TRANSLATION OF THE ORIGINAL ARPA'S

TECHNICAL REPORT ENCLOSED WITH TESTING MEMOS FROM NO. 8255 TO NO. 8260 / 99

MANDANT: Ghines S.R.L., manufacturer of machines, tooling and equipment for marble-workers, Via Ca' Torsani, 1 – 47900 Rimini – (RN)

REGARDING: **Suction bench with water depurator mod. AGUA**, for the processing of stone materials (serial # 6069)

CONFIGURATION USED DURING THE TESTS: Suction bench with water depurator mod. AGUA (serial # 6069) for the processing of stone materials

SPECIFICATIONS:

WORK BENCH

- VOLUME:	(mm)	3220 x 1140 x 920.
- WORK SURFACE:	(mm)	2000 x 1000 x 920 (wood).
- TOOL-HOLDING RACK:	(mm)	770 x 1140 x 920 (wood).
- TOTAL WEIGHT:	(Kg)	650 (with empty collection tank).
- POWER:	(HP)	5,5 at 50 Hz / 6.5 at 60 Hz.
- AIR INTAKE:	(m^3 / hour)	~ 7500
- AIR OUTLET:		On three sides of the motor area with polyurethane diffusers.
- SUCTION POINTS:		Perimetral at two levels and on the work bench.
- SUCTION UNIT:		Mod. CV 405F105 – high-performing centrifugal ventilator.
- DUST EXHAUSTION:		Automatic physical system with drop separator.
- WATER TANK CAPACITY:		260 liters.

PURPOSE OF THE TEST

1) To evaluate the system's exhausting performance with dust measurements afterwards the bench's wet exhaustion (measurements effected in a purpose-built duct) and consequently the rate of the outlet particle material.

2) To evaluate the overall dispersion in the air of atmospheric dusts resulting from the utilization of the bench during the standard production cycle. Stations A, B, C, D in the layout (enclosure no. 1)

ANALYTICAL METHODOLOGIES EMPLOYED

The methods indicated in the bibliography have been used during the tests, in conformity with the principles indicated by the ACGIH, Unichim methods and methods indicated by the Italian legislation.

a) For the rate of the outlet dusts:
- Unichim method No. 422 "*General criteria regarding the choice of measuring and sampling points*."
- Unichim method No. 467 "*Determination of the speed and rate of conveyed gas flows*."
- Unichim method No. 494 "*Determination of the particle material in conveyed gas flows*."

b) For the air-suspended particle material:
- Unichim method No. 317 "*Determination of the atmospheric dusts through short-term samplings*."

TESTING ENVIROMENT

Industrial warehouse with a plan of 35 x 15 m. and average height of 6 m. for a total volume of about 3150 m^3.
The machine has been positioned like in the enclosed layout (see enclosure no. 1).
During the entire testing time the warehouse was kept closed.

TESTING CONDITIONS

Grinding operations (performed with grinding pot wheel with a porosity value of 24) on marble slabs "Carrara white", "Sand Stone" and "Santa Fiora" for the entire length of the test (one hour), alternatively and continuously on the different types of marble, placed on the bench.

OBSERVATIONS ON THE COLLECTED DATA

With reference to the testing reports No. **8255** and **8256 / 99**, it has been verified that in the event of the outlet air emitted by the machine to be conveyed externally, its characteristics are in compliance with the limits restricted by the D.M. 12/07/90 "*Guidelines for the containment of polluting emissions from industrial facilities*" enclosure no. 1 item 5 (50 mg/Nm^3), and also the often more restrictive regional limits (for example, in the Regione Emilia Romagna the set limits for inert dusts are 20 or 30 mg/Nm^3).

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Checking the mass flows (resulting from the concentrations for the capacity) referring to testing reports No. **8255** and **8256 / 99**, compared to the amount of grinded material, it has been calculated an exhaustion performance higher than 98%.

The testing reports from No. **8257** to No. **8260 / 99**, referring to samples drawn in the work environment (stations A, B, C, D, enclosure no. 1), testify the efficiency of the particulates depurator of the work bench at issue, considering the limited contribution that the bench has given to the environmental pulverulence at the end of the testing time during which the bench has been run continuously; the recorded rates satisfy the ACGIH 1998/99 threshold limits.

