DURA PLAST®
LEAD GROW INSPIRE

www.duraplastindia.com

RHINO TUFF

ROOF VENTILATION SYSTEMS

Breathe *fresh* everyday

Turbo Ventilators

Roof Extractors

Hybrid Ventilators

ISO 9001 : 2015 CERTIFIED

ABOUT RHINO TUFF TURBO VENTILATOR FANS

RHINO TUFF Turbo Ventilator Fans are renowned for their quality, performance and durability.

These **Ventilation** systems offer unmatched value to their patrons by providing effective round the year natural ventilation and that too at no operating cost!

Developed after extensive research and true to their name, they are tough to the core and have a service life of more than10 years in tough environments and in extreme weather conditions.

They boast of a robust and dynamic design and rugged material of construction

RHINO TUFF **Turbo Ventilator Fan** exhaust large volumes of hot air even at relatively low wind speeds and have the highest exhaust capacity in their class. They are capable of withstanding a high wind speed and are guaranteed against water ingression. In addition, they are strong, impact resistant, light weight, effective, weather and storm proof, noiseless, maintenance free, easy to install, adaptable to any roof, economical to use and environment friendly.

Large and reputed project consultancy firms, architectural companies, building and construction companies, OEMs and government companies trust only **RHINO TUFF Turbo Ventilators Fans** for executing world class industrial, commercial and infrastructure Projects.

HOW **DO THEY** WORK ?

RHINO TUFF Turbo Ventilator Fans are natural air ventilation systems. They are free spinning roof exhausts, which works by utilizing the Kinetic Energy of wind to induce air flow through Centrifugal Action.

They provide round the year natural ventilation at no running cost. They continuously exhaust smoke, gases, fumes, dust and hot air from the place of installation.

They start revolving due to the force of the outside wind and the inside hot air. The Centrifugal Force (backward thrust) caused by the spinning Fins creates a region of low pressure, which draws and throws out air from below and causes fresh cool air from the outside to come in.

The slightest breeze will cause the **Turbo Ventilators** to spin. Even after the breeze has stopped, the fly wheel effect of their rotor cage will use their stored energy to continuously remove inside stale air and thereby giving rise to ventilation. Suction is maintained at very low wind speeds.

Convective thermal currents are given boost by Venture Dome to further enhance revolution of the **Ventilators**.

Cooler air from the outside will rush into the negative space in the building to maintain a condition of equilibrium.

Stale hot air is exhausted through the **Ventilators**, whereas fresh air only comes in through the openings in the building. The incoming outside air can be filtered by installing filters over the inlets. This is necessary in case of pharmaceutical and food processing industries.

DURA PLAST ® LEAD GROW INSPIRE

Why RHINO TUFF ?

1 Mechanically strong

2 Impact resistant

3 Light weight

4 Highly effective

5 No running cost

6 Significant power savings

7 Weather proof

8 Storm and hail resistant

9 Noise free

10 Leakage proof

11 Easy to install

12 Adaptable to any kind of roofing material

13 Maintenance free and easily repairable

14 Durable and long lasting

15 Environment friendly

16 Entitled to depreciation at an accelerated rate

DURA PLAST ® LEAD GROW INSPIRE

WHERE ARE THEY USED ?

- Production sheds
- Warehouses
- Production Utility Areas such as compressor rooms, D.G. generator rooms, boiler rooms, paint shops etc.
- Packing halls
- Commercial buildings such as school, shopping malls, hotels, clubs, banquets etc.
- Infrastructure facilities such as ports, airports, railway stations etc.
- Defence establishments such as air force hangers, shipyards, naval bases, arms depots etc.
- Residences
- Any other place **where** ventilation is needed

How Do You **BENIFIT ?**

- Provides natural ventilation and illumination
- Creates a congenial work environment
- Reduces the cost of upkeep of buildings
- Economical to use
- Entitled to depreciation at an accelerated rate
- Reduces inside temperature
- Improves labour productivity
- Increases the building's life span
- Environment friendly
- Short pay-back period

How Much Do They **EXHAUST ?**

Wind Velocity (mph)		3			8			10		
Temp. Diff. ℃		3	5	10	3	5	10	3	5	10
Model No.	Stack (Height in Ft.)	* Exhaust Capacity in C.F.M.								
ATV-L / STV-L	10	939	1000	1102	1436	1498	1600	1792	1858	1958
	20	1005	1084	1216	1503	1582	1714	1859	1938	2070
	30	1058	1154	1314	1556	1652	1812	1915	2010	2478
	40	1107	1216	1394	1605	1714	1896	1961	2070	2731

The exhaust capacity of **RHINO TUFF VENTILATOR** is dependent on the following three variable factors:

- The stack height (the height at which the Ventilators are installed)
- The wind velocity i.e. the speed at which the wind blows
- The temperature difference inside and outside the shed. In other words, the higher the temperature difference, the greater would be the exhaust capacity

RANGE

01
RHINO TUFF
Aluminium Turbo Ventilator Fans

02
RHINO TUFF
Stainless Steel (S.S.) Turbo Ventilator Fans

03
RHINO TUFF
Polypropylene Stainless Steel (PP-SS) Turbo Ventilator Fans

04
RHINO TUFF
Polycarbonate (PC) Turbo Fans

RHINO TUFF Aluminium Turbo Ventilator Fans

RHINO TUFF Aluminium Turbo Ventilator Fans are manufactured using top quality Industrial Grade Aluminium and are renowned for their quality, performance and durability in extreme weather conditions and tough industrial environments.

They exhaust large volumes of hot air even at relatively low wind speeds and have the highest exhaust capacity in their class. They are capable of withstanding a high wind speed and are guaranteed against water ingression.

In addition, they are strong, impact resistant, light weight, effective, weather & storm proof, noiseless, maintenance free, easy to install, adaptable to any roof, economical to use & environment friendly.

They continuously help remove hot air, smoke, gases, fumes and dust from the place of their installation.

Owing to their relative light weight and exemplary resistance to weather, these Turbo Ventilator Fans perform satisfactorily over a long period of time.

The Fins of the **Aluminium Fans** are manufactured using Aluminium, where as the Top Cover and Bottom Ring can be manufactured using Aluminium or Stainless Steel depending on the customer requirement.

