

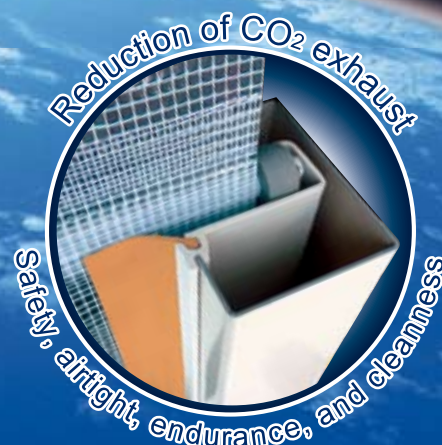
STOP Global Warming

Sheet Shutter

MONBAN KV Series

門番[®]

Insecticide, Dustproof, and airtight improvement by 6 times



小松電機産業株式会社
KOMATSU ELECTRIC INDUSTRY CO., LTD.

Patent pending

MONBAN has both high airtightness and high wind-proof and the durability of the sheet is improved rapidly.

門番[®] KV Series

For the REAL TIMES



The Ministry of Land, Infrastructure and Transport
Commendation of the Minister of Land, Infrastructure and Transport (October 2007)
Komatsu Electric Industry Co., Ltd. has developed and manufactured the sheet shutter consistently with the environment as the theme since its establishment, contributed to the prevention of global warming, and made the technological standard book and the security guideline of the product. Moreover, Komatsu has taken precedence customer's safety and relief, and contributed the healthy development of the industry.
Excerpt from outline of distinguished services of the commendation for the company of merit from the Ministry of Land, Infrastructure and Transport

High insecticide and dustproof performance

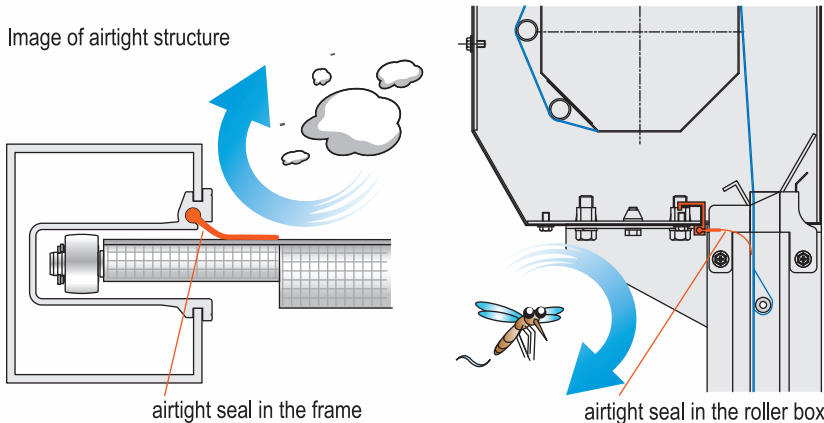
Super-airtight

Newly designed airtight structure prevents air inflow from the roller box and the side frames when the sheet is closed. Moreover, because it prevents also invasion of dust and insects, the inside factory can be kept clean.
[Order specification] (PAT.P)

Airflow Quantity of pressure difference of 10Pa (m³/h·m²)

with airtight seal	positive pressure	10.57	9.0times
	negative pressure	10.76	5.8times
without airtight seal	positive pressure	77.22	1.2times
	negative pressure	55.33	1.1times
our conventional model	positive pressure	93.47	1.0times
	negative pressure	61.89	1.0times

The above examination was executed at the airtight examination facilities in our company according to JIS A1516.
The numerical value is measurements of the KV10 type.

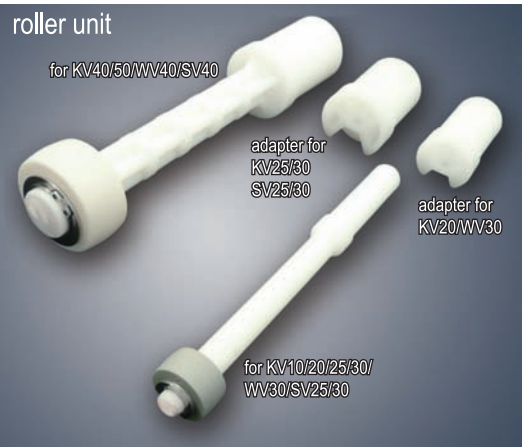
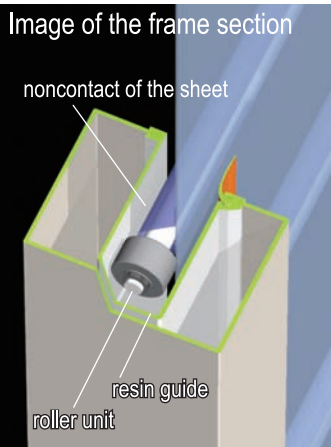


Rapid improvement of durability of the sheet

Super-durability

Smooth operation can prevent the sheet from being worn out and broken.
Noncontact structure of the sheet

The resin guide does not come in contact with the sheet when opening and closing by installing the rollers in both ends of the sheet. This structure prevents wear-out of the sheet and decrease in the airtight degrees, and the sheet longevity improves rapidly. Moreover, the shutter can be smoothly operated even in the area of air pressure difference, because the friction by operation is a little.



Reduction of CO2 Prevention of the global warming

MONBAN original ecosystem makes opening and closing efficient.

1 Eco-mode

Eco-Mode is the energy-saving operation mode that is opening and closing according to the height of the passing things. Efficient opening and closing are achieved by shortening opening time.



Eco-level position
(frame parts)

Switch to Eco-mode
(controller part)

Efficient operation is made possible by installing the sensors or switches separately for the pedestrian and for the vehicle.

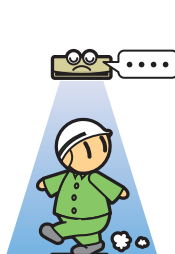
2 Direction monitoring

Starting sensor type-E is the high-specification sensor which does not detect the crossing objects by its direction monitoring function. This function can suppress the change of indoor environment.

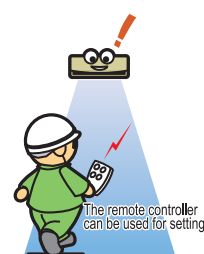
Starting sensor type-E



[order parts]



Not detecting when
crossing and leaving



Detecting when entering
and going into obliquely

3 For safety and energy saving Countdown display Built-in obstacle detection sensor

The countdown monitor with high visibility is useful for the prevention of the running accident. The obstacle detection sensor built in front and behind the frame is useful for the prevention of contact by certain detection of the objects.

The countdown monitor cannot be used for the three-phase circuit 200V specification.

countdown monitor
[Order specification]



exposes



in the frame
(KV20 type and over)

The count-down to the beginning of closing is displayed. We prepare for 2 sizes of both exposed type and in-the-frame type. It is installed at 2000mm above the bottom of the frame in case of in-the-frame type. Please specify the number and the installing position.

Obstacle detection
sensors are built in.

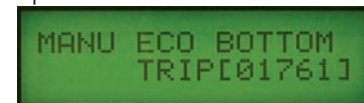


Optical axes are arranged
in front and behind the sheet.

4 Operation monitor

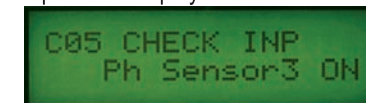
The operation monitor function which can check opening and closing frequency at any period and the input display function which displays the signal from the machines are installed. They can be used for the improvement of the production line and energy-saving.

Operation monitor



The display on the operation monitor can be switched by pushing one button and easily reset.

Input state display



The input from the equipment can be displayed and checked.





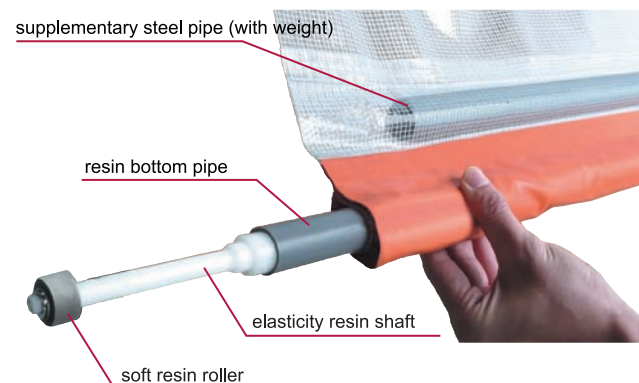
Searching for the safety, cleanness and energy-saving in various factories such as food and precision machinery industries.

Safety

For safe use

Lightly and a breakage prevention "Light bottom structure"

The bottom part is greatly lightened by combining the resin bottom pipe and the supplementary steel pipe. That can soften the impact when contacting and prevent the damage of the pipes and frames.



"Elastic Structure" which prevents the damage of the bottom pipe

When coming in contact with the bottom pipe, the resin roller units at the ends of the pipe and the resin bottom pipe absorb the shock and prevent the damages of the pipes and frames.

The shaft of the roller unit might break according to the situation of contact. Please confirm the shutter has opened completely when you pass.

"Safety window" for the prevention of accidents on the gateway

Safety window can make you confirm outside when the shutter is closed completely. That leads to the prevention of the accident, and it is useful as the window for taking in light from outside.

We prepare for the insecticide window specification. (order specification)



In case of 4000mm width of shutter, an space between windows: 300mm
The height of windows of KV/VV series of MONBAN:
KV25-50: 500mm WV30: 180mm WV40: 300mm

width(W)	window width(mm)	number
800 ~ 900	450	1
1000 ~ 1400	600	
1500 ~ 1900	900	
2000 ~ 2400	1200	
2500 ~ 2900	1500	
3000 ~ 10000	1700	2
4000 ~ 4900	1200	
5000 ~ 5600	1500	
5700 ~ 10000	1700	

However, it is likely to be partially 220mm according to its specification.

Prompt correspondence can be done in case of a power failure. Tool-free lock plate

The lock plate used for the passage securing when the shutter cannot be operated in case of the sudden accident such as a power failure is a tool-free structure only hanging the bottom pipe on it.

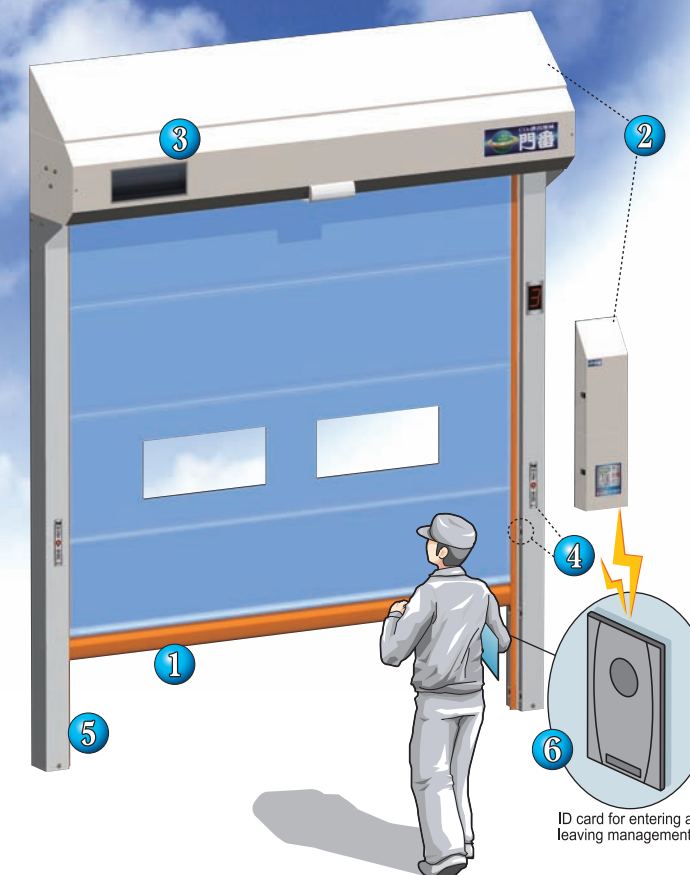
No need to work on the high place, you can make a gateway space immediately in case of a power failure.



Cleanness

Clean structure good for sanitation

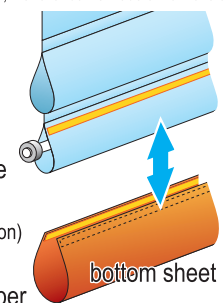
The following 1-6 of clean designs are order specifications. In case of only frames are made of stainless steel, the roller box is made of normal steel.



