Ceiling Fans

14 brands of 1200 mm fans tested. None found efficient.

If buying a fan meant walking into a store and asking for the first name that comes to your mind, we would say it isn't so simple. When you go to buy a fan, you should question how much air the fan gives, the power it consumes and how safe the fan is. The dread of it some time coming down!

But you wouldn't find answers to these questions at the time. Because none of the manufacturers answer them. Silence from the information on the package, silence in the ads.

We found that the fans tested consumed more power than specified under the standard. Also, none of the brands tested was efficient. They did not give as much air as they should for the power they consumed.

Brands Tested

We put 14 brands of 1200 mm ceiling fans through 22 tests. 28 samples were put through the various tests. Among the brands tested, those within the voltage range of 220 - 240 V were ***Almonard (Popular), Anchor (Cool & Comfort), Ashok (Regular), Asian (Speedee), Cinni (Regular), Crompton (High Speed), Khaitan (Zolta), Orient (New Breeze), Ortem (High-Tech), Remi (Hi-Speed), Shaan (Whisp-air)*** and ***Usha (Windsor)***. Among the 220 - 230 V were the brands ***Bajaj (Regal)*** and ***Polar (New Beta)***.

Standards

We tested the brands against IS:374-1979 with six amendments and IS:12155-1987. But the Quality Control Order or mandatory certification does not cover ceiling fans and regulators. Also, none of the brands was ISI marked nor did any of them carry the manufacturer's licence number.

The Air You Get

(Air Delivery)

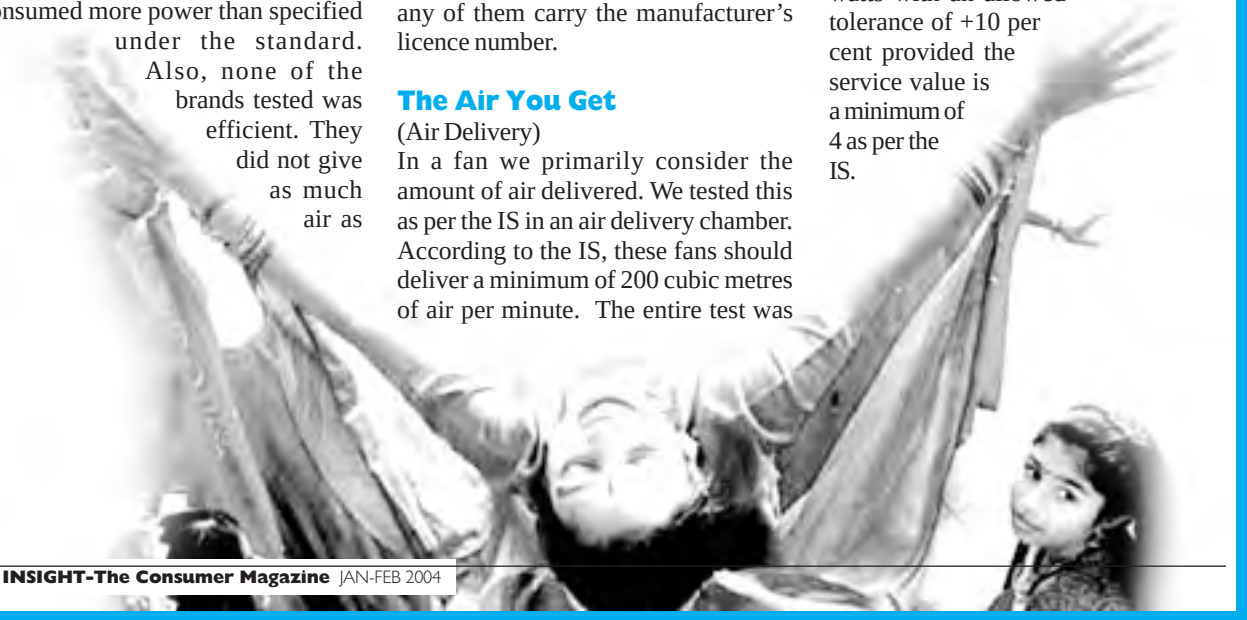
In a fan we primarily consider the amount of air delivered. We tested this as per the IS in an air delivery chamber. According to the IS, these fans should deliver a minimum of 200 cubic metres of air per minute. The entire test was computerised and the readings directly entered into the computer without any manual operation. The computer took the average of the readings and, as per the IS, calculated the air delivery at full speed.