Series — RHINO

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS (BLADES)	TOP COVER	BOTTOM RING (NECK)	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
24" (600 MM)	ATV-100-L	42	0.40 MM AL	0.90 MM AL. or 0.40 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	3.90 Kilos
21" (530 MM)	ATV-100-S	36	0.40 MM AL	0.90 MM AL. or 0.40 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I	G.I.	HCH make or equivalent	3.55 Kilos

Series — RHINO STAR

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS (BLADES)	TOP COVER	BOTTOM RING (NECK)	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
24" (600 MM)	ATV-200-L	42	0.50 MM AL.	0.90 MM AL. or 0.50 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	4.40 Kilos
21" (530 MM)	ATV-200-S	36	0.50 MM AL.	0.90 MM AL. or 0.50 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	4.00 Kilos

Series — RHINO SUPER STAR

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS (BLADES)	TOP COVER	BOTTOM RING (NECK)	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
24" (600 MM)	ATV-300-L	42	0.50 MM AL.	1.20 MM AL. or 0.50 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	AL. / S.S	S.S.	SKF make or equivalent	4.40 Kilos
21" (530 MM)	ATV-300-S	36	0.50 MM AL.	1.20 MM AL. or 0.50 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	AL. / S.S	S.S.	SKF make or equivalent	4.00 Kilos

Series — RHINO SHINING STAR

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS (BLADES)	TOP COVER	BOTTOM RING (NECK)	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
24" (600 MM)	ATV-400-L	42	0.71 MM AL.	1.20 MM AL. or 0.60 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	AL. / S.S.	S.S.	SKF make or equivalent	5.00 Kilos
21" (530 MM)	ATV-400-S	36	0.71 MM AL.	1.20 MM AL. or 0.60 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	AL. / S.S.	S.S.	SKF make or equivalent	4.50 Kilos

Please Note:

- **Exhaust Capacity (in C.F.M.) (600 MM Dia | 530 MM Dia):** 2700 | 2500
- **Throat (Neck) Dia | Belly (Centre) Dia:** 24" (600 MM) | 28" (710 MM) & 21" (530 MM) | 26" (660 MM)
- **Height:** 16" (400 MM) (across all Models)
- **Shaft Dia:** 11.80 MM (across all Models)
- **Bearing Type:** Double Jet Sealed Ball Bearings (6001-2RS)
- **Internal Fittings (Shaft, Bearing Covers, X Frame, Rotary Axel):** G.I. or S.S. (depending on the series)
- **Aluminium Make / Specifications:** Hindalco or equivalent / 8011 Series (H-14 Temper)
- **Stainless Steel Make:** Jindal or equivalent
- **Packing:** 3 / 5 Ply Corrugated Boxes
- Adjustable Bottom Ring (Variable Elbow/VariPitch) to keep the Fan upright can be made available, if need be
- The Fans can also be painted or powder coated for extra weather protection
- The weight of the Fans is approximate and is subject to marginal variation

RHINO TUFF Stainless Steel (S.S.) Turbo Ventilator Fans

RHINO TUFF Stainless Steel (S.S.) Turbo Ventilator Fans are manufactured using top quality Stainless Steel (S.S.) and are renowned for their mechanical strength, impact resistance and performance.

They are strong enough to withstand heavy loads of notorious monkeys and high impact due to heavy hail. They are weather and storm proof and can resist chemical corrosion due highly corrosive and obnoxious industrial gases, fumes and smoke

RHINO TUFF S.S. Turbo Ventilator Fans exhaust large volumes of hot air even at relatively low wind speeds and have the highest exhaust capacity in their class.

They are capable of withstanding a high wind speed and are guaranteed against water ingression. In addition, they are mechanically strong, impact resistant, light weight, effective, weather and storm proof, anti-corrosive, noiseless, maintenance free, easy to install, adaptable to any roof, economical to use and environment friendly.

RHINO TUFF S.S. Ventilators perform satisfactorily in extreme weather conditions and tough industrial environments.

Their Fins are in S.S. where as the Top Cover and Bottom Ring can be made available in Stainless Steel (S.S.) or Aluminium (AL.) depending on the customer requirement.

Series RHINO

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS	TOP COVER	BOTTOM RING	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
600 MM (24″)	STV-100-L	42	0.30 MM S.S.430	0.90 MM AL. or 0.40 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	4.80 Kilos
530 MM (21″)	STV-100-S	36	0.30 MM S.S.430	0.90 MM AL. or 0.40 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I	G.I.	HCH make or equivalent	4.30 Kilos

Series RHINO STAR

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS	TOP COVER	BOTTOM RING	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
600 MM (24″)	STV-200-L	42	0.35 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	5.80 Kilos
530 MM (21″)	STV-200-S	36	0.35 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	0.90 MM AL. or 0.50 MM S.S.430	AL. / G.I.	G.I.	HCH make or equivalent	5.00 Kilos