1 Sheet

Cleanness can be kept by the fluoroplastics-processed sheet which prevents the adhesion such as dust. Replacement of the bottom sheet is easy in case of dirt or damage by its detaching structure.

(order specification)



2 Inclination cover

The inclination cover can be attached on the upper part of the roller box and the controller. You can check dirt and remove it easily.

3 Inside of the roller box can be seen.

You can check dirt inside of the roller box through the 'Looking-into window' [Order specification]

4 Built-in switch sensor

The operation switch and the obstacle detection sensor can be installed in the frames. Flat surface of the frames prevents dirt.

5 Frame made of stainless steel Resin guide

The resin guide is adopted as consideration on sanitation. In addition, we prepare for the specifications of 'all parts made of stainless steel' and 'only frames made of stainless steel'.

6 Passage management system

This is the system which records passage of the shutter. It cuts the unnecessary opening time and contributes to security. [Sale soon](#)

Energy-saving

Cut down on air-conditioning and lighting expense
Improve efficiency of equipment

High-speed operation of opening 2m/sec (KV10)

High-speed operation of opening 2m/sec is achieved by the engine and the controller developed only for the sheet shutter. This high speed operation and the Eco mode cut the opening time of the gateway.



Lighting sheet

Because the sheet is well-lit, the room can be kept light when the shutter is closed, and you can save lighting expenses.

Translucency rate
68%
in case of clear sheet



when the steel shutter is closed



when MONBAN is closed

Improve the air-conditioning efficiency by interlock operation.

The interlock function is standard equipped, which suppress the inflow of air when opening and closing. It supports creating the clean environment. 'Smart-interlock' corresponding to the space-saving front room can be selected.



Interlock with equipments

MONBAN can be interlocked with other plant facilities by using the relay box for interlock. Interlocking with such as clean rooms, conveyers and automatic guided vehicles contributes to improvement of manufacturing efficiency and quality of the products. It is useful for construction of better production system.



machine, metal, distribution, warehouse, medicine, and warehouse
Using Example of food, print, and precision instrument factories

Insecticide

Energy-saving

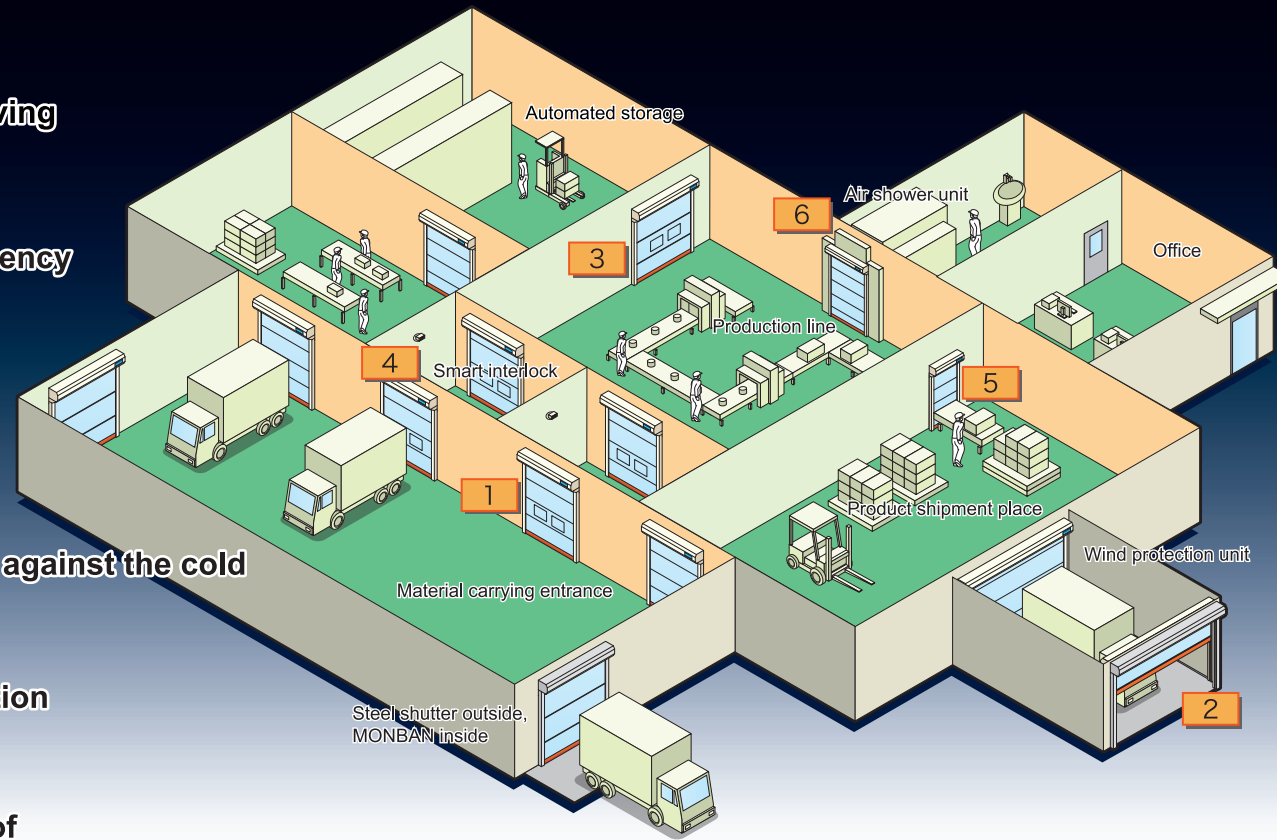
Work efficiency

Dustproof

Protection against the cold

Deodorization

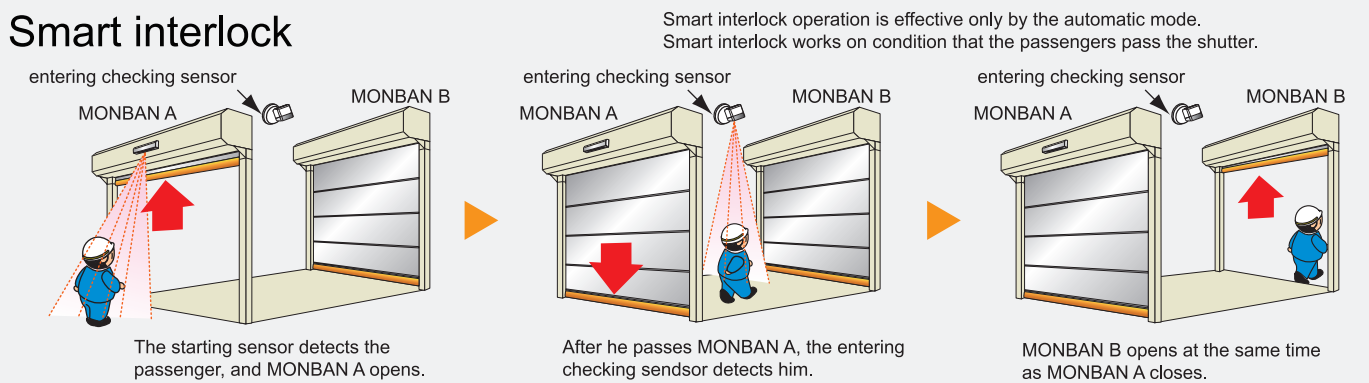
Soundproof



Break 110,000 sets of sales

MONBAN has made the history of the sheet shutter with the customers.
It is necessities of all of the industries including the gateways.

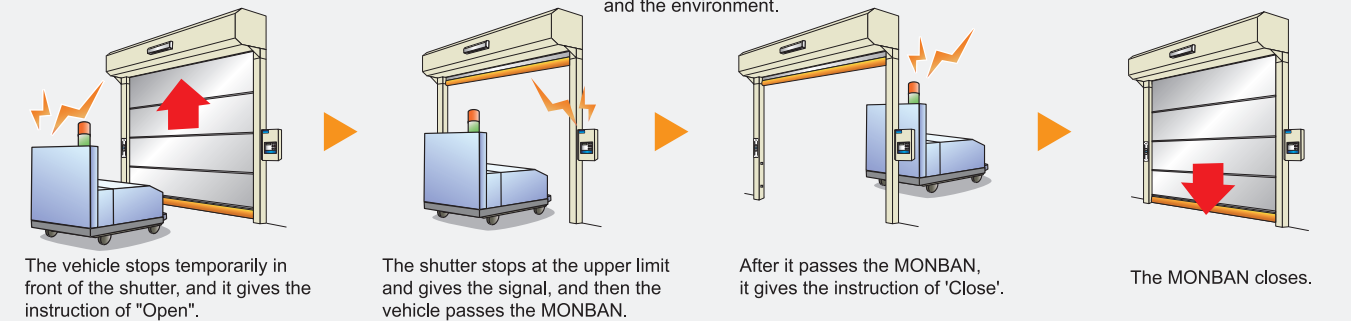
Smart interlock



Interlock with equipments

Interlock with automatic guided vehicle.

To fix the automatic operation mode or manual mode might be needed, according to the way of operation of interlock with equipment.
Please consult with us so that the interlock method is different according to using conditions and the environment.



1 Plural interlock Installation in refrigerator



2 Installation at product carrying gate



4 Interlock Use in factory for HACCP
Only the frames are made of stainless steels



2 Installation at raw material carrying gate



2 Installation to material carrying entrance (large-scale opening)



3 Indoor partition
(all parts of stainless steel specification)



1 product shipment entrance



3 Partition in factories



5-6 Interlock with the air shower or conveyor

Complete line-up

Saving-wiring Saving-energy Interlock with facilities Security
high-specification controller which is the smallest in the sheet shutter trade



standard controller (KV10/20/25/30/40/WV30/40) single-phase
built-in operation board (SV25/30/40) three-phase
built-in controller (KV10/20/25/30/40/WV30/40) single-phase
large-size (KV50) single-phase

1 Indication of trouble or input signal by liquid crystal monitor
Input signals and operation conditions are indicated on a liquid crystal lightening monitor which can be seen in the dark.

2 Operation on board / Safe design
Setting of upper and lower limits, and opening and closing speed can be done on the board with checking a monitor.

3 Notice-function of periodic inspection
Function which records the number of times of shutter operation and notices a periodic inspection is standard adopted.

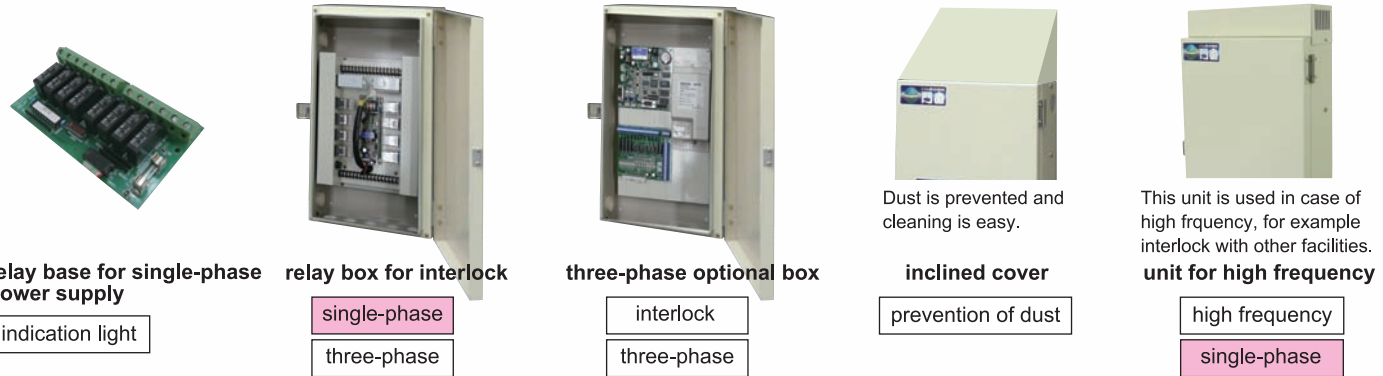
emergency stop switch
Large-sized emergency stop switch of $\phi 30$ is equipped on a operation board, which stops the shutter forcibly in case of emergency and secures safety. Please specify when you order. single-phase only