All the brands conformed to this test. However, ***Ashok*** delivered the least amount of air at 215.16 m^3/minute. ***Ortem*** gave the maximum at 271.83 m^3/ minute, followed by ***Anchor*** at 256 m^3 / minute.

Power Used

(Input Wattage Consumption)

The power consumed by each fan at full speed should not be more than 50 watts with an allowed tolerance of +10 per cent provided the service value is a minimum of 4 as per the IS.



At a time when all appliances are becoming more and more efficient in terms of power consumption, all the fans tested consumed power well over the IS limit.

Polar consumed the maximum power at 86.24 watts. ***Bajaj*** consumed the least at 68.81 watts, followed by ***Orient*** at 70.01 watts.

Efficacy (Service Value)

The best fans give the maximum air delivery while consuming the least amount of power. This is the service value of the fan. According to the IS, the service value should not be less than 4. None of the brands conformed to this parameter. The service value ranged from 2.64 of ***Ashok*** to 3.35 of both ***Bajaj*** and ***Orient***. This means, none of the brands was efficient. A higher service value indicates higher efficacy.

$$\text{Service Value} = \frac{\text{minimum air delivery } (m^3/\text{min})}{\text{maximum power input (watts)}}$$

Is the Fan Held Firmly

(Suspension System)

The rod holding the fan and the clamp on top make up the suspension system of the fan. Although rare, the fan would be in danger of falling if the rod and the clamp are not strong enough.

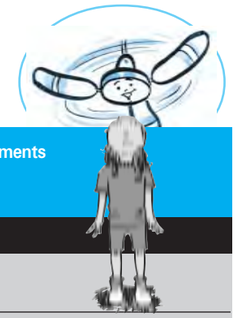
Among other tests, the suspension system of the fan should be able to withstand a tensile load of 1,000

Key Findings

- We tested 14 brands of 1200 mm ceiling fans. The brands tested within the 220-240 voltage range were ***Almonard (Popular), Anchor (Cool & Comfort), Ashok (Regular), Asian (Speedee), Cinni (Regular), Crompton (High Speed), Khaitan (Zolta), Orient (New Breeze), Ortem (High-Tech), Remi (Hi-Speed), Shaan (Whisp-air)*** and ***Usha (Windsor)***. We also tested ***Bajaj (Regal)*** and ***Polar (New Beta)*** in the 220-230 V range.
- We tested the brands against IS:374-1979 with six amendments and IS:12155-1987. But the Quality Control Order or mandatory certification does not cover ceiling fans and regulators. Also, none of the brands was ISI marked nor did they carry the manufacturer's licence number.
- All the brands conformed to the test for air delivery. But ***Ashok*** delivered the least amount of air at 215.16 m^3/minute. ***Ortem*** gave the maximum at 271.83 m^3/minute, followed by ***Anchor*** at 256 m^3/minute.
- None of the brands consumed power within the limits set by the IS. ***Polar*** consumed the maximum power at 86.24 watts. ***Bajaj*** consumed the least at 68.81 watts, followed by ***Orient*** at 70.01watts.
- Service value (efficacy) is minimum air delivery divided by the maximum power input which should not be less than 4 as per the IS. The service value ranged from 2.64 of ***Ashok*** to 3.35 of both ***Bajaj*** and ***Orient***. This means, none of the brands were efficient.
- ***Almonard*** and ***Anchor*** did not conform to the test for tensile load of the suspension system - the rod and clamp which hold the fan. ***Almonard's*** screw broke, while ***Anchor's*** clamp broke. ***Crompton*** provided an additional safety cable to hold the fan in case the clamp breaks.
- Although all the brands conformed to the test for construction, finishing was not good in some. ***Crompton*** was the best in construction. Also, its bearing housing had a collar.
- In ***Anchor*** and ***Usha***, the cover was not properly finished. Also, the finishing was very poor in case of ***Almonard, Ashok, Remi*** and ***Shaan***, with tiny particles of casting inside, where the entire inner surface should have been smooth. This can create friction and the fan may not perform smoothly.
- In ***Ashok, Asian, Remi*** and ***Shaan***, stamping was not properly pressed. In the long run, this may give some noise. Rust was observed in ***Ashok*** and ***Shaan***.
- Except ***Shaan*** and ***Ashok***, all the brands provided adequate insulation with the wires properly fixed. Lack of proper insulation can damage the wires.
- Fans do not have earthing wires which are green. But ***Polar*** used a green wire for a non-earthing connection. It may lead to electrical shock when handled.
- None of the brands marked air delivery value. ***Almonard, Ashok, Bajaj, Orient, Ortem*** and ***Shaan*** did not mark the input wattage consumption. ***Ashok, Cinni, Remi*** and ***Shaan*** did not specify the voltage range and the size of the fan on the ceiling fan regulator.
- Regulators of ***Almonard, Ashok, Asian, Bajaj, Cinni*** and ***Usha*** did not conform to the test where the fan speed should reduce by at least 50 per cent of the full speed.
- ***Cinni*** and ***Usha*** were the highest-priced at Rs 1495. ***Ashok*** was the lowest-priced at Rs 625.
- ***Crompton*** scored the highest with 86, followed by ***Orient*** with 79 and ***Ortem*** with 76. ***Khaitan*** came next with a score of 71.
- Although ***Crompton*** scored the highest, it was ***Khaitan*** which became the best buy since its price was far less than that of ***Crompton's***.
- Electronic regulators consume less power than the electric ones at the lower speeds.
- We tested step-type electronic regulators of ***Anchor, Galco, MK, North-West, Rider, Roma, Vinay*** and ***Wonder***. Among the movable types, we tested, ***Anchor, Harisons*** and ***S.S.K.***
- Total Harmonic Distortion (THD) shows by how much the power supply waves are distorted. A high distortion leads to faster ageing of the fan as well as equipment at the power company.
- ***Step type*** regulators are higher priced, but they come with very low THD. On the other hand, ***movable type*** regulators have a very high THD.

