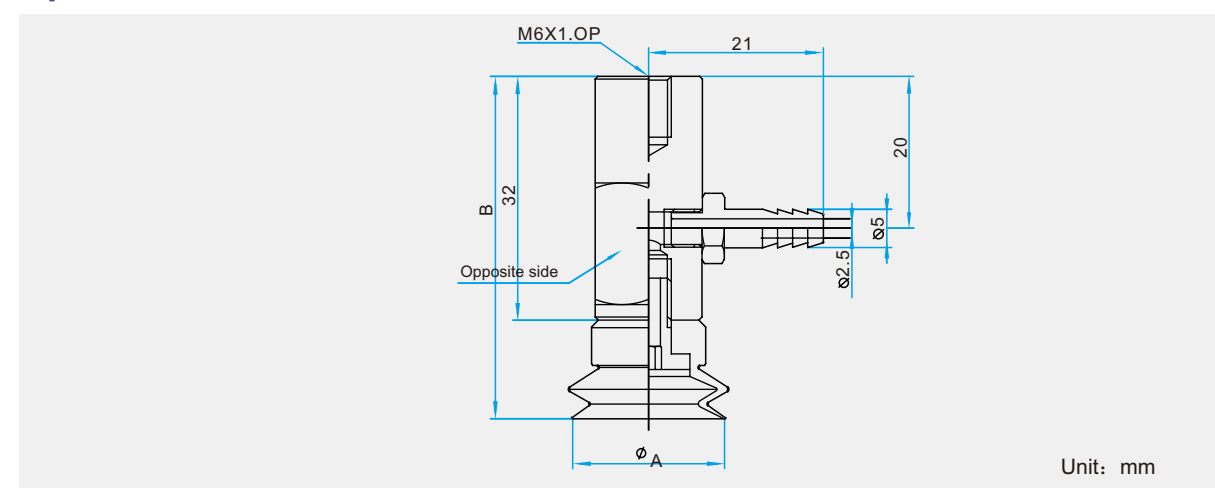
| Product Parameters

Sucker type	Model	Diameter	Total length	Supporting dimension
Organ type sucker	PBT-20	Φ20	45	Polyurethane tube Φ6XΦ4
	PBT-30	Φ30	50	
	PBT-40	Φ40	50	
	PBT-50	Φ50	52	

| Structural Dimensions

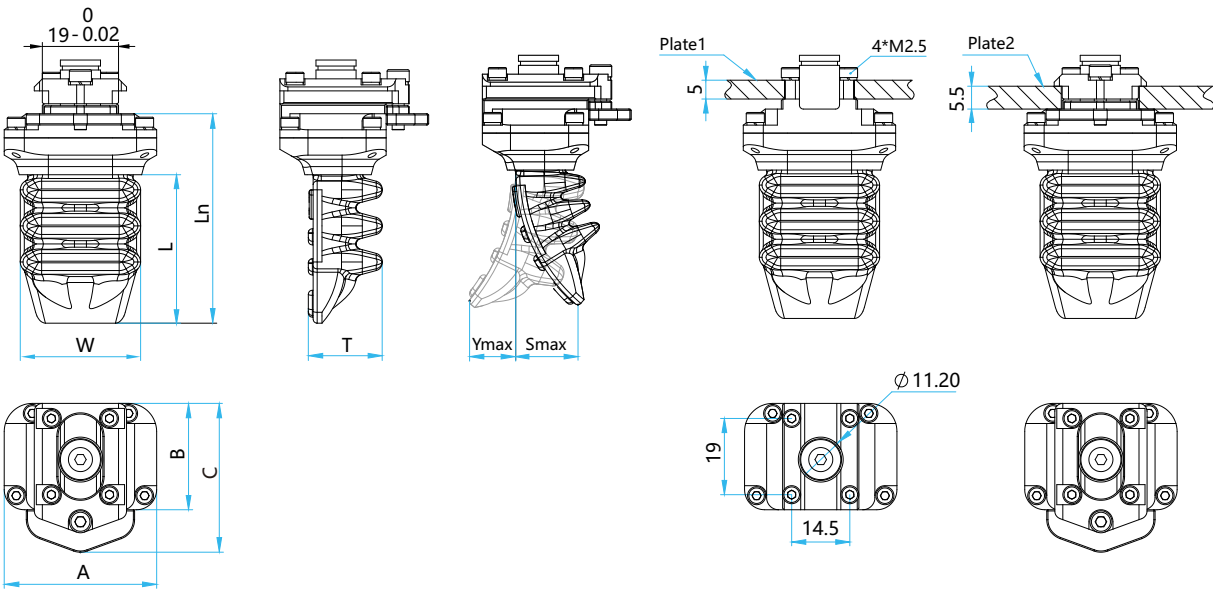


| Appearance and Installation Dimensions of Supporting Sucker



6 Soft Finger Module

Soft finger modules are the core components of soft gripper. You can separately purchase and assemble them according to your requirements.
It is recommended to cooperate with SRT pneumatic controller and avoid directly accessing to gas source.



Unit: mm

| Specification

Model	M3028	M3037	M3046	M3064	M5043	M5058	M5072	M5086	M50115
Illustration									
W/mm	30				50				
L/mm	28	37	46	64	43	58	72	86	115
T/mm	18.5				28.5				
A/mm	38				59				
B/mm	26.5				37.5				
C/mm	37.1				43.8				
Ln/mm	43	53	61	79	64	78	93	107	136
Smax	8	13	21	42	20	30	42	55	85
Ymax	6	10	19	34	16	27	51	63	—
Net weight/g	54	57	60	66	119	131	144	156	169
Operation pressure/kPa	-100~100								
Inlet pipe diameter/mm	Φ6								

Input Air pressure should be within the working range of the finger, otherwise it will affect the product life and even lead to product damage.

Grippers with Functional Coating Materials

Grippers with Functional Coating Materials are divided into four types, which are anti-static grippers, wear-resisting grippers, dust prevention grippers and force increasing grippers. Based on normal materials, different coating materials are added on the grippers to better deal with special working environment.

a Anti-Static Grippers

Anti-static grippers are covered with static electricity dissipation rubber coating based on normal materials, significantly increasing material volume resistivity of contact interface. Material volume resistivity of grasping surface can reach $10^5 \Omega$, conforming to military standards on anti-static requirements of military electric products (GJB/Z 86-1997 Anti-Static Packaging Manual). This product is suitable for electrostatic sensitive components, and can prevent electrostatic accumulation, ensuring damage by electrostatic shock while grasping electric components.

w Wear-Resisting Grippers

Wear-resisting grippers are applied high wearing environment, which are added with wear-resistance rubber including special enhanced components, whose surface strength is much higher than normal rubber. Under the same experiment conditions (standard wearing tests bases on Akron abraser), the abrasion loss is only 1/5 of normal rubber.

p Dust-Prevention Grippers

By optimization processing to normal grippers, the grippers are covered with a special coating, which effectively decreases inherent dust absorption of silicon rubber. Therefore, while eliminating light and preventing dusts, the coating can improve the raw feel of the grippers.

e Force Increasing Grippers

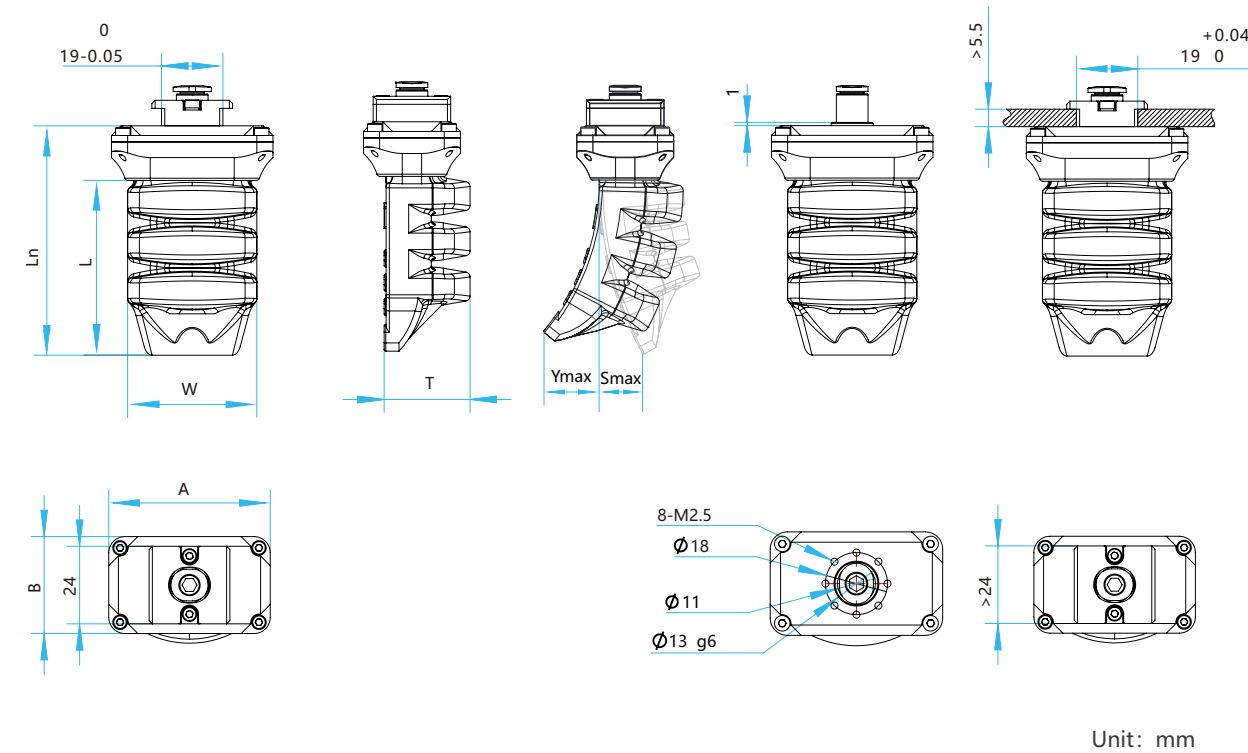
Through compounding with high modulus materials, the longitudinal elongation of the gripper is limited, significantly increasing grasping force.