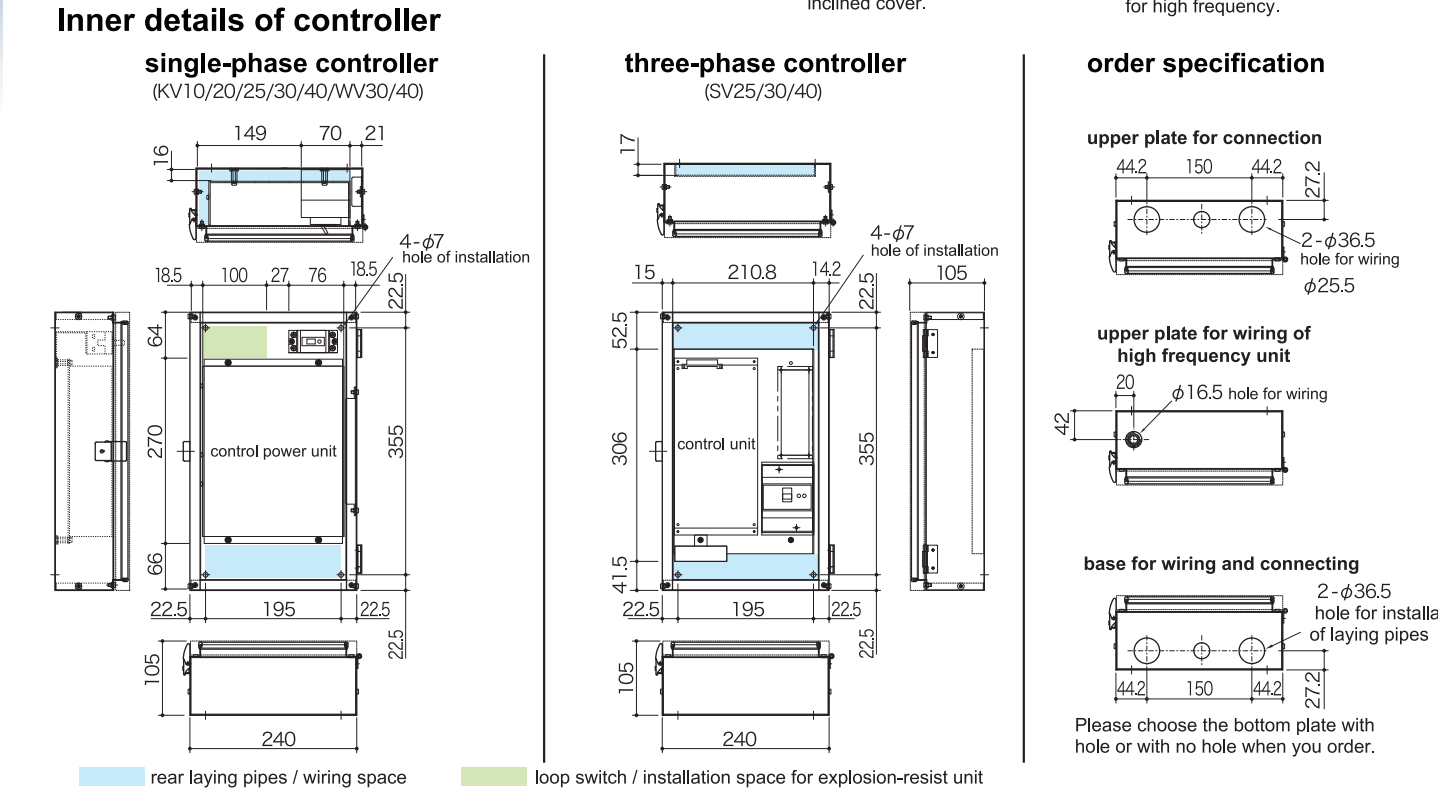
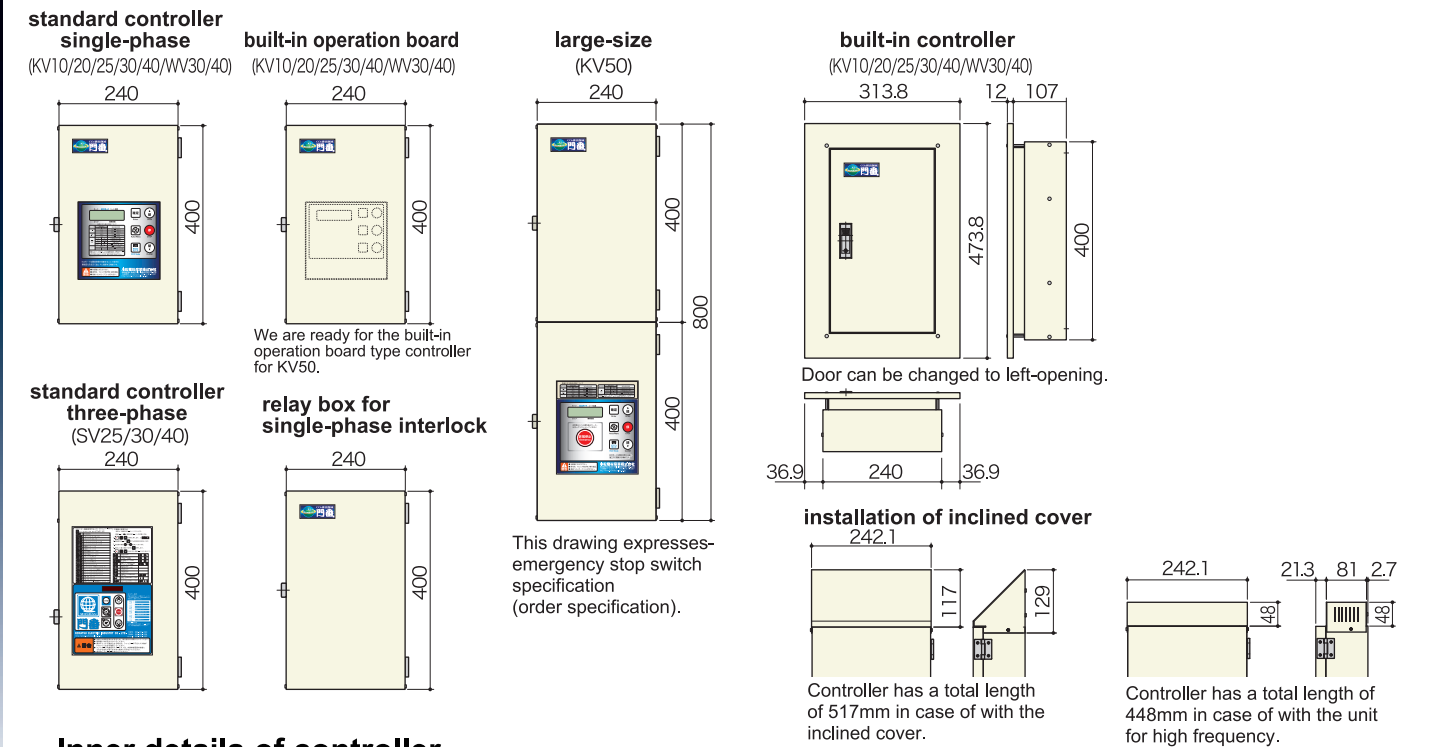
saving-space saving-wiring
Controller can be set in layers. In case that wiring between controllers is needed, for exmple interlock wiring, wires are not exposed and laying pipes is unnecessary. Controllers are set beautifully in a small space. Upper plate for connection and bottom plate for connection and wiring are necessary. Please specify when you order.



Instruments around controller



relay base for single-phase power supply indication light
relay box for interlock single-phase three-phase
three-phase optional box interlock three-phase
inclined cover prevention of dust
unit for high frequency high frequency single-phase



	single-phase AC200V	three-phase AC200V
type	KV10/20/25/30/40/WV30/40	SV25/30/40
input power	single-phase AC200V~230V $\pm 10\%$	three-phase AC200V $\pm 10\%$
motor protection	breaker for protection of overload and short circuit for both single-phase AC100V and AC200V 15A 30mA	circuit for protection of electricity circuit and breaker 15A 30mA
control of stop position	hole IC	encoder
motor	brushless DC motor 950W	cycloengine
thunder-proof surge	arrester circuit	arrester circuit
outside output power	DC24V — 1.25A	DC24V — 1.3A
display	LCD with backlight	7segment LED (6-digits)
operation switch on board	up/stop/down/enter/automatic/manual switch ECO mode	up/stop/down/enter/automatic/manual switch ECO mode
basic function	self-diagnosis function changeable opening and closing speed by 4 levels ECO level setting function operation mode lock function changeable upper limit stop time from 0 to 30 sec. slow-start and slow-stop	self-diagnosis function changeable opening and closing speed by 4 levels ECO level setting function operation mode lock function changeable upper limit stop time from 0 to 30 sec. slow-start and slow-stop
counter	8-digits digital indication	6-digits digital indication
material of controller	steel sheet	Controller boxes made of stainless steel are available.

Controller boxes made of stainless steel are available. Within 3 sets of Monban can be standard interlocked(1 vs 1 vs 1) (1 vs 2). Please consult with us in case of more than 4 sets. Product specification of three-phase 200V is partly different from KV 10/20/25/30/40/50. Monban of three-phase 200V has no emergency stop switch specification. If you need it, please use the separation-type emergency stop switch.

Option Parts

Many option parts which can be chosen by size and purpose

Please specify the order specification including the airtight seal and the option parts when you order.

starting sensor

efficient operation by automatic mode

NEW

type E



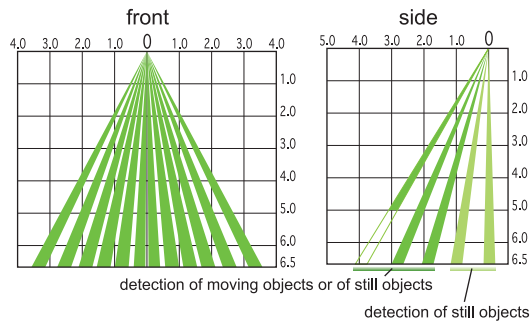
efficient opening and closing by the detection function.

Change of the indoor environment can be suppressed by useless opening by the direction detection function, which makes a big energy-saving effect.

irradiation distance 2~6.5m
power supply DC24V
output 1a
size W321xH102xD90.5
irradiation spot 60



setting remote controller
(extra order)

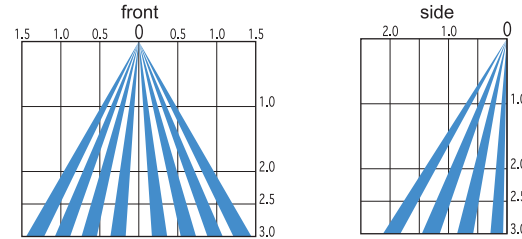


type A



irradiation distance Within 3m
power supply DC24V
output 1a
size W221xH63xD30
irradiation spot 32

Suitable for the small-sized gate for the persons and hand carts

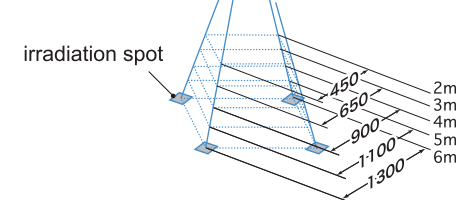


type B



irradiation distance 2~6m
power supply DC24V
output 1a
size W100xH130xφ 100
irradiation spot 4

For the small-and-middle-sized gate, angle can be adjusted



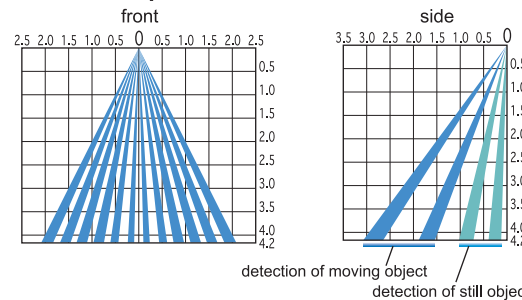
The object which is caught in the irradiation spot is detected. Small object which is not caught in the spot cannot be detected. This drawing shows the shape of vertically irradiated to the floor and it is transformed when diagonally irradiated to the floor.

type C



irradiation distance 2.5~4.2m
power supply DC24V
output 1a
size W260xH75xD43
irradiation spot 48