In any case, the testing reports refer solely to the indicated work conditions and to the work bench at issue, which according to the mandant represent the normal use conditions and the standard specifications of the machine.

Best regards.

Rimini, August 12 1999.

Enclosure:

- Layout of the testing environment, indicating the position of the machine and the environmental sampling points (enclosure 1)

The Chemist Designate Resp. P.A.
(Dr. Vittorio Amadei)

v. The Official of the Technical Department
(Dr. Henos Nanni)

ENCLOSURE 1

Tests effected on GHINES suction bench mod. “AGUA”
Testing reports from no. 8255 to 8260 / 99.

Warehouse plan
“AGUA” suction bench

Enlarged detail with sampling points in the work environment

Purpose-built duct for sampling
Exhaustion performance

TESTING REPORT No. 8255 / 99

Sample: Dusts
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

CHARACTERISTICS OF THE EMISSION

DENOMINATION: CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

Parameter	Recorded value	U. of M.	Testing method
Height	4	M	-
Section	0,237	m2	-
Speed	7,7	m/sec	M. UNICHIM 467
Capacity	6000	Nm3/h	"
Temperature	27	°C	"

Description of the sample: Sample of dusts, contained inside the test basket, obtained after the emission resulting from the GHINES suction bench mod. AGUA (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 9.26		**End of the test (day and hour):** 2/8/99 9.56
	Suction rate in l/min: 14,0	
Sampled volume in m3: 0,420		**Normalized sampled volume in Nm3:** 0,382

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of particle material

Parameter	Value	U. of M.	Testing method
particle material	1,05	Mg/Nm3	M.UNICHIM 494

Among the employed methods, the ones whose identifier codes end with "RN" are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

No. of enclosed pages: 0 **Date of issue:** 04/08/99

It is maintained that the results refer exclusively to the above mentioned samples.
This Testing Report cannot be partially reproduced without explicit authorization of the Laboratory's Board.
The testing methods and their reliability are available under customer's express request.

TESTING REPORT No. 8256 / 99

Sample: Dusts
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

CHARACTERISTICS OF THE EMISSION

DENOMINATION: CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

Parameter	Recorded value	U. of M.	Testing method
Height	4	M	-
Section	0,237	m2	-
Speed	7,7	m/sec	M. UNICHIM 467
Capacity	6000	Nm3/h	"
Temperature	27	°C	"

Description of the sample: Sample of dusts, contained inside the test basket, obtained after the emission resulting from the GHINES suction bench mod. AGUA (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 10.00		**End of the test (day and hour):** 2/8/99 10.32
	Suction rate in l/min: 13,2	
Sampled volume in m3: 0,421		**Normalized sampled volume in Nm3:** 0,383

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of particle material

Parameter	Value	U. of M.	Testing method
particle material	1,04	mg/Nm3	M.UNICHIM 494

Among the employed methods, the ones whose identifier codes end with "RN" are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

No. of enclosed pages: 0 **Date of issue:** 04/08/99

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TESTING REPORT No. 8257 / 99

Sample: Air
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

Description of the sample: Sample of atmospherical dusts, contained inside the test filter, obtained from STATION A while GHINES suction bench mod. AGUA was working (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 09.26		**End of the test (day and hour):** 2/8/99 10.30
	Suction rate in l/min: 13,8	
Sampled volume in m3: 0,881		**Normalized sampled volume in Nm3:** 0,802

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of overall atmospherical dusts dispersed in the air

Parameter	Value	U. of M.	Testing method
overall air-dispersed atmospherical dusts	0,4	mg/Nm3	M.UNICHIM 317

Among the employed methods, the ones whose identifier codes end with “RN” are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

No. of enclosed pages: 0 **Date of issue:** 04/08/99

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TESTING REPORT No. 8258 / 99

Sample: Air
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

Description of the sample: Sample of atmospherical dusts, contained inside the test filter, obtained from STATION B while GHINES suction bench mod. AGUA was working (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 09.26		**End of the test (day and hour):** 2/8/99 10.30
	Suction rate in l/min: 14,0	
Sampled volume in m3: 0,897		**Normalized sampled volume in Nm3:** 0,816

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of overall atmospherical dusts dispersed in the air