Force increasing ratio of single gripper

Model	M3028e	M3037e	M3046e	M3064e	M5043e	M5058e	M5072e	M5086e
Percentage	30%	35%	40%	30%	15%	30%	45%	50%

T Series Gripper Modules

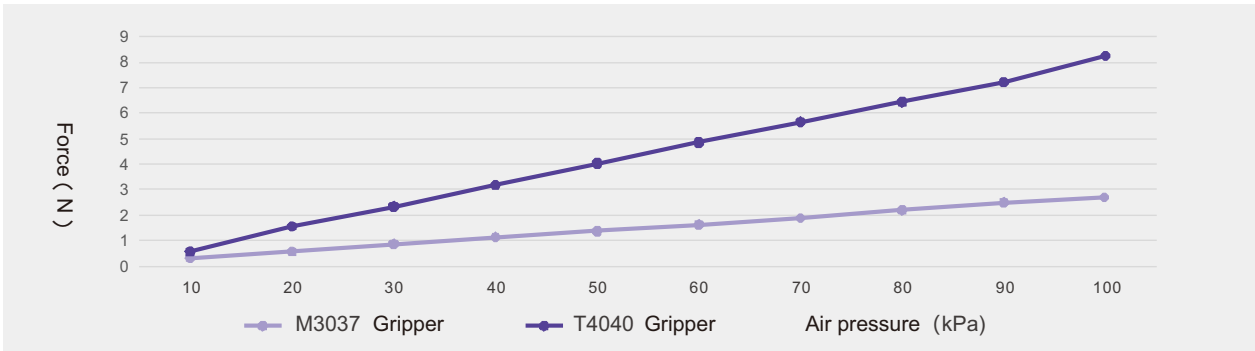
T series soft gripper modules extend gripper widths categories. On the basis of M15, M30 and M50, three series T20, T40 and T60 are launched, providing more choices under different working conditions. T series grippers adopt cavity structure which has big difference with M series. As the widths are increased 1/3 (comparing T40 with M30) and 1/5 (comparing T60 with M50), force of single gripper is more than doubled. Mechanical port provides 8 directions of mounting holes, greatly increasing adaptability of soft grasping system.



Dimensional Parameters

Product Model	T2023	T2030	T4040	T4054	T6068
Schematic Diagram					
W/mm	20		40		60
L/mm	23	30	40	54	68
T/mm	16		26.5		31
A/mm	29.5		50		76.5
B/mm	21.5		30		41.5
L_n /mm	37	44	59	72	91.5
S_{max} /mm	9.5	15	23	32	45
Y_{max} /mm	7	12.5	18	33	50
Weight/g	32	33	79	87	215
Positive/negative working pressure/kPa	-100~100				
Accessed air tube diameter/mm	6				

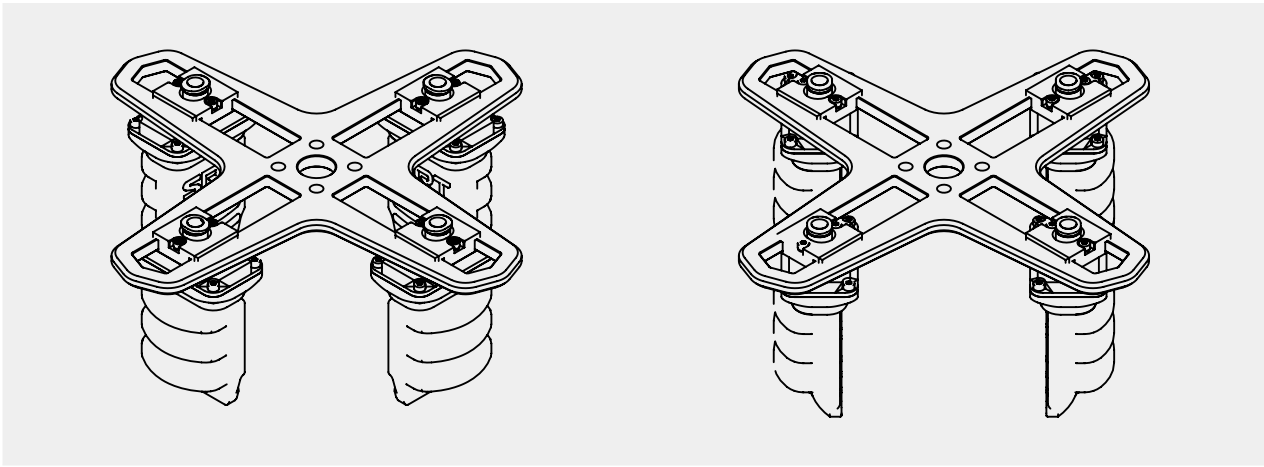
Comparison of T4040 and M3037 on force under same pressure



T Series Gripper Reference Load

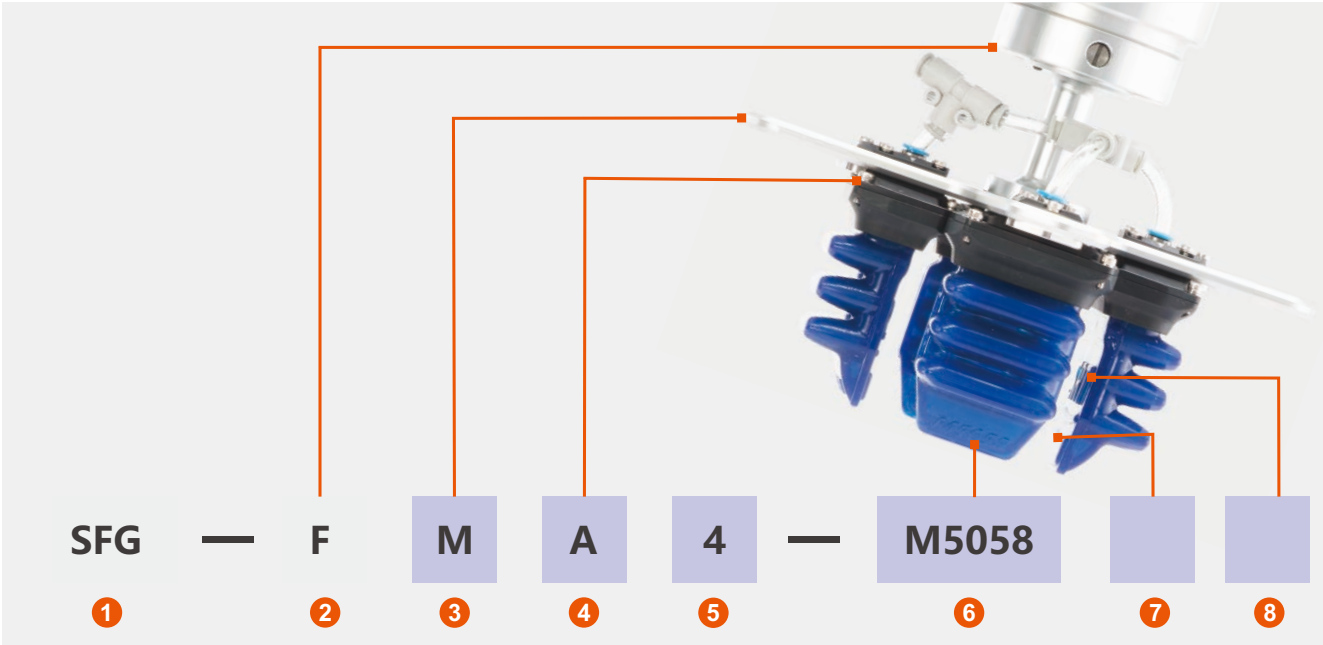
Number of fingers	2 fingers		3 fingers		4 fingers		6 fingers		Vertical grasping
	Vertical	Covered	Vertical	Covered	Vertical	Covered	Vertical	Covered	
T2023	270	330	400	500	540	660	700	1000	
T2030	200	400	300	600	400	800	600	1200	
T4040	800	1100	1200	1600	1600	2100	2400	3200	
T4054	700	1300	1000	2000	1300	2700	2000	4000	
T6068	1500	3500	2200	5000	3000	7000	—	—	

High Adaptability Installation Method



※ T60 series grippers have relatively big size, so when cooperating with standard brackets, it has relatively big difference with other series. We suggest to ask relative technicians.
 ※ The data are only for reference on type selection. The actual grasping loads need to consider site conditions.

