Flexible mechanical claws

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Instructions:

Edition	date	Content description
V1.0	2021/01/06	First release

Introduction

Flexible self-transport of mechanical claw FA (Flexible adaptive gripper) is a new type of fixture, its main body.The parts of the end of the fixture and the workpiece are made of flexible materials. With the interaction with people, and the environment'Wang Wenquan, capture security, and has a very high.adaptability. The same fixture can grab different shapes,Workpiece of different sizes and different seasons.

Flexible adaptive mechanical claw FA in contact with vertical products, can passively adaptive fit the object, <curvature, without customized processing according to the precise size, shape of the product, the use of hand. One-claw is compatible with multi-gauge objects,No need for an expensive replacement system.

Catalogue

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1. Features and applicable areas

1.1 Product characteristics

safe

It is composed of flexible materials, even if the head is not in pain.

It makes it suitable for interaction with people, very suitable for the field of scientific research and service,The material is soft, and the elastic structure can offset the excess force and grab undamaging objects. Very suitable for fruit,Glass, ceramic powder pressure poem forming object, high surface requirements in the non-destructive grasp.

One claw

Can adapt to the object contour. One claw grab different shapes ″

different sizes, special-shaped workpiece. Very suitable for

Grasp, alien objects, a production line of the flexible production of multiple grid products.

Saving mone

Multi-specification objects do no need to change, efficient and economical.

No need to root two pieces of shape custom processing claw shape, hand is, save time and manual,

1.2 Applicable areas

The adaptive claw can grab all kinds of objects like soft wrapping without causing physical damage to the joint objects. It is suitable for food, year, daily chemical, medical treatment, 3C electronics and other fields. It can be integrated into intelligent assembly, automatic sorting, logistics warehousing,and food water line. It can also be used as scientific research and experiment equipment and intelligent entertainment

The functional accessories of equipment or service robots are required to be capable, non-destructive, high safety and high adaptability.The ideal choice for sexual capture,

2. Control system

2.1 Pneumatic mechanical claw control system

1, pneumatic flexible claw series: two, three, four fingers of the gas circuit connection and circuit control are-

The kind of. Figure 2-1:

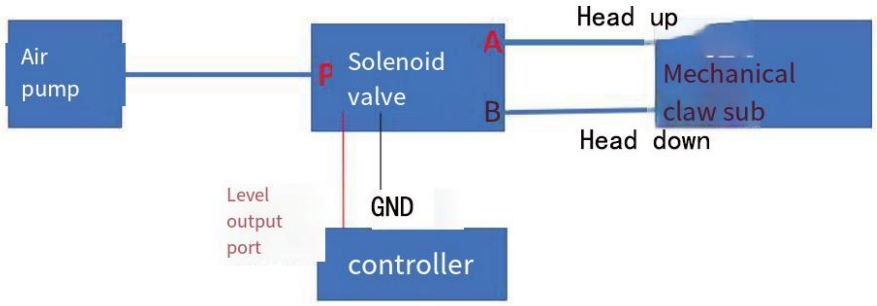


Figure 2-1

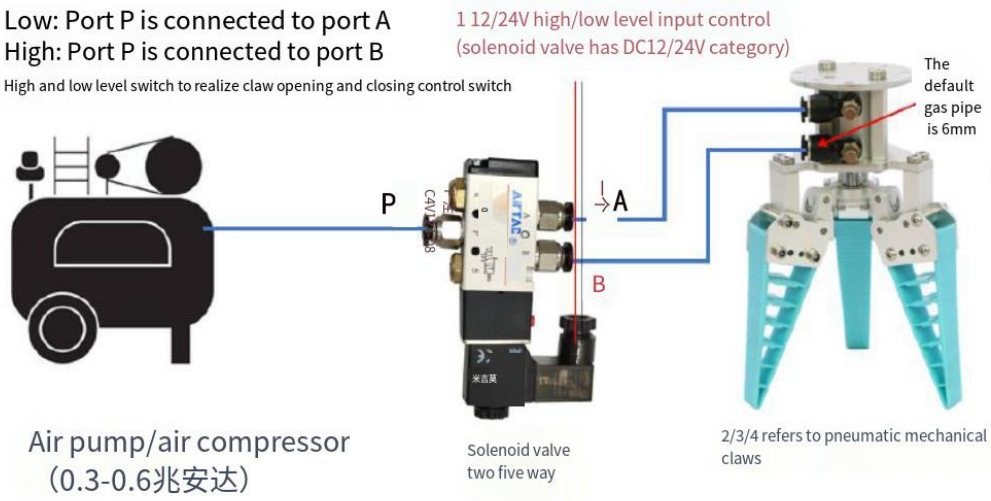


Figure 2-2

Gas circuit connection: the P port is connected with the air pump. Generally, it requires a variableMdiameter joint (6 / 8 / 10 variable 6). The A and B ports are respectively connected with the mechanicalM claw interface.
If you want to change the mechanical claw opening and closingMcorresponding to high and low level, change the trachea of AB interface.

self-provided gas source (gas source output pressure in 0.2~0.6MPa, flow type is not high), solenoid valve(Two bit five), controller (₁ C, single chip) control. General control block diagram is shown in Figure 2.1

Through the controller of the solenoid valve lead high and low level air,control the direction of the gas path switching.

2. Speed regulation method

The speed of mechanical claw has been adjusted before delivery , and it needs to be adjusted . Please check figure 2 - 4 method adjustment (speed more fast than easy to cause vibration).

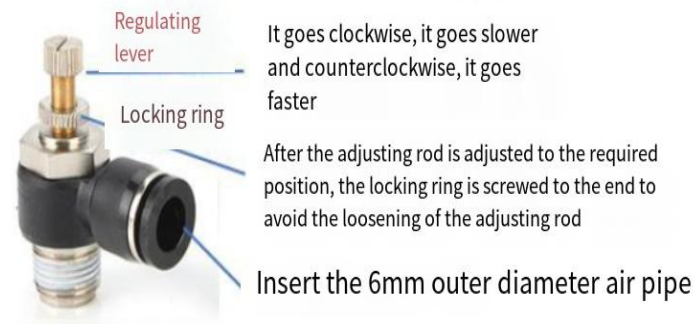
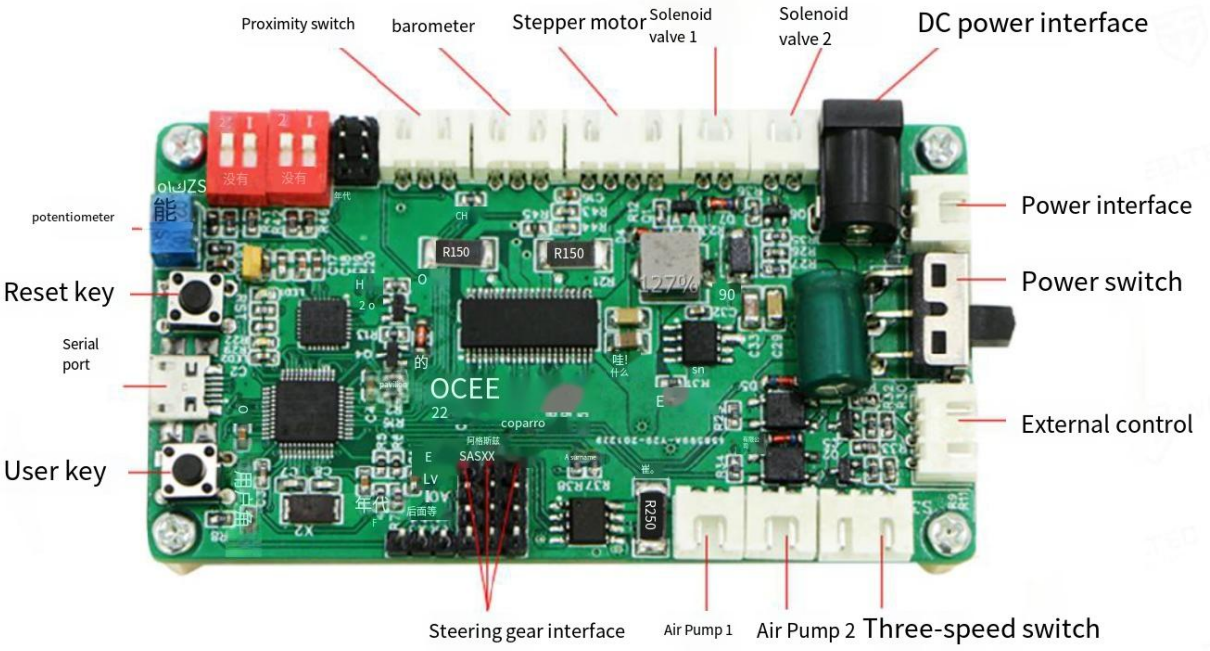