Continued on page10

1200 MM CEILING FANS & REGULATORS : RESULTS



Brands	Rank	Overall Score	MRP (in Rs.)	Air Delivery (m^3/min)	Input Wattage Consumption (watts)	Service Value	SAFETY Parameters: Suspension System	SAFETY Parameters: Internal Wiring	Marking	Regulators	Comments
CONFORMING TO SAFETY PARAMETERS (220-240VOLTS)											
IS : 374-1979* IS : 12155-1987				NLT 200	NMT** 50	NLT*** 4					
CROMPTON (High speed)	1	86	1280	252.70	78.81	3.20	✓	✓	X	✓	Perfectly finished casting. Collar to protect bearing. Additional cable for safety.
ORIENT (New Breeze)	2	79	1226	235.18	70.01	3.35	✓	✓	X	✓	Least power consumption in 220-240 V, high in efficacy, good finish of casting.
ORTEM (High Tech)	3	76	1275	271.83	84.88	3.20	✓	✓	X	✓	Highest air delivery, highest power consumption in 220-240V, good finish of casting.
KHAITAN (Zolta)	4	71	768	216.14	73.41	2.94	✓	✓	X	✓	Reasonably good performance score
REMI (High speed)	5	69	780	218.85	78.34	2.79	✓	✓	X	✓	Poor finishing, bearing cover not provided, stamping not properly pressed.
ASIAN (Speedee)	6	55	920	228.57	72.50	3.15	✓	✓	X	X	Stamping not properly pressed.
CINNI (Regular)	7	54	1495	224.30	72.80	3.08	✓	✓	X	X	Good finish of casting.
USHA (Windsor)	8	49	1495	222.68	78.99	2.81	✓	✓	X	X	Poor finishing.
NON-CONFORMING TO SAFETY PARAMETERS (220-240VOLTS)											
ANCHOR (Cool & Comfort)	-	78	1100	256.00	77.30	3.31	X	✓	X	✓	Clamp broke when rod tested, poor finishing.
SHAAN (Whisp-air)	-	68	1080	216.21	79.25	2.72	✓	X	X	✓	Poor finishing, no bearing cover, rust found, stamping not properly pressed.
ALMONARD (Popular)	-	51	850	226.19	77.24	2.92	X	✓	X	X	Poor finishing, no bearing cover, screw broke when rod was tested.
ASHOK (Regular)	-	46	625	215.16	81.48	2.64	✓	X	X	X	Least air delivery, low efficacy, poor finishing, no bearing cover, rust found, stamping not properly pressed
NONFORMING TO SAFETY PARAMETERS (220-230VOLTS)											
BAJAJ (Regal)	-	59	1485	231.04	68.81	3.35	✓	✓	X	X	Good finish of casting, high efficacy
NON-CONFORMING TO SAFETY PARAMETERS (220-230VOLTS)											
POLAR (New Beta)	-	66	1258	228.76	86.24	2.65	✓	X	X	✓	Good finish of casting, highest in power consumption, green wire used for non-earthing connection.

