19 years 21+ models 13000 customers 153000 installations



## <u>Index</u>

Introduction

Certification

Client List

Air Curtain

Strip Curtain

Other Products

Contact







Since 2000, Mitzvah has been manufacturing electrical appliances and engineered sheet metal fabrications for various industries.

Mitzvah appliances are made and tested as per specification listed by AMCA and NSA guidelines.

Availing collaborations with IIT and regional Indian colleges we study innovation and efficient products.

Attentive to the environment, we meticulously evaluate the effect of our products in saving the environment and energy. We are even very attentive on packaging and components on basis of durability and recycleability.

The ISO 9001 and CE Certification attest the high quality standards reached by Mitzvah.

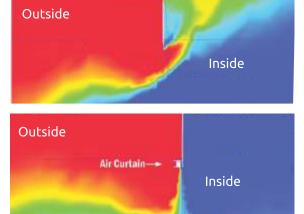


### Standards and Certifications









## Why Mitzvah



#### Global Presence

We have a strong network of 800+ resellers and agents spread in 11 countries with over 153000 installations



#### Indigenous Manufacturing

Each component of our product is engineered to highest precision and meticulously designed.



#### **Excellent Service**

We have a strong service network and various warranties available on every product



#### R&D

Our engineers are constantly innovating products to positively impact industry and work towards saving environment and energy

## Clients Segments



#### Hospitals



























#### Retail

















SHARDA HOSPITAL

















#### Restaurants Chains























**ROYAL** 

ENFIELD











#### **Automobiles**















































#### Hotels







































#### **Banking Sector**



















#### Food Industry



























pepsi









Google

































#### Biscuits & Bread











**Meat Processing** 

























#### Institutions













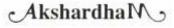






#### Others



















## Index

Benefits

How to take sizes

Model Nomenclature

Specification of various series

Air Curtain .. a cash cow









# Air Curtain



































## 9 Advantages of Air Curtain

Inhibits dust from entering, hence saves manpower to clean

Avoid Dust & flies, enhancing product Quality No vision blockage, Drop in accidents

Open door in Air conditioned showroom attract more customers



Decrease in Duty cycle & Dust levels saves on AC maintenance cost

Increases employee comfort, increases business efficiency

Control bad odour from entering

A perfect cash cow, which payback in 1month - 4 months

## How to take sizes for an Air Curtain?

Contrary to the common belief, taking measurement is actually a child's play. With only single equipment, i.e. a measuring tape, this job can be done easily. It is important to know just three basic pointers:

- 1. Width of the door
- 2. Height of the door
- 3. Space available above the door Checklist/Selection Guide
  You can even go to the link to watch the video- https://youtu.be/JcrGHe\_NE04



## How to read model of Air Curtains



MOC of Blower Series #of Motor Size Voltage/RPM A - 220V/1P/50HZ/2800RPM B - 220V/1P/60HZ/2800RPM Various A-Aluminium Number of C - 440V/3P/50HZ/1400RPM Series of P-Plastic D - 110V/1P/50HZ/2800RPM Motors used in In Cms Air G-Galvanised Iron E - 440V/3P/50HZ/2800RPM Machine 060 - 210 Curtains S-Stainless Steel F - 220V/1P/50HZ/1400RPM 1,2,3,4 G - 24V/DC/1400RPM H - 24V/DC/2800RPM Warranty & Cartage 3Y - 1000 Days Part Warranty 1Y - 1 Year Part Warranty 1 Year Service Warranty 1 Year Service Warranty All India Free Delivery Cartage Extra