Series RHINO SUPER STAR

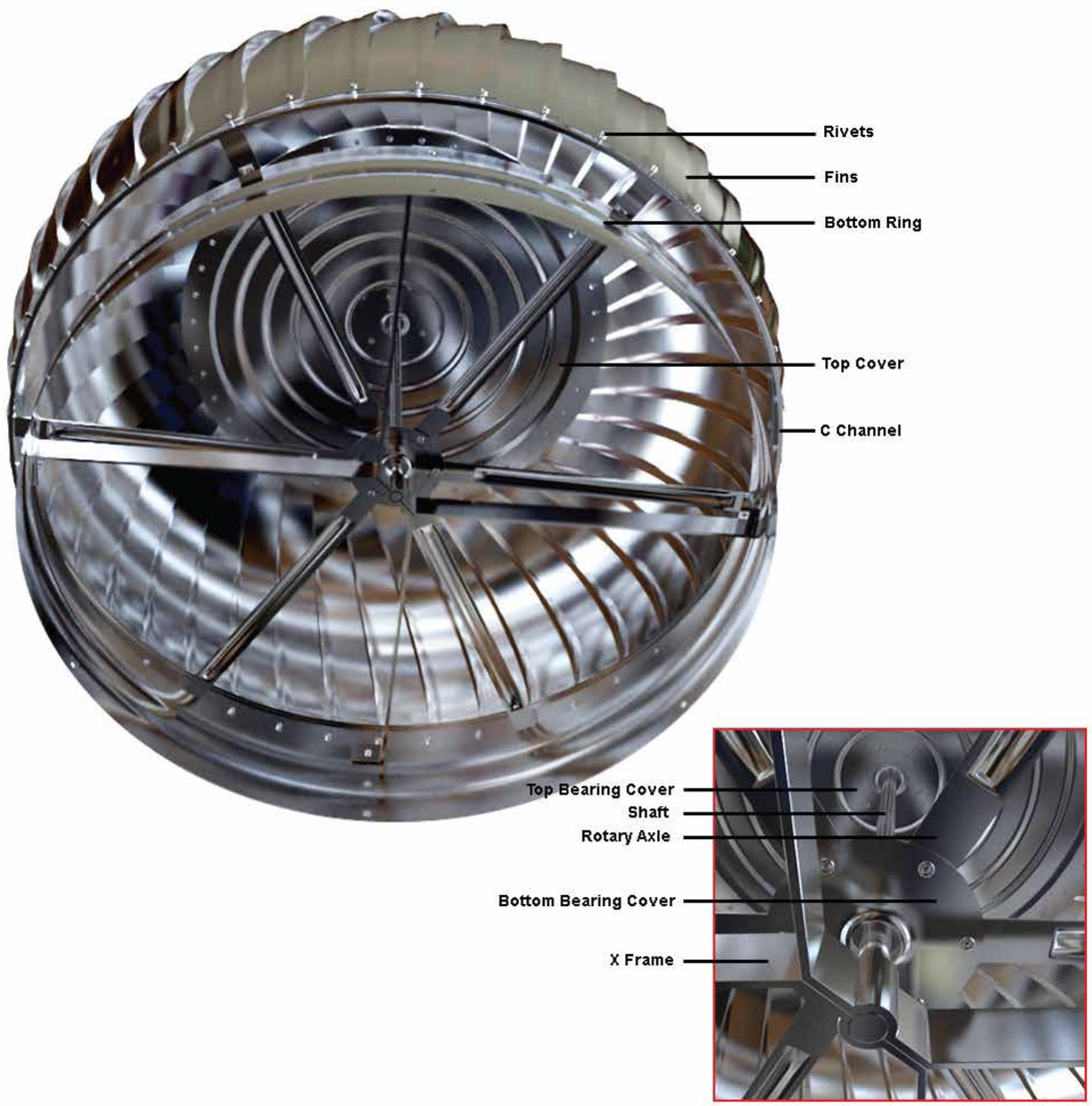
SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS	TOP COVER	BOTTOM RING	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
600 MM (24″)	STV-300-L	42	0.35 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	AL. / S.S	S.S.	SKF make or equivalent	5.80 Kilos
530 M (21″)	STV-300-S	36	0.35 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	1.20 MM AL. or 0.50 MM S.S.304	AL. / S.S	S.S.	SKF make or equivalent	5.00 Kilos

Series RHINO SHINING STAR

SIZE (THROAT DIA)	MODEL	MATERIAL OF CONSTRUCTION (M.O.C.)							NET WT.
		NO. OF FINS	FINS	TOP COVER	BOTTOM RING	RIVETS/ FASTENERS	INTERNAL FITTINGS	BEARINGS	
600 MM (24″)	STV-400-L	42	0.40 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	AL. / S.S.	S.S.	SKF make or equivalent	6.40 Kilos
530 MM (21″)	STV-400-S	36	0.40 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	1.20 MM AL. or 0.60 MM S.S.304	AL. / S.S.	S.S.	SKF make or equivalent	5.70 Kilos

Please Note:

- **Exhaust Capacity (in C.F.M.) (600 MM Dia | 530 MM Dia):** 2700 / 2500
- **Throat (Neck) Dia | Belly (Centre) Dia:** 24″ (600 MM) | 28″ (710 MM) & 21″ (530 MM) | 26″ (660 MM)
- **Height: 16″ (400 MM) (across all Models)**
- **Shaft Dia:** 11.80 MM (across all Models)
- **Bearing Type:** Double Jet Sealed Ball Bearings (6001-2RS)
- **Internal Fittings (Shaft, Bearing Covers, X Frame, Rotary Axel):** G.I. or S.S. (depending on the series)
- **Aluminium Make / Specifications:** Hindalco or equivalent / 8011 Series, H-14 Temper
- **Stainless Steel Make:** Jindal or equivalent
- **Packing:** 3 / 5 Ply Corrugated Boxes
- **Adjustable Bottom Ring (Variable Elbow/VariPitch) to keep the Fan upright can be made available, if need be**
- The Turbo Fans can also be painted or powder coated for extra weather protection
- The weight of the Fans is approximate and is subject to marginal variation


Rivets
Fins
Bottom Ring
Top Cover
C Channel
Top Bearing Cover
Shaft
Rotary Axle
Bottom Bearing Cover
X Frame

RHINO TUFF PP-S.S. Turbo Ventilator Fans

RHINO TUFF PP - S.S. Turbo Ventilators are manufactured using a combination of Stainless Steel (S.S.) and Polypropylene (PP), which is a Thermoplastic.

The Top Cover and the Fins of the Fans are fabricated using Stainless Steel (S.S.), while the Bottom Ring along with all the Internal Fittings (except the Internal Shaft) are in 100% virgin Polypropylene (PP).

They are much stronger than the conventional Turbo Fans made out of Aluminium, Stainless Steel or a combination thereof and are renowned for their quality, performance and durability.

They are available in an internal throat dia size of 22'' (560 MM) and 24'' (600 MM).
The 22'' dia Fans have a total of 24 nos. of Fins, where as the 24'' dia Fans have a total of 28 no. of Fins, each in Stainless Steel (S.S.)

Series RHINO

SIZE	MODEL	NO. OF FINS	MATERIAL OF CONSTRUCTION (M.O.C.)					
			FINS	TOP COVER	BOTTOM RING	FASTENERS	INTERNAL FITTINGS	BEARINGS
560 MM	PSTV-100-S	24	0.30 MM S.S. 430	0.40 MM S.S.430	Polypropylene (PP)	G.I.	Shaft- G.I. Other Fittings - PP	HCH make or equivalent
600 MM	PSTV-100-L	28	0.30 MM S.S. 430	0.40 MM S.S. 430	Polypropylene (PP)	G.I.	Shaft- G.I. Other Fittings - PP	HCH make or equivalent

Series RHINO STAR

SIZE	MODEL	NO. OF FINS	MATERIAL OF CONSTRUCTION (M.O.C.)					
			FINS	TOP COVER	BOTTOM RING	FASTENERS	INTERNAL FITTINGS	BEARINGS
560 MM	PSTV-200-S	24	0.35 MM S.S. 430	0.50 MM S.S.430	Polypropylene (PP)	G.I.	Shaft- G.I. Other Fittings - PP	HCH make or equivalent
600 MM	PSTV-200-L	28	0.35 MM S.S. 430	0.50 MM S.S. 430	Polypropylene (PP)	G.I.	Shaft- G.I. Other Fittings - PP	HCH make or equivalent