Parameter	Value	U. of M.	Testing method
overall air-dispersed atmospherical dusts	1,46	mg/Nm3	M.UNICHIM 317

Among the employed methods, the ones whose identifier codes end with “RN” are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

No. of enclosed pages: 0 **Date of issue:** 04/08/99

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TESTING REPORT No. 8259 / 99

Sample: Air
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

Description of the sample: Sample of atmospherical dusts, contained inside the test filter, obtained from STATION C while GHINES suction bench mod. AGUA was working (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 09.26		**End of the test (day and hour):** 2/8/99 10.30
	Suction rate in l/min: 14,4	
Sampled volume in m3: 0,922		**Normalized sampled volume in Nm3:** 0,839

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of overall atmospherical dusts dispersed in the air

Parameter	Value	U. of M.	Testing method
overall air-dispersed atmospherical dusts	0,87	mg/Nm3	M.UNICHIM 317

Among the employed methods, the ones whose identifier codes end with “RN” are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

No. of enclosed pages: 0 **Date of issue:** 04/08/99

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TESTING REPORT No. 8260 / 99

Sample: Air
Filing date: 02/08/99
Authority: ARPA local service, Rimini district branch
Date of the test: 02/08/99
Place of the test: Rimini, Via Mirandola 24
Company: **GHINES S.r.l.**
Minutes No.:

Description of the sample: Sample of atmospherical dusts, contained inside the test filter, obtained from STATION D while GHINES suction bench mod. AGUA was working (ref. Min. No. CV 18/99).
Test effected for account of GHINES company for particulates exhaustion from the below mentioned system:

CHANNELLED SUCTION ON GHINES SUCTION BENCH mod. AGUA

SAMPLING METHODOLOGY		
Start of the test (day and hour): 2/8/99 09.26		**End of the test (day and hour):** 2/8/99 10.30
	Suction rate in l/min: 14,1	
Sampled volume in m3: 0,903		**Normalized sampled volume in Nm3:** 0,822

The technical officer: Bertozzi Leonardo **The officer for Terrritorial Service:** Dr. E. Coltelli

Purpose: Determination of overall atmospherical dusts dispersed in the air

Parameter	Value	U. of M.	Testing method
overall air-dispersed atmospherical dusts	0,95	mg/Nm3	M.UNICHIM 317

Among the employed methods, the ones whose identifier codes end with “RN” are Internal Methods
Start of the test: 03/08/99 **End of the test:** 04/08/99

The Consultant Chemist for the P.A. **(Dr. V. Amadei)**

v. The official of the Technical Dept. **(Dr. H. Nanni)**

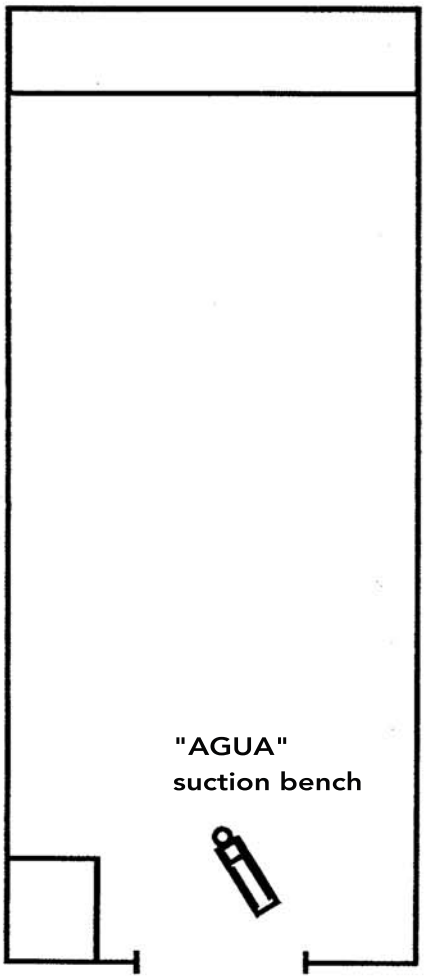
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ENCLOSURE 1

Tests effected on GHINES suction bench mod. "AGUA"
Testing reports from no. 8255 to 8260 / 99.

Warehouse plan



Enlarged detail with sampling points in the work environment