## Technical Specification for various Series

FEATURES		ARP	ARS	ASP	ASS
Height Catered		10 ft	10 ft	10ft	10 ft
Max Vel. @ Nozz		23 m/s	23 m/s	23 m/s	23 m/s
Blower Diameter		ø 5 in	ø 5 in	ø 5 in	ø 5 in
RPM		2800 RPM	2800 RPM	2800 RPM	2800 RPM
Sizes Available		2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft
A	esthetic Look	Elegant Sleek	Elegant Sleek	Elegant Sleek	Elegant Sleek
Operation		Remote	Remote	2 Switch Speed	2 Switch Speed
Sı	uction Side	Тор	Тор	Тор	Тор
Fl	low Type	Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating
F	an Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal
	Front Chassis	Aluminium Profile	Aluminium Profile	Aluminium Profile	Aluminium Profile
MOC	Main & Back Plate	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304
Σ	Suction Grils	Plastic	Plastic	Plastic	Plastic
	Blower	Plastic	Plastic	Plastic	Plastic
	Voltage Options	220V/1P/50Hz 220V/ 1P/60Hz 440V/3P	220V/1P/50Hz 220V/ 1P/60Hz 440V/3P	220V/1P/50Hz 220V/ 1P/60Hz 440V/3P	220V / 1P / 50Hz 220V / 1P / 60Hz 440V / 3P
Motor		Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type
	Mounting	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical
D	Petailed Technical , Dimensional & Tender pecifications	www.mitzvah.in/spec/arp	www.mitzvah.in/spec/ars	www.mitzvah.in/spec/asp	www.mitzvah.in/spec/ass



## Techincal & Dimensional Specification

FEATURES		RSP	RSS	RSL	SSP
Height Catered		10 ft	10 ft	10 ft	10 ft
Max Vel. @ Nozz		23 m/s	23 m/s	23 m/s	23 m/s
Blower Diameter		ø 5 in	ø 5 in	ø 5 in	ø 5 in
RPM		2800 RPM	2800 RPM	2800 RPM 2800 RPM	
Sizes Available		2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft
A	esthetic Look	Round Sleek	Round Sleek	Round Sleek	Slotted Sleek
0	peration	2 Switch Speed	2 Switch Speed	2 Switch Speed	2 Switch Speed
Si	uction Side	Тор	Тор	Тор	Front
F	low Type	Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating
F	an Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal
	Front Chassis	Metal Powder Coated	SS Grade 304	SS Grade 304	Aluminium Profile
MOC	Main & Back Plate	Metal Powder Coated	SS Grade 304	Metal Powder Coated	Metal Powder Coated
Σ	Suction Grils	Metal Powder Coated	Metal Powder Coated	Metal Powder Coated	Metal Powder Coated
	Blower	Plastic	Plastic	Plastic	Plastic
	Voltage Options	220V / 1P / 50Hz 220V / 1P / 60Hz 415V / 3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P
	Motor	Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type
	Mounting	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical
Din	tailed Technical , nensional & Tender ecifications	www.mitzvah.in/spec/rsp	www.mitzvah.in/spec/rss	www.mitzvah.in/spec/rsl	www.mitzvah.in/spec/ssp

FEATURES		SSS	SSL	DPP	DPS
Height Catered		10 ft	10 ft	9 ft	10 ft
Max Vel. @ Nozz		23 m/s	23 m/s	21m /s	21m/s
Blower Diameter		ø 5 in	ø 5 in	ø 8 in	ø 8 in
RPM		2800 RPM	2800 RPM	1400 RPM	1400 RPM
Sizes Available		2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	2ft, 3ft, 1 Mts, 4ft, 5ft, 6ft, 7ft	3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft	3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft
Aes	thetic Look	Slotted Sleek	Slotted Sleek	Sturdy Compact	Sturdy Compact
Operation		2 Switch Speed	2 Switch Speed	On / Off	On / Off
Suc	tion Side	Front	Front	Front & Side / Top	Front & Side / Top
Flov	w Туре	Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating
Fan	Туре	Centrifugal	Centrifugal	Centrifugal	Centrifugal
	Front Chassis	SS Grade 304	SS Grade 304	Metal Powder Coated	SS Grade 304
MOC	Main & Back Plate	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304
Σ	Suction Grils	Metal Powder Coated	Metal Powder Coated	Metal Powder Coated	SS Grade 304
	Blower	Plastic	Plastic	Plastic / Galvanised Iron / Stainless Steel /Aluminium	Plastic / Galvanised Iron / Stainless Steel / Aluminium
Vol	tage Options	220V / 1P / 50Hz 220V / 1P / 60Hz 415V / 3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P
Motor		Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type	Squirrel Cage Induction Type
Мо	unting	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical	Horizontal / Vertical
Detailed Technical , Dimensional & Tender Specifications		www.mitzvah.in/spec/sss	www.mitzvah.in/spec/ssl	www.mitzvah.in/spec/dpp	www.mitzvah.in/spec/dps