Series RHINO SUPER STAR

SIZE	MODEL	NO. OF FINS	MATERIAL OF CONSTRUCTION (M.O.C.)					
			FINS	TOP COVER	BOTTOM RING	FASTENERS	INTERNAL FITTINGS	BEARINGS
560 MM	PSTV-300-S	24	0.35 MM S.S. 304	0.50 MM S.S.304	Polypropylene (PP)	S.S.	Shaft- G.I. Other Fittings - PP	SKF make or equivalent
600 MM	PSTV-300-L	28	0.35 MM S.S. 304	0.50 MM S.S. 304	Polypropylene (PP)	G.I.	Shaft- G.I. Other Fittings - PP	SKF make or equivalent

Please Note:

- **Exhaust Capacity 22'' | 24'':** 2500 C.F.M. | 2700 C.F.M.
- **Throat (Neck Dia) | Belly (Centre) Dia:** 22'' (560 MM) | 24'' (610 MM)
- **Throat (Neck Dia) | Belly (Centre) Dia:** 24'' (610 MM) | 28'' (700 MM)
- **Height:** 15'' (380 MM) (across all Models)
- **Shaft Dia:** 15.00 MM (across all Models)
- **Bearing Type:** Double Jet Sealed Ball Bearings: 6201-2RS & 6202-2RS
- **Internal Fittings (except Shaft):** Polypropylene (P.P.)
- **Stainless Steel Make:** Jindal or equivalent
- **Packing:** 3 / 5 Ply Corrugated Boxes
- The Fins & Top Plate of the Fans can also be painted or powder coated for extra weather protection

RHINO TUFF TURBO VENTILATOR BASE FRAMES

RHINO TUFF Turbo Ventilator Base Frames are used to mount Turbo Fans and can be made available in a wide range of materials depending on the customer requirement. All the available variants of Base Frames are strong and resist rust, harmful U.V. Rays of Sunlight and extreme weather. Their unique aerodynamic design increases airflow and facilitates rapid exhaust of hot air from inside the building.

AVAILABLE CHOICES:

01
RHINO TUFF
F.R.P. Turbo Ventilator Base Frames

02
RHINO TUFF
Polycarbonate (PC) Turbo Ventilator Base Frames

03
RHINO TUFF
Aluminium Turbo Ventilator Base Frames

04
RHINO TUFF
Stainless Steel (S.S.) Turbo Ventilator Base Frames

RHINO TUFF Fibreglass (F.R.P.) Base Frames

RHINO TUFF Turbo Ventilator F.R.P. Base Frames are used for mounting of Turbo Fans and are manufactured using the best quality raw material.

U.V. stable Un-Saturated Polyester Resin is used for moulding of the F.R.P. Base Frames and as a result they do not degenerate (become yellow and brittle) rapidly when in contact with sunlight for a long period of time. They are highly durable and have a service life of more than 10 years.

RHINO TUFF F.R.P. Base Frames have a sizable opening at their base to facilitate rapid exhaust of large volumes of hot stale air. Their aerodynamic design helps create a natural draft and boost the thermal convection currents, which in turn enhances the operational efficiency and performance of the Turbo Ventilator Fans fixed over them.

The F.R.P. Base Frames have an inbuilt Venture Dome, which is pyramid shaped. The Base Frames are provided with design features such as an anti-capillary groove (to prevent leakages), baby ribs, stiffening (connecting) ribs and circular support collars. Adequate provision is made to facilitate rapid drainage of rain water from over them.

The differential height of the Venture Dome at corresponding points helps counter the roof's slope to a large extent and keeps the Turbo Fans upright and perpendicular to the ground.

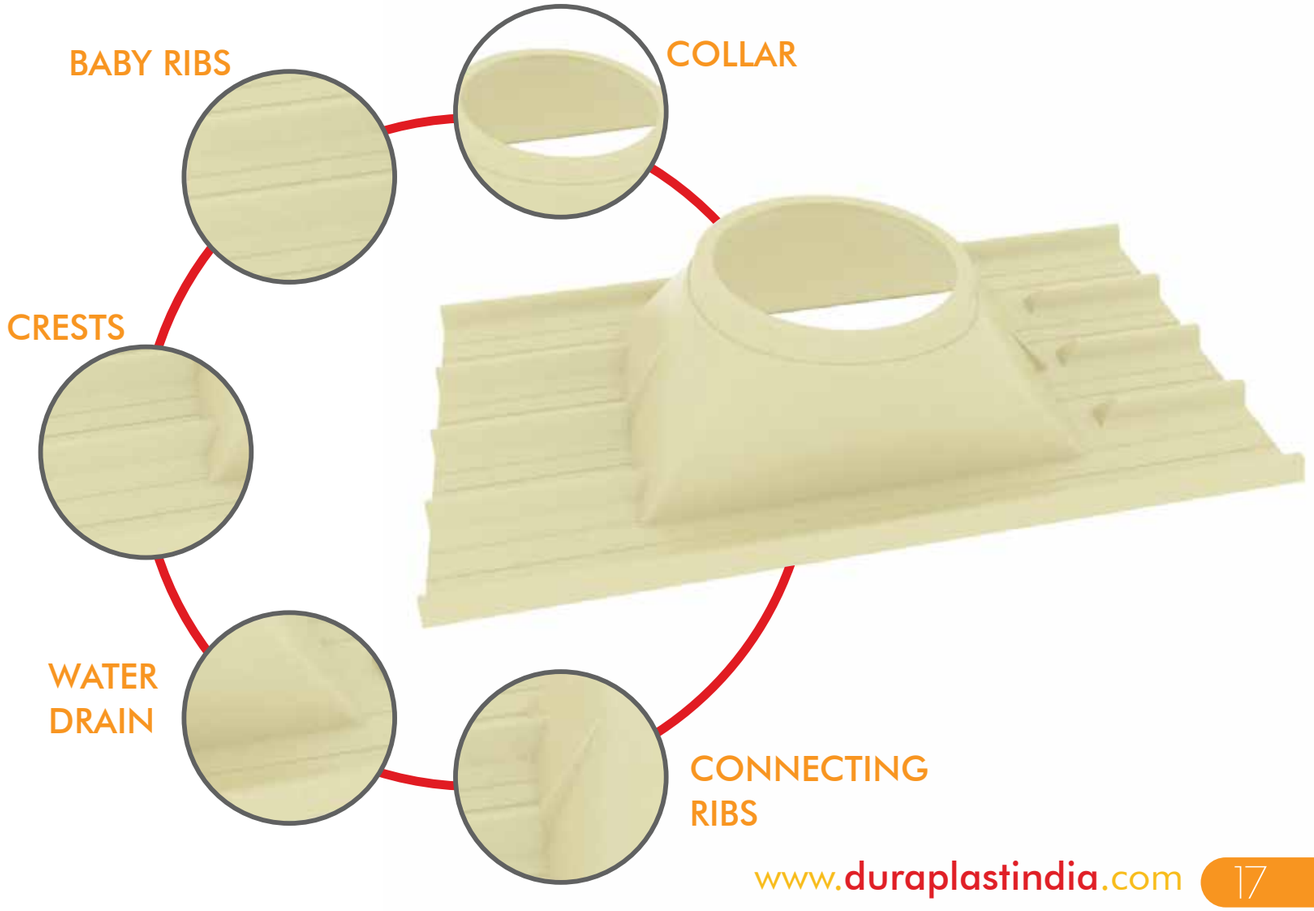
RHINO TUFF F.R.P. Base Frames can be manufactured in a wide range of corrugations and profiles and are adaptable to most roofs. They can be coloured-opaque, colour transparent or largely transparent. The Transparent Base Frames allow natural light to pass through them and thereby providing limited illumination in the place of their installation. These help conserve precious energy meant for artificial lighting.