KEY
- ✓ Conformed
- X Did not conform
- NMT = Not More Than
- NLT = Not Less Than
- m^3 = Cubic meter

Best Buy

Best Buy is based on the overall score and price. In the 220-240V category, ***Crompton*** scored the highest. Although ***Khaitan*** had a comparatively lower score, it was the best buy since its price was far less than ***Crompton's***.

In the 220-230V category, only ***Bajaj*** complied with all the safety parameters.

Rating and Ranking

None of the brands conformed to all the parameters. In fact, all failed in the important parameters of power consumption and service value. So we rated and ranked the brands that conformed to the safety parameters.

Service value (efficacy) was given a weightage of 70 per cent. Regulators sold with the fan were given 20 per cent and 10 per cent to brands that gave extra safety devices.

Crompton scored the highest with 86, followed by ***Orient*** with 79 and ***Ortem*** with 76. ***Khaitan*** came next with a score of 71.

- * with 6 amendments
- ** 50 W with an allowed tolerance of +10 per cent provided the service value is a minimum of 4 as per the IS.
- *** m^3/minute/watt
- ***Bajaj*** and ***Polar*** have marked an input voltage range of 220-230 V. They have been tested at 225 V. The others were marked 220-240 V. They were tested at 230 V.

- In the case of fan speed, 3 brands conformed to the requirements. The others did not give the speed of the fan, so no comparison could be made of the actual versus labelled speed.

- The brands were also tested for safety for protection against electric shock, starting of motor operated appliances, temperature rise, leakage current, high voltage, insulation resistance, moisture resistance of regulator, mechanical endurance, abnormal test, stability and mechanical hazards, mechanical strength, components, terminal for external conductors, screws and connections, creepage distance and clearances, resistance to heat, fire and tracking and resistance to rusting. All brands conformed to these parameters.

Continued from page7

kilogram force (kgf). That is, when the rod and the clamp are pulled with this force, they should not break.

Almonard and ***Anchor*** did not conform to this test. In the case of ***Almonard*** the screw broke. And for ***Anchor***, the clamp broke.

Crompton provided an additional safety cable to hold the fan in case the clamp breaks. This provides for extra safety, stopping the fan from falling down until the clamp is fixed again.

Is the Fan Made Well?

(Construction)

The IS prescribes the construction test to check whether the fan is made well, proper insulation has been provided, live parts are accessible, etc. Performing these tests involves opening the cover of the fan and checking it visually. All the brands conformed to this test.

However, once we opened the cover, we realised that checking just for the parameters prescribed by the IS was not enough. The finishing and protection to the bearings were important too. You would not be able to check these things, since you never get to open its cover.

We found large differences among the brands. We found ***Crompton*** the best in construction. The casting of its cover was perfectly finished. It was smooth with no rough surface. The bearing housing had a collar to stop grease from coming out. The collar would also stop dust and other particles from entering the bearing, ensuring a longer life to it.

None of the other brands provided such a collar. The finishing of ***Bajaj, Cinni, Orient, Ortem, Khaitan*** and ***Polar*** also was good.

Crompton provided an additional safety cable to hold the fan in case the clamp breaks.

But in ***Anchor*** and ***Usha***, the cover was not properly finished. In the long run and also during servicing, tiny parts of casting, foreign material or paint flakes may come in contact with the bearing and may affect the performance of the fan.