## Techincal & Dimensional Specification



FEATURES		CPP	CPS	IPP	IPS
Height Catered		15 ft	15 ft	24 ft	24 ft
Max Vel. @ Nozz		24 m/s	24 m/s	29 m/s	29 m/s
Blower Diameter		ø 8 in	ø 8 in	ø 8 in	ø 8 in
RPM		1400 RPM	1400 RPM	1400 RPM	1400 RPM
Sizes Available		3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft	3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft	3ft, 3ft 6in, 4ff	3ft, 3ft 6in, 4ff
Aesthetic Look		Sturdy Compact	Sturdy Compact	Heavy Large	Heavy Large
Operation		On / Off	On / Off	On / Off	On / Off
Suction Side		Front & Side / Top	Front & Side / Top	Front & Side	Front & Side
Flow Type		Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating
Fan Type		Centrifugal	Centrifugal	Centrifugal	Centrifugal
	Front Chassis	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304
Q	Main & Back Plate	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304
MOC	Suction Grils	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304
	Blower	Aluminium	Aluminium	Plastic / Aluminium	Plastic / Aluminium
Voltage Options		220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P	220V/1P/50Hz 220V/ 1P/60Hz 415V/3P
Motor		Squirrel Cage Induction Type			
Mounting		Horizontal / Vertical	Horizontal / Vertical	Horizontal	Horizontal
Detailed Technical , Dimensional & Tender Specifications		www.mitzvah.in/spec/cpp	www.mitzvah.in/spec/cps	www.mitzvah.in/spec/ipp	www.mitzvah.in/spec/ips

FEATURES		BPP	BPS	FPP	FPS	QPP
Height Catered		7 ft	7 ft	9 ft	10 ft	6 ft
M	ax Vel. @ Nozz	11 m/s	11 m/s	22 m/s	22 m/s	8 m/s
В	lower Diameter	ø 4 in	ø 4 in	ø8in	ø8in	ø8in
R	РМ	2000 RPM	2000 RPM	1400 RPM	1400 RPM	2600 RPM
Si	zes Available	800 mm, 1000 mm, 1200 mm	800 mm, 1000 mm, 1200 mm	3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft	3ft, 3ft 6in, 4ft, 5ft, 6ft, 7ft	3ft, 4ft, 5ft, 6ft, 7ft
Α	esthetic Look	Slim	Slim	Sturdy Compact	Sturdy Compact	Silent Slim
0	peration	On / Off	On / Off	On / Off	On / Off	On / Off
S	uction Side	Front	Front	Front & Side / Top	Front & Side / Top	Тор
Fl	ow Type	Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating	Non Recirculating
	Fan Type	Crossflow	Crossflow	Centrifugal	Centrifugal	Axial
	Front Chassis	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304	Metal Powder Coated
Ö	Main & Back Plate	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304	Metal Powder Coated
MO	Suction Grils	Metal Powder Coated	SS Grade 304	Metal Powder Coated	SS Grade 304	Metal Powder Coated
	Blower	Plastic / Aluminium	Plastic / Aluminium	Plastic / Galvanised Iron / Stainless Steel	Plastic / Galvanised Iron / Stainless Steel	Plastic
V	oltage Options	24 V DC	24 V DC	220V / 1P / 50Hz 220V / 1P / 60Hz 415V / 3P	220V / 1P / 50Hz 220V / 1P / 60Hz 415V / 3P	220V / 1P / 50Hz
М	otor	DC Motor	DC Motor	Squirrel Cage Induction Flame Proof Type	Squirrel Cage Induction Flame Proof Type	External Rotor Motor
М	ounting	Horizontal	Horizontal	Horizontal / Vertical	Horizontal / Vertical	Horizontal
Dii	tailed Technical , nensional & Tender ecifications	www.mitzvah.in/spec/b pp	www.mitzvah.in/spe c/bps	www.mitzvah.in/spec/f pp	www.mitzvah.in/spec/ fps	www.mitzvah.in/spec /qpp