They can be made anti-corrosive and fire resistant, if need be and can resist a high temperature of up to 100°C (intermittent) & 90°C (continuous).

Salient Features

- Mechanically strong
- Aerodynamic design
- Easy handling and installation
- Leakage proof
- Maintenance free
- Easily repairable in case of an accidental damage
- Can be made anti corrosive, fire retardant and high temperature resistant
- Impact resistant
- Light weight
- Weather and storm proof
- Can be transparent, colour transparent or coloured-opaque
- Highly durable
- Adaptable to any kind of roofing material
- Can be made available in a wide range of corrugations and profiles and in customized sizes

RHINO TUFF F.R.P. Base Frames can be made available in a maximum size of 2.0 Mtr. (length) x 1.22 Mtr. (width) x 0.45 (height) and in any thickness up to 8.0 MM. The exhaust opening measures approximately 1.0 Mtr. x 0.70 Mtr. in size. They can be up to 70% transparent.



RHINO TUFF Polycarbonate (PC) Base Frames

RHINO TUFF Polycarbonate Base Frames are used for mounting of Turbo Fans and are manufactured using the best quality raw material.

They are Vacuum Formed using 100% virgin and U.V. stable PC Solid Plain Sheets. The PC Sheets are also provided with a 30 micron thick U.V. Coating on one or both sides (as required by the customer) to guard against harmful U.V. Rays of Sun. As a result, they do not de-generate rapidly (become yellow and brittle) when exposed to sunlight for long periods of time. They are highly durable and have a service life of more than 10 years.

RHINO TUFF PC Base Frames have a sizable opening at their base to facilitate rapid exhaust of large volumes of hot stale air. Their aerodynamic design helps create a natural draft and boosts the thermal convection currents resulting an enhanced air flow, which improves the operational efficiency and performance of the Turbo Ventilator Fans.

They have an inbuilt Venture Dome, which can be pyramid or oval shaped. The Base Frames are provided with unique design features such as anti-capillary grooves (to prevent leakages of rain water), baby ribs, stiffening (connecting) ribs, circular support collars. Adequate provision is made to ensure rapid drainage of rain water from over them.

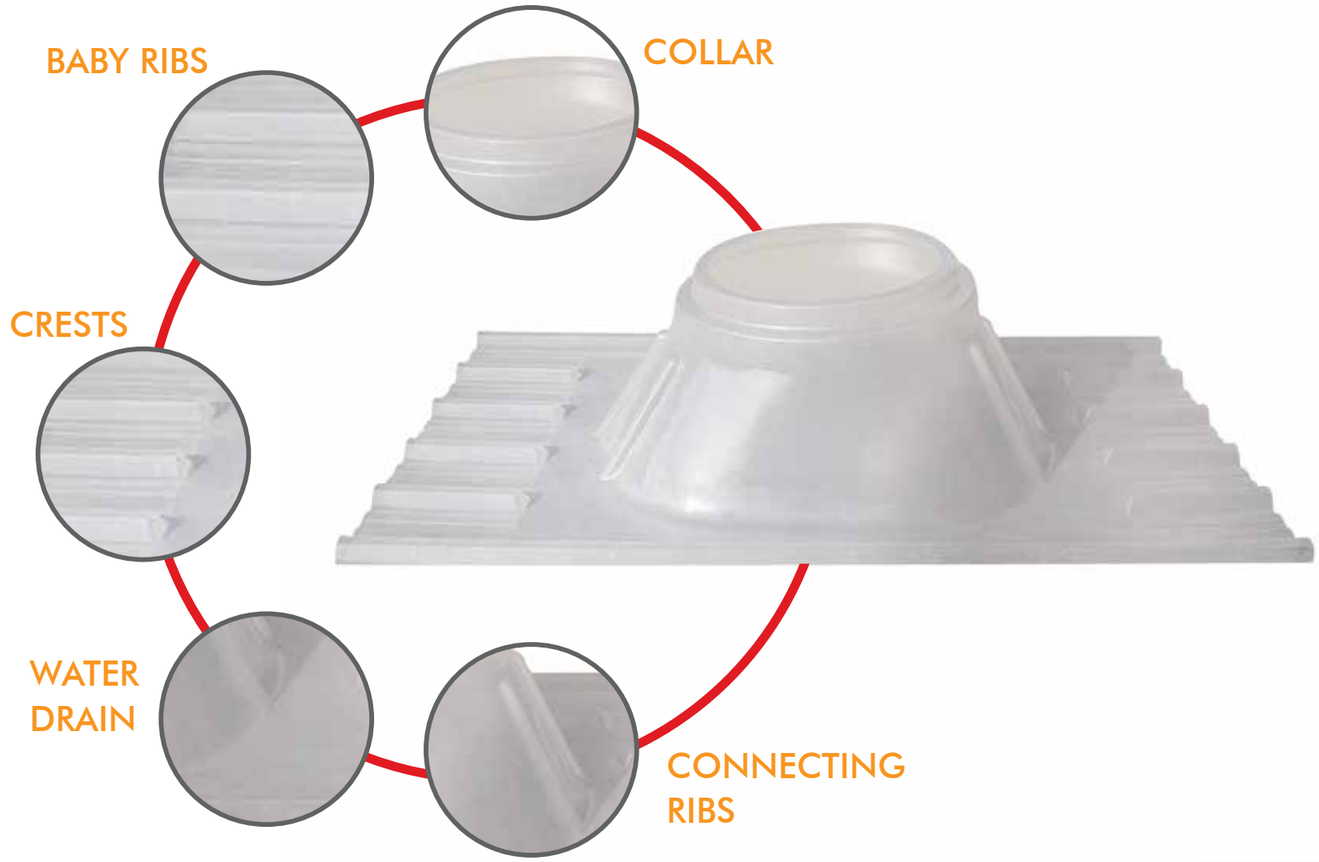
The differential height of the Venture Dome at corresponding points helps counter the roof's slope and keeps the Fans upright and perpendicular to the ground. The PC Base Frames can be manufactured in a wide range of corrugations and profiles and are adaptable to most roofs.