The finishing was very poor in the case of ***Almonard, Ashok, Remi*** and ***Shaan***. We observed tiny particles of casting inside, where the entire inner surface should have been smooth. In the long run and during servicing, the metal particles may get deposited on the bearing and between the rotor and stator of the fan which are inside the cover. This can create friction and the fan may not perform smoothly.

In ***Almonard, Ashok, Remi*** and ***Shaan***, bearing cover was not provided.

In ***Ashok, Asian, Remi*** and ***Shaan***, stamping was not properly pressed. In the long run, this may give some noise. Rust was observed in ***Ashok*** and ***Shaan***.

Wiring

The internal wiring should be smooth and well-protected with insulation so that the wires do not come in contact with any rough edges of the fan that could damage them. This is particularly important since the wires inside the cover have to run through a hole in the rod. Any rough edge of the hole can damage a wire that is not properly insulated.

Except ***Shaan*** and ***Ashok***, all the brands provided adequate insulation with the wires properly fixed. These two brands did not provide insulation to the wires at the point the wires pass through any rough edge of the the hole. The wires may get damaged since they are not adequately protected.

Also, a green wire should be used only for earthing connection. ***Polar*** did not follow this rule. Normally, fans do not have earthing wires. In case of a repair, if the electrician or any one handles the wire assuming that it is an earthing wire, an electric shock may result.

Marking

The big question is how one compares the brands without resorting to testing. We look for the marking - what the manufacturer has printed on the label. None of the brands marked the air delivery value on the packing.

According to the IS, apart from the readings of air delivery, information like rated voltage, input in watts, etc., should be marked. ***Almonard, Ashok, Bajaj,***

Areas of Action

Industry asks for more power. The *Indian Fan Manufacturers' Association* has asked the *Bureau of Indian Standards* (BIS) to increase the maximum power input limit from 50W to 70 W for 1200 mm ceiling fans. We believe that over a period of time, fans should become more energy efficient and deliver more for less power. In fact, in all major appliances, the BIS has reduced the maximum power input limit. So CERC has represented to the BIS, opposing industry's plea for an increase in the input wattage since there is no justification for it and has asked for an increase in air delivery.

CERC Suggestions

Test Chamber. We have suggested that the material used to fabricate the test chamber should be plywood. The BIS has accepted our suggestion.

Electronic Regulators are used to save power. We have also suggested to the BIS that the total harmonic distortion of the regulators should be defined in the standard. This is already being done for items like electronic ballasts. It would give an idea of advantages like lower power consumption and disadvantages like overheating of the fan when using this regulator.

Continued on page12

Regulators

Fans come with regulators. But if you don't want the one supplied, you need not take it. You could get an equivalent discount. Now you can choose another regulator to your liking. But first, it's important to know the difference between an electric and an electronic regulator.

Electric regulators work by reducing the voltage supply to the motor inside the fan when you want to reduce the fan speed. In most places, the domestic supply of electric power is of 230 volts. If you want the fan to run at full speed, the regulator supplies the entire 230 volts. But when you reduce the speed, the voltage supply to the fan is reduced through a device called the *resistor*.

The resistor does this by absorbing some of the voltage. So the resistor heats up, heating the regulator itself. Normally, regulators are flush-mounted by the electrical contractor. So the internal heat will damage the regulator in the long run. Plus, electric regulators are not energy-efficient and hence uneconomical and not environment friendly as they waste electric energy due to the use of resistors.

Electronic regulators, on the other hand, are smaller. These regulators reduce or increase the fan speed by controlling the wave form of the power supply. They are energy-efficient and can save energy when the fan is running at the lower speeds of 1 and 2.

When we tested an electric and an electronic regulator of the same company, we found that the electric regulator consumed 40 W at speed-1, while the electronic one consumed just about 15 W. But electronic regulators come with just 3 speeds unlike the 5 speeds of electric ones. At full speed, both consume the same amount of power.

If price is not a concern, take an electronic regulator. But if price is a concern — electric regulators cost as little as Rs. 40 — go for an electric one.