Saving per minute: Rs. 7 /-

Saving per hour : Rs. 420 /- (Rs. 7 X 60 min)
Saving per month : Rs. 12,600 /- (Rs. 420 X 30 days)

ROI - 1 month ~ 4 months

**Assumption for ROI Calculation** 

Door size : 8 ft (H) X 4 ft (W)

Temp. Difference : 15 C Door opening / Day : 60 mins

Using simple mathematics, let's verify;

Here's how-

**Energy Calculation** 

 $E = m C \Delta T$ 

m : Mass of Air

C : Specific heat of Air at given Temperature

ΔT : Temperature Difference

m = Density X Volume

Density of Air at  $40^{\circ}$ C = 1.127 Kg/cu. meter C = Specific Heat = 1.005 KJ / (Kg  $^{\circ}$ C)  $\Delta$ T = Temperature Difference = 15 $^{\circ}$ C

(assuming outside temperature is 40 °C and inside is 25 °C)

Volume = Area X Velocity of Air from Door X Time of Opening

Say:-

Door Size = 8ft X 4ft Velocity = 1 m/s = 200 fpm

Time of Opening = 1 min

Volume = 32 X 200 X 1 = 6400 cu. ft. = 181.22 cu. Meter ----- A

m = Density X Volume

(from Above A)

= 1.127 Kg/cu. meter X 181.22 cu. Meter

= 204 Kgs

 $E = m C \Delta T$ 

 $= 204 \text{ kgs X } 1.005 \text{ KJ} / (\text{Kg }^{\circ}\text{C}) \text{ X } 15^{\circ}\text{C}$ 

= 3075.3 KJ = 0.85425 Kwh

Thus:-

In India if Per KWH cost of Power is **Rs 8.10** 

Cost of Opening the Door of Size 8ft X 4ft for 1 min is = Rs 6.92

Cost of Running an Air Curtain of 4 ft = 400W (Input Power) for 1 minute = 6 paise

Rate per Kwh X Time X Power Input

8.10 X 1/60 X 0.4 = 5.4 paisa

Net Saving = Rs 6.92 - 0.06 = Rs 6.86 ~ Rs 7





## Index

How to design the strip door

How to cut

How to form holes

How to assemble

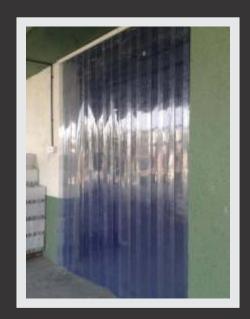
How to pack to deliver to the Job site

How to install

Cleaning and maintenance

How to calculate the cost of Strip Curtain









# Strip Curtain



































## 1 How to design the strip door

#### • Strip quality

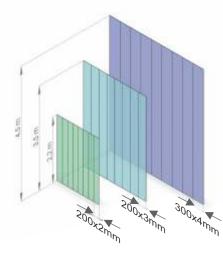
Choose from a wide range of PVC strips, select the right strips according to your application: The various options available are as follows"

The main components for Strip Curtain are:-

- a) Hook On Hardware
- b) PVC

Different Grades of each component available are:

- a) HOOK ON Hardware
  - i) CRC Powder Coated
  - ii) SS 304
- b) PVC
  - i) DINP ROHS
  - ii) DOP
  - iii)Paraffin
- c) Type
  - i) Normal
  - ii) Polar
- d) Surface
  - i) Plain
  - ii) Ribbed



Strips sizes

They can be selected in any permutation and combination

#### Strip sizes-

Depending on your opening size, choose a suitable width and thickness of strip.

#### Strip overlapping

In order to get a better performance from your doors, a certain percentages of strip overlapping is recommended depending on their use; we recommend 50% overlapping, though 100% overlapping is also possible depending on:

- a) Type of Isolation
- b) Opening (Inside / Outside)

#### Hardware

Use standard Hook-on-track for all applications.

They can be fabricated in CRC Metal powder coated or Stainless Steel Grade 304.



