



麦特自动化
MATE AUTOMATION

Fully Automatic Guide Ring Assembly Machine

MGA-20A

Operation Guide

SUZHOU INDUSTRIAL PARK MATE AUTOMATION

TECHNOLOGY CO.,LTD

www.suzhoumate.com

Thanks for using our products. Before use, please read this menu carefully and keep it for future reference. Thanks for your understanding if there's any discrepancies between the manual and practical operation process due to technical update ceaselessly.



Company brief

Suzhou Industrial Park Mate Automation Technology Co., Ltd. is a metallic gasket and equipment manufacturing and selling company. We are located in Suzhou - a city well known for its Chinese classic garden, south of Jiangsu Province, China. With our technology, we offer our customers very wide variety of metallic gasket equipments, such as

Spiral wound gasket winding machine;

Cam profile machine;

Guide rings grooving machine;

Inner ring beveling machine;

Bend & weld machine;

Stamp marking machine;

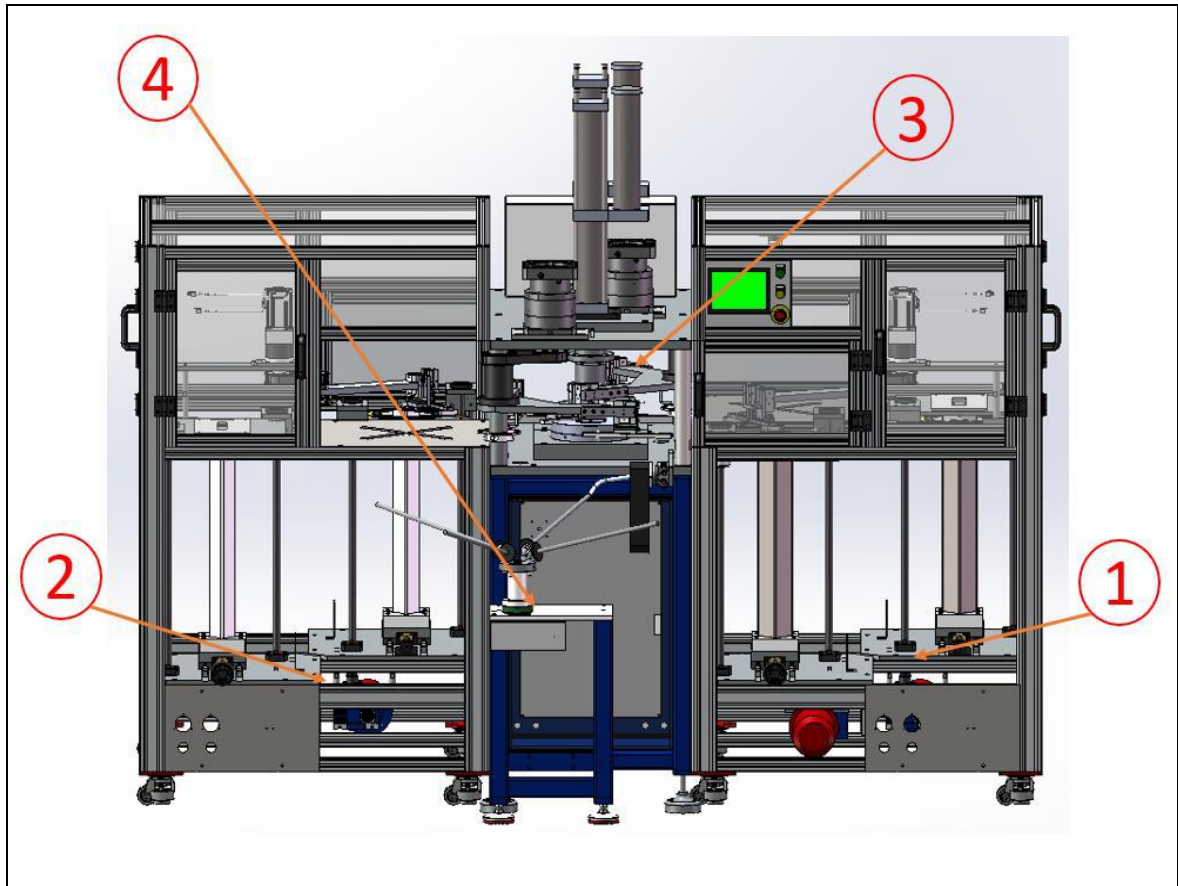
as well as computer controlled gasket test machine.

