TEST REPORT

For

Dongguan Huayu Automation Technology Co., Ltd.

Screen Printing Feeding Machine

Model: HY-767-1, HY-767, HY-767S, HY-767L, HY-230, HY-230ZP, HY-175, HY-320, HY-340, HY-R45, HY-T106, HY-324, HY-F12, HY-1000.

Test Report Number：WD21012020FS

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TEST REPORT
EN ISO 12100
Safety of machinery - General principles for design - Risk assessment and risk reduction

Report Reference No..... :	WD21012020FS
Tested by (+ signature)..... :	Dylan .....
Review by(+ signature)..... :	Aubry .....
Approved by (+ signature)..... :	Alex .....
Date of issue..... :	Feb. 24, 2021
Contents..... :	18 pages

Testing laboratory

Name……:	Dongguan Wode Testing Co.,Ltd.
Address..... :	Building B,No.6 Gongye North Road,Songshan Lake(SSL) High-tech Zone,Dongguan523808,P.R.China

Applicant

Name..... :	Dongguan Huayu Automation Technology Co., Ltd.
Address..... :	A Building 168#, Changheng Road, Changping Town, Dongguan City, Guangdong Province, China

Test specification

Directive..... :	2006/42/EC
Standard..... :	EN ISO 12100:2010
Test procedure ..... :	CE-MD

Test item

Description..... :	Screen Printing Feeding Machine
Model and/or type reference..... :	HY-767-1, HY-767, HY-767S, HY-767L, HY-230, HY-230ZP, HY-175, HY-320, HY-340, HY-R45, HY-T106, HY-324, HY-F12, HY-1000.
Main test type: ..... :	HY-767-1
Trademark..... :	HYOO
Manufacturer..... :	Dongguan Huayu Automation Technology Co., Ltd.
Address..... :	A Building 168#, Changheng Road, Changping Town, Dongguan City, Guangdong Province, China
Rating(s)..... :	380V AC, 50/60Hz

Copy of marking plate

Remarks:

The Importer's name and address shall be marked on the label before shipment.

Other information may be included if no misuse or misunderstanding.

Summary of testing:

All tests and assessments are performed on the prototype of the original sampled machine and the technical file which are submitted by the client.

Risk assessment was carried according to EN ISO 12100:2010. Followed by risk assessment, protective measures have been implemented by the manufacturer for risk reduction. Iteration of this process have been carried out to eliminate hazards as far as practicable and to achieve appropriate risk reduction.

Possible test case verdicts:

- test case does not apply to the test object..... : N (N/A)
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement..... : F (Fail)

Testing:

Date of receipt of test item..... :	Jan. 27, 2021
Date(s) of performance of tests..... :	Jan. 28, 2021 to Feb. 22, 2021
Testing location:	A Building 168#, Changheng Road, Changping Town, Dongguan City, Guangdong Province, China

General remarks:

This report shall not be reproduced except in full without prior approval of the company.

The test results presented in this report relate only to the item(s) tested.

"(see remark #)'' refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended the report.

Throughout this report a point is used as the decimal separator.

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General product information:

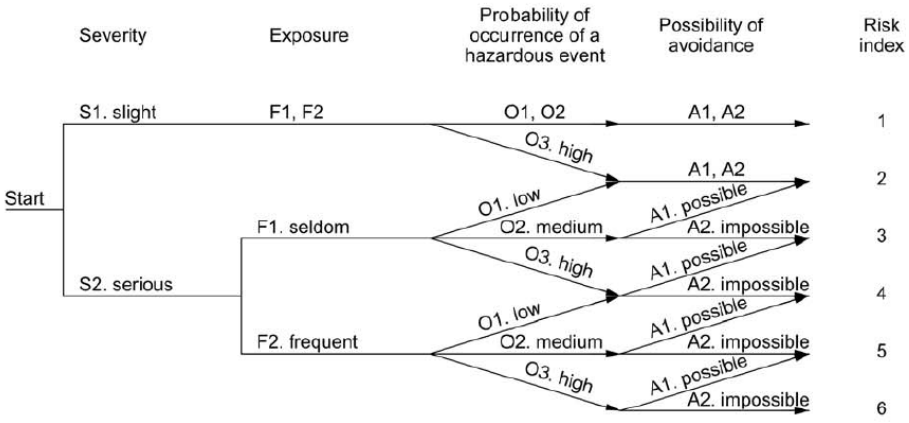
This machine is specially designed for 1 color automatic UV screen printer that is suitable for the printing for round, oval shaped plastic bottles. The equipment can handle the design and printing of mass mono-color and multi-color screen printing operations. Equipped with world famous PLC controller and convenient touch screen, therefore the whole operation becomes easy and simple. The screen printing machine is widely used by manufacturers in industries such as cosmetics, food, medicine, and other consumer goods. Automatic feeder (can save manpower and realize fully automatic production).