For the small-and-middle-sized gate, irradiation spot is wide

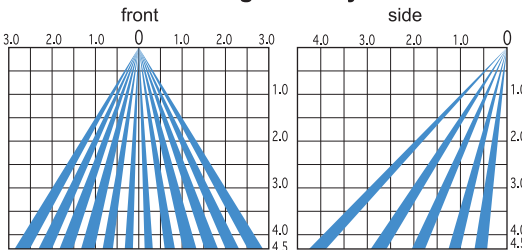


type D NEW



irradiation distance 2.5~4.5m
power supply DC24V
output 2a/2b select
size W267xH63xD45
irradiation spot 60

For the small-and-middle-sized gate, irradiation area is high-density

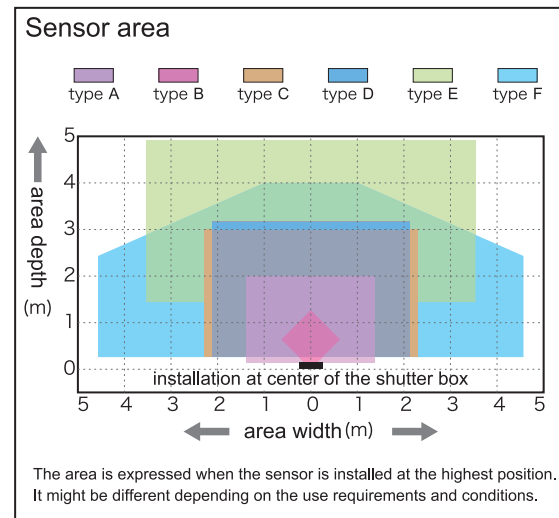
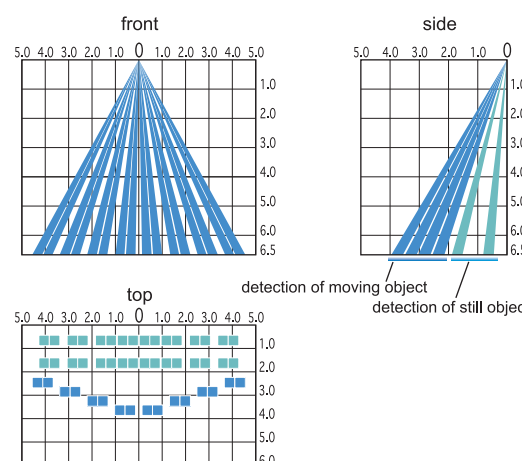


type F NEW



irradiation distance 2.5~6.5m
power supply DC24V
output 2a/2b select
size W371xH73xD72
irradiation spot 48

For small-to-large-sized gate, irradiation area is wide



These sensors irradiate the infrared light and receive the near-infrared light which reflects in the irradiation area. They detect the change of the reflecting near-infrared light by approach of the persons and objects into the area. The described irradiation area is a design value. It is not the one to show the installation condition accurately. The area changes by the installation environment, the floor material and color, the clothes, material and color of the object, and the settings and adjustments. Please adjust area and sensitivity after setting of the sensors. And please check whether area adjustment is correct regularly.

Warning indicator

For safe traffic under the sheet shutter



countdown before closing

Countdown Monitor in the frame/exposed
power supply DC24V
W97.2xH156xD18.2(exposed)
W69xH109(in the frame)

Countdown from 1 to 9 sec. is possible before the shutter closing. Please adjust it by upper-limit stopping time. (Not available for three-phase 200V specification)



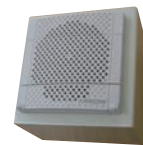
Revolving light
power supply AC200V
W116xH220xD152.5
(lenz φ 110)

The relay base is separately necessary. We will prepare the revolving light with the buzzer. Please specify it when you order.



with the buzzer

Signal
power supply AC200V
W70xH229xD80
The relay base is separately necessary.



Melody buzzer

Buzzer
tone color 16 colors 90dB
power supply AC200V
W100xH88xD85.3

The sound pressure is the maximum sound pressure at 1m forward. The sound pressure can be changed. The relay base is separately necessary.

Obstacle detection sensor

Prevent persons and luggages from being caught in the shutter

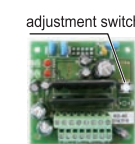
Standard spec. : 2 sets Maximum spec. : 6 sets



PHA in-the-frame type
detectable distance 10m
power supply DC12~24V
attached cable 2m



PHB in-the-frame type
detectable distance 7m
power supply DC24V
attached cable 15m
receiving part 5m



We will prepare two kinds of bases for the two beams and four beams.



drop-proof rain-proof

PHC exposed-type (for outside)
detectable distance 20m
power supply DC12~30V
W73xH170xD71.5
two light axis infrared beam



PHD in-the-frame type (essential safe explosion-proof structure)
detectable distance 10m
power supply DC12~24V
attached cable 5m

The sensor assembly is installed in the explosion-proof specified area. The barrier controller is installed in the controller. The controller is installed outside the explosion-proof area.

Notice in case of setting the obstacle detection sensor

In case of installing the side frames, please check the level and right-angle correctly and fix them strongly, for preventing a gap in the light axis.

Operation switch

In case of shutter operation by the switch



1PB/ 3PB/noncontact switch
power supply DC12~24V(non contact Sw)
W40xH180xD16(exposed)
composition of point of contact 1a(1PB noncontact) 3a(3PB)



Rain-proof 1PB
W60xH120xD67
composition of point of contact 1a



Rain-proof 3PB
W49xH152.5xD34
composition of point of contact 2a1b



Separation-type noncontact switch
power supply AC200V
W70xH120xD28.5
composition of point of contact 1c



Thin switch
W40xH194xD10
composition of point of contact 1a

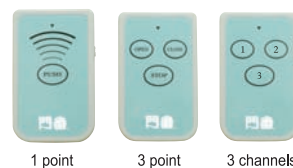


Pull switch
W68xH140xD62
composition of point of contact 1a
The orange rope made of urethane which is good for hygiene is prepared. (custom-designed)

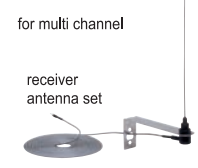


Barrier relay
power supply AC100~240V
Explosion-proof structure essential safe explosion-proof structure
When 1 point, 3 points or pull switch is used in the explosion-proof specified area, the barrier relay is installed in the controller. The controller is installed outside the explosion-proof area.

Wireless operation switch



Remote-control switch
operation distance: About 30m
power supply DC5V
transmitter W52xH85xD8.7
receiver W55xH135xD20



The shutter can not be operated with a transmitter alone. One unit(transmitter and receiver) is always necessary for one shutter.

Stop switch for emergency

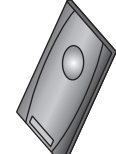


Separation-type

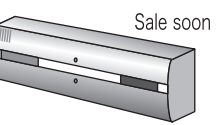
emergency stop switch
W100xH88xD102.3 button φ 65
composition of point of contact 1b

Management of entering and leaving

record of entering and leaving a room authentication



Automatic authentication system
Number of users that can be registered per one door: up to 1000 users
Number of simultaneous recognition: 40 users/second
IC tag battery longevity: About 1.5 years.
Communication distance: up to 10m



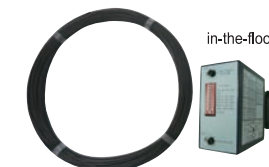
Security switch



Card & number key
power supply DC10~30V
W120xH130xD45
Number of registration: up to 1000
Password number: 1-8 digits
One registration is possible per one card. The authentication method is by the card only, by input of the number key only, and by the card and input of the number key.



Rain-proof number key
power supply DC12~24V
W76xH120xD20
Number of registration: up to 500
Password number: 3-8 digits



Loop coil sensor
coil length :100m unit
It can be used by the automatic mode only. The vehicle must go into at less than 10 km/h. The vehicle standard is the mini-passenger car.

Vehicle detection sensor

Guard Paul for contact prevention

Frame protection

Base plate type
large φ 139.8x920
small φ 114.3x420
Base 200x200

In-the-floor type
large φ 139.8x920
total length 1620
in the floor 500mm

small φ 114.3x420
total length 720
in the floor 200mm


The pictures are images.

Sheet Rich variation of Sheet

Factory

Combination of standard sheets


Clear



Transparency
68%


Clear sheet is a well-lit and keeps inside the factory light.

Transparent sheet for window



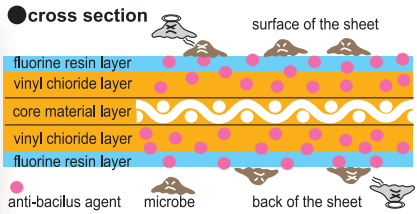
For improvement in safety
Installation of windows is a order specification.

Anti-bacillus bottom sheet

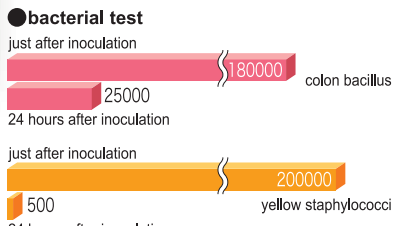


mixture of antibacterial materials
Antibacterial materials are mixed in the bottom sheet for sanitary conditions.

cross section



bacterial test
just after inoculation
24 hours after inoculation
just after inoculation
24 hours after inoculation



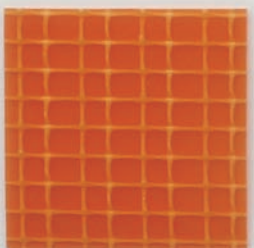
Insect-Proof

Measures against alien substances

line-up of insect-proof sheets

Orange


Anti-bacillus Orange



prevention rate of inducement
69%

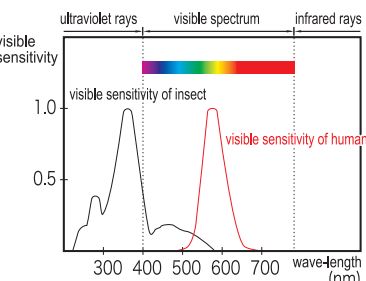
Standard model of insect-proof sheet

Orange window

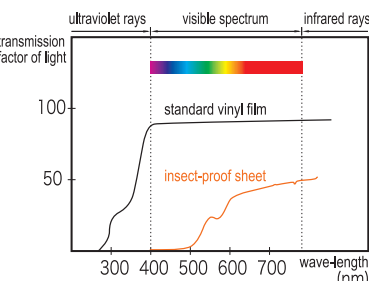


For both prevention of insects and safety
Installation of windows is a order specification.

Wave-length and Introduction of Insect



Transmission Factor of Backlight




Insect-Control Sheet which prevents insects flying inside by cutting wave length of light which induces them is suitable for the food factories.

Nonflammable

Nonflammable authorized sheet

Nonflammable (Ivory)

order specification



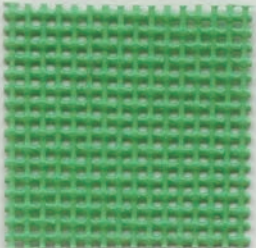
Nonflammable authorized number
NM-0414
Glass fiber is used for this sheet.

Ventilation

Best for the factory where ventilation is needed

Mesh (light green)

order specification



hole size about 1mm
Well-ventilated sheet which prevents haunts of heat and gas

	clear	orange	anti-bacillus orange	nonflammable	mesh	anti-bacillus bottom sheet
core material	polyester 100%			glass cross	polyester filament	polyester 100%
surface material	soft vinyl chloride					
surface processing	acryl both-faces fluorine resin processing			one-face fluorine resin processing	—	both-faces fluorine resin processing
transparency	68%	41%	41%	8%	—	0%
thickness	0.8mm			0.58mm	—	0.5mm
fireproofing	fire-proof authorization N-0793			nonflammable authorization NM-0414	—	fire-proof authorization N-0793
pulling stretch strength	55×65 kgf/3cm			300×280 kgf/3cm	210×200 kgf/3cm	90×80 kgf/3cm
pulling burst strength	14×25 kgf			15×13 kgf	45×45 kgf	20×20 kgf
characteristic	lighting	insect-proof	anti-bacillus/sanitation	nonflammable	ventilation	anti-bacillus

The external appearance and the specification are subjected to variation without a previous notice because of the quality improvement of the product. Please acknowledge it.
The above-mentioned numerical value is not guaranteed value but measured value.
These pictures are images, so they might be different in colors from what they actually are.


Material / Painting Color

Body/Frame

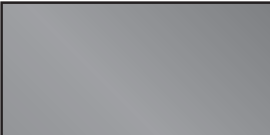
Material

Painting color

Other colours are also available.




