



**SINT**  
**Technology**

***Flow test bench***

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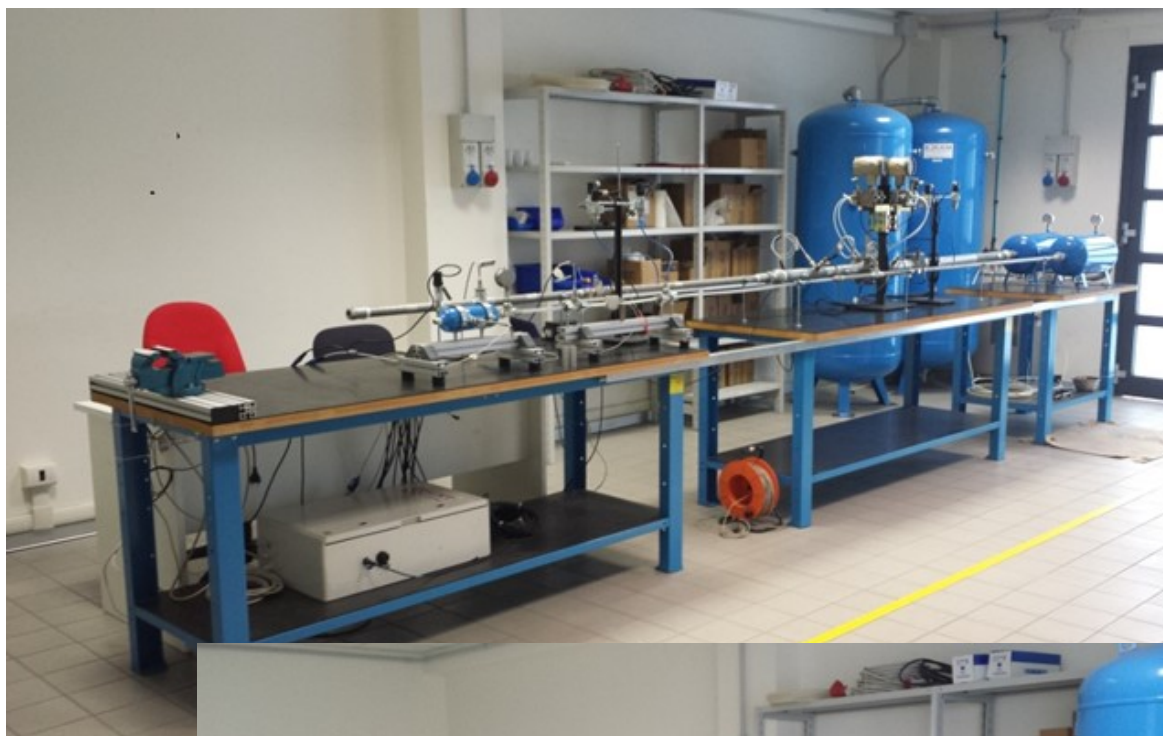


## Measurements and test of flow across industrial components

The test bench at SINT Technology Laboratory is composed by two measurements lines (1/2" and 1") that allow to measure and test flows across a wide range of industrial components such as:

- Burners
- Swirlers
- Nozzles
- Orifices
- Valves etc.

The flow bench works with compressed dry air and is equipped with high precision pressure, temperature, flow measurement probes and systems, data logger and real time results calculation through the proprietary software.





## Services provided by SINT Technology

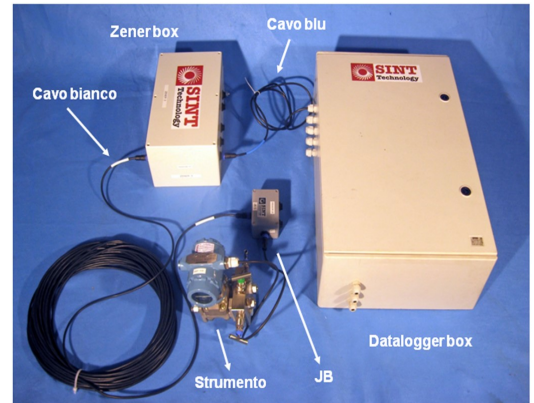
Test bench instrumentation is calibrated by SINT internal accredited laboratory or by external certified parties.

