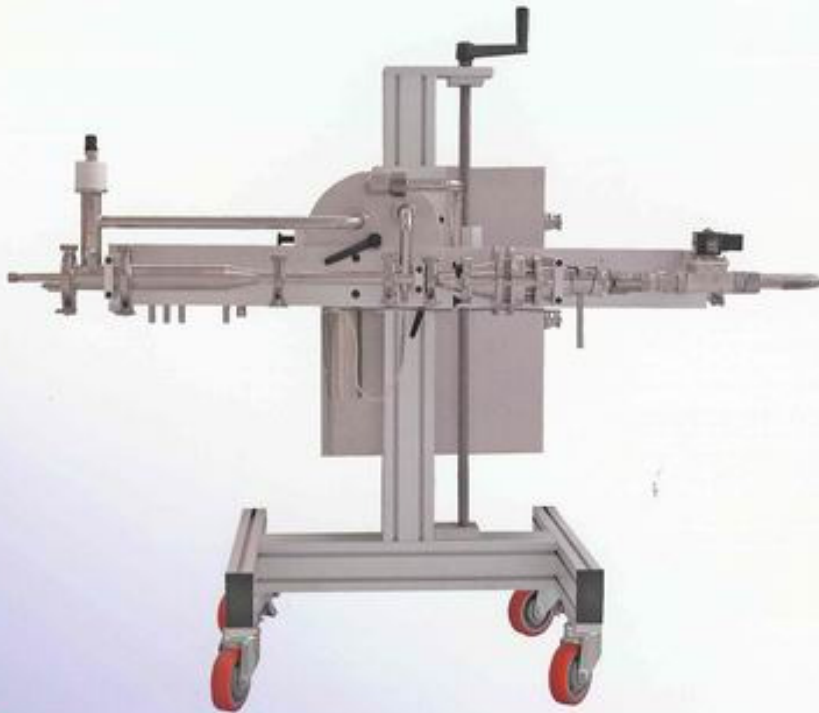




CONTROL SYSTEM

PSS-20

PARTICULATE SAMPLING SYSTEM



The **PSS-20** is a particulate sampling system based on partial flow method and variable dilution.

It satisfies the specifications contained in all main European and American regulations for the homologation of diesel engines from light duty up to heavy duty, both on-road and off-road.

The performances of the **PSS-20** allow to perform both transient and steady state tests assuring a perfect correlation with full flow systems (CVS).

The principle of exhaust gas partial sampling make it possible to use the system with every kind of engines, from ultra-light vehicles units up to large naval ones; moreover it can be used as secondary dilutor in CVS systems.

PSS-20 is composed by two parts: the control cabinet and the trolley that contains the dilution minitunnel.

The cabinet is commonly placed in the control room; the unit is controlled by a standard personal computer connected to the cabinet by means of an Ethernet cable so it is possible to leave it in the cabinet itself or to place it on the operator desk.

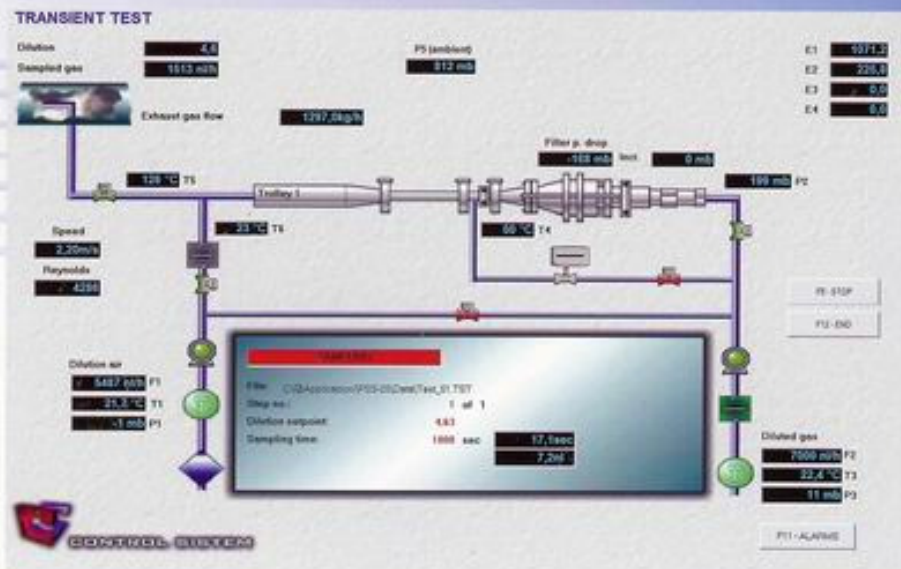
The trolley is mounted on wheels and the tunnel can rotate by 360° and it can be moved up and down thus allowing an extreme flexibility in finding the best position close to the exhaust gas pipe.