Oyster white (CGCC)



High-corrosion-resistant melting plated steel

This steel can be used for the frames only in case that the box is coated with paint of oyster white or order color.



Stainless steel (SUS304 Haieline)

Stainless steel is used for all parts of the box and frames, or for only frames. Please specify it when you order.

Combination Chart of Materials and Painting Colors

Box	Frames
Oyster white	Oyster white Stainless steel High-corrosion-resistant melting plated steel Special color
Stainless steel	Stainless steel
Special color	Special color Stainless steel High-corrosion-resistant melting plated steel


Best choice by size, speed or how to use

Choice by size or speed

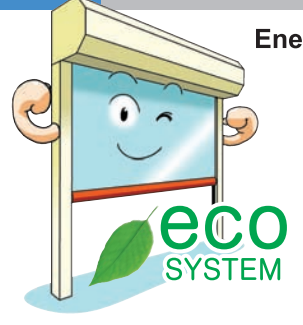
Please see the specification or installing figure of each model about the details.

	width	height (unit:m)		fastest opening speed	initial speed (unit:m/sec)
KV10	0.8~2.5	1.0~3.8	KV10	2.0	opening1.6 / closing0.7
KV20	0.8~3.2	1.0~5.0	KV20	1.5	opening1.0 / closing0.7
KV25	3.0~4.2		KV25 / 30	1.0	
KV30	4.3~5.3		KV40	0.7	opening0.5 / closing0.5
KV40	5.4~6.1 6.2~7.0 custom-made type (large capacity base): available up to 5.9m of the height	1.0~5.1 1.0~4.2	KV50	0.5	
KV50	7.1~10	2.0~6.0	WV30	0.75	opening0.7 / closing0.55
WV30	0.8~3.5	1.0~5.0	WV40	0.45	opening0.4 / closing0.4
WV40	3.6~5.0		SV25 / 30	1.05	opening1.0 / closing0.7
SV25	3.0~3.3 3.4~3.7	1.0~5.0 1.0~4.2	SV40	0.51	opening0.48 / closing0.48
SV30	3.4~5.3	1.0~5.0			
SV40	5.4~6.5	1.0~5.9			


Function and Equipment chosen by how to use



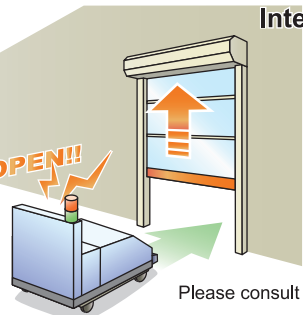
Insect-proof Dust-proof Clean
airtight seal
starting sensor type E
orange sheet
interlock operation
changeable bottom



Energy-saving
interlock operation
starting sensor type E
clear sheet
ECO mode
airtight seal



Protection against the cold Wind-resist
WV30 40
starting sensor type E
countdown monitor



Interlock with other facilities
controller with built-in operation board
separation-type emergency stop switch
relay box

Please consult about the specification of operation separately.

The above-mentioned each content is a selecting standard, and the effects are not always guaranteed. The effects might be different according to how to use and surrounding environments. Please set up a necessary number of the starting sensors, the obstacle detection sensors and the operation switches according to how to use.

13

14

Installation Size

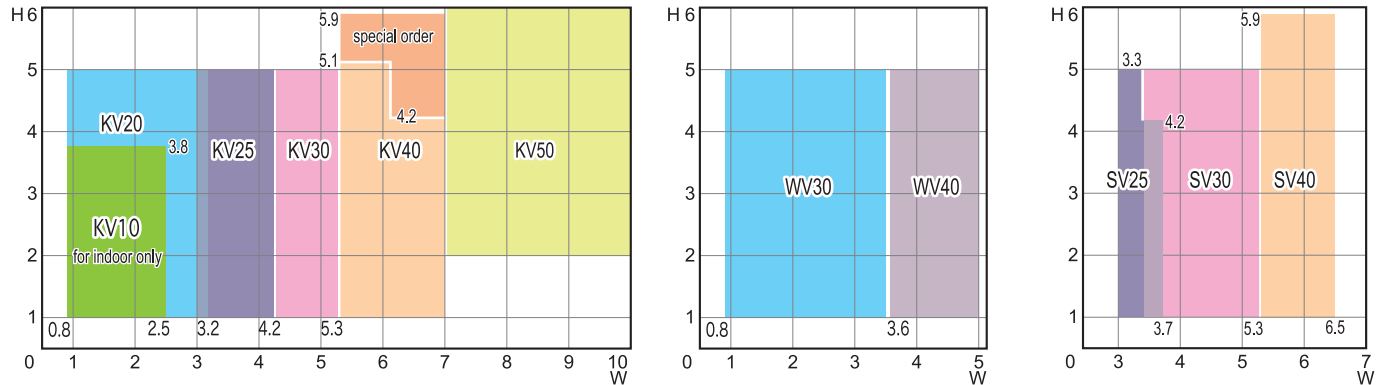
For single phase

unit(m)

Installation Size

For three-phase

unit(m)



Product Specification

For single phase

For the frames of KV10, we prepares a united specification and a divided specification. Please specify it when you order.

		KV10 for indoor only	KV20	KV25	KV30/WV30	KV40/WV40	KV50
size	W	800-2500	800~3200	3000-4200	(KV)4300-5300/(WV)800-3500	(KV)5400-7000/(WV)3600-5000	7100-10000
	H	1000-3800	1000-5000			standard type W=5400-6100 →up to H5100 W=6200-7000 →up to H4200 special order type →up to H5900	2000-6000
	external size	W+156	W+236			W+286	
motor	power supply	single phase AC200V~230V ±10%					special order type
	output	0.95kW					0.95kW×2
	speed (default)	open:1.6m/s close:0.7m/s	KV20/25/30 open:1.0m/s close:0.7m/s	WV30 open:0.7m/s close:0.55m/s		KV40/50 open:0.5m/s close:0.5m/s	WV40 open:0.4m/s close:0.4m/s
	reduction ratio	1/10	1/23	1/50 (WV30 1/74)		1/74	
	reduction method	YUSEI HASUBA gear reduction system					
	insulation	B class					
photocell sensor	equipment	1 set each on front and rear of the frames					
	installation	both in the frames 4 additional installation holes					
core material of sheet	middle pipe	φ 15.9×t1.2	φ 27.2×t1.2	φ 38.1×t1.2 (WV30 φ 27.2×t1.2)			φ 48.6×t1.8
		high tension pipe					
	auxiliary pipe	φ 27.2×t1.2	φ 38.1×t1.2				φ 48.6×t1.8
		high tension pipe					
	bottom pipe	φ 26×t3.0	φ 38×t3.5			(KV) φ 48×t4.0/(WV) φ 38×t3.5	
		resin pipe					
drum		steel			hard PVC	aluminium	
frequency in use		up to 100 times / hour			up to 60 times / hour		
condition of use		temperature from -10℃ to 40℃ except freeze humidity RH85% or less (Environmental) condition: under no condensation, no freeze, no fine particles, no poisonous gas, and no causticity atmosphere. Please see page 21 about the detailed contents of the product guarantee and exemption matters.					
notice for power supply		Please consult the electrical work trader about the wiring to the power supply.					

Product Specification

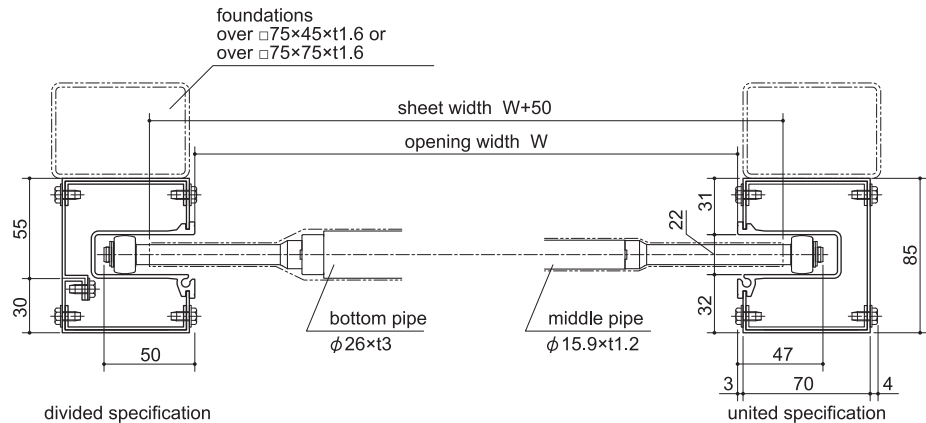
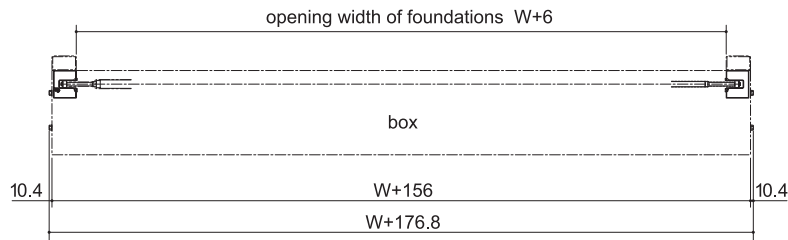
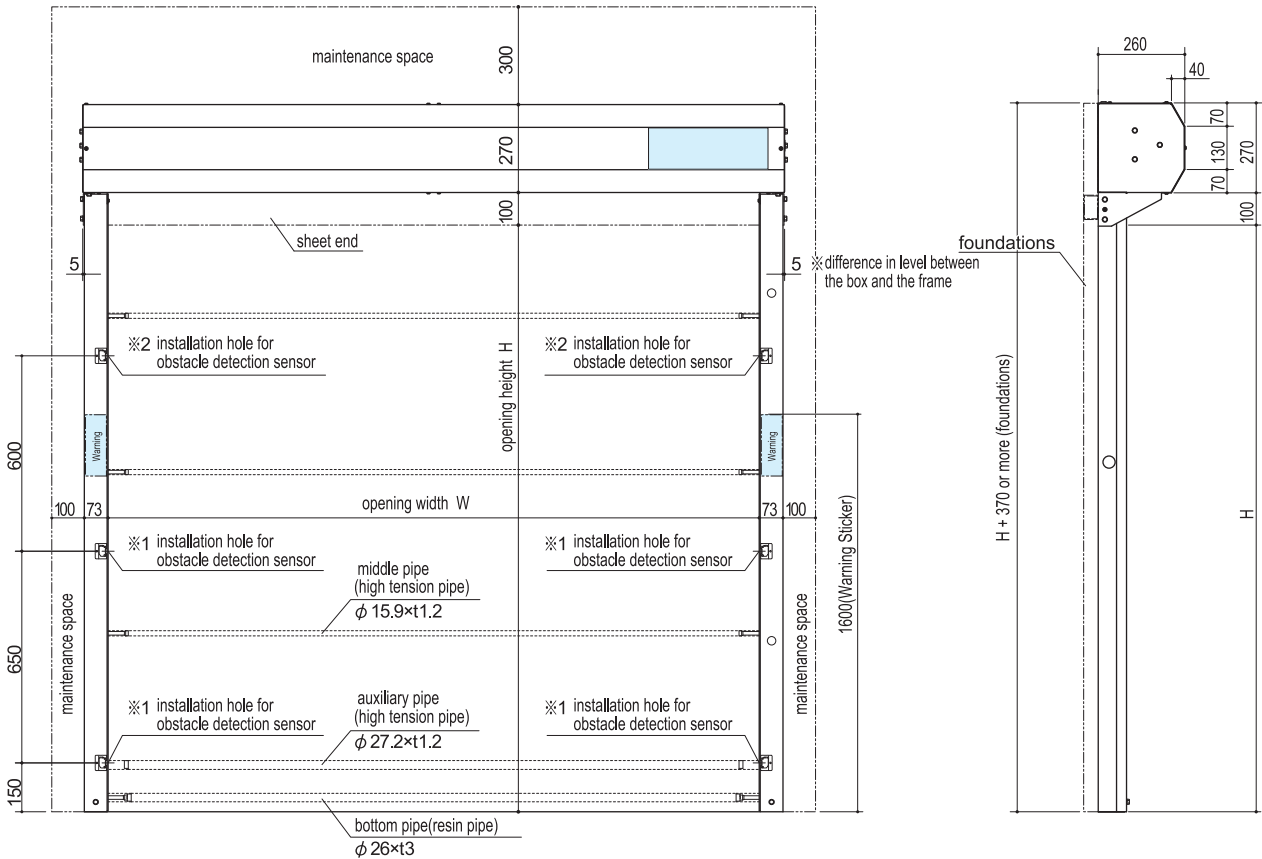
For 3-phase

size		SV25	SV30	SV40
	W	W3000~3700	W3400~5300	W5400~6500
	H	W3000~3300 →up to H5000 W3400~3700 →up to H4200	H1000~5000	H1000~5900
motor	power supply	3 phase AC200V ±10%		
	output	0.4kW	0.75kW	0.75kW
	speed (default)	open:1.0m/s close:0.7m/s	open:1.0m/s close:0.7m/s	open:0.5m/s close:0.5m/s
	reduction ratio	1/25		1/43
	reduction method	Cyclo reduction system		
drum		steel		aluminium
frequency in use		up to 100 times / hour		up to 60 times / hour