Power Consumption of Regulators

Speed	Input Wattage Consumption	
	Electric	Electronic
1	40 W	15.4 W
2	51 W	34.2 W
3	61 W	76 W
4	68 W	NA
5	76 W	NA

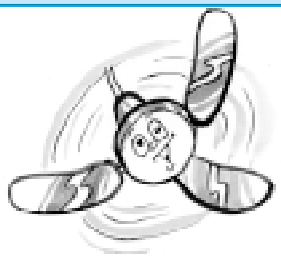
The above figures are at 230 volts.

The electric regulator consumed 40 W at speed postion no.1 while the electronic regulator consumed only 15.4 W at the same position. So the power saving is about 25W in case of an electronic regulator.

Let us suppose that the fan was used for about 10 hours at speed position.1. If the number of fans used is 4 in the house, the daily power saving is as follows:

$\frac{25 \times 10 \times 4}{1000}$ = 1kwh = 1 unit of electricity.

NA = Not applicable



How Good Were The Regulators?

If the regulators are incapable of reducing the fan speed, the purpose of the regulator is lost. Regulators should be able to reduce the fan speed by at least 50 per cent of the full speed. ***Almonard, Ashok, Asian, Bajaj, Cinni*** and ***Usha*** did not conform.

Only ***Anchor, Crompton, Khaitan, Orient, Ortem, Polar, Remi*** and ***Shaan*** conformed to this parameter. So don't be surprised if some fans do not slow down as much as they should.

Also, fans should run on all the running positions of the regulators. All brands conformed to this test as per the IS.

Electronic Regulators

Electronic regulators come in two varieties - step type and movable type. Step regulators increase or decrease the fan speed in steps. In the movable ones, the regulator turns smoothly from one speed to another. Among the step type regulators, we tested ***Anchor, Galco, MK, North-West, Rider, Roma, Vinay*** and ***Wonder***. Among the movable type, we tested, ***Anchor, Harisons*** and ***S.S.K.***

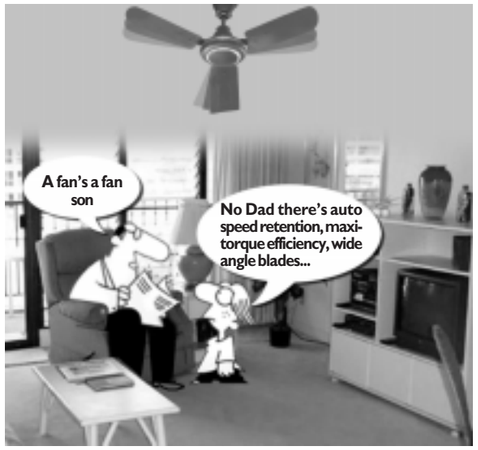
Total Harmonic Distortion (THD) shows us how much the power supply waves are distorted. A high distortion causes the fan motor to heat up. It leads to faster ageing of the fan and equipment at the power company.

Step type regulators are higher priced, but they come with very little total harmonic distortion. On the other hand, the ***movable type*** regulators have a very high distortion which may cause overheating of the fan motor. Electronic regulators of the movable type when operating at lower speeds may give a humming sound because filter circuits are not normally provided.

Anchor and ***Harisons*** claim to save power up to 40 per cent. We assume that this is in comparison with electric regulators. A 40 per cent saving in electricity can only be at speed-1. At speed-2, the saving is likely to be just 30 per cent. At full speed, there would be no saving at all.

Brand	Price (Rs.)	THD* (%)
Step Type		
Wonder	155	2.01
Vinay	214	2.26
Galco	175	2.36
MK	311	2.46
Anchor	125	2.57
Rider	170	3.10
North-West	359	4.53
Roma	253	6.52
Movable Type		
Anchor	100	74.09
Harisons	87	82.96
SSK	170	89.50

* THD - Total Harmonic Distortion (the lower the better)



Orient, Ortem and ***Shaan*** did not mark the input wattage consumption. ***Ashok, Cinni, Remi*** and ***Shaan*** did not specify the voltage range and the size of the fan on the ceiling fan regulator.

Other Parameters

The brands were also tested for safety for protection against electric shock, the starting of motor operated appliances, temperature rise, leakage current, high voltage, insulation resistance, moisture resistance of the regulator, mechanical endurance, abnormal test, stability and mechanical hazards, mechanical strength, components, terminal for external conductors, screws and connections, creepage distance and clearances, resistance to heat, fire and tracking and resistance to rusting. All brands conformed to these parameters.

