



TCR ENGINEERING SERVICES PVT. LTD.

ENGINEERING MATERIAL TESTING, INSPECTION, SAMPLING, SURVEYING & STANDARDISATION, PHYSICAL, CHEMICAL & METALLURGICAL TESTING.
APPROVED BY GOVT. OF INDIA - DEPT. OF SCIENCE & TECHNOLOGY
CERTIFICATE NO. NABL - T - 367 and NABL - T - 368 DATED 01st NOV.200
FOR CHEMICAL and MECHANICAL TESTING

RUST - COMPETENCE - RELIABILITY

Managing Director :
VIRENDRA K. BAFNA
B.E.M. Eng. (Canada)
M.S.I.M. (U.S.A.) M. A. S. T. M.

Regd : Office & Laboratory,
35, Pragati Industrial Estate,
N. M. Joshi Marg, Mumbai-400 011.
Tel. : 23097921, 23097923,
23092347, 23091938
Fax : 91-22-23080197



**TEST CERTIFICATE
INSPECTION REPORT**

DATE : June 16, 2003
NABL ACCREDITED
LABORATORY

T.C.No.: A/2450

**Issued to : M/s.ROLASTAR PVT.LTD.,
A-2/5, G.I.D.C.
ANTALIA, BILIMORA,
GUJARAT 396 325.**

AIR DUCT LEAKAGE TESTING

TEST DATA :-

- Test Equipment** : High Velocity Leakage Tester.
Make : Airflow Developments Ltd (U.K.)
- Pressure Gauge** : Dwyer Make Magnehelic pressure gauge, Range 0 to 3 Kpa,
Sr. No. W19E. (VJTI Test No.MML/4964, Calibration Date
26.03.2003.)
- Flow Measuring Device** : Airflow make Inclined tube Manometer, Type:504
Range 0 - 500Pa. (VJTI Test No.MML/4963, Calibration Date
26.03.2003.)
- Duct Specification** : SMACNA
- Test Method** : As per SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
- Duration of Test** : 15 Minutes for each sample.

Sr. No.	Description of Ductwork* with Rolamate Flange	Duct Surface Area (ft ²)	Leakage Factor CFM/100 sq.ft. duct.	Duct Pressure in W.G.(Pa)	Inclined Mano-meter reading & Inlet Pa	Max. Allowable Leakage CFM	Actual Leakage (From Chart**) CFM
1.	A1 / E Class	120	24.5	3" (750)	50 - F	29.40	3.18
2.	B1 / E Class	84	26.8	10" (2500)	35 - G	22.51	9.54
3.	A2 / H Class	209	24.5	3" (750)	35 - G	51.21	9.54
4.	B2 / H Class	113	26.8	10" (2500)	85 - G	30.28	14.83
5.	A3 / J Class	298	24.5	3" (750)	55 - F	73.01	3.18
6.	B3 / J Class	164	26.8	10" (2500)	95 - F	43.95	4.24

* Enclosed Drawings.

** Enclosed chart from M/s. Airflow Development Ltd. (U.K.)

Remark :- All above Ductworks are found to have leakage rates within max. allowable limit for specified duct class as per SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.

**Note : The testing carried out at M/s. Rolastar Pvt.Ltd., Bilimora, Gujarat on 12th & 13th June,2003 & Witnessed by Mr. Pramod Deorukhkar of TCR ENGINEERING SERVICES PVT.LTD.
Duct work identified by Sticker duly sign/stamped by Mr. Pramod Deorukhkar of TCR Engineering Services Pvt.Ltd**

As/-

1) The results relate only to the sample tested.

2) Test Certificate shall not be re-produced except in full without the written approval of laboratory

Authorised Signatory
VIRENDRA K. BAFNA (M. B.J)



TCR ENGINEERING SERVICES PVT. LTD.

JUST - COMPETENCE - RELIABILITY

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CERTIFICATE NO. NABL - T - 367 and NABL - T - 368 DATED 01st NOV.200
FOR CHEMICAL and MECHANICAL TESTING



**TEST CERTIFICATE
INSPECTION REPORT**

**NABL ACCREDITED
DATE : June 16, 2003**

T.C.No.: A/2451

Issued to : **M/s.ROLASTAR PVT.LTD.,
A-2/5, G.I.D.C.
ANTALIA, BILIMORA,
GUJARAT 396 325.**

AIR DUCT LEAKAGE TESTING

TEST DATA :-

1. Test Equipment : High Velocity Leakage Tester.
Make : Airflow Developments Ltd. (U.K.)
2. Pressure Gauge : Dwyer Make Magnehelic pressure gauge, Range 0 to 3 Kpa,
Sr. No. W19E. (VJTI Test No.MML/4964, Calibration Date
26.03.2003.)
3. Flow Measuring Device : Airflow make Inclined tube Manometer, Type:504
Range 0 - 500Pa. (VJTI Test No.MML/4963, Calibration Date
26.03.2003.)
4. Duct Specification : SMACNA
5. Test Method : As per DW/143 Specification.
6. Duration of Test : 15 Minutes for each sample.