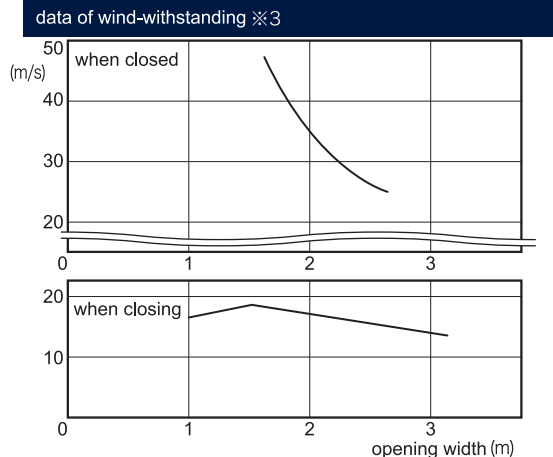
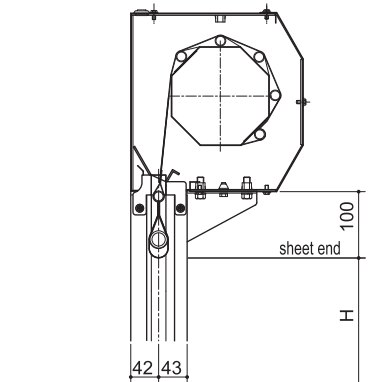
Please install the box so that rain should not set in directly to it.
Please give the waterproof processing when it is assumed that the water which adheres to the sheet splashes to the connector of motor/brake sensor code.
The production of the shutter is in 100mm.
Please consult separately when the size of the product exceeds the range of the standard. Please agree that the production of the shutter is not possible.
The external appearance and the specification of the product are subjected to variation without a previous notice. Please approve of that.
Please read the operation manual carefully and use the shutter correctly.
Please raise the sheet of the shutter to the upper limit position when not using it. The sheet might come off from the frames because of the gust etc. , and that might cause the injury.

KV10
width 0.8~2.5m
height 1.0~3.8m
opening speed 2.0~1.2m/s(1.6m/s) ※
closing speed 1.0~0.5m/s(0.7m/s) ※ ※Default

for indoor only

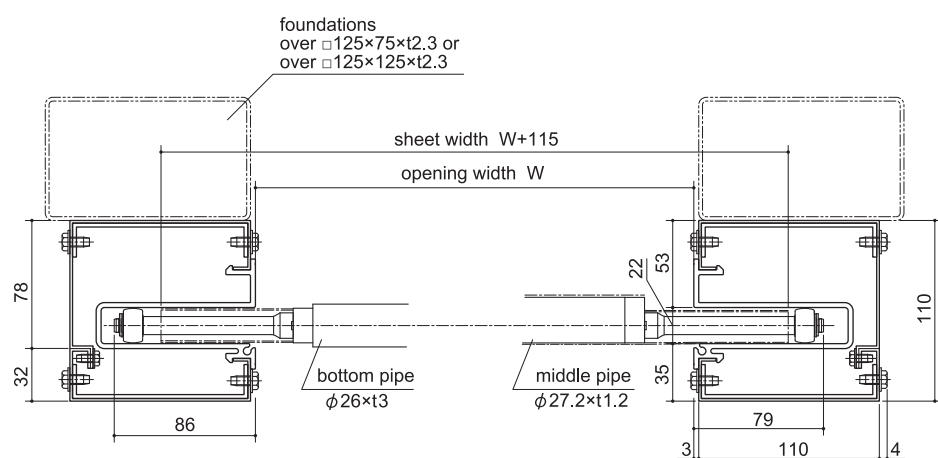
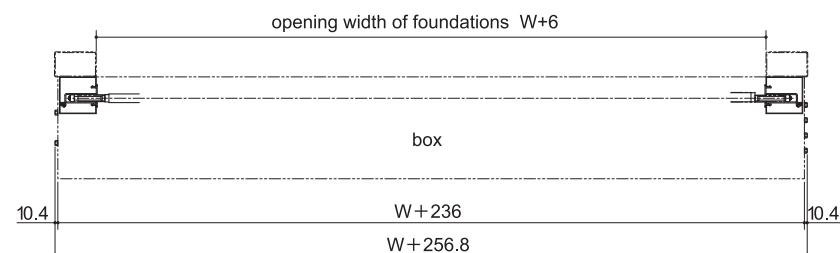
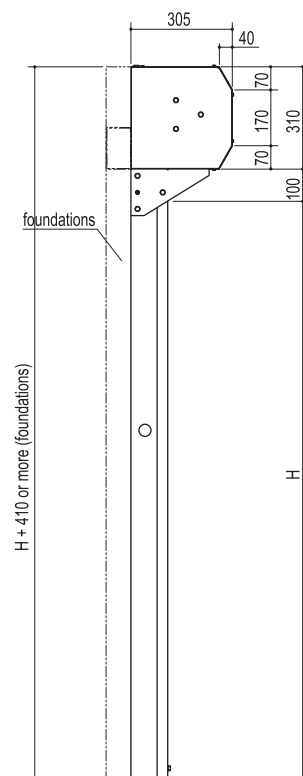
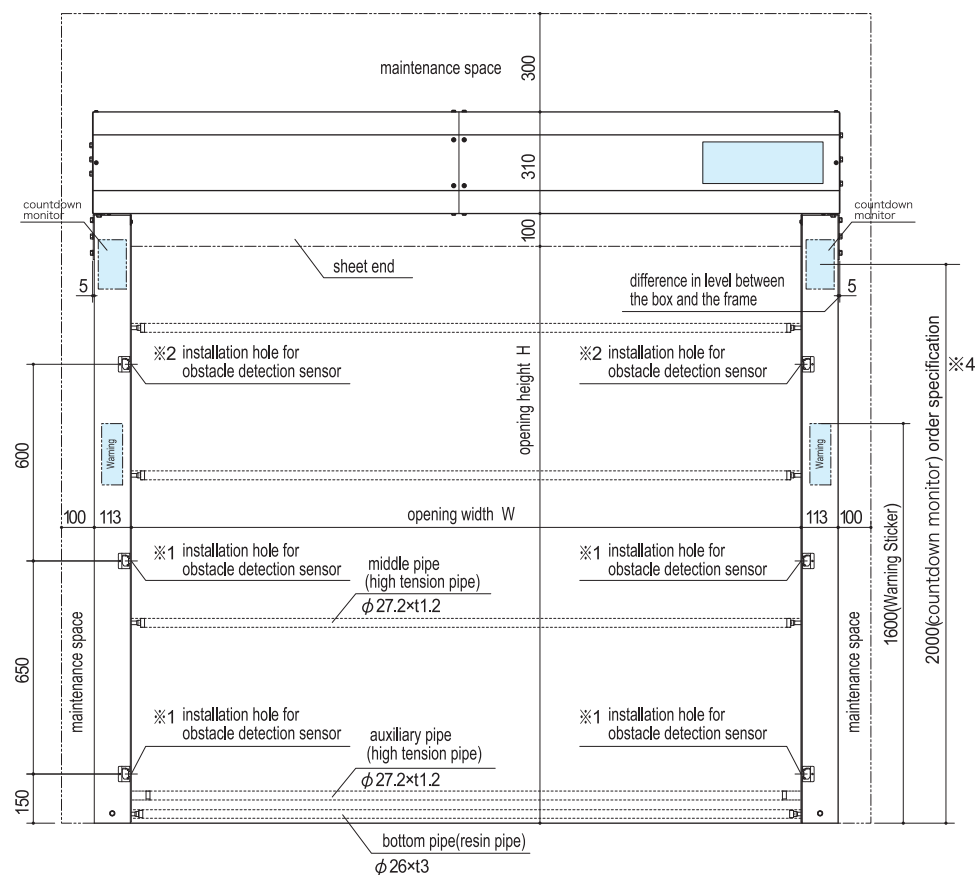


- 【Attentions】**
- ※1 Please install 2 sets of the obstacle detection sensors, each on both sides (front and rear) of the frames. Moreover, please confirm the best position and the number corresponding to the objects that pass beforehand.
 - ※2 When over 5 sets of the obstacle sensor are installed, the hole processing is required. Maxium sets of 6 can be installed.
 - ※3 The data of wind-withstanding is not a guaranteed value but a calculation value. It might be different according to the wind direction and the system requirements.
- The frame is united in case of up to 3000mm in height.
In case of 3100mm or more in height, it divides into the standard part of 2400mm(lower side of the frame) and the adjustment part (upper side of the frame).
The size of the adjustment part is different according to the effective opening height.



KV20

width 0.8~3.2m
height 1.0~5.0m
opening speed 1.5~0.7m/s(1.0m/s) ※
closing speed 1.0~0.5m/s(0.7m/s) ※ ※Default



- ※1 Please install 2 sets of the obstacle detection sensors, each on both sides (front and rear) of the frames. Moreover, please confirm the best position and the number corresponding to the objects that pass beforehand.

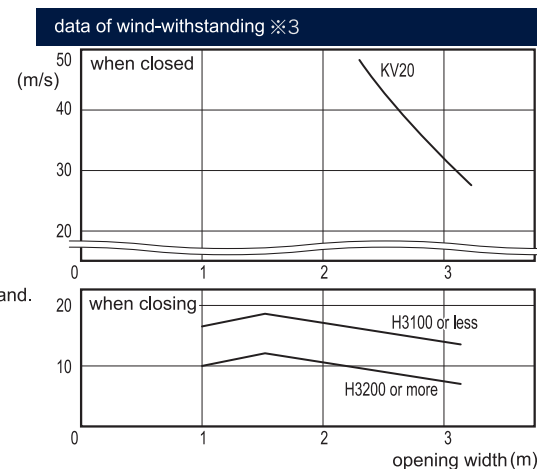
※2 When over 5 sets of the obstacle sensor are installed, the hole processing is required. Maximum sets of 6 can be installed.

※3 The data of wind-withstanding is not a guaranteed value but a calculation value. It might be different according to the wind direction and the system requirements.