Model	Supply	Equipment size (mm)	Weight (KG)	Working Platform Size (mm)	Other differences
HY-767	380V/480V 3phase 50Hz/60Hz 5.4kW	2300x1800x1700mm	1600KG	2300x1800mm	
HY-767S	380V/480V 3phase 50Hz/60Hz 5kW	2300x1800x1700mm	1600KG	2300x1800mm	
HY-767L	380V/480V 3phase 50Hz/60Hz 5.4kW	2300x1800x1700mm	1600KG	2300x1800mm	
HY-230	380V/480V 3phase 50Hz/60Hz 4.5kW	2600x1700x1900mm	1500KG	2600x1700mm	
HY-230ZP	380V 3Phase 50Hz 4.5kW	2600x1700x1900mm	1400Kg	2600x1700mm	
HY-175	380V/480V 3phase 50Hz/60Hz 3.8KW/4.6kW	2500x1700x1900mm	1400KG	2500x1700mm	
HY-320	380V/480V 3phase 50Hz/60Hz 15kW	2300x2300x2350mm	3500KG	2300x2300mm	
HY-340	380V/480V 3phase 50Hz/60Hz 5.4kW	2300x1800x1700mm	1600KG	2300x1800mm	
HY-R45	380V/480V 3phase 50Hz/60Hz 7kW	1100x2500x1700 mm	2000KG	1100x2500mm	
HY-T106	380V/480V 3phase 50Hz/60Hz 3.2kW	3150x1250x1900mm	1000KG	3150x1250mm	

HY-324	380V/480V 3phase 50Hz/60Hz 3.8KW/4.6kW	4950x3150x2350mm	2500KG	4950x3150mm	
HY-F12	380V/480V 3phase 50Hz/60Hz 3.2kW	2400x1200x1700 mm	1000KG	2400x1200mm	
HY-1000	380V 3phase 50Hz 20kW	7000x2900x2000mm	2500KG	7000x2900mm	

Risk estimation:

According to the following four parameters corresponding to the four risk elements defined in 7.2.1 of ISO 14121-1:2007, the risk index was calculated by using the risk diagram.



Severity of the harm: S
S1 : slight injury (usually reversible; examples: scratch, laceration, bruise, light wound requiring first aid, etc.) nor more than two days incapable of performing the same task;
S2: serious injury (usually irreversible, including fatality; examples: broken or torn-out or crushed limb, fracture, serious injury requiring stitches, major musculoskeletal trauma (MST) etc.). More than two days incapable of performing the same task.

Frequency and/or duration of exposure to hazard: F
F1: seldom to quite often and/or short duration of exposure Twice or less per work shift or less than 15 min cumulated exposure per work shift;
F2: frequent to continuous and/or long duration of exposure More than twice per work shift or more than 15 min cumulated exposure per work shift.

Probability of occurrence of a hazardous event: O
O1: low (so unlikely that it can be assumed that occurrence may not be experienced) Mature technology, proven and recognized in safety application; robustness.
O2: medium (likely to occur sometime) Technical failure observed in the two last years. Inappropriate human action by a well-trained person aware of the risk and having more than six months experience on the work station.
O3: high (likely to occur frequently)
Technical failure regularly observed (every six months or less). Inappropriate human action by an untrained person having less than six months experience on the work station.

Possibility of avoidance or reduction of harm: A
A1: possible under some conditions:
--If parts move at a speed less than 0,25 m . S-l and the exposed worker is familiar with the risk and with the indication of a hazardous situation or impending event; the worker also has to be capable of noticing the hazardous situation and being capable of reacting.
--depending on particular conditions (temperature, noise, ergonomic, etc .).
A2: impossible.