RHINO TUFF Polycarbonate Base Frames, which can be up to 90% transparent, allow natural light to pass through them and thereby providing limited illumination in the place of their installation and that too at no cost. PC Base Frames help conserve precious energy meant for artificial lighting.

Salient **Features**

- Mechanically strong
- Aerodynamic design
- Easy handling and installation
- Leakage proof
- Maintenance free
- Pleasing aesthetics
- Exemplary impact resistance
- Light weight
- Weather and storm proof
- Largely transparent (up to 90%)
- Highly durable
- Adaptable to any kind of roof
- Can be made available in a wide range of corrugations and profiles

RHINO TUFF PC Base Frames can be made available in a maximum size of 2.0 Mtr. (length) x 1.22 Mtr. (width) x 0.45 (height) and in any thickness up to 8.0 MM. The exhaust opening measures 1.0 Mtr. x 0.70 Mtr. in size. They can be up to 90% transparent depending on the grade and type of PC Sheet used.



RHINO TUFF Aluminium Base Frames

RHINO TUFF Aluminium Base Frames are used for mounting Turbo Fans and are manufactured using the best quality Industrial Grade Aluminium. They are generally manufactured using Aluminium 8011 Alloy (H-14 Temper).

The Aluminium Base Frames exhibit exemplary resistance to weather and are highly durable for use in open-exposed environments.

RHINO TUFF Aluminium Base Frames have a service life of more than 10 years.

The Aluminium Base Frames are provided with conical domes of an appropriate diameter size. The Base Frames have a relatively large opening at their base, which facilitate rapid exhaust of large volumes of inside hot stale air.

The Base Frames can be plain, profiled or corrugated and can easily be fixed over any kind of roofing sheet.

Salient Features

- Reasonably strong
- Light weight and therefore easy to handle and install
- Hail and storm proof
- Maintenance free
- Aesthetically pleasing
- Can be made available in a wide range of corrugations and profiles and sizes
- Impact resistant
- Exemplary weatherability
- Leakage proof
- Highly durable
- Adaptable to any kind of roofing material

RHINO TUFF Aluminium Base Frames can be made available in a maximum size of 2.0 Mtr. (L) x 1.22 Mtr. (W) x 0.45 Mtr. (Ht.) and in any thickness up to 1.50 MM. The dia size of the exhaust opening is about 700 MM.

RHINO TUFF Stainless Steel (S.S.) Base Frames

RHINO TUFF Stainless Steel (S.S.) Turbo Ventilator Base Frames are used for mounting Turbo Fans and are manufactured using the best quality Industrial Grade Stainless Steel (S.S.). These can be fabricated using different grades of S.S. such as 202, 430, 304, 316 and 316-L and in different wall thicknesses depending on the site requirements.

They are mechanically quite strong and have a service life of more than 10 years. These do not catch rust and do not degenerate when exposed to harmful U.V. Rays of Sunlight. Further, the superior variants made out of S.S. 304 and S.S. 316 besides being weather resistant also resist chemical corrosion caused due to highly corrosive and obnoxious industrial gases and fumes and find use in industries where exposure to chemical corrosion is common.

The Base Frames are provided with Conical Domes of an appropriate diameter size. The Base Frames have a relatively large round opening at their base, which facilitate rapid exhaust of large volumes of hot-stale air.

The Base Frames can be plain, profiled or corrugated and easily can be fixed over any kind of roof.

Salient Features

- Mechanically strong
- Impact resistant
- Anti-corrosive and high temperature resistant
- Leakage proof
- Highly durable
- Adaptable to any kind of roofing material
- Dimensionally stable
- Weather resistant
- Hail and storm proof
- Maintenance free
- Aesthetically pleasing
- Can be made available in a wide range of corrugations and profiles

RHINO TUFF Stainless Steel (S.S.) Base Frames can be fabricated using different grades of S.S.such as 202, 430, 304 & 316 and can be made available in a maximum size of 2.0 Mtr. (length) x 1.22 Mtr. (width) x 0.45 (height) and in any thickness up to 1.00 MM. The diameter size of the exhaust opening is about 700 MM.

How many Do you NEED ?

N= 60 Q x Y / Vol.

Where,

N = Number of air changes reqd. per hour

Q = Volumetric flow rate of air in Cubic Feet Per Minute (C.F.M.) / Ventilator

Y= Total No. of Turbo Ventilators required.

Vol. = Volume of space (air) to be ventilated L × W × H, in Cubic Feet

Recommended Air Change Rates:

TYPE OF BUILDING	AIR CHANGES REQD.	TYPE OF BUILDING	AIR CHANGES REQD.
Boiler Room	15-20	Welding Workshops	15-30
Engine Rooms	4-6	Foundries	15-20
Compressor Rooms	10-20	Stores & Warehouses	3-6
Factory Buildings (ordinary conditions)	2-4	Canteens	8-12
Factory Buildings (extreme conditions)	10-15	Commercial Kitchens	30+
Galvanizing Plant	20-30	Dye Works	20-30
Electroplating Plants	10-12	Paint Shops	10-20

How to INSTALL RHINO TUFF TURBO VENTILATOR ?

Step -1 Identify the appropriate location for installing the RHINO TUFF Turbo Ventilator. This is generally done by our team of experts in consultation with the customers while keeping their ventilation needs in mind

Step -2 Lift the Turbo Ventilator over the roof - manually or by using mechanized equipment

Step -3 Cut an opening in the roof sheet using a hand grinder or cutter. The size of the cut-out should be more or less equal to the base opening of the Venture Dome. The opening in the sheet allows exit of the inside hot stale air from the inside of the building

Step -4 One end of the RHINO TUFF Base Frame is manually pushed underneath the existing roof sheet or the ridge flashing just above it. The other end of the Base Frame is made to rest over the roof sheet just below it. The Base Frames are always positioned and rested over two adjacent steel purlins for proper support

Step -5 The RHINO TUFF Base Frame is then fastened all along its length and width using self tapping screws, rivets or 'J' shaped hooks (depending on the type of roofing sheet installed). A total of 18 nos. of screws / rivets are applied along the entire length and width of the Base Frame. The fasteners help firmly hold the base frame against the roof sheets and the steel purlins underneath. The steel purlins help firmly hold the Base Frame and prevent it from getting dislodged and blowing off during gusty winds and storms

Step -6 The RHINO TUFF Turbo Ventilator Fan is then slipped over the circular neck of the RHINOTUF Base Frame. The Fans snugly fit over the Base Frames

Step -7 A total of 4 no. of screws or rivets are applied to hold the Turbo Fan firmly against the Base Frame

Step -8 The RHINO TUFF Turbo Ventilator is then thoroughly checked and inspected for satisfactory performance

Step -9 Scrap is removed from the place of installation and the site is handed over back to the customer

About
RHINO TUFF Roof Extractors

RHINO TUFF Roof Extractors are fixed over industrial as well as commercial roofs and are used for forced ventilation in the place of their installation.