Our concept is to provide our customers with one-stop service for all metallic gasket related products, parts, and equipment. We have successfully sold our products and equipment to customers from over 30 countries around world including the middle east, Asia-Pacific, India, USA, Canada, Russia, Europe, South America north American and Africa.

We welcome all customers from abroad and home.



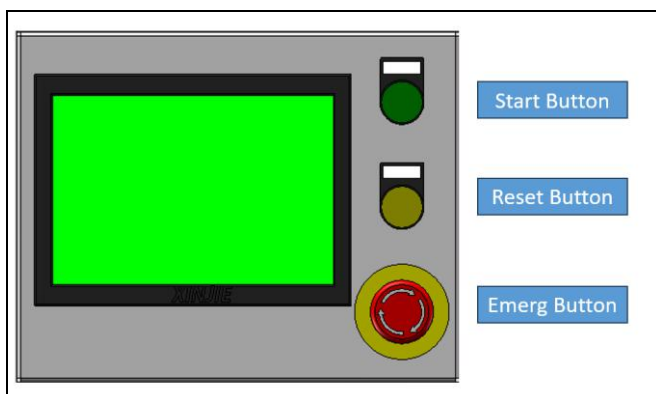
MGA-20A Fully Automatic Guide Ring Assembly Machine



The MAG-20A Fully automatic guide ring assembly machine is consist of 4 main systems

1. Winding element supply system, which feed winding element automatically
2. Guide ring supply system, which feed guide ring automatically
3. Assembly system, which basically consist of two work stations, use pressurized air-oil cylinder provide pressure to deform guide ring in one station, then flatten back on the second station with winding element, therefore accomplish guide ring assembly.
4. Gasket unloading system, which unload the finished gasket.

Panel Details





MGA-20A Machine Main Features

1. It is a fully automatic guide ring assembly machine, consist of 4 major parts, guide ring supply system, winding element supply system, automatic assembly system as well as gasket unloading system, controlled by PLC.
2. Both winding elements and guides supply system have two storages, one is under supplying, meanwhile another one can be reloading, and the gasket unloading system have 4 bars to hang the gasket, as soon as one is full, system will automatically switch to the next one, so operator can collect the gasket without stop the machine, so this machine can run constantly without stop for reloading.
3. Deployed 2 double arm picking robots and 2 single arm picking robots make cycle time less than 10 seconds.
4. Special designed quick changing mold, reduce set up time and change over time.
5. Use pressurized oil air cylinder provide pressure up to 5 tons, can assembly sizes from 1/2" up to 8" 150, cover all big volume items.
6. Durable assembly machine with simply and easy maintenance requirements
7. Machine is suitable for inner ring type of gasket, for basic type of gasket, need special designation for picking claws, which is optional configuration.

Machine specification

Type	MGA-20A
Profile (L*W*H)	2910*2640*2265
Net weight	1240KG
Voltage	380V
Size scale	1/2"– 8"
Suitable for all standards	Yes
Process control	PLC program
Work mode	Fully automatic
Compress	Pressurized oil-air cylinder
Maximum pressure	5 T
Circle time	15 Seconds
Guide ring load capacity	350 Pieces
Winding element load capacity	280 Pieces
Material suited	CS/SS
Pressed air supply	0.5-0.8 MPa