Sr. No.	Description of Ductwork* with Rolamate Flange	Duct Surface Area	Leakage Factor	Test Static Pressure (Pressure Class)	Inclined Mano-meter reading & Inlet	Max. Allowable Leakage	Actual Leakage (From Chart**)
							Ltrs/sec
		m ²	Ltr/sec/m ²	Pa	Pa	Ltrs/sec	Ltrs/sec
1.	A1 / E Class	11.15	0.22	750(Class C)	50 - F	2.45	1.50
2.	B1 / E Class	7.81	0.42	2000 (Class C)	210 - F	3.28	3.10
3.	A2 / H Class	19.42	0.67	750 (Class B)	35 - G	13.01	4.50
4.	B2 / H Class	10.50	0.42	2000 (Class C)	300 - F	4.41	3.75
5.	A3 / J Class	27.70	0.22	750 (Class C)	55 - F	6.09	1.50
6.	B3 / J Class	15.24	0.16	2500 (Class D)	95 - F	2.44	2.00

* Enclosed Drawings.

** Enclosed chart from M/s. Airflow Development Ltd. (U.K.)

Remark :- All above Ductworks are found to have leakage rates within max. allowable limit for specified pressure class as per DW/143 Specification.

Note : The testing carried out at M/s. Rolastar Pvt.Ltd., Bilimora, Gujarat on 12th & 13th June, 2003
& Witnessed by Mr. Pramod Deorukhkar of TCR ENGINEERING SERVICES PVT.LTD.
Duct work identified by Sticker duly sign/stamped by Mr. Pramod Deorukhkar of TCR Engineering Services Pvt.Ltd

Authorised Signatory

VIRENDRA K. BAFNA (M. A. S. T. M.)

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Managing Director :
VIRENDRA K. BAFNA
B.E.M. Eng. (Canada)
M.S.I.M. (U.S.A.) M. A. S. T. M.

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NABL ACCREDITED LABORATORY
DATE : June 12, 2003

**TEST CERTIFICATE
INSPECTION REPORT**

T.C.No.: A/2453

Issued to : **M/s.ROLASTAR PVT.LTD.,
A-2/5, G.I.D.C.
ANTALIA, BILIMORA,
GUJARAT 396 325.**

AIR DUCT LEAKAGE TESTING

TEST DATA :-

- Test Equipment** : High Velocity Leakage Tester.
Make : Airflow Developments Ltd. (U.K.)
- Pressure Gauge** : Dwyer Make Magnehelic pressure gauge, Range 0 to 3 Kpa,
Sr. No. W19E. (VJTI Test No.MML/4964, Calibration Date
26.03.2003.)
- Flow Measuring Device** : Airflow make Inclined tube Manometer, Type:504
Range 0 - 500Pa. (VJTI Test No.MML/4963, Calibration Date
26.03.2003.)
- Duct Size** : A4 - 1200mm.x 1000mm.x 2440mm. length, Duct wall 22g.
A5 - 1500mm.x 1000mm.x 2500mm. length, Duct wall 20g.
A6 - 1800mm.x 1000mm.x 2500mm. length, Duct wall 20g.
- Test Method** : As per DW/143 Specification.
- Duration of Test** : 15 Minutes for each sample.

S. No.	Description of Ductwork with Rolamate Flange	Duct Surface Area	Leakage Factor.	Test Static Pressure (Pressure Class)	Inclined Manometer reading & Inlet	Max. Allowable Leakage	Actual Leakage (From Chart*)
		m ²	Ltr/sec/m ²	Pa	Pa	Ltrs/sec	Ltrs/sec
1.	A4 / E Class	13.0	0.69	800(Class B)	90 - G	8.97	7.25
2.	A5 / H Class	15.5	0.8	1000(Class B)	180 - G	12.40	10.40
3.	A6 / H Class	17.6	0.69	800(Class B)	150 - G	12.14	9.45

* Enclosed chart from M/s. Airflow Development Ltd. (U.K.)

Remark :- All above Ductworks are found to have leakage rates within max. allowable limit for specified pressure class as per DW/143 Specification.

Note : The testing carried out at M/s. Rolastar Pvt.Ltd., Bilimora, Gujarat on 12th & 13th June, 2003 & Witnessed by Mr. Pramod Deorukhkar of TCR ENGINEERING SERVICES PVT.LTD. Duct work identified with Sticker duly sign/stamped by Mr. Pramod Deorukhkar of TCR Engineering Services Pvt.Ltd

Authorised Signatory
VIRENDRA K. BAFNA (M. D.)

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