A form is filled in with the result of this first risk estimation; each hazardous situation is allocated a risk index.
In this example, the estimation of each hazardous situation is done considering that
a) a risk index of 1 or 2 corresponds to the lowest risk,
b) a risk index of 3 or 4 corresponds to a medium risk, and
c) a risk index of 5 or 6 corresponds to the highest risk.

After consideration of possible means to reduce risk, the risk is then estimated again for the final design using the same risk graph in the same way as for the initial design.

Risk assessment: the whole process including risk analysis and risk assessment.
Risk analysis: a combination of determination of mechanical limitations, hazard identification, and risk estimation.
Risk assessment: based on the risk assessment, determine whether the goal of risk reduction has been achieved.

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
1.0	Mechanical hazard			
1.1	Crushing 	--	--	--
1.2	Shearing 	--	--	--
1.3	Culling or severing 	--	--	--
1.4	Entanglement; 	--	--	--
1.5	Drawing-in or trapping 	--	--	--
1.6	Impact 	1. A working part running at high speed	1. A working part running at high speed impact the operator	operator

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
1.7	Stabbing or puncture 	--	--	--
1.8	Friction or abrasion 	--	--	--
1.9	Slipping , Tripping and Falling 	--	--	--
1.10	Being run over 	--	--	--
1.11	Suffocation. 	--	--	--
1.12	Injection 	--	--	--

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
1.13	Being thrown 	--	--	--
1.14	Machines and parts lose their stability	--	--	--
2.0	Electrical hazards			
2.1	Effects on medical implants 	1. Insulation failure of live parts or failure of ground connections 2. Touching a live part	1. The electrification of the device enclosure causes electric shock damage to the person touching the device. 2. Electric shock damage caused by contact with live parts.	Operators, maintenance personnel
2.2	Chemical effects	--	--	--
2.3	Effects of electromagnetic phenomena on medical implants 	--	--	--
2.4	Falling , being thrown	--	--	--

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
2.5	Fire	1. Access the wrong power supply, causing electrical parts to catch fire. 2. Ignition of wires or parts caused by overload, over current, over voltage or improper design	1. Burns are caused by electrical parts catching fire	Operators, maintenance personnel
2.6	Projection of molten particles	--	--	--
2.7	thermal radiation	1. Thermal radiation due to improper design and poor ventilation of electrical enclosure	1. Scalding of high temperature components	Operators, maintenance personnel
3.0	Thermal hazards			
3.1	Burn or scalding 	1. The motors and electrical control components work for a long time to produce high temperature	1. Scalding of high temperature components	Operators, maintenance personnel
3.2	Dehydration	--	--	--
3.3	Discomfort	--	--	--
3.4	Frostbite 	--	--	--
3.5	Injuries by the radiation of heat sources	--	--	--
4.0	Noise hazards			

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
4.1	Discomfort 	1. The installation of equipment is not stable, and high noise is generated during operation	1. The damage of high noise to hearing.	Operators, maintenance personnel
4.2	Loss of awareness, Loss of balance, Permanent hearing loss	--	--	--
4.3	any other (for example, mechanical, electrical) as a consequence of an interference with speech communication or with acoustic signals.	--	--	--
5.0	Vibration hazards			
5.1	discomfort	--	--	--
5.2	low-back morbidity	--	--	--
5.3	neurological disorder	--	--	--
5.4	osteo -articular disorder	--	--	--
5.4	trauma of the spine	--	--	--
5.6	vascular disorder	--	--	--

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
6.0	Radiation hazards			
6.1	low frequency electromagnetic radiation 	--	--	--
6.2	optical radiation (infrared, visible and ultraviolet), including laser  	--	--	--
6.3	radio frequency electromagnetic radiation 	--	--	--
6.4	ionizing radiation source	--	--	--
7.0	Material/substance hazards			
7.1	aerosol 	--	--	--

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
7.2	biological and microbiological (viral or bacterial) agent	--	--	--
7.3	combustible 	--	--	--
7.4	Dust, explosive, fibre	--	--	--
7.5	Flammable, fluid, fume	--	--	--
8.0	Ergonomic hazards			
8.1	discomfort	--	--	--
8.2	fatigue	--	--	--
8.3	musculoskeletal disorder			
8.4	Improper identification of indicator position or control device	1. The control cabinet is placed in an unreasonable position.	1. Causing fatigue and confusion	Operators
8.5	The design or position of the display unit is not appropriate	1. The control cabinet is placed in an unreasonable position.	1. Causing fatigue and confusion	Operators
8.6	Repeat activities and postures	--	--	--