Strips overlapping



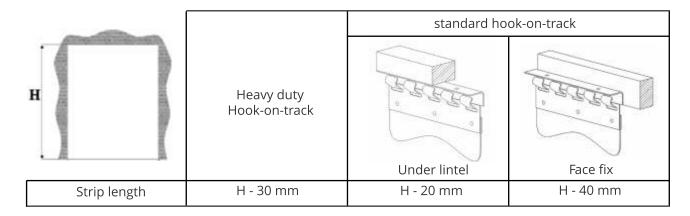
Standard Hook-on-track



## 2 How to cut Strips

#### Strip quality

Cut strips according to the opening height and the hook-on-track configuration as follow:



Note: The length of strips is cut to the height of the opening. It is recommended that you cut the strips in the workshop 10mm longer and trim them when fitted.

Note 2: It is recommended that the Standard Hook-on-track is face fixed as it is easier to install and is stronger.

#### Manually cutting

Use a long square to determine the centerline of the strip when pressed against one of the edges.

For thick strips, cut several times with the cutter without pressing too hard, maintaining the square pressed firmly on the working surface so that it does not slide.

It is recommended that a glove is worn when cutting.

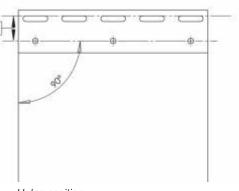
## 3 How to form holes in strips

#### Manually using a punch

Mark the positions of all holes accurately, precisely and horizontally (rule and square). The holes centerline must be absolutely perpendicular with the edge of the strip.

Remove the center using a punch (Ø 5mm)

Do not use cutting tools (drills, sharp objects) to avoid tears that will eventually result in the PVC ripping.



Holes position



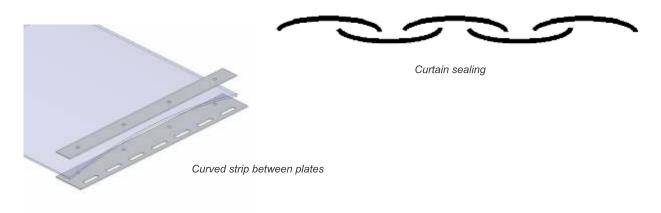
## 4 How to assemble Strips with hanger

#### • Strip quality

Use Nut & Bolt of 5 mm to fix the strip between the front plate and the back plate. Put the flat part of the bolt on the front plate side.

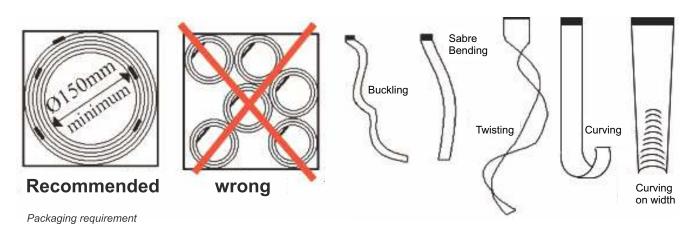


PVC strips are designed to have a slight curve across the width in order to provide a good seal. The internal face of the strip must be placed face down to the front plate to provide a better sealing and aspect when the curtain is installed.



## 5 How to pack to deliver to the Job site

Never roll the strips into small diameters. (ø 150 mm minimum) Pack the strips in the box using packing paper, foam or bubble wrap.



Defects caused by wrong packing



## 6 How to install Strip Curtains

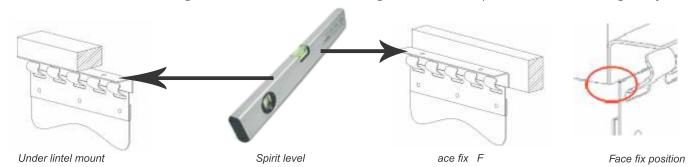
Make sure that support is in good condition.

The hook-on-track must be secured firmly and in a level position:

1) Position the hook-on-track to the opening (face fix or under lintel)

Note that for the face fix beginning of the hook needs to match the opening.

For under lintel mount configuration make sure that the edge of the end strips will be able to swing freely.

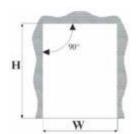


- 2) Fix the Hook-on-track with a first screw in its middle.
- 3) Use a spirit level to position and mark fixing holes.

(For under lintel mount use wedges to correct the position)

4) Then install.