7 Code and Order



| Code Of Model Designations

1 SFG Series mark

2 Fixed to the mechanical arm

3 Installation method of finger module

Mark	Description
C	Circular symmetry
M	Mirror symmetry
T	Compact

4 Position adjustment method of finger module

Mark	Description
N	Nonadjustable
A	Manually and individually

5 The Number of finger modules

Mark	Description
2	2 fingers
3	3 fingers
4	4 fingers
6	6 fingers

| Order

6 Finger Type

Mark	Description Unit: mm	
	Width	Length
M3028	30	28
M3037		37
M3046		46
M3064		64
M5043	50	43
M5058		58
M5072		72
M5086		86
M50115	115	115
M1520	15	20

7 Finger type

Mark	Description
Null	Standard type
	Special finger type

8 Functional cladding

Mark	Description
a	electrostatic prevention
w	Wear resistance
p	dustproof
e	Enhanced

After deciding finger type according to coded specifications, customers can submit to the SRT sales to continue purchasing. If special type or kind of fingers are needed to know, or there are difficulties in type selection, please contact SRT technicians directly.

8 Guide Case

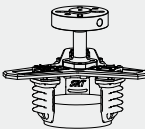
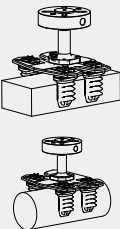
The type of SRT soft gripper is various, targeting different shapes, sizes, weight to provide exact solutions.

- 1.Circular distributed gripper is used for spherical like and plain goods. Symmetric gripper is suitable for long thin goods.
- 2.Clamped gripper with short fingers are suitable for small sized goods. Adjustable gripper with long fingers is for bigger goods.
- 3.Less number of fingers and small sized grippers are chosen for light goods and more number of fingers and big sized gripper is for heavy goods



Shape of Object	Diameter/mm	Applications	Recommend products	Max load*/g
Sphere Objects	4~15	Soybean	SFG-FTN2-M3028	250
		Jewelry	SFG-FTN2-M3046	200
	15~30	Electronic element	SFG-FTN3-M3046	300
		Chocoball	SFG-FCA3-M3046	500
	25~50	Cherry tomato	SFG-FCA3-M3046	500
		Golf	SFG-FCA4-M3046	700
	40~110	Apple	SFG-FTN3-M5072	110
		Yoghourt	SFG-FCA4-M5072	3000
	80~200	Melon	SFG-FCA6-M5072	4000

This is for your reference only.

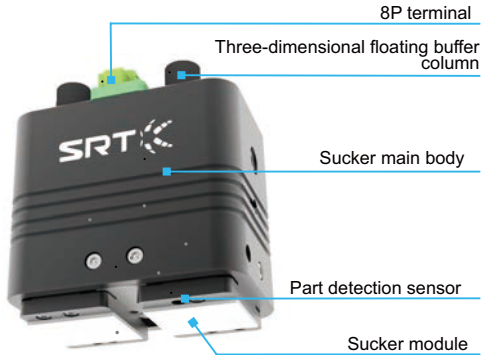
Shape of Object	Diameter/mm	Applications	Recommend products	Max load*/g
<div>Flat Objects</div> 	5-20	Finger ring	SFG-FTN2-M3028	250
			SFG-FTN3-M3028	350
	10-35	Bottle cap	SFG-FTN2-M3046	200
		Seal	SFG-FTN3-M3046	300
	25-50	Dried persimmon	SFG-FTN2-M5072	700
	40-60	Cup	SFG-FCA4-M3046	700
			SFG-FCA4-M5043	3000
	50-120	Instant noodles	SFG-FCA4-M3046	700
			SFG-FCA4-M5072	3000
	80-200	Bowl	SFG-FCA4-M5072	3000
			SFG-FCA6-M5072	4000
	80-200	Flowerpot	SFG-FMA6-M5072	4500
SFG-FMA4-M50115			2500	
<div>Slender Objects</div> 	5-20	Pen	SFG-FTN2-M3028	250
	15-30	Crab stick	SFG-FTN2-M3046	200
		Chocolate Bars	SFG-FTN2-M5043	800
	25-50	Remote control	SFG-FTN2-M3064	150
		Facial cleanser	SFG-FTN2-M5072	700
	50-100	Phone	SFG-FMA4-M3028	400
	40-120	Mouse	SFG-FMA2-M3046	350
		Power adapter	SFG-FMA4-M3064	800
		Tea caddy	SFG-FMA4-M5043	3000
		Goblet	SFG-FMA4-M5072	3000
		100-300	Pineapple	SFG-FMA6-M50115

This is for your reference only.

9 VFC-L125Van Der Waals Pads

Van der Waals force, namely intermolecular force, is a kind of weak-alkaline electrical attraction force that exists in neutral molecules or atoms. Van der Waals pad is a novel robotic end effector which uses Van der Waals force to “grab” objects. It consumes no energy in grabbing process.

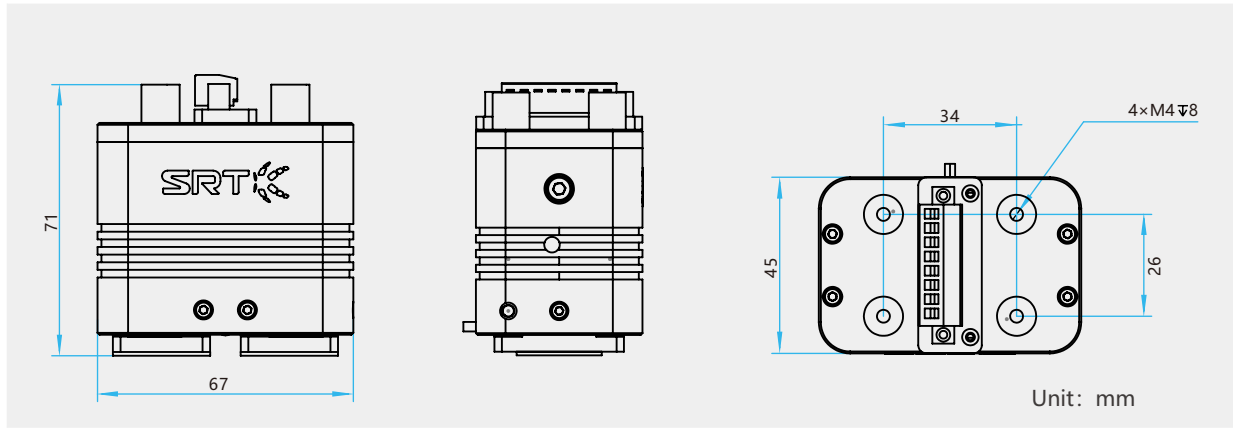
Taking advantage of delicate structures and auxiliary machines, the VFC-L125 Van der Waals pads of SRT addresses the problem of easy “grabbing” but hard “releasing” in traditional Van der Waals pads. Its adsorptive force could reach 40g/cm², which truly introduces Van der Waals force into industrial production, not just in lab.



| Characteristics

- ☐ No need of air source
- ☐ Be able to rise porous objects
- ☐ Instant absorption
- ☐ Fixture movements location feedback
- ☐ Workpiece location feedback

| Dimension



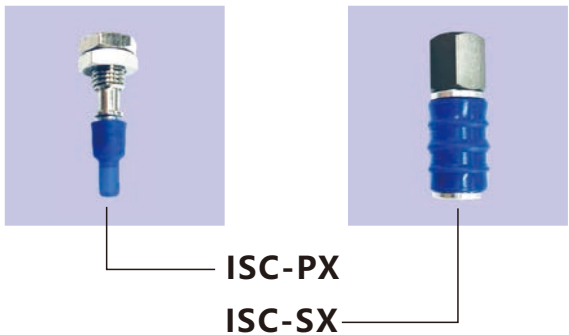
| Working Parameter

Size or characteristics	Data			
Size	67mm×45mm×71mm			
Weight	370g			
Workpiece contact area	12.5cm ²			
Maximum load	Polished steel	Smooth resin	Smooth glass	PCB basic plate
	460g	450g	500g	260g
Loading time	0.5s			
Sucker lifespan	100 thousand times+			
Power	10W			
Fixture movements location feedback	Microswitch			
Workpiece location feedback	1-15mm optoelectronic switch NPN			

10 ISC Airbag Internal Bracing Fixture

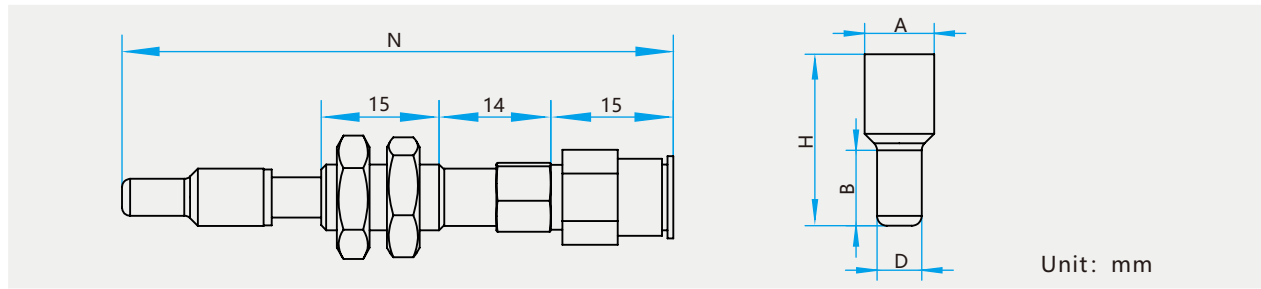
ISC airbag internal bracing fixture is an innovational soft fixture, designed with inspiration of puffer fish self-defending status. Through inflating air with certain pressure, the airbag can expand and realize internal bracing grasping. Since the contact part with workpiece is soft silicon rubber, after pressurized, an "air mattress" can be generated between soft silicon rubber and rigid bracket. This makes contact stress uniform and the workpiece is not easy to be damaged. In addition, the pressure of air inflated can be modified to control the range of airbag inflation and contact stress with workpiece. Therefore, flexibility of grasping can be significantly increased.

