



Electric Pedestal Fans Turn on the Breeze

Standing in a corner—literally so—doing its job of cooling you (and edgy tempers, if any). And to think that once upon a time (about a hundred years ago) these were items of novelty, found only in large offices and wealthy homes. Really, who would have thought that about the humble electric pedestal fan? And there are so many varieties to boot. Little wonder, then, that *Consumer Voice* decided to put their cooling prowess to test. Facing the heat here are 10 leading brands in India.

The comparative testing was conducted on the most commonly used size (400mm)/models of pedestal fans used for domestic purpose (for the report on comparative testing of ceiling fans, please refer to *Consumer Voice* issue dated January 2012). While these fans are manufactured in both organized and unorganized sectors, *Consumer Voice* restricted its testing to domestic, electric, pedestal-type fans from the organized sector.

THE SIZE IS 400MM

Presently, in the 400mm category of fans, wall-mounted and table fans are identical to pedestal fans in oscillation and tilting mechanism. The main fan assembly is common too. Most of the test methods prescribed in Indian Standard are common for all the same sizes of pedestal, table and wall-mounted fans.

COMPARATIVE TEST

Test Method

The *Consumer Voice* test programme for comparative evaluation is primarily based on IS: 1169–1967 (specifications for pedestal fan and regulator) in addition to IS: 555 (specifications for table fans) with latest amendments. The following brands and models are covered:

BRANDS TESTED				
Rank	Brand	Model	Manufacturer	Retail Price/MRP, Rs
1.	Crompton Greaves	High Flow	Crompton Greaves Ltd	1,689/2,250
1.	Ortem	Royal	Metro Ortem Ltd	1,645/1,900
1.	Orpat	OPF 3207	Ajanta Limited	1,734/2,100
2.	Havells	Swing	Havells India Ltd	1,956/2,495
3.	Orient	Stand 31	Orient Ltd	1,600/1,979
3.	Bajaj	Midea BP 06	Bajaj Electricals Ltd	1,823/2,375
4.	Usha Lexus	Mist Air	Usha International Ltd	1,867/2,250
5.	Marc	FS-40E1TQ	Marc Enterprises Ltd	1,761/2,090
High-Speed Fans				
1.	Almonard	High Speed	Almonard Ltd	2,400/2,450
2.	Khaitan	Spice	Khaitan Electricals Ltd	1,689/2,350

Best Buy
Crompton Greaves

Value for Money
Havells

KEY FINDINGS

- In the overall performance, Crompton Greaves, Ortem and Orpat are on the top and followed by Havells, being separated by a margin of only one per cent.
- Havells is the value-for-money brand. It is also found to be energy-efficient among the tested brands. Its service value is highest.
- Almonard and Khaitan are high-speed fans, also consuming almost twice the input power as compared to the other tested brands (46W–63.2W), and their RPM is also about twice that of other brands.
- All the tested brands are stable and none fall during the testing.
- All the tested brands are found to be safe from electrical hazards.
- Most of the brands are imported from China.
- Bajaj and Ortem give 2 years' guarantee, Crompton Greaves gives 2 years' warranty, and the rest offer 1 year's warranty.
- Only Orient and Orpat are able to reduce the required speed by more than 30 per cent. None of the other brands have been able to meet this requirement of Indian Standard.
- Crompton Greaves is heaviest (6.320kg) and Orient (4.267kg) lightest in net weight.
- Bajaj and Crompton Greaves are low on noise.
- None of the brands has the ISI standard mark.

KEY TEST PARAMETERS

Running Test

A running test with electric supply ON is conducted to determine whether the fan and the oscillating mechanism (if fitted) are in working order.

- All the fans are found to be working satisfactorily.

Starting from Rest

The fan shall be capable of starting from rest with the regulator, if any, at the lowest speed step when 90 percent of the rated voltage or 90 percent of the lowest voltage in the voltage range is applied with the



Air-delivery performance under test

oscillating mechanism on position. In the case of fans of oscillating and double oscillating types, fan should operate in the worst position.

- All the fans are able to start satisfactorily meeting the IS requirement.

High Voltage

An AC test voltage at any convenient frequency between 40Hz and 60 Hz shall be applied and maintained for one minute without showing any kind of breakdown or flashover.

- All the brands have withstood the test and no breakdown is observed.