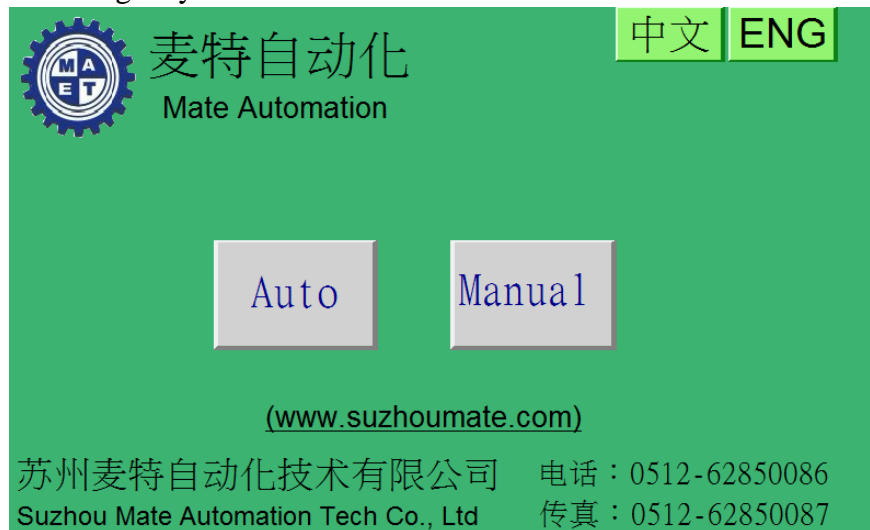
Machine set up and basic introduction

1. Connect cable to power.
2. Connect air pipe to compressed air source. Recommend pressure setting at 0.3 MPa



Regulator	Description
A	GR-Up/Down
B	GR-Clamp/Release
C	ASS-Up/Down
D	ASS-Clamp/Release
E	W-CCW
F	W-CW
G	GK-Up/Down
H	GK-Clamp/Release

3. Turn on power, the interface will show the first page as below, Manufacturer's name and web information, as well as language options, Chinese or English. It also show tow buttons give you choices between Automatic and Manual.

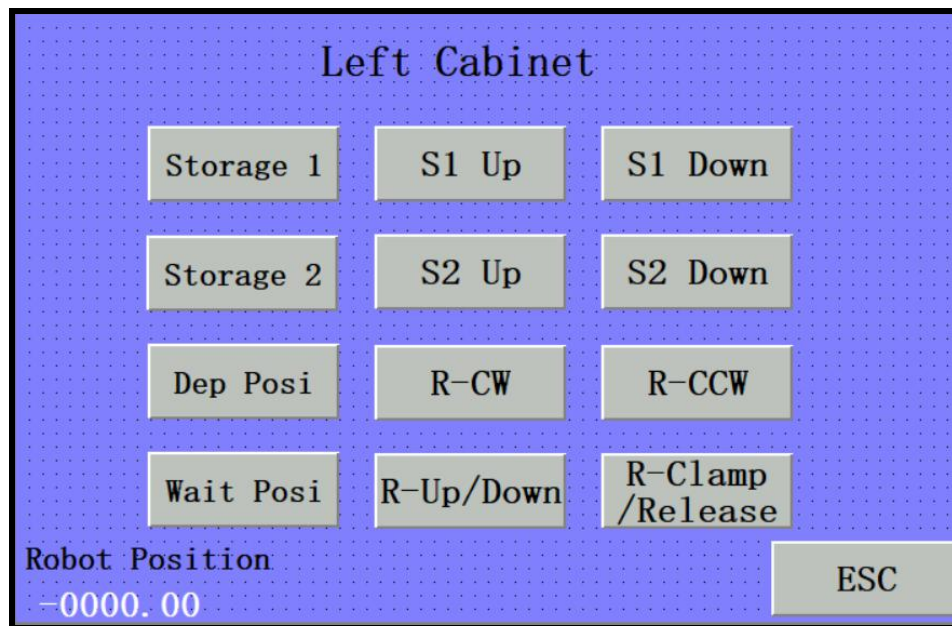


4. Press “Manual”, it will come to the following page, each buttons located at left area, touch once it will on, touch again back to off, those buttons control each functions of the machine,