Signals coming from every instrument are acquired through a data-logger and recorded with a personal computer.

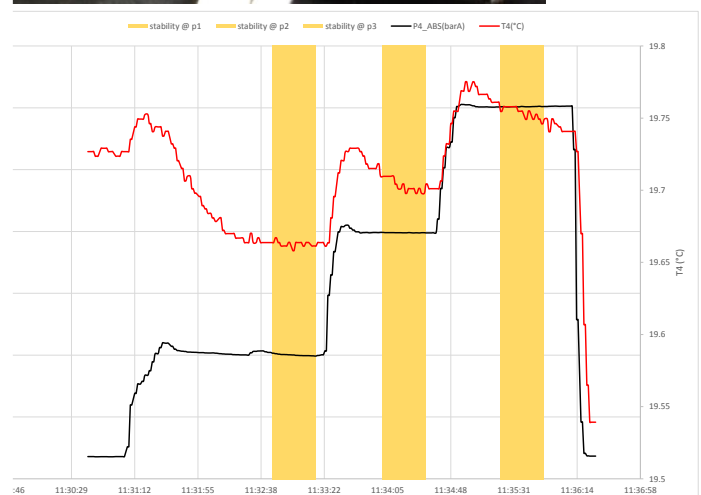
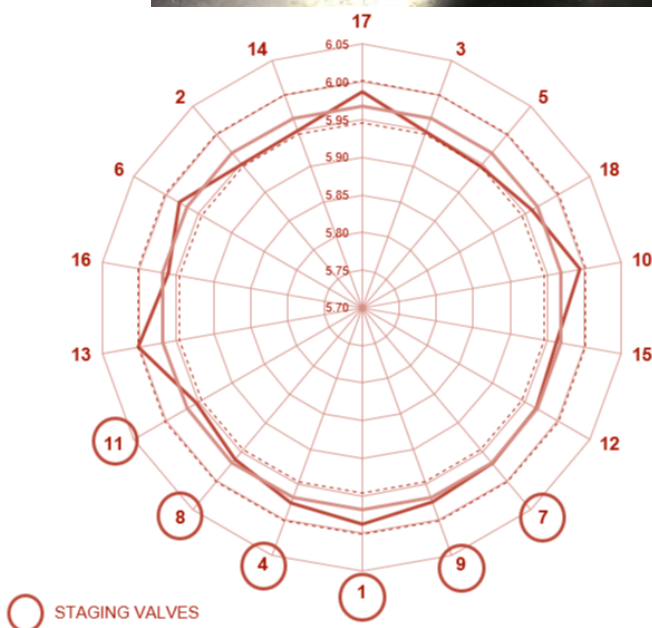
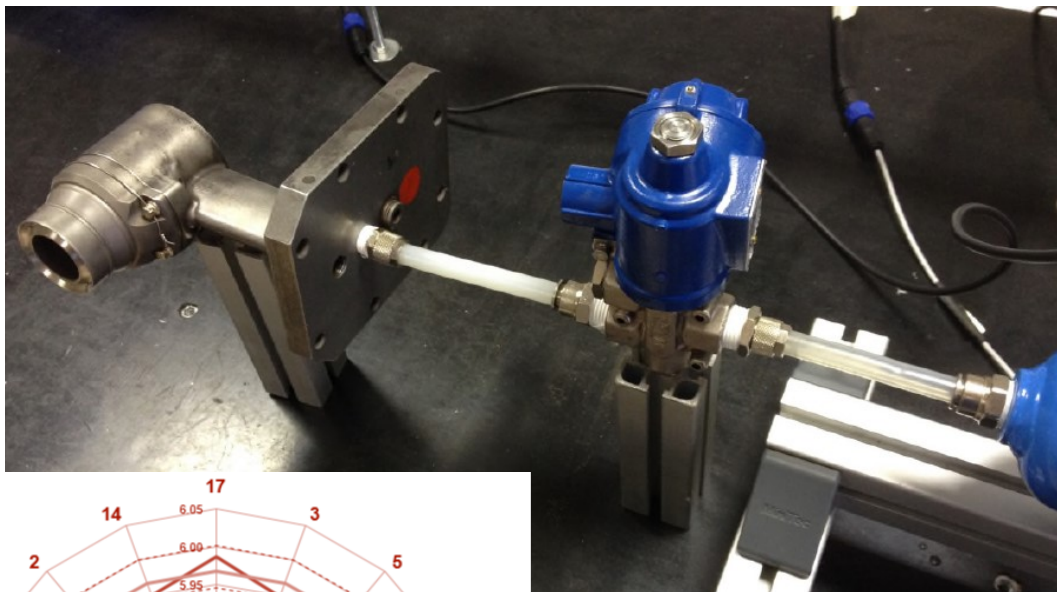
Real time data are monitored during the component test, through the SINT proprietary software.

