



Shanghai Harmony Automation Equipment Co., Ltd.

Technical scheme of GX series flat vacuum suction crane

Planned review date: 2024/04/17

Plan number:H2024041710

Product& Model	Size(mm)	Sucker Diameter(mm)	Sucker Number	Power System	Control Mode	Safety Loading
HP-GA600-10S	2000x650	φ 240	10 pcs	DC12V	Manual flip	600kg

Function: rotate 360 degrees (manual/automatic) and tilt 90 degrees (manual/automatic)






Note: The quotation is valid for 7 days







1. The equipment price does not include taxes and transportation fees;

2. Payment method: 100% wire transfer in advance.

3. Delivery time: The goods will be shipped within 5 working days after receiving the buyer's full payment

Component list

serial number	Component name	technical pametearr	supplier	Quantity
1	Vacuum pump	2m ³ /h, 0.09Kw, the highest vacuum is 75%	American Thomas 	1
2	Vacuum suction cup	240mm diameter black nitrile rubber	Shanghai harmony  (Special suction cup)	10
3	Pressure Sensor	ZTP25 digital display	Shanghai harmony 	1
4	battery	15AH12V	Japan Matsushita	2

				
5	filter	All copper filter element, three-layer filter element	Shanghai harmony 	1
6	Vacuum check valve	G1”	Japan SMC 	1
7	switch	CP65	Japan FUJI 	1
8	Vacuum filter	G 1/4" HPC2”	Harmony 	1
9	Electric box and accessories	France Schneider	custom made 	1

I: Component function description:

1. Vacuum pump: oil-free air-cooled vacuum pump, DC12V, DC charging type to generate vacuum, it is the core part of the vacuum system, the highest vacuum is 75%;
2. Vacuum suction cup: used to adsorb on the surface of the workpiece, and the rubber is in contact with the workpiece to ensure that it will not damage the surface of the workpiece;
3. Vacuum filter: used to filter impurities and particles on the surface of the workpiece or in the air to ensure the service life of the vacuum pump;
4. Pressure sensor: used to visually display the vacuum pressure of the system to the operator and provide safety assurance; when the pressure of the vacuum system is insufficient, it transmits electrical signals to the alarm system;
5. Push-pull valve: control and switch the passage between the vacuum pump and the suction cup, the suction cup and the atmosphere;
6. Vacuum check valve: When the system is powered off, it will automatically close the passage between the vacuum pump and the atmosphere, lock the vacuum energy of the accumulator, and provide sufficient pressure holding time to ensure that the workpiece will not suddenly fall;
7. Manual ball valve: used to manually open or close the passage between the vacuum pump and the suction cup, easy to maintain;
8. Alarm indicator: when the suction of a single group of suction cups is insufficient, the corresponding indicator will alarm

II: Customer electric crane configuration

1. Power supply: 220V charging power supply, 12V DC battery.
2. Operation mode: manual operation at the lifting site;
3. Lifting equipment: truck crane or crane; (provided by the customer)

III: Equipment technical parameters and performance indicators

product brand	Harmony	Device model	HP-GA600-10S
Total power	0.09KW	way to control	Manual valve control

Equipment power distribution	DC12V	Dimensions	2000mm X 650mm
Maximum load	Horizontal handling, MAX600KG	Equipment weight	90KG
Operation method	Manually flip 90 degrees, manually rotate 360 degrees		
greatest pressure	75% vacuum degree (0.85Kgf)	Safety pressure	55% vacuum (0.55Kgf)
Alarm function	Equipment with automatic detection of negative pressure alarm function		
Suction and release time	The absorption time is less than 10 seconds; the release time is less than 2 to 3 seconds;		

IV: Design standards

(1) The design of Harmony equipment strictly follows the European CE standard EN13155: 2016, the American ASME (Mechanical Engineering Association) B30-20-2006 standard and the German UVV18 standard, and the main design indicators are higher than the above standards;

(2) Safety factor: The main structure is 4.0, the safety vacuum degree is 65%, and the Khumeni standard is 85%, which is 20% higher than the safety standard.

V: Payment method and delivery time

Shipped within one week after payment

VI: Project evaluation index

It is qualified when all the following conditions are met.

- (1) Lifting weight: 600kg;
- (2) The specification of the board lifted by the suction cup: according to technical requirements;
- (3) Weight of vacuum hoist: $\leq 600\text{kg}$;
- (4) Safety factor: 4.0
- (5) Speed test: suction cup ≤ 10 seconds
Release plate ≤ 2 seconds
- (6) Power-off retention time: $\geq 20\text{min}$;
- (7) Efficiency: 24 hours continuous operation;

VII: Equipment inspection and standards

1. General matters

Whether the various materials are complete, whether the appearance of the equipment is painted or scratched, whether the suction cup is damaged, and whether the pipe is damaged.

2. Items inspected before leaving the factory

- Equipment suction test
- Equipment holding pressure test
- Alarm test
- Various control components (buttons, electrical)

VIII: After-sales service

Shanghai Harmony has a 12-month free warranty for the whole machine, a three-year warranty for the vacuum pump motor (except carbon brushes) and a lifetime free mainten.