| Product Parameters



Drive medium	Drive medium
Input gas source	0~230kPa
Connection tube diameter	6mm
Response speed	>0.3s
Standard working life span	>100,000 times
Airbag replaceability	Yes
Effective contact interface height	P series 7.5mm-18mm S series 19.5mm-30mm

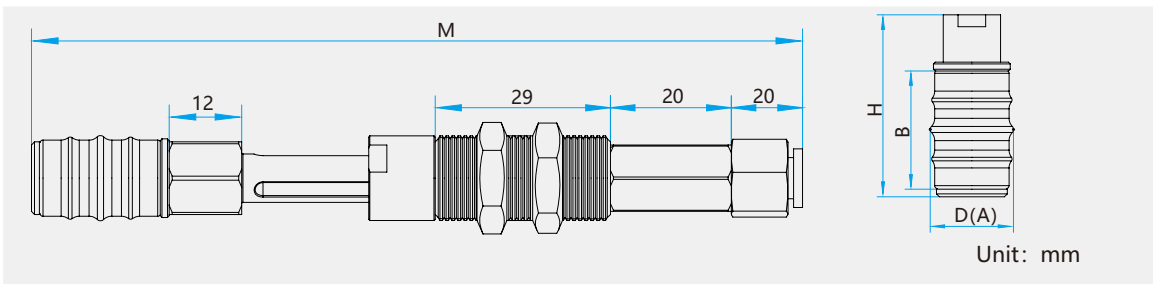
| P Series Appearance Parameters and Inflation Outer Radius



Model	Airbag height H	Width A	Contact interface diameter D	Contact interface height B	Total height N
SRT-ISC-P4.5	17.3	7	4.5	7.7	H+50
SRT-ISC-P7	22.6	10	7	11.5	H+50
SRT-ISC-P9	23	9.9	9	11	H+50
SRT-ISC-P11	25	11.9	11	13.8	H+50

Model	Normal diameter(mm)	Ultimate expansion diameter(mm)	Ultimate air pressure(kPa)	Ultimate load(g)
SRT-ISC-P4.5	4.5	6.2	240	70
SRT-ISC-P7	7	9.03	240	82
SRT-ISC-P9	9	10.74	230	105
SRT-ISC-P11	11	14.35	220	130

| S Series Appearance Parameters and Inflation Outer Radius



Model	Airbag height H	Width A	Contact interface diameter D	Contact interface height B	Total height M
SRT-ISC-S14	30.8	14	14	19.4	H+105
SRT-ISC-S15.5	30.8	15.5	15.5	19.8	H+105
SRT-ISC-S18	36.8	18	18	25.7	H+105
SRT-ISC-S20.5	37	20.7	20.5	25.9	H+105
SRT-ISC-S23	36.8	23	23	25.5	H+105
SRT-ISC-S25	36.8	25	25	26.3	H+105

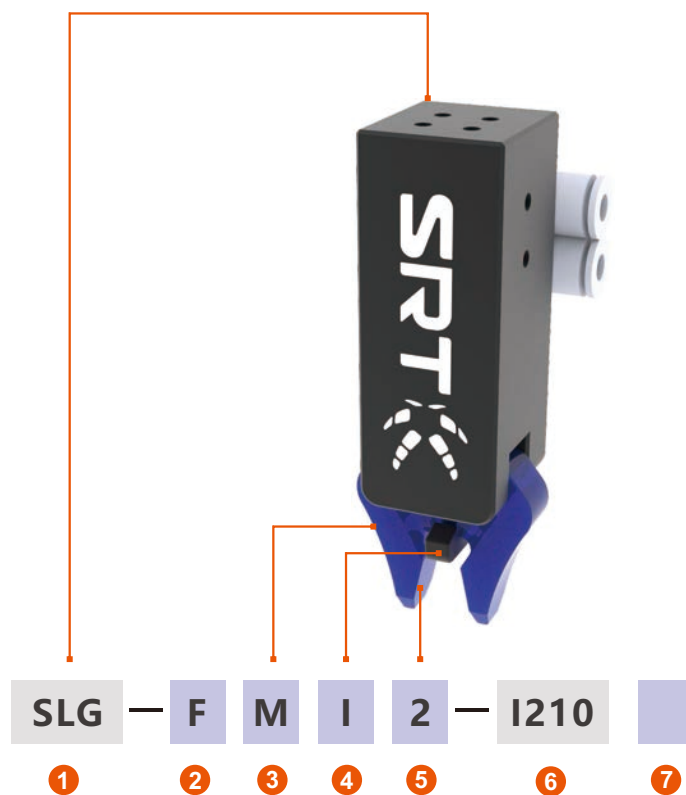
Model	Normal diameter(mm)	Ultimate expansion diameter(mm)	Ultimate air pressure(kPa)	Ultimate load(g)
SRT-ISC-S14	14	22.1	180	2450
SRT-ISC-S15.5	15.5	22.5	180	2650
SRT-ISC-S18	18	25.5	180	2800
SRT-ISC-S20.5	20.5	29.2	180	3300
SRT-ISC-S23	23	34.5	180	3500
SRT-ISC-S25	25	37.4	180	3600

*ISC Airbag internal support fixture needs to use specified pneumatic controller

11 SLG Indirect Linear Drive Soft Fixture

This series of fixture is composed of two parts, an actuation mechanism and a soft gripper module. The linear movements of linear driver drive the soft grippers module to deform by the connection parts, thereby completing grasping and releasing action. This fixture can grasp densely arranged small objects without damage, and have relatively longer service life.

| Product Model Codes



1 Product Code

2 Fixed Link Of Mechanical Arm

3 Finger Structure

Code	Description
C	Circular finger structure
M	Mirror finger structure

4 Cylinder Driving Type

Code	Description
E	External push
I	Internal pull

5 Number of Fingers

Code	Description
2	Two-finger
3	Three-finger
4	Four-finger

6 Finger Model

Code	Maximum opening range of fingertips(mm)
I210	10
E210	10
I312	12
E312	12
I413	13
E413	13

7 Finger Shape Model

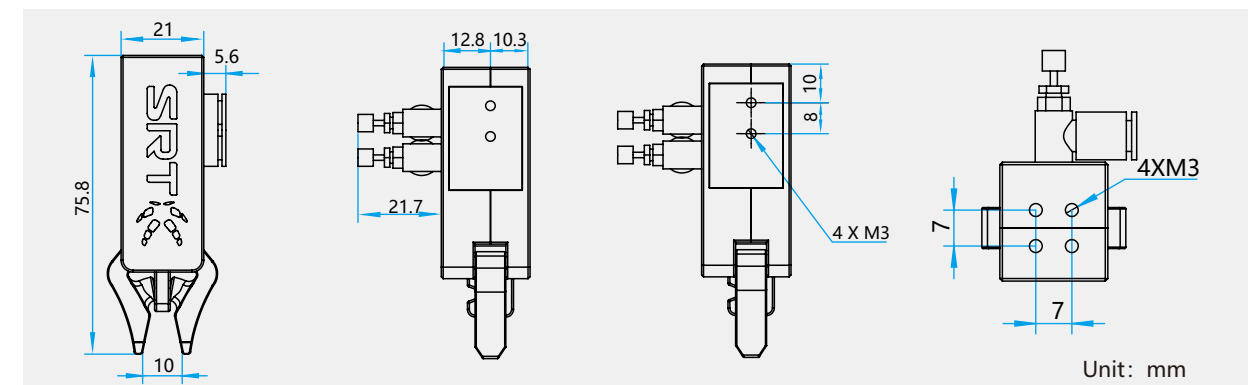
Code	Description
No code	Standard finger shape
*	Special finger shape

Two-finger Pull-in Type SLG-FMI2-I210

| Technical Parameters

Recommended objects for grasping	Pin load, rod load
Fixture net weight	72g
Fixture theoretical maximum load	80g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size