Data post-processing is performed with on-purpose designed spreadsheets and results are analyzed.

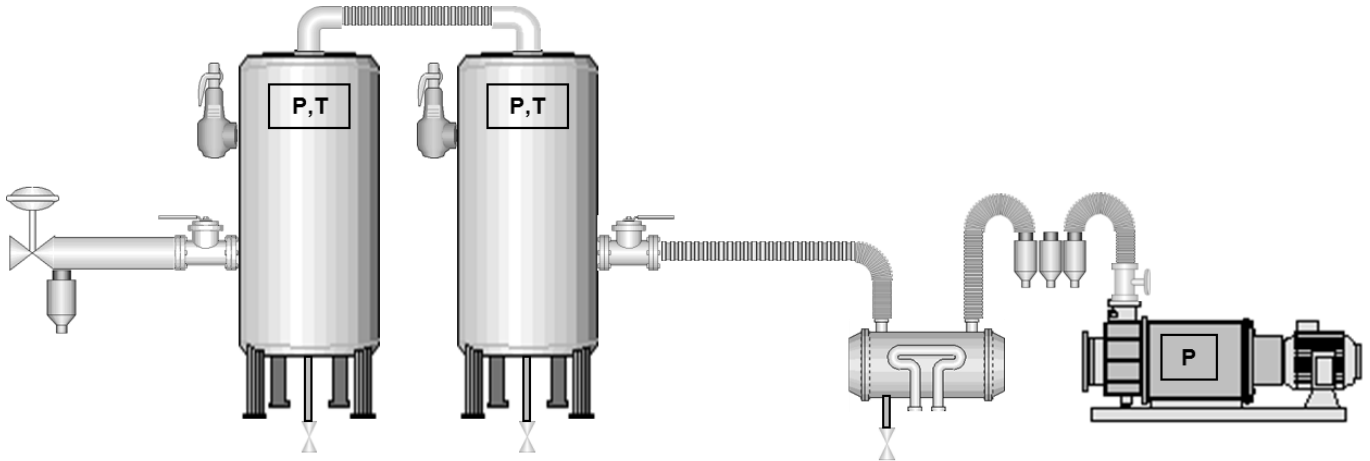
At the end of the test activities, a report is produced with results and comments.



For particular purposes, such as gas turbine burners effective areas calculation, SINT can also perform orifice drilling and calibration and provide an optimized burners installation map.