They consist of an impeller- an Aerofoil Designed Aluminium Casted Fan, which is powered by an electric motor. The aero foil design of the Aluminium Blades helps improve their operational efficiency and performance. The Impeller which is balanced- both statically and dynamically, is fitted within a painted or powder coated cylindrical shaped M.S. Casing of an appropriate diameter size and is connected to an electric motor. Each of the Aluminium Blades can be adjusted to control and regulate the air flow.

The impeller is covered at the top using a metallic cowl to protect it from rain water. A steel mesh, which is welded on the inside surface of the cowl helps keep birds and insects away. RHINO TUFF Roof Extractors are generally fastened over a Plastic Base Plates (also called as the Roof Adapters), which can be manufactured in a profile / corrugation matching with that of the roof sheets. The Plastic Base Plates ensure leakage proof and hassle free installation at sites, while allowing the freedom of mounting the Roof Extractor anywhere on the roof and not just at the ridge top.

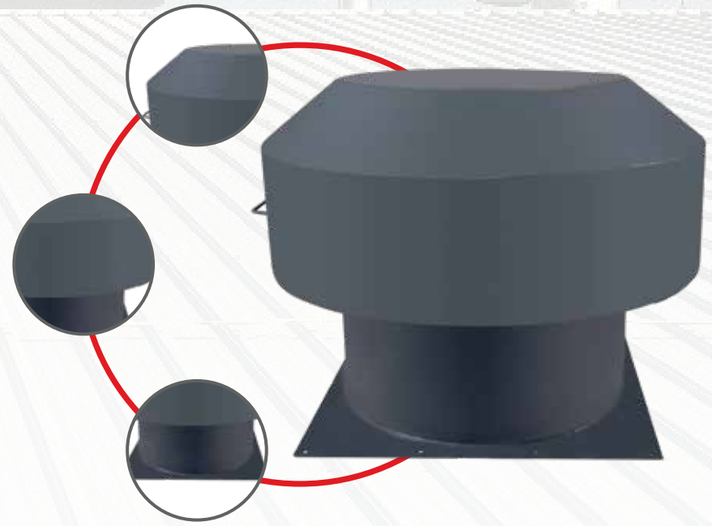
RHINO TUFF Roof Extractors can easily be fixed over flat or sloped roofs. They continuously exhaust hot air, gases, fumes, smoke and dust at a constant rate and have an exhaust capacity of up to 10000 C.F.M. .

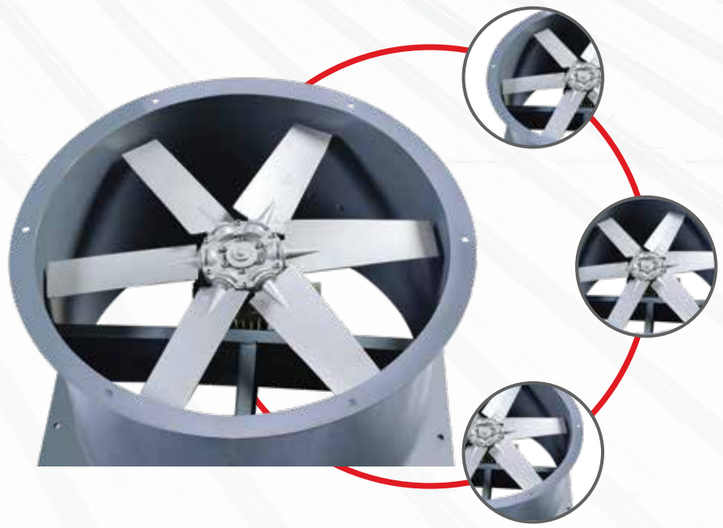
They are capable of withstanding a high wind speed and are guaranteed against leakage of rain water. In addition, these are highly effective, mechanically strong, impact resistant, relatively light weight, weather and storm proof, maintenance free, easily repairable, easy to install, adaptable to any roof and are economical to use.

RHINO TUFF Roof Extractors Ventilators commonly find use in process based industries, where there is a requirement for continuous ventilation and that too at a constant rate.

MODELS / SIZES

Model	Impeller Diameter	AIR VOLUME	STATIC PRESSURE	TYPE OF IMPELLER	IMPELLER R.P.M.	MOTOR H.P. / K.W.	VOLTS/ HZ/ PHASE	INSULATION CLASS / PROTECTION CLASS	TYPE OF DRIVE	M.O.C. OF CASING
700 MM DIA	690 MM	10,000 C.F.M.	15 MM W.C.	AL. Casted Aerofoil Design	1440	2.0 H.P./ 1.1K.W./ 4 Pole	415 Volts (+/- 10.00%)/ 50 Hz / 3 Phase Motor	Class F / IP-55	Direct Driven	Painted / Powder Coated M.S. 2062
600 MM DIA	590 MM	6,500 C.F.M.	10 MM W.C.	AL. Casted Aerofoil Design	1440	1.0 H.P./ 0.75K.W./ 4 Pole (IE 2)	415 Volts (+/- 10.00%)/ 50 Hz / 3 Phase Motor	Class F / IP-55	Direct Driven	Painted / Powder Coated M.S. 2062





DURA PLAST ® LEAD GROW INSPIRE

About RHINO TUFF Hybrid Ventilators

RHINO TUFF Hybrid Ventilators are unique and offer the dual options of natural as well as forced ventilation in industrial and commercial buildings.

Hybrid Ventilators consist of motor driven impellers, which are housed within painted or epoxy coated Mild Steel (M.S.) Casings and are covered at the top by RHINO TUFF Turbo Ventilator Fans.

They offer the flexibility of natural as well as forced ventilation. The motor driven Roof Extractor can be switched on as and when there is a need for enhanced ventilation at a constant rate. After the Extractor is switched off, the Turbo Fan mounted on top continues to provide natural ventilation.