The system uses ambient air for dilution and it is equipped with electrical valves so no compressed air is required, but only 230 Vac power supply.



The **PSS-20** is provided with low inertia mechanical flowmeters connected to variable speed pumps. This configuration makes it possible not only to obtain a very low response time in transient cycles, but it guarantees also a very good accuracy and stability so that calibration can be carried out yearly.





MAIN COMPONENTS

Control Unit

- Personal Computer based on Pentium CPU and Windows XP
- LCD touch screen
- Distributed I/O system
- 4 analog inputs for accessory signals acquisition
- RS232 and TCP/IP connections for AK protocol control
- 2 variable speed pumps
- 2 low inertial mechanical flow meters
- Synchronization valve
- Temperature and pressure sensor for mass flow correction

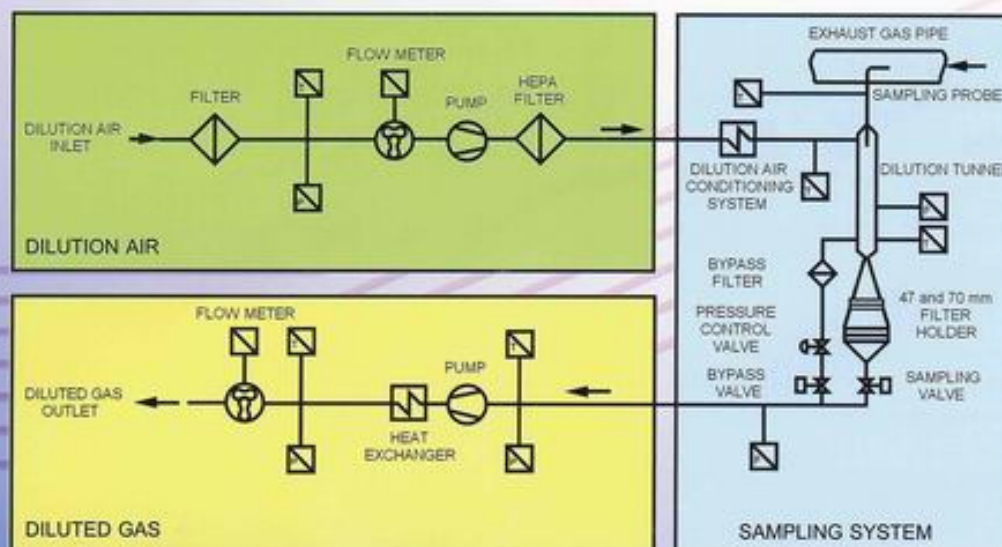
Mobile trolley

- Stainless steel dilution tunnel
- Filter holder for 47mm and 70mm filters
- Bypass line with pressure drop simulation system (patented)
- Dilution air conditioning system
- Distributed I/O system
- Temperature and pressure sensor for process supervision

TECHNICAL DATA:

- Cabinet dimensions and weight: 600 x 700 x 1400 mm, 180 kg
- Trolley dimensions: 1200 x 300 x 800 mm, 70 kg
- Power supply: 230 Vac, 2 kW
- Pumps maximum flow: 10 m³/h
- Flow meters accuracy: $\pm 0.2\%$ of reading
- Dilution ratio: constant or variable
- Transformation time (ISO 16183): < 0.17 sec
- Standard regression correlation coefficient (R^2): > 0.98
- Filter size: 47 mm or 70 mm
- Probe: flow facing hatted probe
- Temperature of diluted gas at filter position: between 42°C and 52°C
- Dilution air filter: HEPA
- Dilution tunnel material: stainless steel
- Diluted gas speed through the filter: between 0.35 m/s and 1 m/s

PSS-20 FLOW DIAGRAM



MAIN REGULATIONS CONFORMITY

- ISO 8178
- ISO 16183
- Directive 2008/74/EC
- Directive 2005/78/EC
- Directive 2005/55/EC
- Directive 2004/26/EC
- EPA 40 CFR 1065
- EPA 40 CFR 86

BENEFITS

- Fast and flexible installation
- User friendly SW interface
- Possibility to move on different test cells
- Transient tests capability
- Look ahead control not required
- Compatible with any kind of engine
- Long calibration stability (more than 1 year)
- Complete remote control by means of AK protocol
- No service fluids required

OPTIONS

- Multiple filter holder (up to 3)
- Automatic filter changer (up to 15 cassettes)
- Multiplexer for connecting up to 4 trolleys to 1 control unit
- Automatic certified calibration system
- Heated sampling probe
- Heated minitunnel
- Cyclonic separator



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