## Plant layout



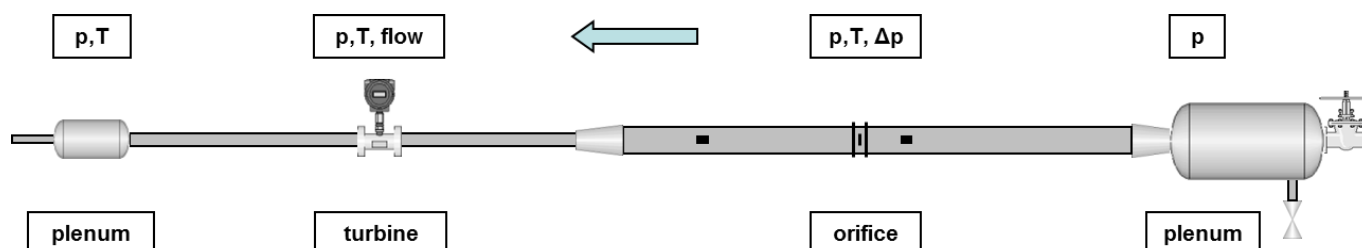
Air coming from a compressor is filtered, chilled and dried and then stored in two 270 lt tanks.

A pressure regulator placed downstream the tanks allows the operator to set and maintain the pressure into the two lines.

Choosing the 1/2" or the 1" pipe diameter line, we can test a wide range of industrial components at low or high flow rates respectively.



## Higher flows: 2" in 1" test line

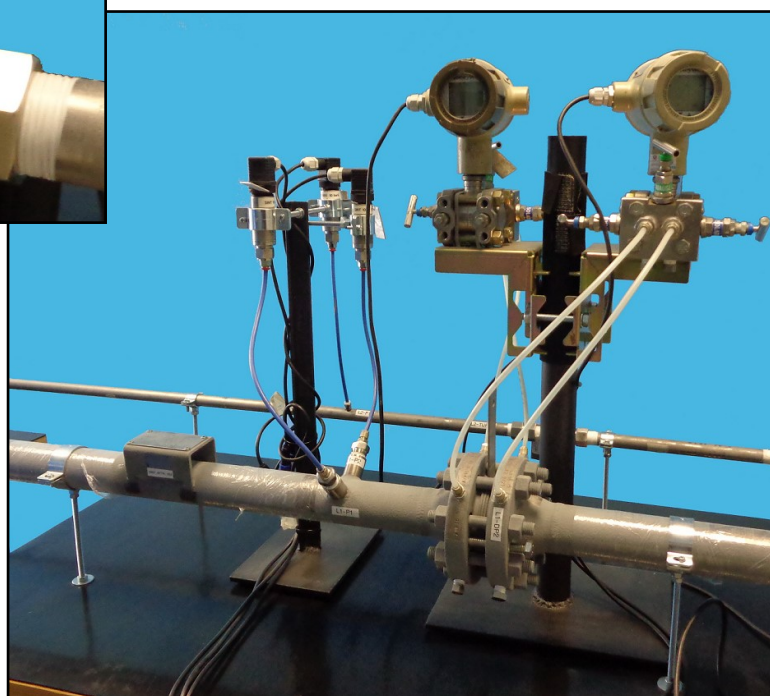


Working fluid	dry air
Max working pressure	10 barg
Flow rates range	from 5.0 g/s to 100.0 g/s
Stabilization time before reading	1.0 min
Test duration at selected operative point for each component	from 15 to 45 s
Flow measurement uncertainty	0.8 % max
N.1 calibrated measurement orifice $\varphi = 14$ mm (2" line)	according to ISO 5167 code
N.1 calibrated measurement orifice $\varphi = 25$ mm (2" line)	according to ISO 5167 code
Pressure transmitters uncertainty	0.2 % max
Differential pressure transmitters uncertainty (range < 80 mbard)	0.6 % max
Resistance thermometers measurement error	0.2 °C max
N.1 volumetric flow measurement turbine (1" line)	141.6 – 1416 l/min (3.0 g/s – 39.0 g/s)