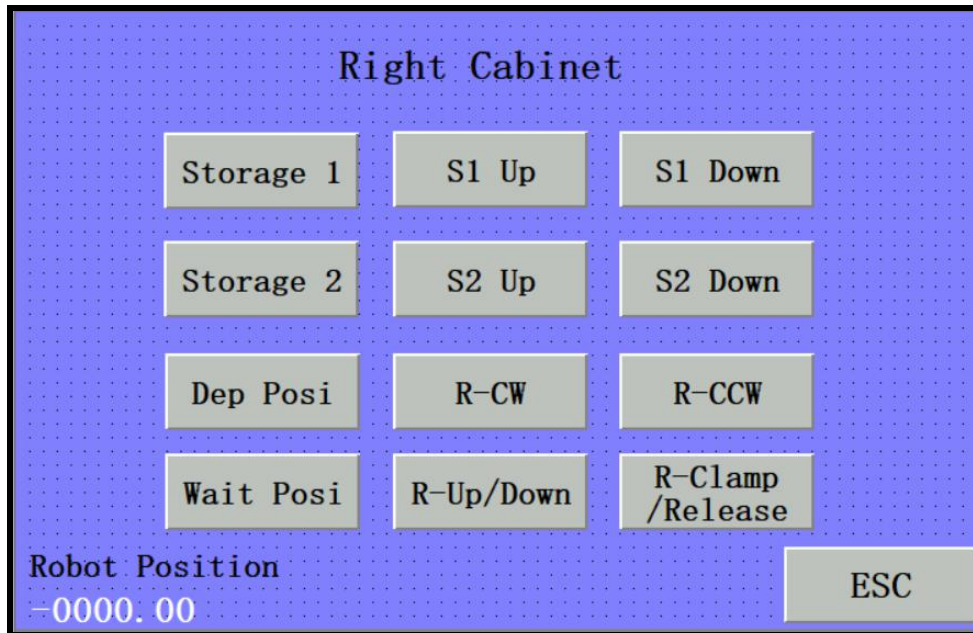


Left Cabinet & Right Cabinet, both left and right are actually same except the left unit is controlling winding supply, while right unit is controlling guide ring supply. Controlling principle are all same.

Left Control Unit



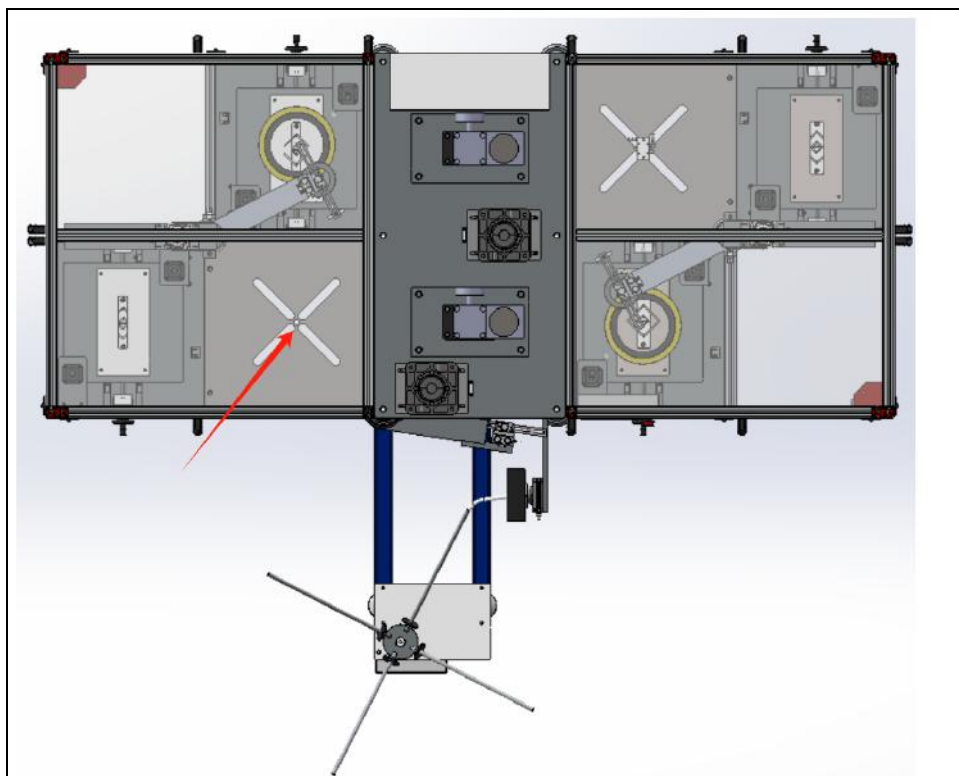
Right Control Unit



Storage 1 and 2, means the position of 2 storages. Both winding element supply system and guide ring supply system have two storages, 1 and 2, robot pick from one storage until it run out, then switch to another.

S1 and S 2 up and down, control the loading plate moving up and down.

Dep Posi, means departure position, means the position ready for depart,



Wait Posi, means Robot wait posit.

R-CW and R-CCW, controls robot turn clockwise or counter clockwise,

R-Up/Down and R-Clamp/Release, control robot actions.



Both Left Cabinet and Right Cabinet controlling are same.