Air Delivery and Performance Requirements

The minimum air delivery, minimum service value and maximum power input at test voltage and at full speed shall be as per relevant Indian Standard. For minimum air delivery it is 65 (m³/min), while the minimum service value is 1.08 (m³/min/W).

- On the above three factors, Havells (25.06) has performed the best followed by Ortem (23.71) and Crompton Greaves (23.62).

Oscillating Mechanism

As per Indian Standard, the number of oscillations (that is, complete to-and-fro horizontal movement of the fan motor) per minute at full speed shall be not less than four. Whether or not the angular movement of the mechanism is variable, an angular movement of not less than 60 degrees shall be available.

- For all the tested pedestal fans except Almonard, the number of oscillations is more than four per minute. The angular movement for all the fans is greater than 60 degrees.

WHAT IS IT ALL ABOUT?

Pedestal fans having two or more blades are directly driven by an AC or DC electric motor mounted on a pedestal of fixed or variable height and intended for use with free inlet and outlet of air.

Most pedestal fans can be adjusted to alter the height of the fan head, some by only a few inches, others by as much as a few feet. Oscillation, which improves coverage in larger rooms, is a standard feature. The downside of pedestal fans is that they are top-heavy and can easily tip over, while tower fans are usually more stable but pricier. Overall, we found fewer recommendations for pedestal fans than for other types.



COMPARATIVE TEST

Air Delivery, Power Input and Service Value

Brand	Air Delivery (m ³ /min)	Score out of 10	Service Value (m ³ /min/W)	Score out of 10	Power Input (W)	Score out of 8	Total Score out of 28
Havells	71.9	7.84	1.56	9.75	46	7.47	25.06
Ortem	73.4	8.24	1.38	8.62	53	6.85	23.71
Crompton Greaves	69.68	7.25	1.45	9.06	48	7.31	23.62
Bajaj	70.25	7.4	1.22	7.62	57.2	6.29	21.31
Usha	67.5	6.67	1.27	7.93	53	6.66	21.26
Orpat	65.91	6.25	1.24	7.75	52.8	6.87	20.87
Almonard	92.22	10	0.7	4.37	131.6	5.94	20.31
Orient	69.97	7.33	1.1	6.87	63.2	5.46	19.66
Marc	65.1	6.03	1.2	7.5	54	5.57	19.1
Khaitan	65.25*	6.07	0.61*	3.81	106.4*	6.41	16.29

*Based on the request from Khaitan, Consumer Voice (CV) retested the air delivery parameter. During retesting, while maintaining the specified test conditions the lab found that the fan was not giving stable reading of air delivery though it was close to the one reported earlier. Three more tests were conducted after the Khaitan service centre attended to complaints whereby they replaced the fan motor twice (which was found to be of slower speed). Each time the problem of unstable results remained unresolved. In this context, CV decided to treat the results sent initially as final.

SPEED OF FAN

The speed of rotation of the fan shall be determined by running the fan at the test voltage and at its rated frequency. The method of measurement shall be such that the speed of fan is not appreciably affected.

The test is performed for all the steps provided in the fan as per the selection of the speed regulators. All the regulators should reduce the speed by 30 per cent from the top to the lowest speed.



Brand	Score out of 8
Orpat	5.42
Orient	5.21
Bajaj	5.0
Khaitan	4.84
Crompton Greaves	4.81
Marc	4.59
Havells	4.16
Ortem	4.07
Usha	4.05
Almonard	3.82

TEMPERATURE RISE

All the brands pass the test as temperature rise is well within the required limit – be it with regard to insulated windings, external surface of capacitors, or external surfaces other than metallic handles likely to be touched momentarily during normal usage.

HOW NOISY?

The noise level of Khaitan and Almonard, which are high-speed fans, is higher (69.14dB and 66.6dB, respectively; dB = decibels) per RPM as compared to the other brands. Bajaj, Crompton Greaves, Marc and Orpat generate a lower noise level, at below 55dB.

CORD LENGTH

As per IS, the minimum cable length is five metres; the length for the tested brands has varied between 1.54 metres and 2.15 metres. Thus, none of the brands have met this requirement.

HERE'S HOW THEY DRAW UP

The minimum and maximum heights of the pedestal fan are measured from the bottom till middle point of the front grill. Indian Standard requires the minimum adjustable height to be 900mm and the maximum 1,050mm. Accordingly, Almonard, Marc and Orient have gained top scores here.

