

HYDROPONIC VEGETABLE GROWER FOR SHIP

NEW

Fresh vegetables can be grown on board a ship.



■ Ships having our growers installed.



"BELUGA ACE"



"DRIVE GREEN HIGHWAY"

MOL 商船三井

K LINE 川崎汽船株式会社

MLC (Maritime Labour Convention)

TITLE 3. Standard A3.2 – Food and catering

2. Each Member shall ensure that ships that fly its flag meet the following minimum standards: (a) food and drinking water supplies,...., **shall be suitable in respect of quantity, nutritional value, quality and variety.**



Our vegetable grower can provide fresh and nutritious vegetables on board which satisfy with MLC requirements.



**HSN-KIKAI KOGYO CO., LTD.
I HEISHIN PUMP WORKS CO., LTD. I**

DESIGN & TEST SPECIFICATION

(Comply with IMO technical specifications)

Vibration and Shock Tests

Vibration Tests

JIS F 8076:2005 (IEC 60092-504:2001)

| | |
|--------------|------------|
| Acceleration | $\pm 0.7G$ |
| Frequency | 30 Hz |
| Test period | 60 min. |

Shock Tests

| | |
|--------------|---------|
| Acceleration | +2 G |
| Pulse | 30 ms |
| Shock time | 3 times |

Shake Tests



Rolling and Pitching tests
at 22.5 degrees have been conducted.

Cultivation Tests

Water

Fresh water supplied
directly from ships
fresh water
generators.

For 30 days



Tests were conducted
continuously under rolling
and pitching conditions.

No Colon Bacillus

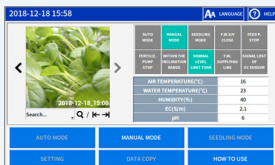
Cultivation of vegetables are
found to be perfect. Water
quality tested by the testing
authorities reported NO single
Colon Bacillus was observed.



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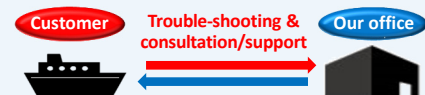
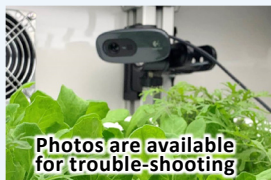
FUNCTION & SPECIFICATIONS OF GROWER

Easy operation by the touch panel! Everybody can cultivate by automation.



- Full automation except for seeding, propagation and cultivation work.
- Content of nutrients, error conditions, etc. can be checked by the screen.
- Control settings are easily made by the touch panel, on which English, Chinese & Japanese are selectable.

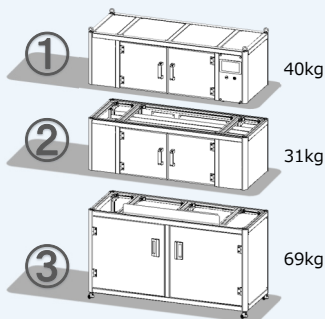
Trusted support service



Poor growing and other cultivation troubles can be solved by data, including photos sent through USB memory.

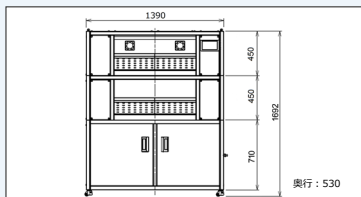
Delivery to the ship and erection

Either one assembled or 3-divided packages can be selected.



Instructions for erection of the equipment and growing vegetables are shown by the video clip.
From the day of erection of the equipment vegetables can be grown.

| | |
|--------------------|--------------------------------------|
| Model | : HST-160 |
| Size | : W1390×D530×H1692 |
| Weight | : 140kg(empty)/180kg(when operating) |
| Power Supply | : AC100V |
| Max. crop | : 160 root stocks on double decks |
| Installation Place | : Officer's saloon / Mess room |



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Good for seafarer's benefits and healthy life



curve

Shortest harvesting → 4 weeks

Approximately 2 kg (66 packs) of baby leaves can be harvested.

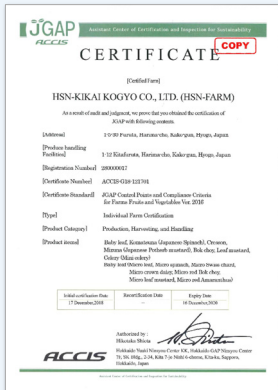
(Harvest quantity and speed may vary depending upon ambient conditions.)



We established our Agriculture Department in 2010 as a contribution to our local farming authorities using our hydroponic vegetable technologies.

We were granted GAP Approval Certificate enabling us to provide our agricultural products to the Olympic Athlete's village during Tokyo Olympic games. GAP means "Good Agricultural Practice".

Please contact us :



Manufactured by :

HSN-KIKAI KOGYO CO., LTD. ,JAPAN

< HEISHIN PUMP WORKS >

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