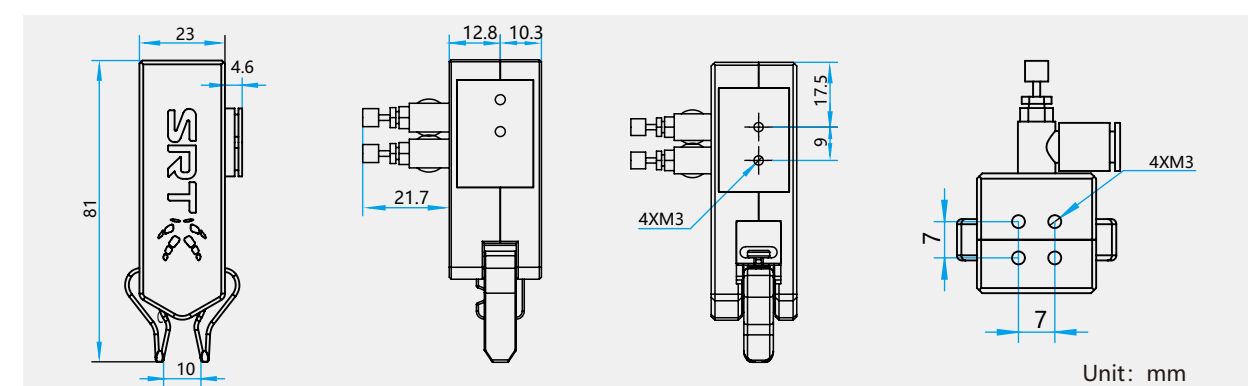


Two-finger Push-out Type SLG-FME2-E210

| Technical Parameters

Recommended objects for grasping	Pin load, rod load
Fixture net weight	86g
Fixture theoretical maximum load	60g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size

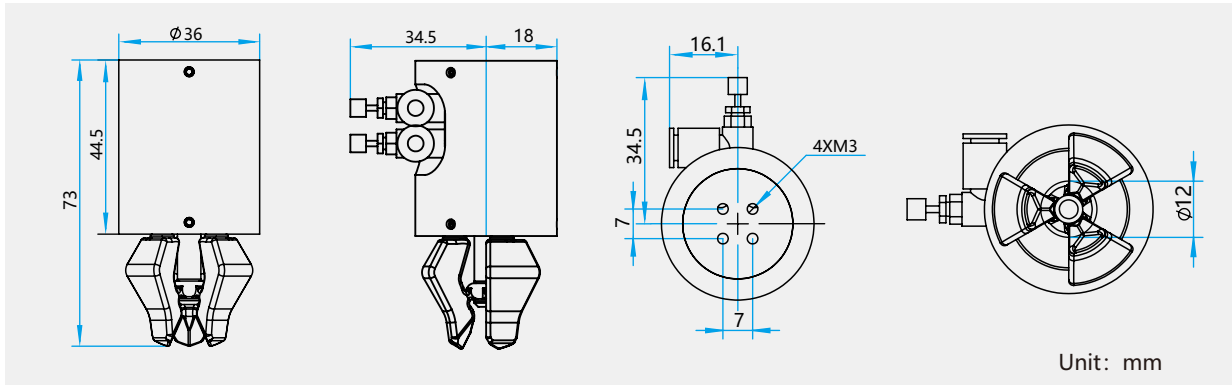


Three-finger Pull-in Type SLG-FCI3-I312

| Technical Parameters

Recommended objects for grasping	Spherical load, columnar load
Fixture net weight	110g
Fixture theoretical maximum load	50g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size

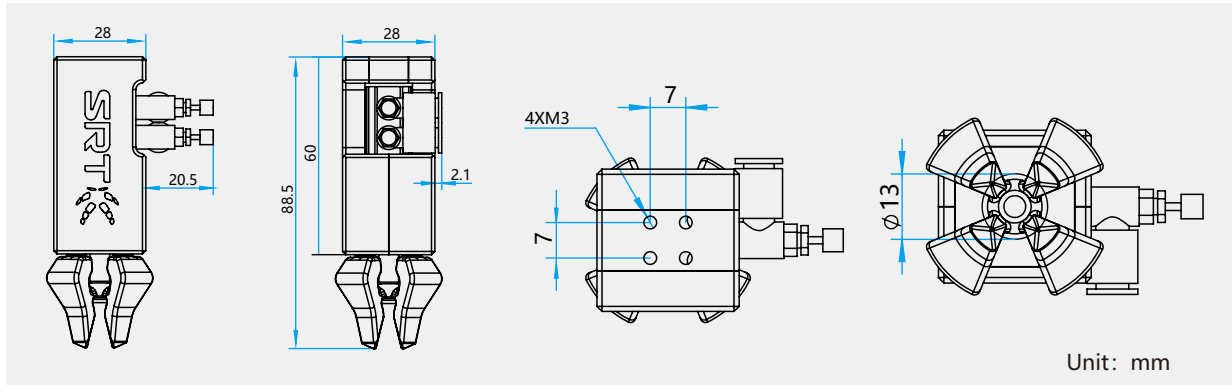


Four-finger Pull-in Type SLG-FCI4-I413

| Technical parameters

Recommended objects for grasping	Spherical load, columnar load
Fixture net weight	119g
Fixture theoretical maximum load	40g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size

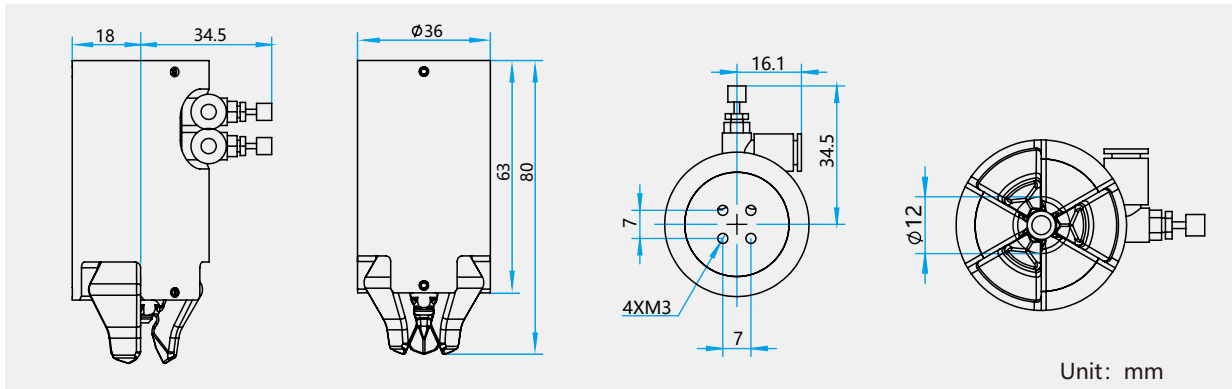


Three-finger Push-out Type SLG-FCE3-E312

| Technical Parameters

Recommended objects for grasping	Spherical load, columnar load
Fixture net weight	132g
Fixture theoretical maximum load	80g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size

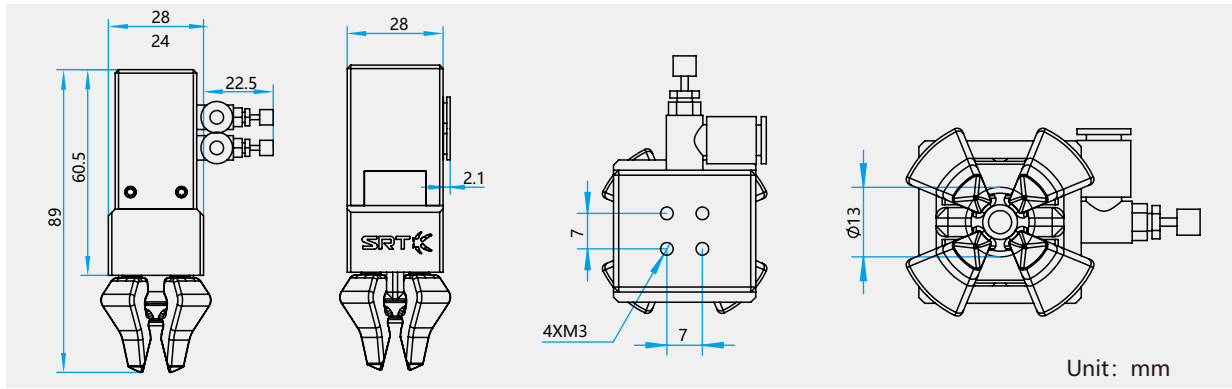


Four-finger Push-out Type SLG-FCE4-E413

| Technical Parameters

Recommended objects for grasping	Spherical load, columnar load
Fixture net weight	118g
Fixture theoretical maximum load	70g
Working pressure	0.5-0.7MPa

| Appearance Size And Installation Size



12 Controller

As the core of the flexible gripping system, the pneumatic controller realizes the precise control of the grasping force and frequency of grippers by adjusting output pressure and delay. Moreover, the controller can communicate with the manipulator control system to achieve a complete point-to-point grasping and releasing action.

| Function Distinguish Form

Model	Manual control	IO control	Pressure releasing	Air pressure display	State display	Communication control	Communication voltage regulation	Gear control	Power protection	Over pressure protection	Gas supply check	Gas leakage check	Alarm output	Output completed	232	485	TCP
16STD	●	●	●			●	●			●		●			●		
18PRO	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○
18IAS	●	●	●	●		●	●										
18STD	●	●	●	●	●	●	●	●		●		●	●	●	●		