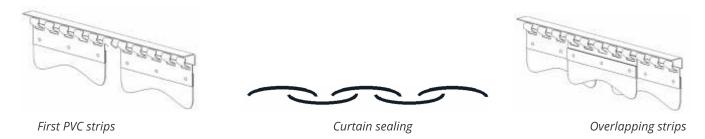
For under lintel, the hook-on-track has to be cut to fit the opening and the strips width.



For face fix, the curtains have to be wider than the opening to cover the gap between the door edge and the wall in order to provide a better sealing. Longer edges can be used to stock strips if the door is removed during hot periods.

Place the first PVC strips on the hook-on-track with the required number of free hooks between the strips according to the overlap. Then place remaining strips.

Front plates have to be placed in the middle of the curtain between the back plates to avoid any unnecessary gap and to have the curved strip sides face to face.



## 7 Cleaning and maintenance of Strips

Wash with soapy water or alcohol solution.

Avoid any contact with solvents

No particular maintenance is required except for periodic checking (twice annually) to ensure the attachment systems are

Remember: secure (strips/hooks, hook-on-track/lintel) and to replace any worn strips that no longer offer the necessary transparency. Strips are not costly don't hesitate to change them.



## 8 How to do costing for Strip Curtains

#### Calculations on area basis

There are various ways we can calculate the price for Strip Curtains

Width = Opening (in) + 6" = W Height = Opening (in) + 6" = H

Area = (W X H) / 144 = Total Sq Ft = A

Example 1: Width = 9 ft 6 in Height = 9 ft 6 in

W = 9 ft 6 in + 6 in = 10 ft H = 9 ft 6 in + 6 in = 10 ft A = Area = 100 Sq ft

Say Rate = Rs 150 per sq. ft **Total Cost** = Rs 150 psf X 100 sq. ft = **Rs 15000/-**



#### Calculations on Bill of Material

W = Width = 9 ft 6 in = 114 in = 2895 mm  $\sim$  2.9 meter H = Height = 9 ft 6 in = 114 in = 2895 mm  $\sim$  2.9 meter

No of Hardware = (W/500) 2900 / 500 mm = 6 Nos.No of Strips = (W/6) 114 / 6 = 19

PVC Requirement: 19 X 2.9 meter = 55.1 meter ~ 56 meter

#### Rates:

Hardware (CRC Powder Coated) = Rs. 300 per Piece PVC (3mm Normal Premium) @ Rs. 250 per Meter PVC (3mm Normal Cheap) @ Rs. 150 per Meter

#### Cost

Hook On = 6 Nos X Rs. 300 = Rs.1800 PVC (3mm Normal Premium)= 56 meter X @250 = Rs. 14000 PVC (3mm Normal Cheap)= 56 meter X @150 = Rs. 8400

Total Cost (Premium) = 1800+14000 = Rs. 15800 = Rs 158 psf Total Cost (Cheap) = 1800 + 8400 = Rs. 10200 = Rs. 102 psf



## Other Products















## Other Products

## Fly Trapper Glue-pad Series







#### **Features**

- Aluminum Chassis
- Plastic Side Covers
- High Voltage Metal Grid
- BLB Lights (Long Life)
- Efficient Step Up Transformer
- Removable Tray

Model: IK GP 3X15
Material: ABS
Type: Glue Pad
Mounting: Wall
Effective Area: 500 Sq ft

Model: IK GP 2X15 Material: ABS Type: Glue Pad Mounting: Wall Effective Area: 400 Sq ft

## Hand Dryers SS Steel & Plastic Series



Model : HD16K75

Material : Stainless Steel

Power : 2300 W

Drying Time : 5-8 Sec

Detection Dist : 50-150 mm

Wind Speed : 60 m/s

Motor Speed : 25000 RPM

Auto Stop: 15 Sec



Model : HD ABS4K12
Material : ABS
Power : 2000 W
Drying Time : 10-15 Sec
Detection Dist : 50-200 mm
Wind Speed : 12 m/s
Motor Speed : 7500 RPM

Auto Stop : 20 Sec



Model : HD JET ABS
Material : ABS
Power : 1650 W
Drying Time : 5-10 Sec
Detection Dist : 50-200 mm
Wind Speed : 90 m/s
Motor Speed : 16000 RPM

Auto Stop: 15 Sec