Middle Cabinet

W-CW	W-CCW	GR-CW	GR-CCW	Upload
W-Up/Down	W-Clamp /Release	GR-Up/Down	GR-Clamp /Release	W Position 0.00
GRF-Up/Down	GRF-Clamp /Release	GRD-Up/Down	GRD-Clamp /Release	GR Position 0.00
Load Bar CW	Swin Arm	DF-Up	DF-Down	Up Position 0.000
Flaten	W Pick Posi	Deform	GR Pick Posi	
W Ass Posi	W Wait Posi	GR Ass Posi	GR Wait Posi	P/H Switch
R-Height	Save	D-Height	Save	ESC

The middle cabinet mainly control two robots equipped 2 picking claws, one robot equipped with “W” and “GK”; while another one equipped with “GRF” and “GRD”.

“W” prefix means winding element robot;

“GK” prefix means finished gasket

“GRF” prefix means flat guide ring, e.g. guide ring before deformed

“GRD” prefix means guide ring deformed

Each button controls individual robot’s actions as indicated.

Load bar CW, control the 4 bars turn clockwise;

Swin arm, control swing arm moving;

DF Up and Down, controls the central piece of deforming mold moving up and down, this is important to adjust the heights for each different sizes of rings, the central piece should stay at two heights, the height for receiving flat guide ring, and the height for delivery the deformed ring. For each different sizes of ring, both heights are different. So R-height and D-height should be saved once you adjust to proper heights.

All sizes of parameter setting can be upload to the memory of the PLC after first time making. Use the upload to save the parameter setting for each size.

P/H Switch button is used for mold changing, especially for up mold changing. On means Pneumatic and hydraulic both functioned, Off means only pneumatic function. So when change mold switch off Hydraulic.

5. If press Refer Button, show below page.



Size Inch	Code	Size Inch	Code
0.5	1	2.5	7
0.75	2	3	8
1	3	4	9
1.25	4	5	10
1.5	5	6	11
2	6	8	12

You can inquiry each product code, and call the code in first page of “Manu”
And press “Call”, then all parameter setting are set up.

“Code” determines what type of product the user want to produce; each code refer to one set of parameters for one type of gasket which was saved in first time trial run. Machine can save up to 500 different types of products in the memory, so the user can store all most frequent use types of products into the memory.

Tips: After making the first good quality of product, you can save it under one product code, therefore, you can pick that code up when you make the same gasket next time.

6. If you select Auto, then the screen will show the page as below,
After call the code, press “Auto” for automatic run.

中文 ENG

Volume 0 Zero

Code 0

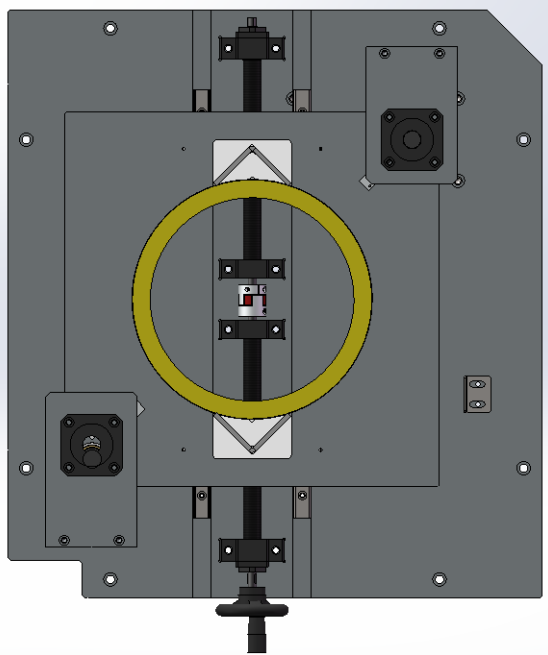
Adm Para Return

In Auto page, Volume is for counting, you can zero and re-start counting;
Code shows what type of production is under producing.



Process map

1. Load the ring and winding elements as shown below, roll the hand wheel to make sure the rings and elements are located at the central area for the plat;



2. Go to the Manu page of interface, call the product code;
3. Adjust the picking claws for all robots as shown below, some claws holding from inside, while some clamping from outside, there are scales on all claws, use that as reference, can make adjusting more productive, recommend record positions for each sizes, so can save time for next time.
4. Press the yellow button “Reset”;
5. Press green button to start auto mode.

Safe Instruction

1. Operator must ware glass to protect from welding spark, or strip.
2. There is guide light at the back of the machine, which is important protection.
3. Don't open electronic box when electrician is absence.

End