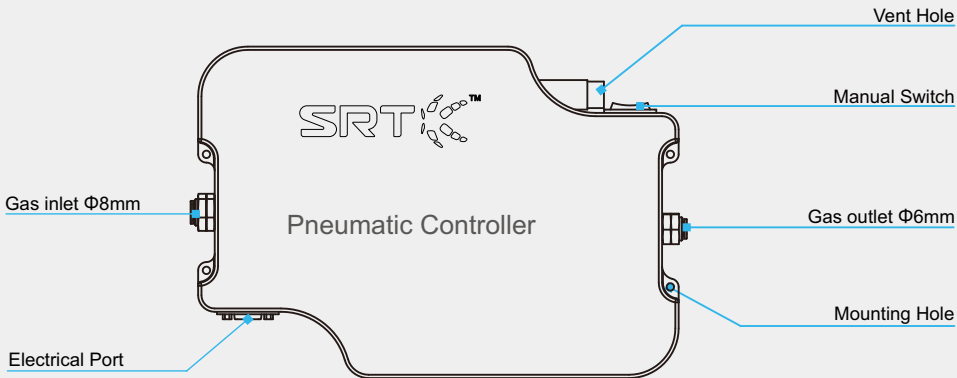
*Choose one communication interface from three kinds.

| Parameters Distinguish Form

Model	SCB-16STD	SCB-18PRO	SCB-18IAS	SCB-18STD
Positive pressure flow(L/min)	150	160	25	130
Negative pressure flow(L/min)	60	65	25	60
Shape&size(mm)	290*200*60	300*200*100	220*206*80	246*150*70
Protection grade	Ip43	Ip41	Ip31	Ip42
State display	x	Real-time gas pressure, alarm, operational pressure reached	Real-time gas pressure	Real-time air pressure, alarm and operation
Reset function	x	Reset button, reset terminal	x	x
Electrical port	Wiring terminal	Wiring terminal, Aviation plug	Wiring terminal	Aviation plug
Debugging port	DB9(RS232)	USB-B	DB9(RS232)	USB-B
Pressure adjustment method	Pressure adjustment of host computer communication (gear position 1)	Pressure adjustment of host computer communication (gear position 8)	Pressure adjustment of host computer communication (gear position 1)	Pressure adjustment of host computer communication (gear position 8)
Communication port	232(recombined with debugging port)	232, 485, TCP(supporting UR+)	232(recombined with debugging port)	232
Gear function	x	Eight editable gears	x	Eight editable gears
Protection function	Over pressure overflow	Overpressure overflow, power protection, gas supply check, gas leakage alarm, earthing protection	x	Overpressure overflow, power protection, gas supply check, gas leakage alarm

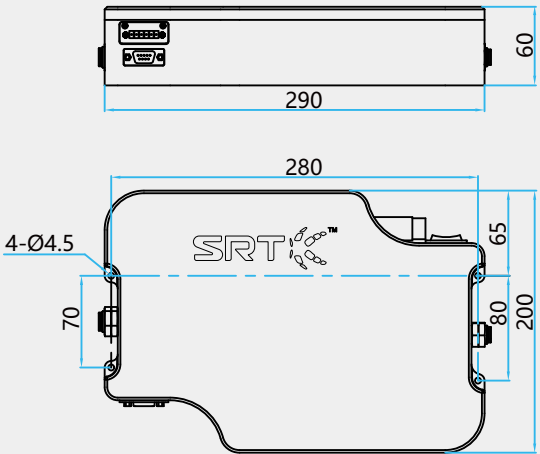
Standard No Source Pneumatic Controller SCB-16STD

| Port



Unit: mm

| Dimension

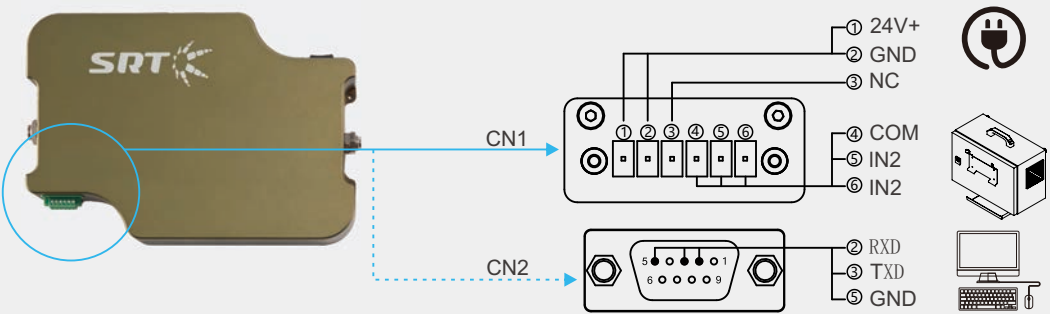


Unit: mm

| Working Parameter

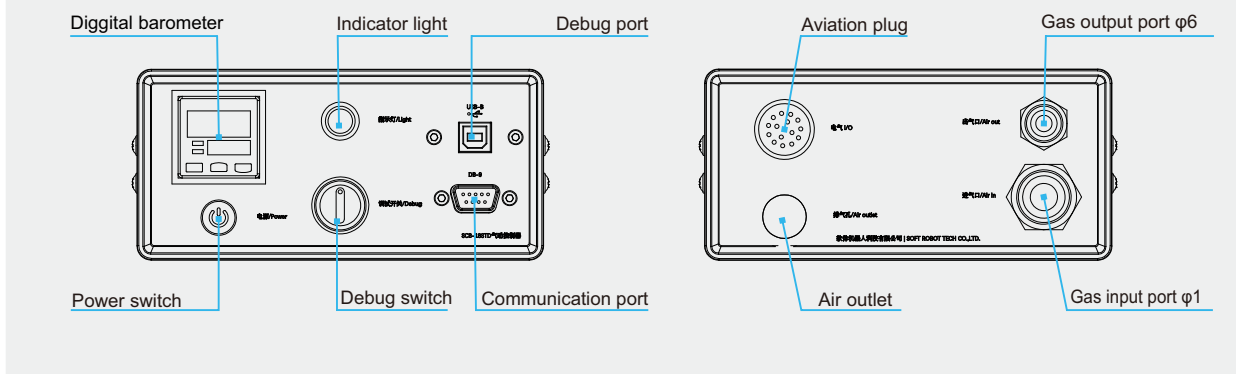
Input Voltage	24V±10%DC
Current Consumption	3A
Air Source Input	0.5-0.7MPa clean Air, flow>200L/min
Output Pressure	-70-100kPa
Cooling Mode	Natural cooling
Ambient Humidity	<85%RH(No Condensation)
Ambient Temperature	0-45°C
Environment	Avoid dust, oil contamination and corrosive gas
Level of Protection	IP43
Net Weight	2,200g
Dimensions	290*200*60mm

| Terminal Blocks

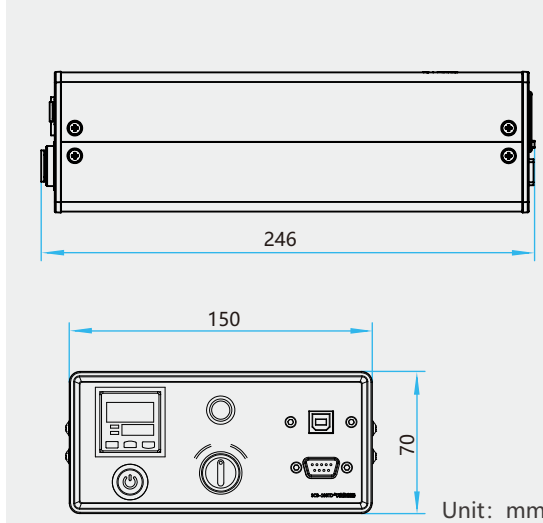


Standard No Source Pneumatic Controller SCB-18STD

| Port



| Dimension



| Working Parameter

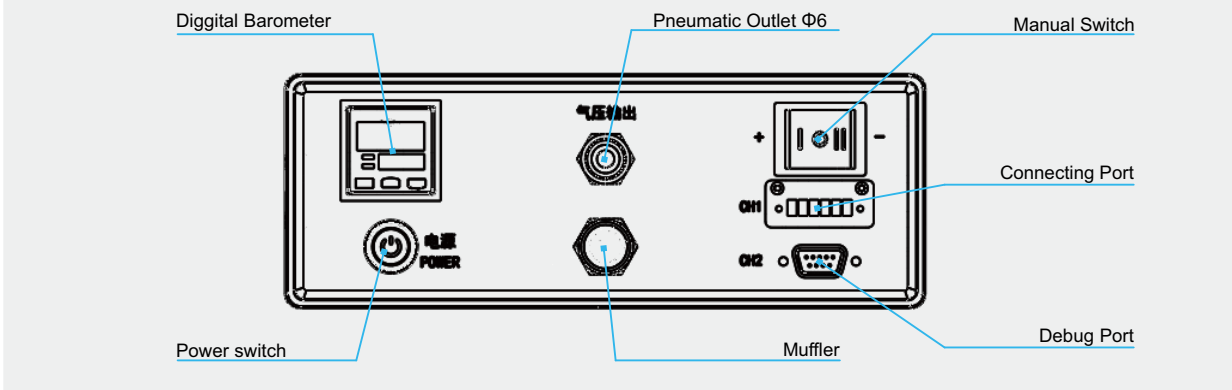
Dimensions	246*150*70mm
Net Weight	1500g
Input Voltage	DC24V \pm 10%
Current Consumption	2A
Input air pressure	0.5~0.7MPa clean air source, flow>200L/min
Gas Input	-70~100kPa
Positive pressure output flow	130L/min
Negative pressure output flow	60L/min
Protection function	Overpressure overflow, gas leakage alarm
Level of Protection	IP42