In the case of fan speed, 3 brands conformed to the requirements. The speed was tested by running the fan at full speed. The others did not give the speed of the fan, so no comparison could be made of the actual versus the labelled speed. In any case, what is relevant when you go to buy a fan is the air delivery. It depends on fan speed as well as on fan design.

Price

Cinni and ***Usha*** were the highest priced at Rs 1495. The least priced brand was ***Ashok*** at Rs 625. When you next go to buy a fan, be sure to bargain and check the price in a few shops. You may be able to get a discount.

Warranties and Guarantees

A warranty describes the product - its quality, performance, standard, etc. Breach of a warranty allows you to recover damages due to the breach and consequent loss suffered. But a warranty is not enough to have the sale itself set aside.

A guarantee on the other hand, goes to the root of the contract for sale of goods. Breach of a guarantee, entitles you to have the whole sale set aside. You may also get damages if you can successfully prove it. Check whether the company offers a warranty or guarantee and its duration before you buy the fan.

Brand	Protection
220-240 V	
Almonard	2-year guarantee
Anchor	2-year warranty
Ashok	2-year guarantee
Asian	2-year warranty
Cinni	2-year guarantee
Crompton	2-year warranty
Khaitan	1-year guarantee
Orient	2-year guarantee
Ortem	2-year guarantee
Remi	2-year guarantee
Shaan	2.5-year guarantee
Usha	2-year guarantee
220 - 230 V	
Bajaj	2-year guarantee
Polar	7-year guarantee

Manufacturers' Correspondence

As a policy, we convey the test results to all the manufacturers, irrespective of whether their brands have passed or failed. The results are posted to their registered offices by Registered A.D./ Courier. All manufacturers receive the test results of their own product only and are given two weeks from the date of receipt to respond.

Bajaj Electricals Ltd., manufacturers of ***Bajaj,*** said that, supply voltage and frequency, voltage drop, position of anemometer and fan and other specified parameters affect the air delivery. They asked for these details.
Insight: We tested the fans strictly according to IS:374-1979 with 6 amendments and IS:12155-1987. The instruments used are highly accurate and sensitive. Details were sent.

Over a period of time, fans should become more energy efficient and deliver more for less power.

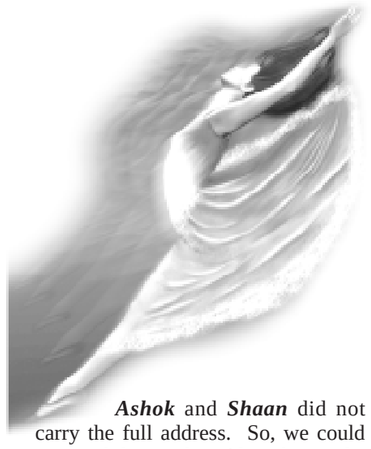
Crompton Greaves Ltd., manufacturers of ***Crompton***, said that, they also supply IS: 374 complying fans to government and institutions while the other fans are as per their specifications with high air delivery and meet all safety requirements of IS: 302. The observations on air delivery and service value are true as regards the High Speed fan.

Khaitan Electricals Ltd., manufacturers of ***Khaitan,*** said that, manufacturers who make fans conforming to the IS for supplies against Rate-Contract, make their design so that the fan just meets the air delivery requirement as per IS within the stipulated maximum watt at the rated voltage of 230V, whereas at reduced voltage like 200 / 190 V commonly prevalent in most of the consumers' premises, air delivery will get substantially reduced. This is to the utter dissatisfaction of users. The present stipulation of air delivery value in the IS is not adequate to satisfy consumer needs.

Orient Fans, manufacturers of ***Orient,*** said that, they follow their company standards which are made to satisfy the customers' performance requirement of air delivery and the requisite air velocity. These cannot be achieved simultaneously meeting BIS service value levels.
Insight: We asked for the tolerance of voltage and frequency and whether it affects r.p.m. and air delivery.

Polar Industries Ltd., manufacturers of ***Polar,*** said that they would revert to us once their technical study and examination of the issues raised in our letter were carried out.