WEIGHT CHECK

Higher weight is considered to be better quality. Almonard at 6,555gm scores the highest and is followed by Crompton Greaves at 6,320gm and Ortem at 5,951gm.

AND THIS IS HOW ROBUST THEY ARE

The fans are judged for strong base mounting and overall robustness. None of the fans has provided a metal base plate. All the brands except Orient (cross-base angular metal strip) have a base of round portable base plate made of hard plastic, molded compound material.

THE SAFETY TESTS

Earthing Continuity

For fans intended to be earthed, the resistance shall not exceed 0.1 ohm between any exposed metal parts, except the rotating parts supported by metal bearings. The earthing resistance of exposed metal parts of appliance should have negligible resistance so as to provide easy path for leakage current.

The power plugs of all the brands are of two-pin types and, hence, none has provided a earthing terminal.

AC Leakage

When tested as per Cl. 16.8 of IS: 1169-1967, the leakage current shall not exceed 300 μ A.

Leakage current is found between 20 μ A and 40 μ A, assuring that all the brands comply with the standard and are safe from electrical hazards.

Capacitors

For safety and maintenance, capacitors shall be easily replaceable and placed at sufficient distance from windings, so that its maximum working temperature is not exceeded. Capacitors shall be clearly marked with the maximum safe working temperature, and corresponding voltage and capacitance. Capacitors shall comply with IS: 1709-1960.

While all the tested brands are found to be easily replaceable and placed at sufficient distance from windings, none of the capacitors are ISI-marked.

Stability

The construction and overall dimensions of the base shall be such as to ensure that the fan is stable with an angle of tilt up to 10 degrees in any direction, with fan fully extended. The test is performed with fan as well as oscillating mechanism in running position.

None of the fans fall during the testing.



Close-up of motor and oscillation assembly of a typical pedestal fan

COMPARATIVE TEST

Operating Cost of the Top Ten Domestic Pedestal Fans

Operating costs of pedestal fans and overspending w.r.t. an energy-efficient fan						
Brand	Input Power, Watts	Daily Consumption, kW @10 hours use	Daily Operating Cost @ Rs 6/Unit (kWh)	Monthly Operating Cost, Rs	Annual Operating Cost, Rs	Annual Overspend (Rs) w.r.t. Havells
STANDARD FANS						
Havells	46.0	0.46	2.76	82.8	993.6	Nil
Crompton Greaves	48.0	0.48	2.88	86.4	1036.8	43.2
Orpat	52.8	0.528	3.168	95.04	1140.4	146.8
Usha	53	0.53	3.18	95.40	1148.8	155.2
Ortem	53	0.53	3.18	95.40	1148.8	155.2
Marc	54	0.54	3.24	97.2	1166.4	172.8
Bajaj	57.2	0.572	3.43	102.96	1235.5	241.9
Orient	63	0.63	3.78	113.4	1360.8	367.2
HIGH-SPEED FANS						
Khaitan	106.4	1.64	6.36	190.8	2289.6	1296
Almonard	131.6	1.31	7.89	236.8	2842.56	1848.96

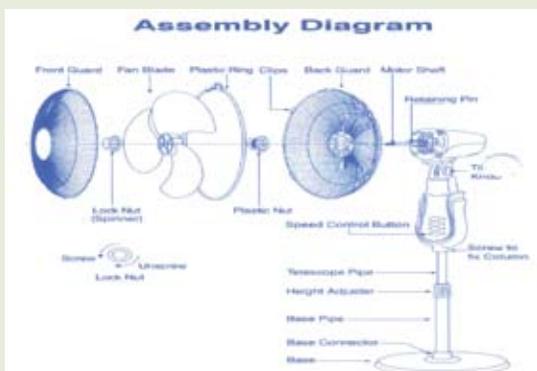
Notes:

1. Average operating time is taken as 10 hrs/day and electricity cost @ Rs 6/unit (kWh).
2. Please correlate operating cost w.r.t. air delivery.
3. In the given table, the top two brands in green colour are the energy-efficient fans. Brands in red are high speed and power fans but do not justify their ratings substantially.

PACKING

The packing should be such that the product is able to withstand potential transportation and handling damages.