| Terminal Blocks

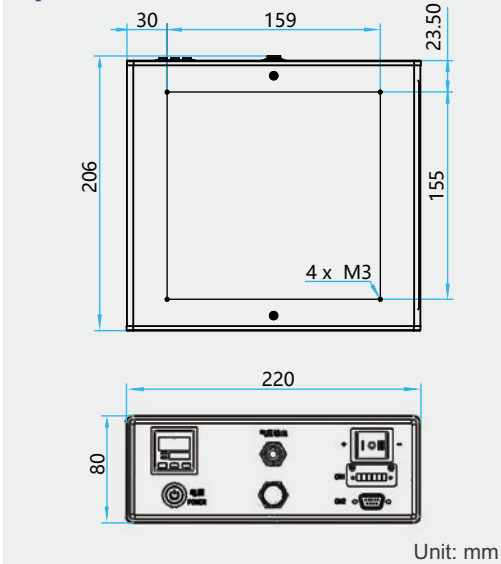
Aviation plug	Cable color	Function	Aviation plug number	Name	Specification
	Red	Direct current supply port (input)	2	24V+	DC24V power supply
	Black		11	GND	
	Orange	Gear selection port (input)	7	SW1	Gear selection port 1
	Yellow		6	SW2	Gear selection port 2
	Brown		10	SW3	Gear selection port 3
	Purple		9	COM1	Gear selection COM port
	Cyan	Positive/negative pressure triggering port (input)	13	TRG1	Positive pressure triggering port
	Green		14	TRG2	Negative pressure triggering port
	Grey		12	COM2	Positive/negative triggering COM port
	Blue	Alarm completion signal (output)	3	WS	Alarm signal output
	Pink		4	DS	Completion signal output
	White		5	COM3	Output COM port
	Black&white	Reserved port	1	NC	Reserved port
	Red&white		8		

Active Controller SCB-18IAS

| Port



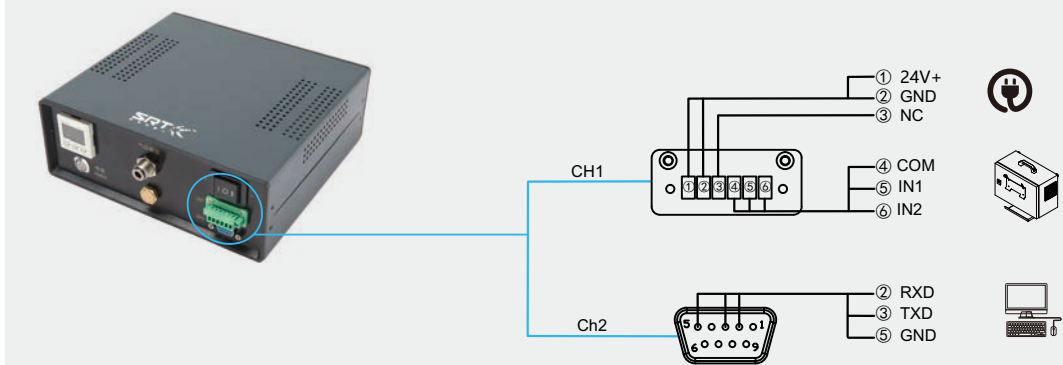
| Dimension



| Working Parameter


Dimensions	220*206*80mm
Net Weight	2680g
Input Voltage	DC24V \pm 5%
Current Consumption	3A
Gas Input	-70~100kPa
Positive pressure output flow	25L/min
Negative pressure output flow	25L/min
Protection function	NO
Level of Protection	Ip31


| Terminal Blocks





High Performance Version of Passive Pneumatic Controller SCB-18PRO


| Characteristic


 Accurate, high speed response

 Multiple communication methods

 Customized service

 UR+ function

 Multiple pressure adjustment methods

 Real-time state display

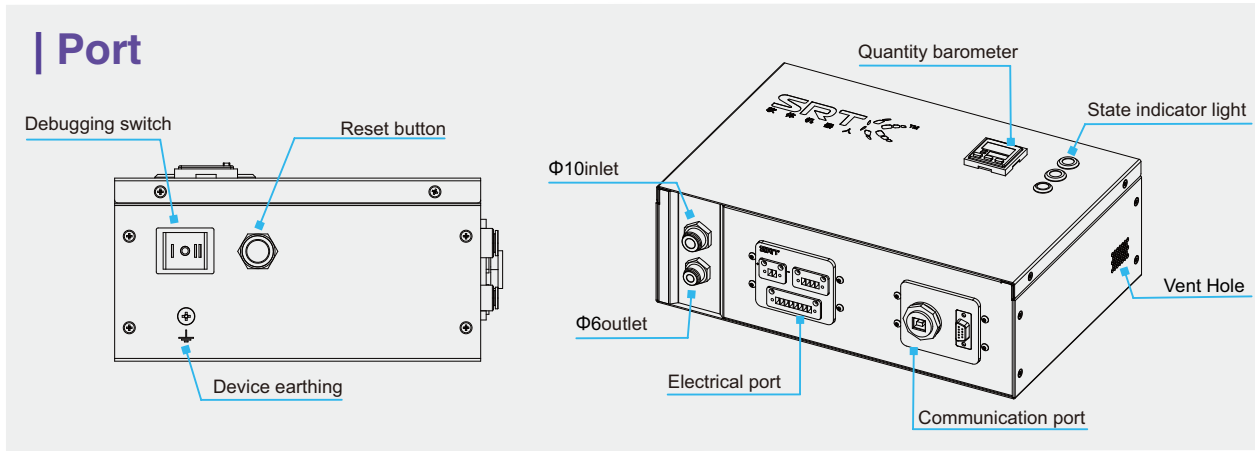
| Coding Rules

1 Product code			
2 Specific model			
3 Electrical port		4 Communication port	
Code	Description	Code	Description
A	Wiring terminal	R	DB9 (RS232)
B	Aerial plug	U	3P terminal (RS485)
		T	Ethernet port

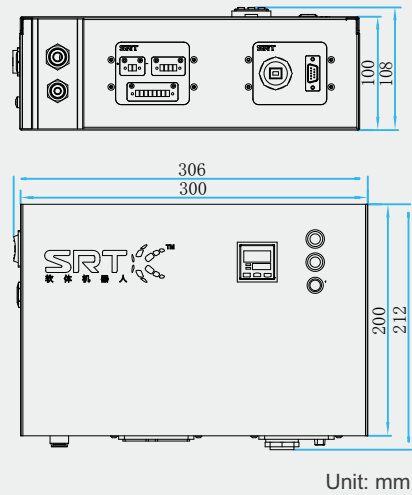
| Model Selection Specifications



| Port



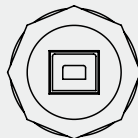
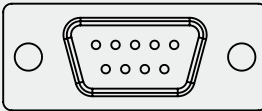
| Dimension



| Working Parameter

Dimensions	306*212*108mm
Net Weight	3885g
Input Voltage	DC24V±5%
Current Consumption	2A
Input gas pressure	0~0.7Mpaclean Air,flow>200L/min
Gas Input	-70~100kPa
Positive pressure output flow	160L/min
Negative pressure output flow	65L/min
Protection function	Overpressure overflow, power protection, gas supply check, gas leakage alarm
Level of Protection	Ip41