FIG. 24

2.2 Electric mechanical claw control system

By the flexible injection machinery claw, steering gear flexible machinefactory ″ can choose the corresponding controller. As in Figure 2-5:



graph 2-5

First, we see a blue potentiometer on the upper left, and we can go through the package. Switch different controls the procedure, the rotating potentiometer can see that the spo state of our LFT lamp changes the specific correspondence.

1: LED lamp single flicker corresponds to the control spherical flexible mechanical claw
2. The LED lamp flashes twice corresponding to the control of flexible steering gear
3. LED lamp three flashes corresponding to the electric flexible mechanical claw

We will adjust the corresponding mode, and test after the delivery. If you purchase multiple models and need to switch modes, you can switch according to the above. After switching different modes we are all rite to the motherboard Line reset once, you can click the main, door reset button or to the motherboard can be on.

Power supply by default we use 24V power supply through DC head, the motherboard has the power supply sky system DC power supply situation. If an external switch is required to connect the power supply to the switch.Then receive the seven-source interface of 2 PIN, and the power supply of this interface directly supplies power to the motherboard.

The motor interface of the electr ic mechan ical claw is 4. Anti-reverse interface can be directly connected to our power line

The use is detailed in our use video.

The third line of the steering gear mechanical claw, their corresponding electrical instructions are :

Yellow-signal red-positive brown-negative

Be sure to note that the line can not be inserted wrong. The deepest color is the ground line, corresponding to the interface

of G (motherboard with screen mark logo) pin, the rudder pin

shown in 5 from left to right respectively G, 5V, signal : so we

The line with the deepest color) aligns the left leading net of the rudder interface in figure 2-5.

2.3 The spherical mechanical claw control system

Urine flexible mechanical claw control system is one, 2 box, internal has integrated control circuit, gas pump,Solenoid valve and so on must be about components. Can be controlled directly on the operation panel, or by an external input signal.The action of the mechanical claw. To be note, HC power supply needs to use the default 24V power supply

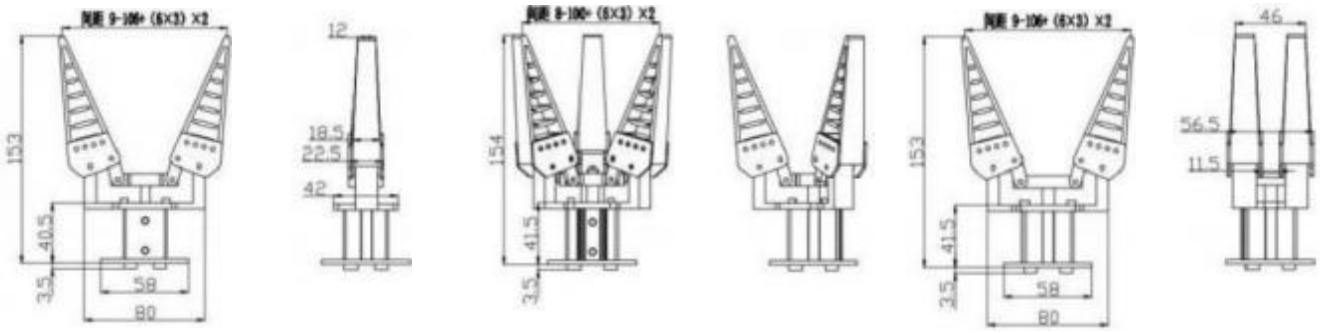
graph 2.3

Suitable for power supply, can not be replaced at will. Model power supply. External input signals feed into the system.