The Jay Engineering Works Ltd., manufacturers of ***Usha,*** said that, the tested model is manufactured against buyer's specifications and not as per IS, nor is it ISI marked. Hence, it cannot be compared with IS. They have a different range of fans that are ISI marked which will meet all the requirements as per IS:374-1979 with 6 amendments.



Ashok and ***Shaan*** did not carry the full address. So, we could not send the results. Also, the results sent to ***Asian*** and ***Ortem*** were returned. Further, manufacturers of ***Almonard, Anchor, Cinni*** and ***Remi*** did not respond at the time of going to press.

Buying The Right Fan

The size of the fan should depend on the room size. Following are our recommendations for fan size. They are not specified in the IS:

Room Size (feet)	Fan Size (mm)
For small shops, cabins, low ceilings	600
8 x 10 to **8 x 8**	900
9 x 11 to **10 x 10**	1050
10 x 13 to **12 x 12**	1200
13 x 16 to **15 x 15**	1400

The fan should ideally be fixed 8 feet from the ground.

To get the maximum air the fan can give, don't sit right beneath the fan.

Manufacturers' Addresses

Almonard
Almonard Ltd., New Petit Mansion, 2nd Floor, 95, Sleater Road, Grant Road (W) Mumbai 400 007
Anchor
Anchor Electronics & Electricals Pvt. Ltd. Taiwad Road, Devka, Daman 396 210
Ashok
Ashok Group of Industries, Mumbai
Asian
Fans & Applicances Co. Pvt. Ltd.
5, Rashmoni Sadan, 18th Road, Chembur Mumbai 400 071
Bajaj
Bajaj Electricals Ltd.
45/47 Veer Nariman Road, Mumbai 400 023
Cinni
National Winder, Pishachmochan Marg Varanasi - 221010, UP
Crompton
Crompton Greaves, 6th Floor, C. G. House, Dr. Annie Besant Road, Worli, Mumbai - 30
Khaitan
Khaitan Electricals Ltd., A-13 Co. Op. Indl. Estate, Balanagar, Hyderabad 500 037
Orient
11, Indl. Est., Sector 6, Faridabad 121 006
Ortem
Metro Appliances Ltd., P.B. No. 44, Noida Complex, Noida 201 30, U.P.
Polar
Polar Industries Ltd., A-2, Sector 5, Noida - 201 301, Gautambuddh Nagar, U. P.
Remi
Remi Sales & Eng. Ltd., 14 Shah Ind. Est., Veera Desai Rd., Andheri (W), Mumbai - 58
Shaan
Prashant Associates
Jai Ambe Krupa, Secunderabad
Usha
The Jay Eng. Works Ltd., 19, Kasturba Gandhi Marg, New Delhi 110 001

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CLAIMS VS. FACTS

Brand	Claim	Company Response	Fact
Bajaj	High air delivery Energy efficient	Supply voltage, frequency, position of anemometer and fan, etc. affect air delivery.	***Bajaj*** ranked 5th in air delivery. Its power consumption was over the prescribed limit. So it was not energy efficient. Tests were done strictly according to standards.
	Quick start high torque motor	Nil	No significant difference observed in the motor compared to other brands.
Orient	Ultimate air power PSPO (Peak Speed Performance Output)	PSPO accounts for air spread in addition to service value. Conforming to BIS' service value does not mean a good fan from customers' performance expectations.	PSPO equation has been derived by ***Orient*** and is not specified in the IS. Power consumption is part of the equation. But ***Orient's*** power consumption and service value did not meet the IS limits showing that the fan was not efficient.
	Auto speed retention	Motor designed to accommodate normal fluctuation in voltage and frequency.	Normal fluctuation in voltage and frequency not mentioned.
Ortem	Better performance even at low voltage	Nil	Low voltage not specified.
	Wider blades, giving larger air displacement	Nil	No explanation as to how wider blades correlate with larger air delivery.
Remi	Satisfactory performance at low voltage	Nil	Low voltage not specified.
	Reliability	Nil	Ranked 5th.
	Easy to service Sturdy construction	Nil	Poor finishing.
Usha	Undisputed leader in fans	Nil	Ranked 8th.