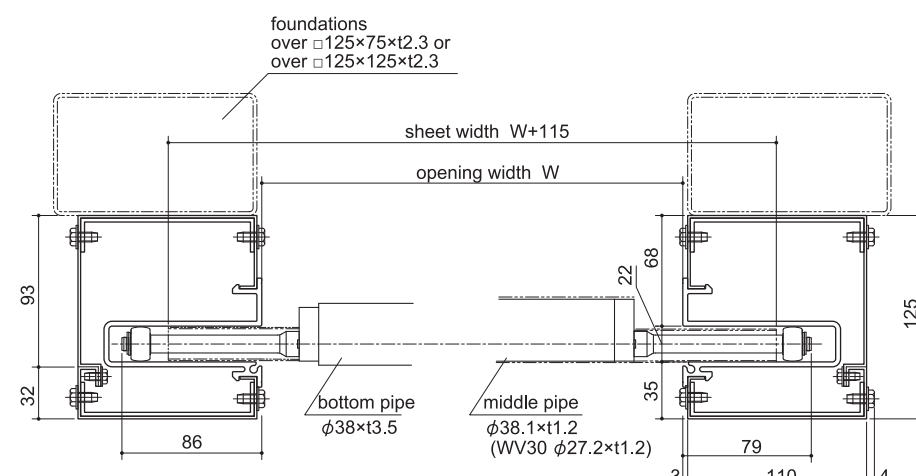
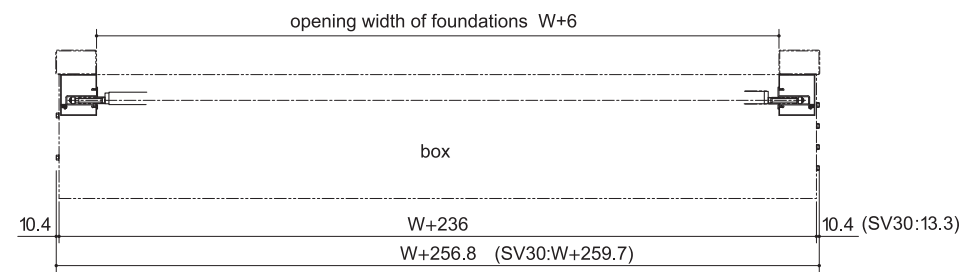
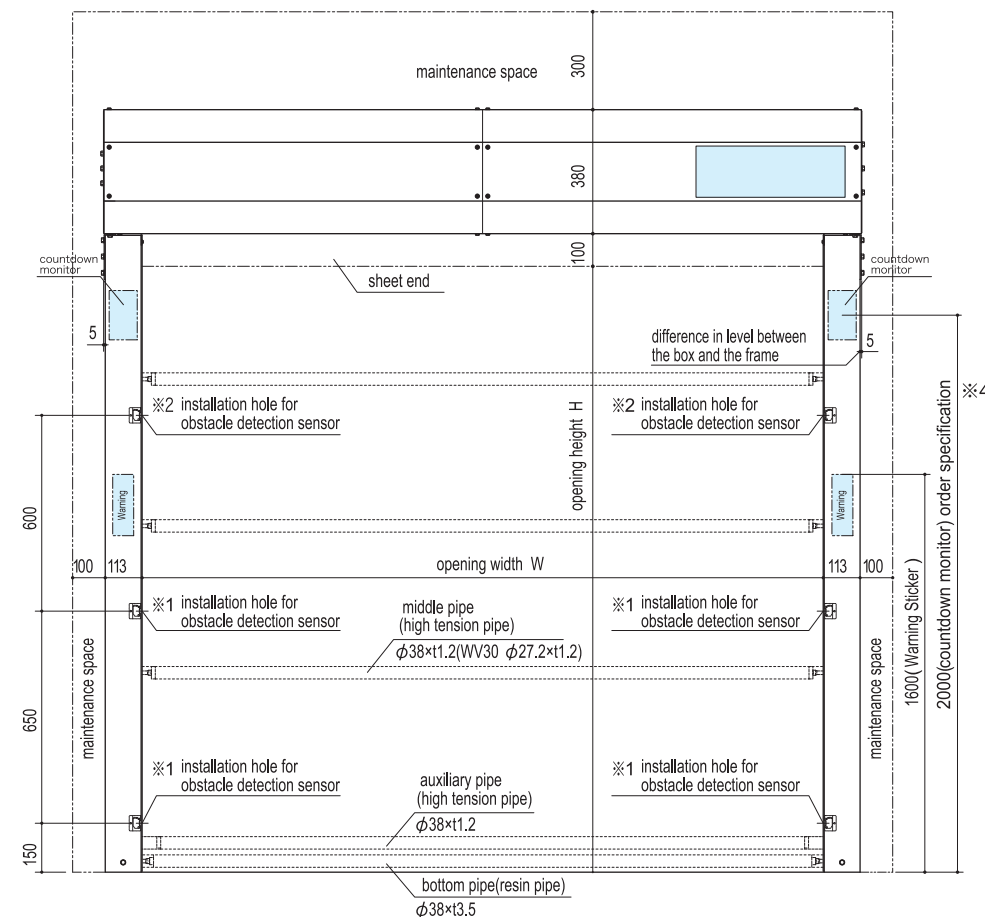
※4 The countdown monitor of buried type corresponds to the size of over 3100 height.

When the opening height is over 3100mm, the side frames are divided into 2400mm of the standard part and adjusting part.

The size of the adjustment part is different according to the effective opening height.

KV25
KV30

width 3.0~4.2m(KV25)/4.3~5.3m(KV30)
height 1.0~5.0m
opening speed 1.0~0.7m/s(1.0m/s) ※
closing speed 1.0~0.5m/s(0.7m/s) ※



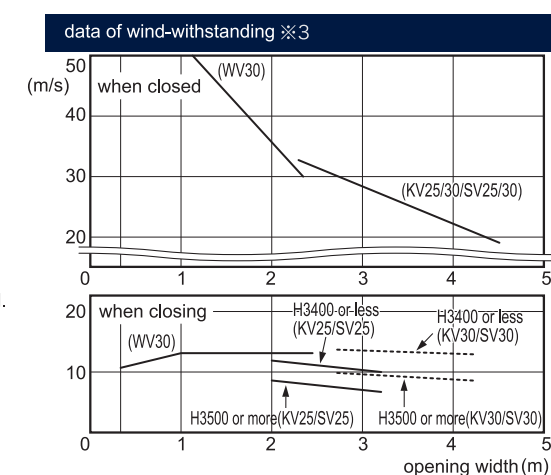
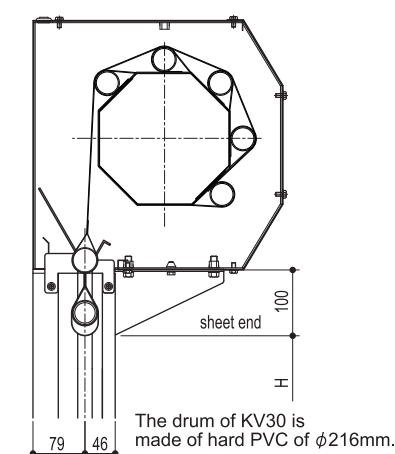
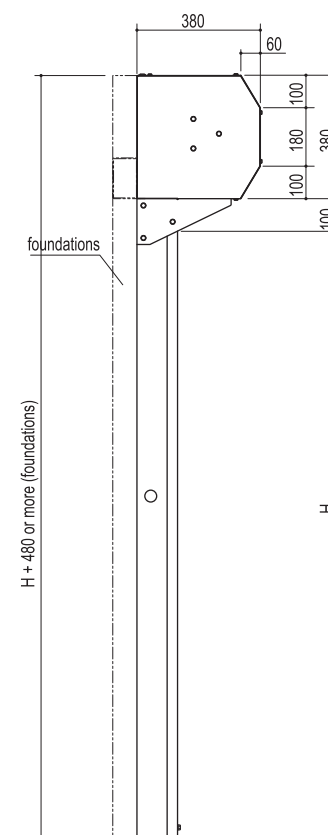
- | 【Attentions】 | 3 | 110 | 4 |
|---|---|-----|---|
| ※1 Please install 2 sets of the obstacle detection sensors, each on both sides (front and rear) of the frames. Moreover, please confirm the best position and the number corresponding to the objects that pass beforehand. | | | |
| ※2 When over 5 sets of the obstacle sensor are installed, the hole processing is required.
Maxium sets of 6 can be installed. | | | |
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When the opening height is over 3100mm, the side frames are divided into 2400mm of the standard part and adjusting part.

The size of the adjustment part is different according to the effective opening height. | | | |



width 0.8~3.5m
height 1.0~5.0m
opening speed 0.75~0.55m/s(0.7m/s) ※
closing speed 0.60~0.40m/s(0.55m/s) ※ ※Default



KV40 width 5.4~7.0m
height 1.0~5.0m(W5.4~6.1)/1.0~4.2m(W6.2~7.0)
1.0~5.9m(特注タイプ)
opening speed 0.7~0.3m/s(0.5m/s) ※
closing speed 0.7~0.3m/s(0.5m/s) ※

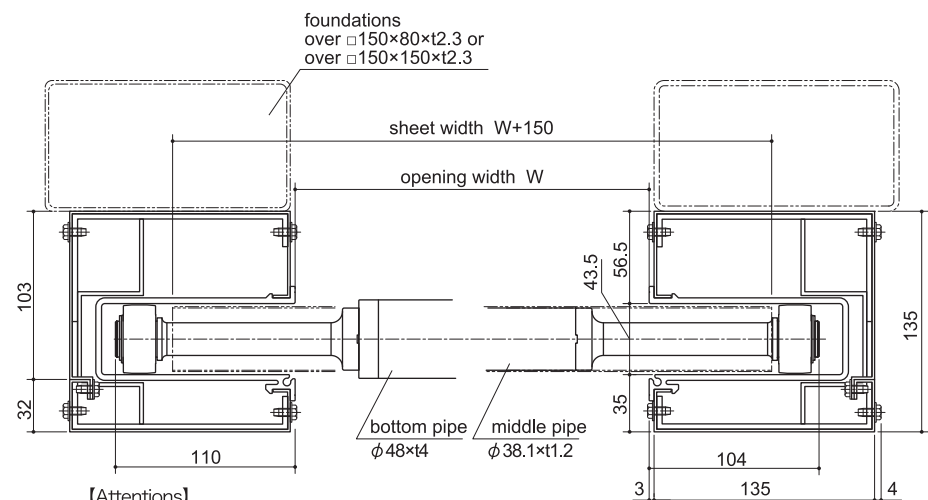
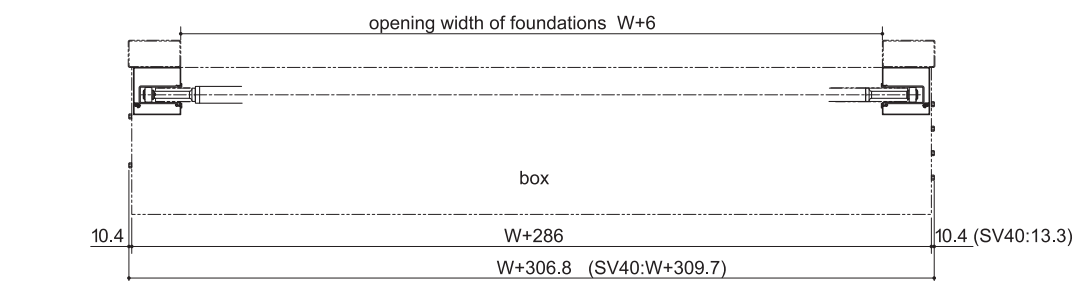
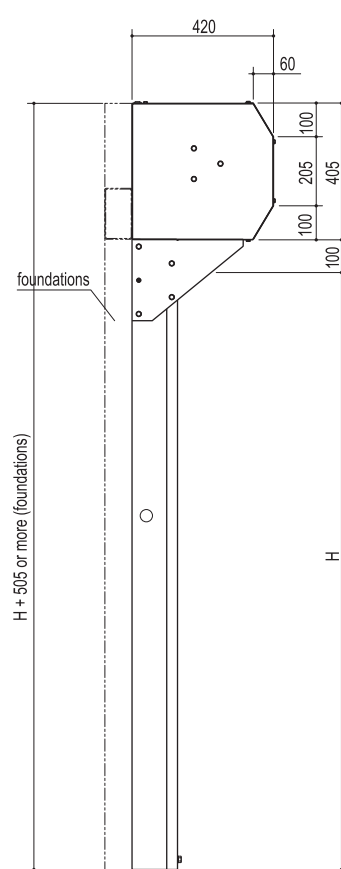
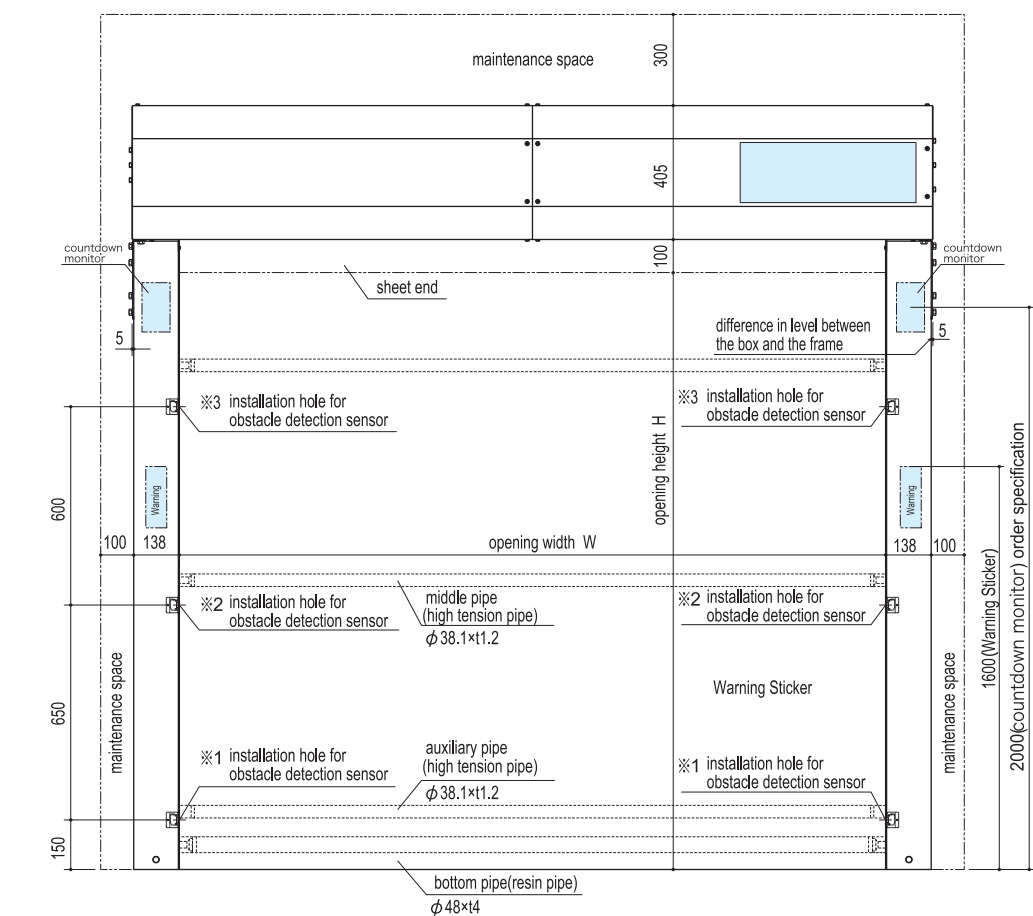
SV40 width 5.4~6.5m
height 1.0~5.9m
opening speed 0.51~0.4m/s(0.48m/s) ※
closing speed 0.51~0.4m/s(0.48m/s) ※