All the brands are examined for levels of protection for all the sub-assemblies of the fans. Many of the fans have provided PVC cover for the assemblies for protection from dust. Consumer Voice gives the topmost ranking to Bajaj and Orpat.



MARKING

Fans are expected to carry the following information:

- 1) On the product:
 - a. Manufacturer's name, trade name of fan (if any) and number
 - b. Rated voltage(s) or voltage ranges
 - c. Type of fan: AC or DC
 - d. Frequency or frequency range of power supply, if of AC
 - e. Input in watts
 - f. Size of fan
 - g. Country of manufacture
 - h. MRP
- 2) On packaging/manual:
 - a. MRP
 - b. Mfd/Packed on
 - c. Standard Mark (if any)
 - d. Warranty/Guarantee

Some details like country of manufacturing, technical specification and manufacturing date are found missing in the brands tested and weightage is accordingly deducted.

COMPARATIVE PERFORMANCE SCORES OF PEDESTAL FANS: 400MM SIZE

TEST PARAMETER(S) →	BRAND	Standard fans										High-Speed Fans	
		Crompton Greaves	Ortem	Orpat	Havells	Orient	Bajaj	Usha	Marc	Almond	Khaitan*		
Retail Price/MRP, Rs		1689/2250	1645/1900	1734/2100	1956/2495	1600/1979	1823/2375	1867/2250	1761/2090	2400/2450	1689/2350		
PERFORMANCE TESTS	(45)	34.43	33.78	35.29	35.22	33.87	32.31	31.31	29.69	30.13	27.13		
Starting & running	4	4	4	4	4	4	4	4	4	4	4		
Input power	8	7.31	6.85	6.87	7.47	5.46	6.29	6.66	5.57	5.94	6.41*		
Fan speed	8	4.81	4.07	5.42	4.16	5.21	5	4.05	4.59	3.82	4.84		
Air delivery	10	7.25	8.24	6.25	7.84	7.33	7.4	6.67	6.03	10	6.07*		
Service value	10	9.06	8.62	7.75	9.75	6.87	7.62	7.93	7.5	4.37	3.81		
Speed of regulator	5	2	2	5	2	5	2	2	2	2	2		
SAFETY TESTS	(27)	23.65	23.93	23.83	23.28	23.34	23.33	23.35	23.55	22.1	21.51		
Capacitors	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
High voltage & insulation resistance	4	4	4	4	4	4	4	4	4	4	4		
Power factor	2	1.98	1.92	1.98	1.98	1.98	1.9	1.92	1.98	1.98	1.98		
AC leakage & earthing	4	2.26	2.26	2.13	2.2	2.2	2.06	2.26	2.2	2.2	2.26		
Temperature rise	9	8	8.71	8.33	8.67	8.3	7.95	8.14	7.96	7.86	7.45		
Noise level	6	5.91	5.54	5.89	4.93	5.36	5.92	5.53	5.91	4.56	4.32		
GENERAL TESTS	(28)	22.23	22.53	20.95	20.64	20.67	22.12	22.17	22.3	23.75	21.04		
Cable length	3	2	1.9	1.7	1.7	2	1.8	1.9	1.8	2.1	1.5		
Robustness	4	2.5	2.75	1.75	1.5	2	2.75	2.5	3	3.5	3.25		
Oscillating mechanism & stability	6	6	6	6	6	6	6	6	6	4.5	6		
Adjustable height	3	1.43	1.46	1.45	1.46	1.47	1.33	1.46	1.47	1.47	1.38		
Workmanship & finish	3	2.4	2.5	2.8	2.4	2.5	2.5	2.5	2.45	2.5	2.4		
Net weight	3	2.7	2.52	2.35	2.48	1.8	2.44	2.41	2.48	2.78	2.21		
Packing & marking	6	5.2	5.4	4.9	5.1	4.9	5.3	5.4	5.1	5.4	4.3		
Overall score (%) rounded off	100	80	80	80	79	78	78	77	76	75	70*		

Ratings: >90: Very Good****, 71-90: Good****, 51-70: Fair***, 31-50: Poor**, <30: Very Poor*

*M/s Khaitan responded to the test results claiming that air delivery of their fan is 75 m³/min against 65.25 and that service value is 0.68 against 0.61 reported by us.