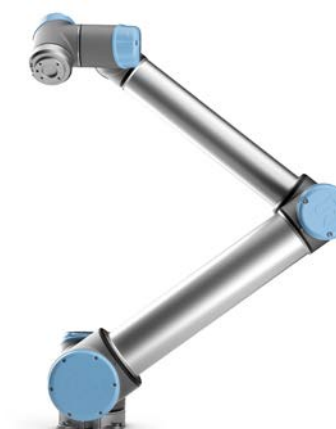
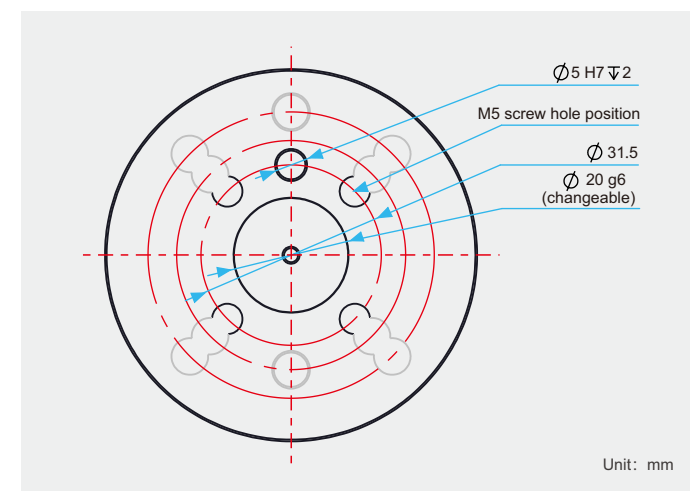
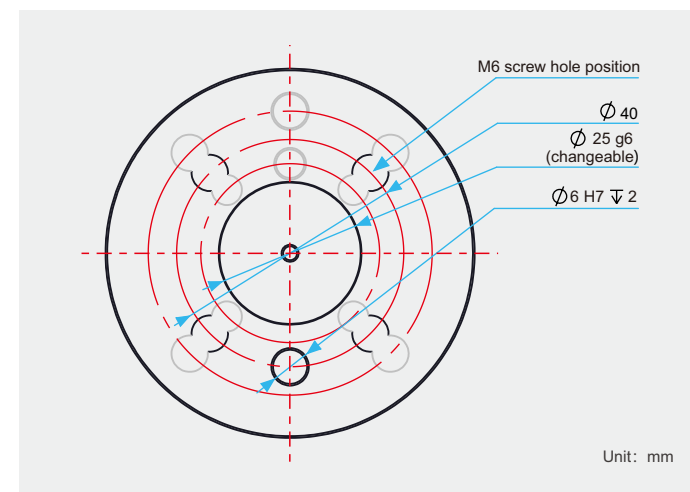
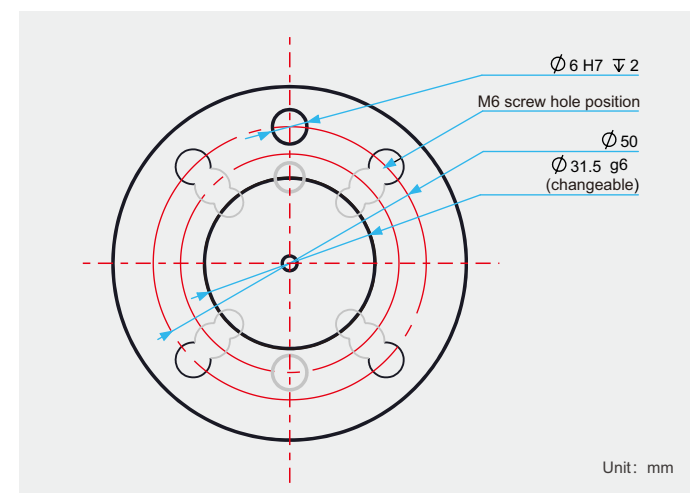
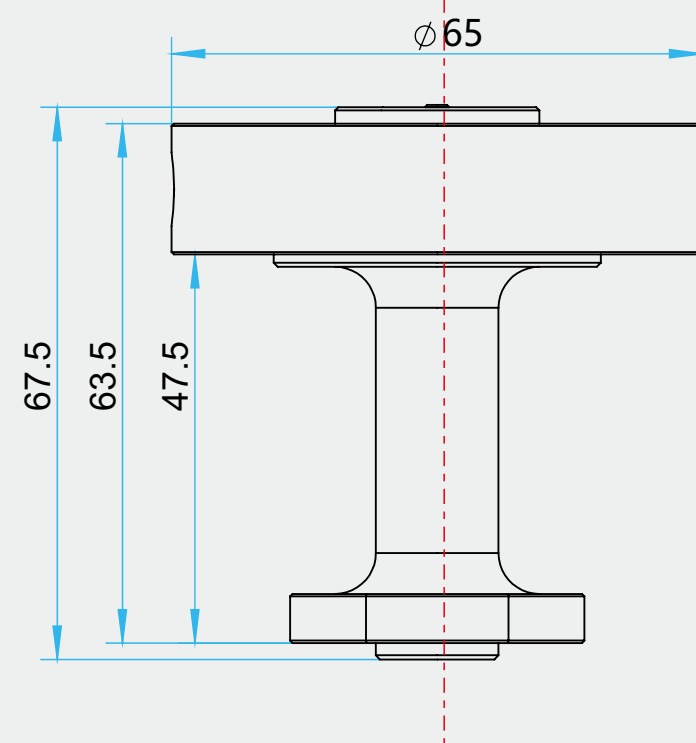
| Terminal Blocks

Power Supply Port				
PIN2	Name	Function instructions	Detailed introduction	
1	DC24V	24V	DC24V power supply port	
2	GND	0V		
Input Port				
PIN8	Name	Function instructions	Detailed introduction	
1	INCOM	Common end of signal input	COM	
2	IN1	Positive pressure triggering port	Positive pressure signal input	
3	IN2	Negative pressure triggering port	Negative pressure signal input	
4	SW1	Gear selection 1	Every gear corresponds to 8 positive/negative pressure value	
5	SW2	Gear selection 2		
6	SW3	Gear selection 3		
7	RST	Reset	Input reset when controller is abnormal	
8	NC	NC	Reserved port	
Output port				
PIN4	Name	Function instructions	Detailed introduction	
1	OUTCOM	Common end of signal output	COM	
2	PSS	Positive pressure completed	Positive pressure signaloutput completed	
3	NSS	Negative pressure completed	Negative pressure signal output completed	
4	WS	Alarm state	Gas leakage alarm	Over pressure alarm
Communication port				
				
USB-B: Device debugging port (pressure modification software on PC uses this)		RS 232 protocol port(reserved developing port)		

13 Flange Installation Dimension

Flange dimensions of SRT end effectors and robotics are compatible with ISO9409-1:2004 (the same as GB/T14468.1:2004). SRT end effector can also provide non-standard flange customized service. Currently SRT end effector can be compatible with UR, ABB, SIASUN, Delta robots and so on.

SRT Products Flange Dimensions



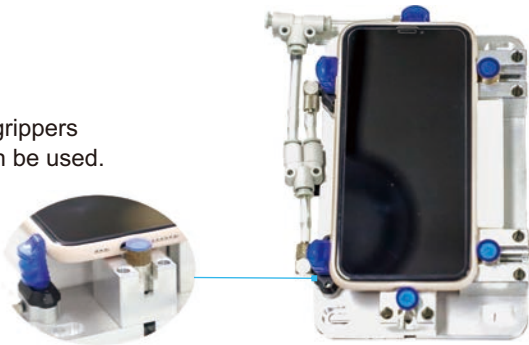
Please contact us for customized flanges.



14 Solutions

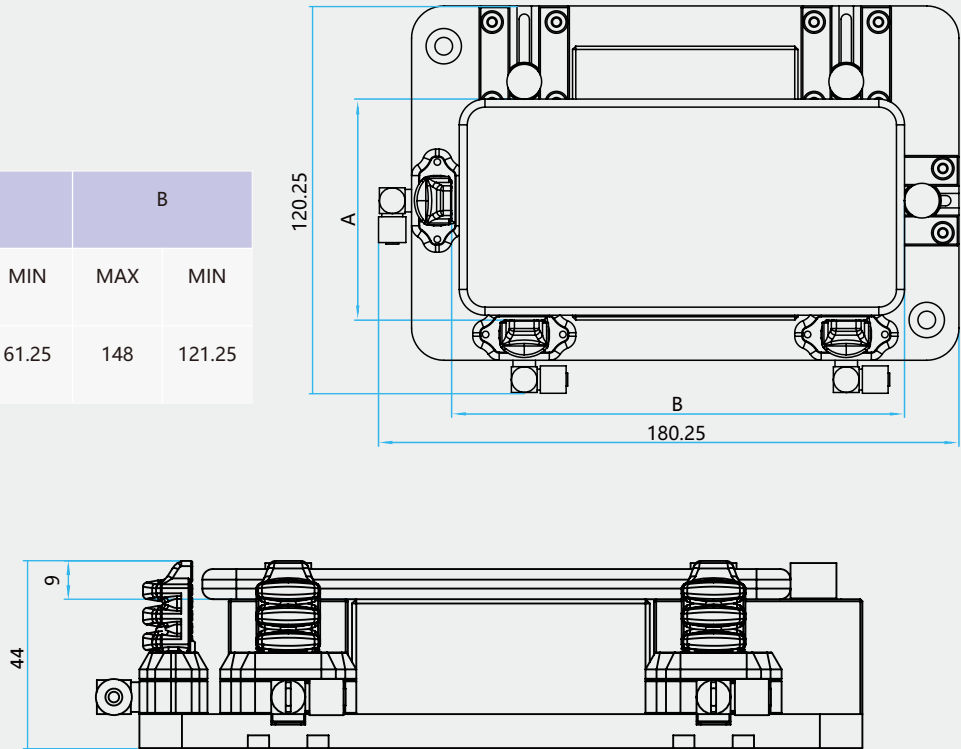
| Mobile Phone Clamp Fixture

Non-standard products can be customized, cooperating with soft grippers to grip. Double-station structure. SFG-FTN-M1520 soft gripper can be used.



| Dimension

A		B	
MAX	MIN	MAX	MIN
88	61.25	148	121.25



Unit: mm

| Working Parameter

Maximum load (g)	Product weight (g)	Temperature range (°C)	Working lifespan (10 thousand times)	Repetition accuracy (mm)	Working pressure (Kpa)	Working frequency (cpm)	Activating media
—	— ※	-40~150	3 million times	0.08	≤110	-100~100	Clean air

It is recommended to cooperate with SRT pneumatic controller and avoid directly accessing to gas source.

| Customization Service

The special customization can be made when existing products cannot meet the demand. According to actual task requirements, we can assist customers in choosing the right gripper and suitable robot system, as well as, provides turnkey services, including visual recognition, manual teaching, gas path building, programming, etc.



| Finger Custom

We can customize the gripper according to customer requirements to grasp certain objects.



| Support Custom

Mounting plate of the soft fingers can be customized for large size or special-shaped workpiece.



Partners



Delta four-axis robot DRS40L (arm length 400mm)

Professional Intelligent Grabbing Solution