WV40 width 3.6~5.0m
height 1.0~5.0m
opening speed 0.45~0.3m/s(0.4m/s) ※
closing speed 0.45~0.3m/s(0.4m/s) ※

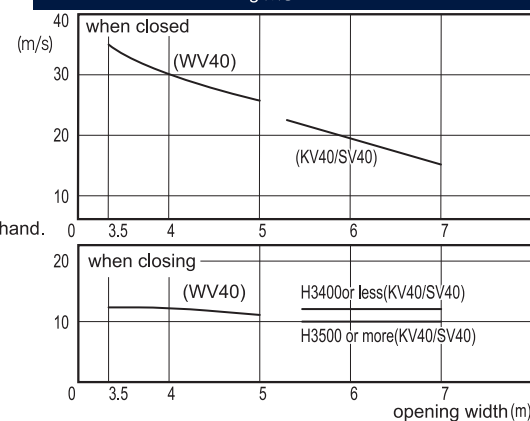
※出荷時設定

KV50 width 7.1~1.0m
height 2.0~6.0m
opening speed 0.5~0.3m/s(0.5m/s) ※
closing speed 0.5~0.3m/s(0.5m/s) ※

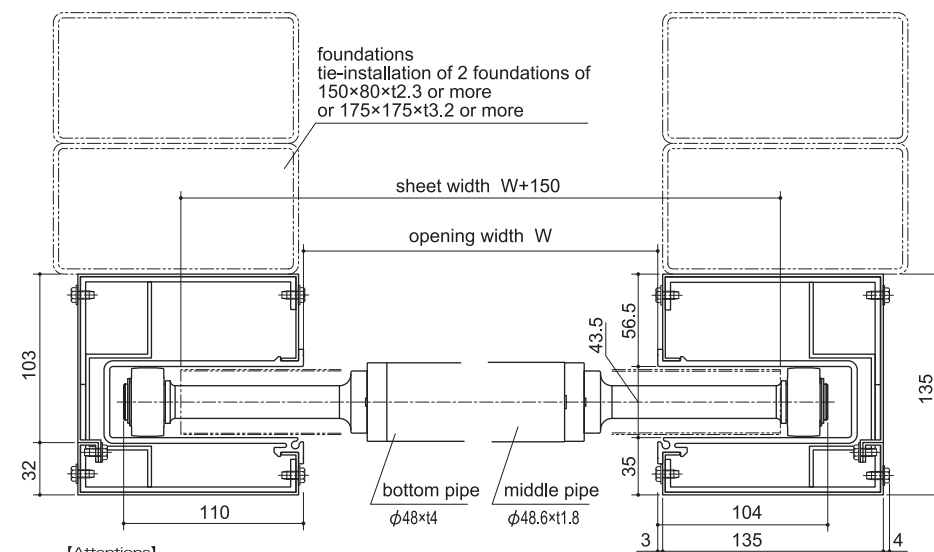
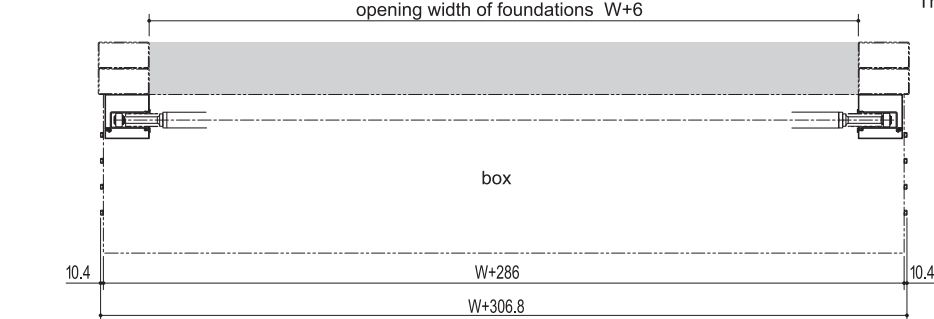
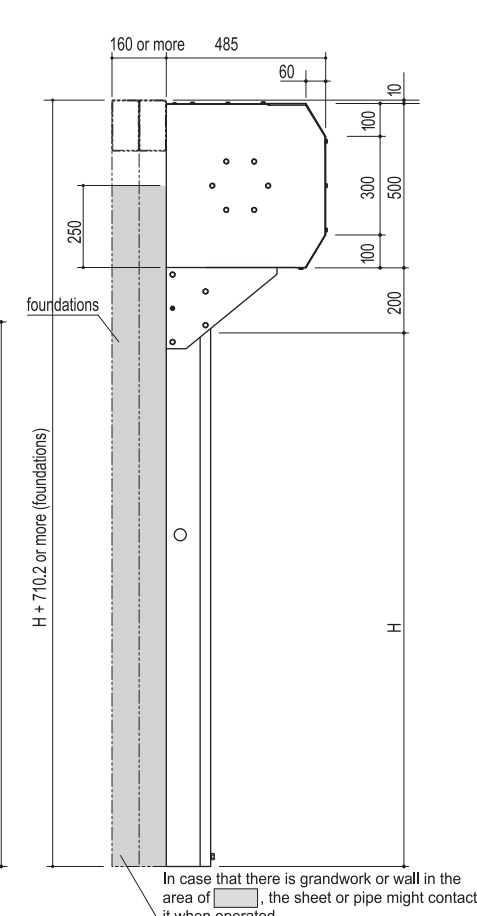
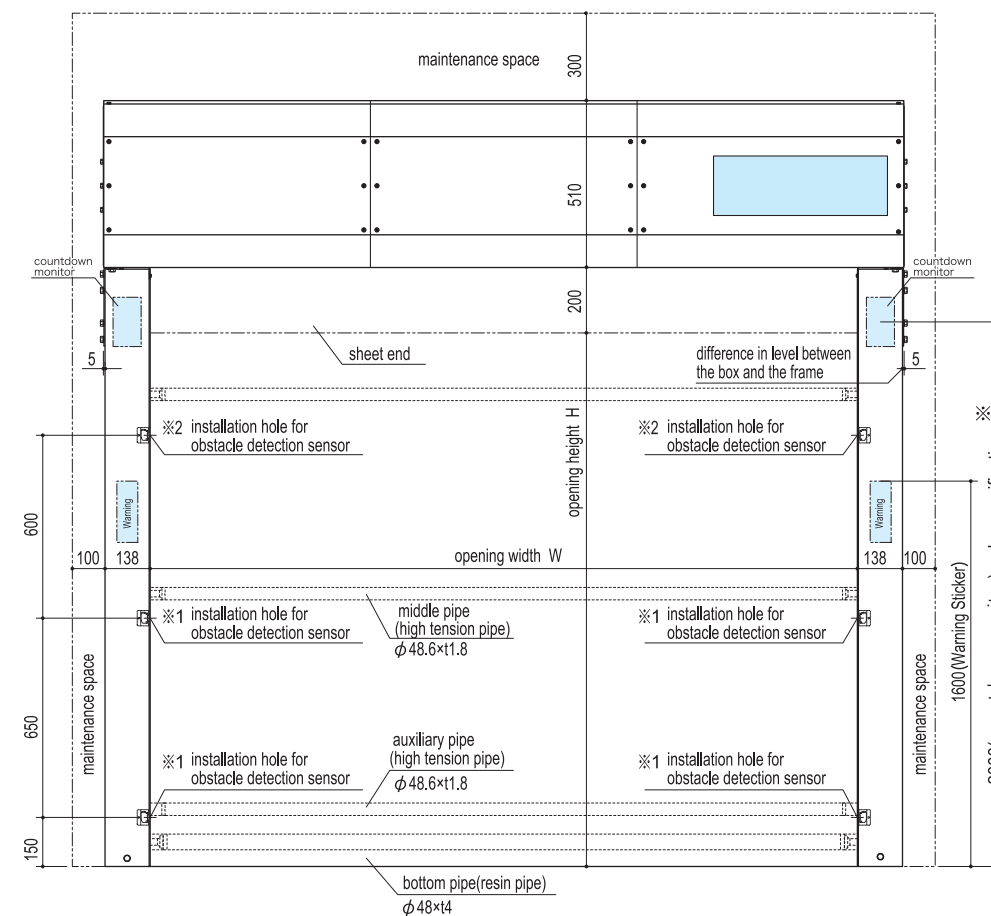
※出荷時設定



data of wind-withstanding ※3

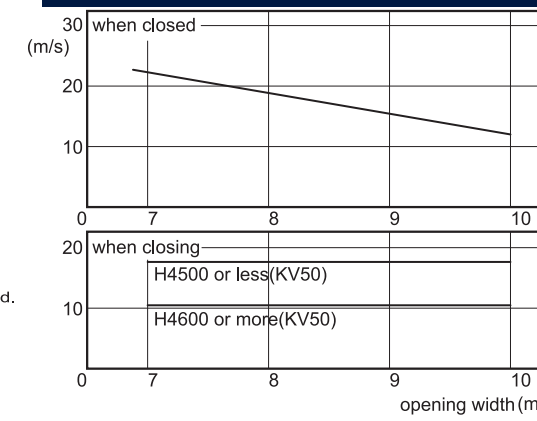


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 - ※2 When over 5 sets of the obstacle sensor are installed, the hole processing is required. Maxium sets of 6 can be installed.
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 - ※4 The countdown monitor of buried type corresponds to the size of over 3100 height.
- When the opening height is over 3100mm, the side frames are divided into 2400mm of the standard part and adjusting part.
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- 【Attentions】**
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The size of the adjustment part is different according to the effective opening height.

data of wind-withstanding ※3



小松電機産業株式会社

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TEL(050)3161-2484 FAX(050)3161-3842

Awards

Science and Technology Agency 1995.4
Notable invention selection prize of Science and Technology Agency
The New Business Conference 1991.10
New Business Grand Prize

The Ministry of Land, Infrastructure and Transport 2007.10
Commendation by the Minister of Land, Infrastructure and Transport

Medium and Small Business Research Institute Corporation 1991.1
Medium and Small Business Research Institute Prize
Nikkei Inc 1993.1
Prize of Contributor to Regional Society



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