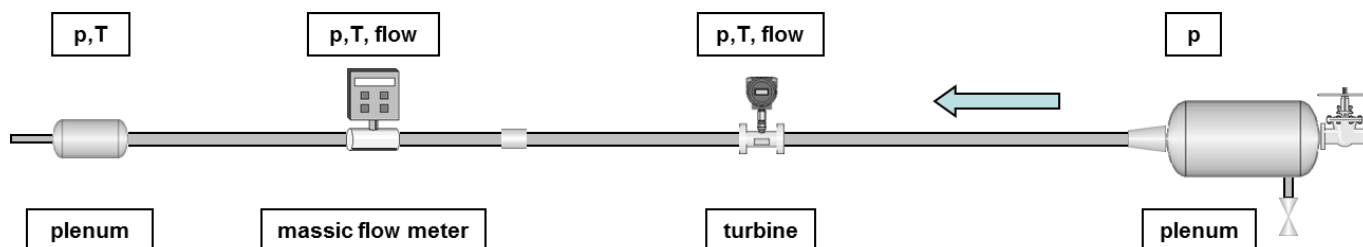
Turbine

Flow orifice



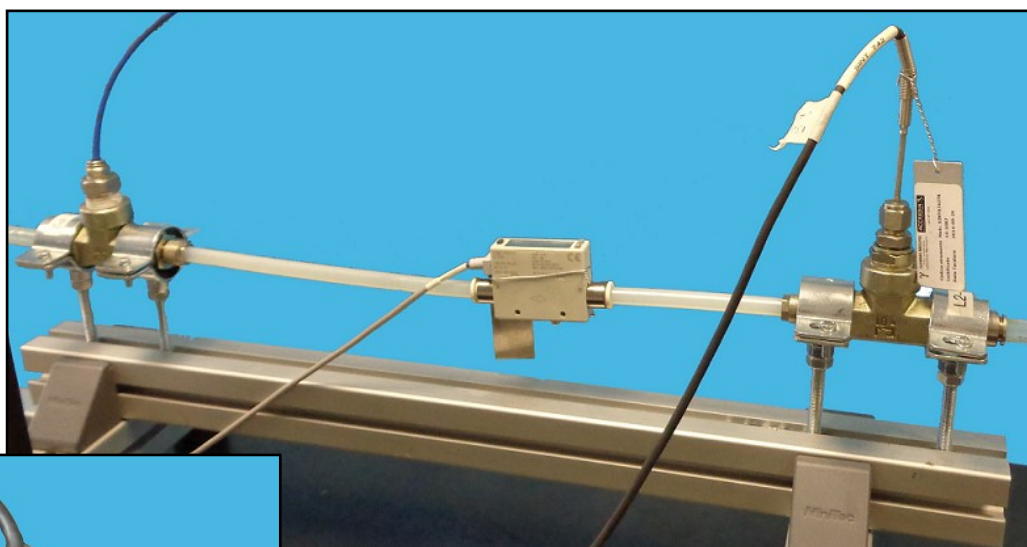


## Lower flows: 1/2" test line



Working fluid	dry air
Max working pressure	10 barg
Flow rates range	from 0.3 g/s to 4.0 g/s
Stabilization time before reading	1.5 min
Test duration at selected operative point for each component	from 15 to 45 s
Flow measurement uncertainty	0.8 % max
N.1 volumetric flow measurement turbine (1/2" line)	14.0 – 140.0 l/min
Pressure transmitters uncertainty	0.2 % max
Resistance thermometers measurement error	0.2 °C max
N.1 mass flow measurement device (heat transfer effect)	from 0 to 200 Nlt/min

Turbine



Mass flow measurement device

## Contacts

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## Recognitions

SINT Technology's test laboratory is accredited to standard ISO/IEC 17025:2005 by the Italian accreditation body **ACCREDIA** with **certificate no. 0910**



LAB N° 0910

Certification of conformity to the requirements of standard

**UNI EN ISO 9001:2008**