When it is necessary to connect a ground wire to the GND pin stroke common ground, pay attention to the connection must not be wrong, external signals support 3.3-24V output. In addition, when the air pump program control can only inhale first, and the program sets the time of inflation and inhalation, the factory default is inflation 1S, inhale 2S. The current action time must be enough before you can carry out the next action, otherwise even if you switch to the next action mechanical claw is no action, you can see the instructions of the operation video.

3. Product introduction

3.1 Pneumatic mechanical claw



The pneumatic two fingers **Pneumatic three fingers** **Pneumatic four finger**

graph 3-1

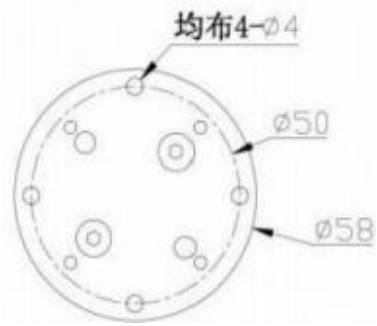
The three diagram parameters of the pneumatic flexible mechanical claw are shown in the above figure, as shown in the following table :

Parameter and model number	The pneumatic two fingers	Pneumatic three fingers	Pneumatic four fingers
size	58*142*156.5mm	85*98*156.5mm	58*142*156.5mm
weight	240g	300g	350g
Grab the size	10-120mm	10-120mm	10-120mm
Grab the weight	0.6kg	1kg	1.5kg
Air source pressure	0.2-0.6Mpa	0.2-0.6Mpa	0.2-0.6Mpa
Catch the frequency	In the 100 times / minute	In the 100 times / minute	<100 times / min

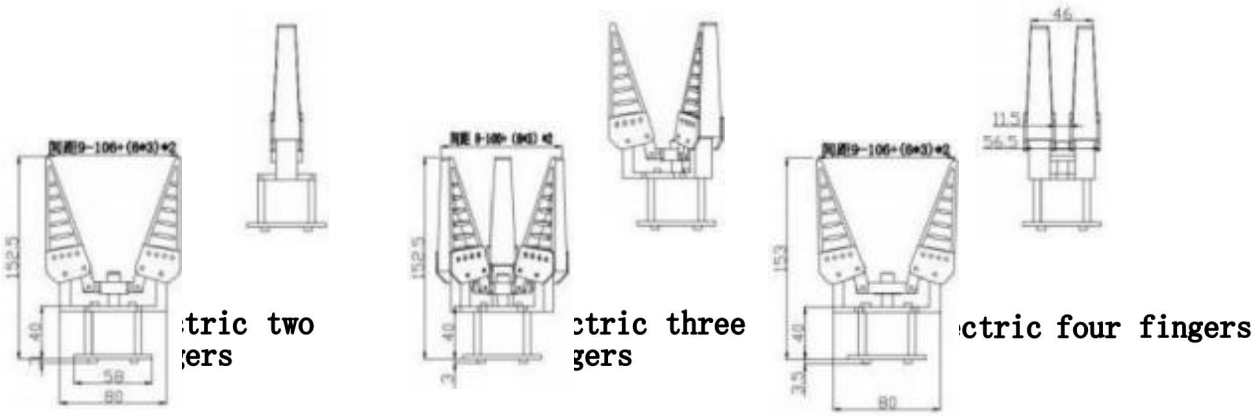
Table 3-1

The flexible mechanical claws of three pneumatic types in the soldier share the transfer plate (used to fix the equipment) ; Fig Paper dimensions are as shown in Figure Figure 3-2:

graph 3-2


均布4-Ø4
Ø50
Ø58

3.2 Electric mechanical claw



tric two gers　　ctric three gers　　ctric four fingers

graph 3-3

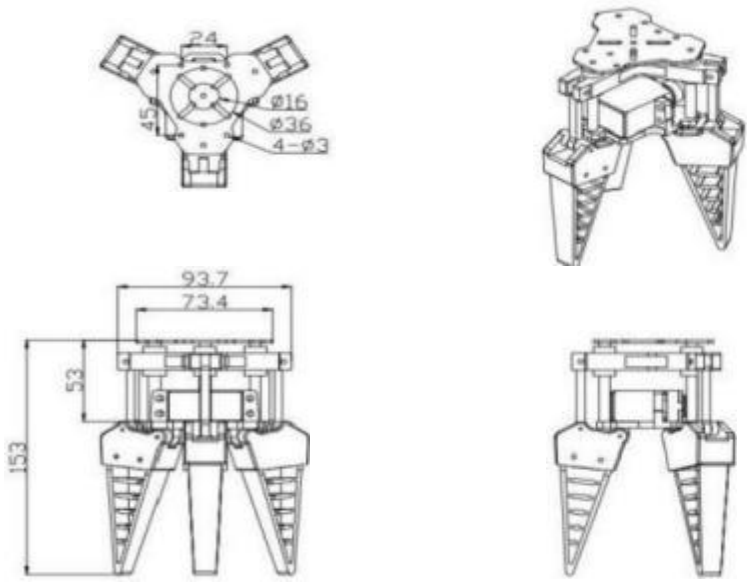
The three diagram parameters of the pneumatic flexible mechanical claw are shown in the above figure, as shown in the following table:

Parameter and model number	Electric two fingers	Electric three fingers	Electric four fingers
size	58*142*155.5mm	85*98*155.5mm	58*142*155.5mm
weight	370g	420g	510g
Grab the size	10-120mm	10-120mm	10-120mm
Grab the weight	0.6kg	1kg	1.5kg
service voltage	DC12-24V	DC12-24V	DC12-24V
Catch the frequency	<40 Times / cent	<40 Times / cent	<40 Times / cent

Table 3-3

The three electric flexible machines do not share the transfer plate with the pneumatic flexible mechanical claws (used for expansion and other The equipment is fixed) ; the drawing line and inch are shown in Figure 3-2.

3.3 Steering gear mechanical claw



graph 3-4

Steering gear flexible machine, or claw only three fingers a specification hope number, the basic parameters are specific as follows

Dimensions : 98 * 113 * 153mm

Hand: 240 g

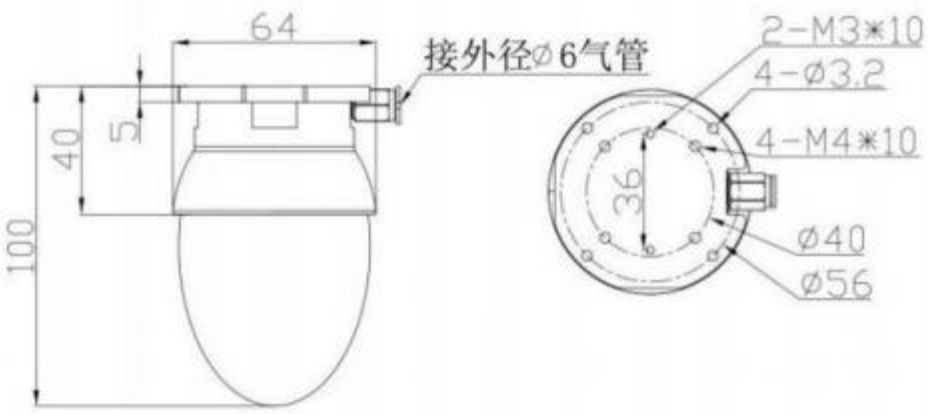
Grasping size : 15-90mm in diameter

Job weight : <0.9kg

Power supply voltage : 5V

Grab frequency is <100 times / min

3.4 spherical flexible mechanical claw



graph 3-5

Spherical flexible mechanical claw has only one specification model, the basic parameters are as follows :
Dimensions: 64 * 100 mm
Weight : 110g
Catch the ruler ten; <40mm
Claw weight : 350g
Pressure of air source: し Jkpa ~ + 5 kpa
Grasping frequency: <40 times / min