Table 1: risk analysis (risk identification)				
No.	**Risk Type**	**Risk description**	**Potential consequences**	**Personnel**
8.7	Flicker, flash, shadow, strobe	--	--	--
9.0	Hazards associated with the environment in which the machine is used			
9.1	slight disease	--	--	--
9.2	burn	--	--	--
9.3	slipping, falling	--	--	--
9.4	suffocation	--	--	--
9.5	any other as a consequence of the effect caused by the sources of the hazards on the machine or parts of the machine.	--	--	--
10.0	Combination of hazards			
	for example, dehydration, loss of awareness, heat stroke	--	--	--

Note: “-- “ : No such risk.

Table 2: Risk assessment & Risk reduction												
No.	Risk assessment (Initial risk)					Risk reduction/protection measures	Risk assessment (risk reduction)					Determine (P/F)
	S	F	O	A	index		S	F	O	A	index	
1.6	S2	F2	O2	A2	5	1. With safety grating, when running at high speed, the safety grating is triggered to stop running immediately.	S2	F1	O1	A1	2	P
2.1	S2	F2	O2	A2	5	1. Before the equipment is connected to the power supply, the grounding wire of the equipment shall be reliably connected to the factory grounding wire. 2. In the control box with IP2X, it is not easy for the user to touch the live parts。 3. The wires and electrical components comply with the installation requirements of EN 60204-1:218。 4. Appropriate warning signs and corresponding messages are described in the user's manual。 5. Control box external paste warning signs	S2	F1	O1	A1	2	P
2.5	S2	F1	O2	A2	3	1. Power access end paste indication label. 2. Fuse and circuit breaker are used for short circuit and overload protection。 3. Key components meet their respective standards。 4. There is no flammable material in the electrical system and cabinet。	S2	F1	O1	A1	2	P
2.7	S1	F2	O3	A2	2	1. Use a fan to maintain good ventilation。 2. Key components meet their respective standards。	S1	F1	O1	A1	1	P
3.1	S2	F2	O2	A1	4	1. Use a fan to maintain good ventilation。 2. Motor temperature monitoring, exceeding the dangerous temperature immediately stop working.	S1	F1	O1	A1	1	P

Table 2: Risk assessment & Risk reduction												
No.	Risk assessment (Initial risk)					Risk reduction/protection measures	Risk assessment (risk reduction)					Determine (P/F)
	S	F	O	A	index		S	F	O	A	index	
4.1	S1	F2	O2	A1	2	1. Appropriate information is provided in the user's manual。 2. When installing the equipment, use vibration damping pad in accordance with the instructions, and ensure the installation is smooth	S1	F1	O1	A1	1	P
8.4	S1	F2	O3	A2	2	1. The installation position of the manipulator conforms to the ergonomic design	S1	F1	O2	A1	1	P
8.5	S1	F2	O3	A2	2	1. The installation position of the display and indicator light conforms to the ergonomic design.	S1	F1	O2	A1	1	P

Photos

Photo 1 Front view

Photo 2 Rear view

Photo 3 Control panel

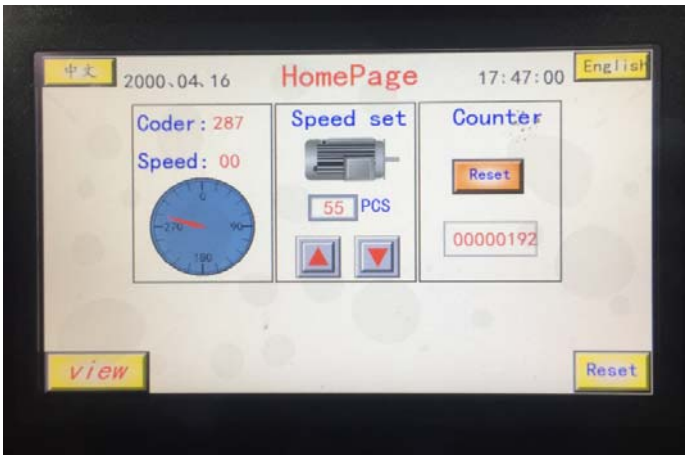


Photo 4 System setting interface

Photo 5 Control box-1

Photo 6 warning mark

The photos are limited to the use of the original report.

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