RHINO TUFF Hybrid Ventilators can reach a R.P.M. of 1440 and an exhaust capacity of 10000 C.F.M. when the electric motor is on. After the Extractor is turned off the Turbo Ventilator above takes over and continues to revolve and provide natural ventilation at variable rates (depending on natural factors such as temperature and pressure differential, stack height and the wind velocity). The Turbo Ventilator Fans can exhaust up to 2700 C.F.M. of inside stale air in peak working conditions (when all the performance determining factors noted above are at their maximum).

RHINO TUFF Hybrid Ventilators are capable of withstanding a high wind speed and are guaranteed against leakage of rain water. In addition, they are highly effective, mechanically strong, impact resistant, light weight, weather and storm proof, maintenance free, easily repairable, easy to install, adaptable to any roof and are economical to use.

Plastic Base Plates (also called as the Roof Adapters), which are manufactured in a profile or corrugation matching with that of the roof sheets are used for fixing the Hybrid Ventilators. They allow the freedom and flexibility of installing the Hybrid Ventilators anywhere on the roof, while ensuring hassle free and leakage proof installation.

RHINO TUFF Hybrid Ventilators are commonly used in a wide spectrum of process based industries where there is a requirement for both natural as well as forced ventilation.

MODELS / SIZES

Model	IMPELLER/ TURBO FAN DIAMETER	MAX. EXHAUST CAPACITY (FORCED / NATURAL)	STATIC PRESSURE	TYPE OF IMPELLER	IMPELLER R.P.M.	MOTOR H.P. / K.W.	VOLTS/ HZ/ PHASE	INSULATION CLASS / PROTECTION CLASS	TYPE OF DRIVE	M.O.C. OF CASING
600 MM DIA	590 MM / 610 MM	6500 C.F.M. / 2700 C.F.M.	10 MM W.C.	AL. Casted Aerofoil Design	1440 R.P.M.	1.0 H.P./ 0.75K.W./ 4 Pole (IE2)	415 Volts (+/- 10.00%) / 50 Hz/ 3 Phase Motor	Class F / IP-55	Direct Driven	Painted / Powder Coated M.S. 2062

How to INSTALL RHINO TUFF ROOF EXTRACTOR & HYBRID VENTILATOR ?

Step -1 Identify the right location for fixing of the RHINO TUFF Roof Extractor or RHINO TUFF Hybrid Ventilator. This is done by our team of experts in consultation with the customers while keeping in mind their ventilation needs

Step -2 Lift the Roof Extractor or Hybrid Ventilator over to the roof - manually or by using mechanized equipment

Step -3 Cut an opening in the sheet using a hand grinder or cutter. The size of the cut out should be equal to the size of the opening of the Plastic Base Plate (Roof Adapter) over which the Roof Extractor or Hybrid Ventilator is to be mounted

Step -4 One end of the Plastic Base Plate is manually pushed underneath the existing roof sheet or the ridge flashing just above it. The other end of the Plastic Base Plates is made to rest over the roof sheet just below it. The Plastic Base Plates are always positioned and rested over the steel purlins for proper support

Step -5 The Plastic Base Plate is then fastened all along its length and width using self tapping screws, rivets or 'J' shaped hooks (depending on the type of roof sheet installed). A total of 18 nos. of screws / rivets are applied along the entire length and width of the Plastic Base Plates. The fasteners help firmly hold the Plastic Base Plates against the roof sheets and the steel purlins underneath. The steel purlins help firmly hold the Plastic Base Plate and prevent it from getting dislodged and blowing off during gusty winds and storms

Step -6 Roof Extractor or the Hybrid Ventilator is then mounted over the Plastic Base Plate

Step -7 A total of 4 no. of screws or rivets are applied all around to fasten the Roof Extractor or the Hybrid Ventilator on to the Plastic Base Plate

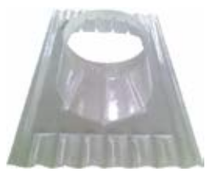
Step -8 The Extractor or Hybrid Ventilator is then thoroughly checked and inspected

Step -9 Scrap is removed from the place of installation and the site is handed over back to the customer

OTHER PRODUCTS

RHINO TUFF
Skylight Tubes

RHINO TUFF
Skylight Domes



RHINO TUFF
PC Skylight Sheet Cum Turbo Ventilator Base Frames

RHINO TUFF
FRP Roof & Wall Cladding Sheets

RHINO TUFF
PP Roof & Wall Cladding Sheets

RHINO TUFF
PC Wall Louvers

RHINO TUFF
PC Louvered Wall Cladding Sheets

RHINO TUFF
PC Awnings

RHINO TUFF
FRP Gutters along with FRP Down Pipes

RHINO TUFF
PC Thermoformed Skylight Sheets

DURA PLAST ®
LEAD GROW INSPIRE

OUR PRESENCE

Plant
Plot No. 732, Sector 69, IMT,
Faridabad - 121009, Haryana.

Corporate Office
M/s. Dura Plast, Plot No. 84, Sector-46,
Faridabad, Haryana-121002

Regional Offices
Bhopal, Ahmedabad, Pune, Bengaluru, Chennai,
Hyderabad & Kolkata

Distribution Centres
Vadodara, Coimbatore, Vizag, Ranchi & Raipur

CUSTOMERS

LG Life's Good

GMR

TATA CHEMICALS LIMITED

YAMAHA

wipro

Cadbury

Whirlpool CORPORATION

RELIANCE Infrastructure

Mahindra

GOODYEAR

Colgate

Dabur

EVEREST

Hero

JINDAL Buildsys STEEL BUILDING SOLUTIONS

JSL PT. JINDAL STAINLESS

BLUE DART

PARLE

TTK

ADITYA BIRLA GROUP

moserbaer

UB UNITED BREWERIES LIMITED

Hindustan Unilever Limited

LARSEN & TOUBRO

PATANJALI

Coca-Cola

RHINO TUFF

We are looking for Distributors to promote our RHINO TUFF Brand of Turbo Ventilators in your city. For exciting business opportunities, please get in touch with us.

For more information, please visit us at **www.duraplastindia.com** or ask us for a copy of our Technical Presentation on RHINO TUFF Turbo Ventilators.

DURA PLAST®
LEAD GROW INSPIRE

Corporate Office :
Plot No. 84, Sector- 46
(near Kapil Vihar), Faridabad,
Haryana- 121001
9350803033, 9873002192
0129 243 8446
marketing@duraplastindia.com
www.duraplastindia.com