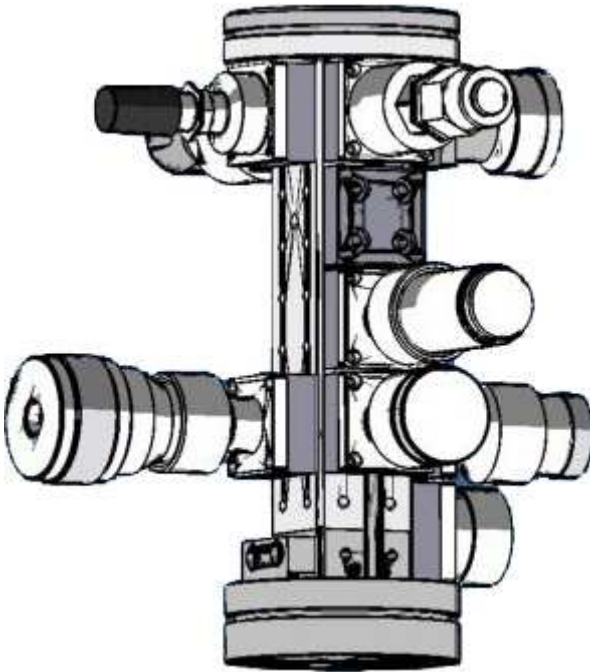




Online Analysis



Reliable innovation





Our Approach

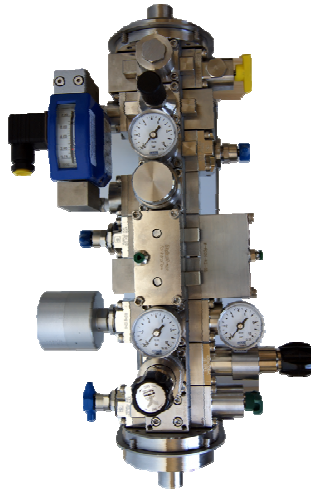
Permits the analyzer, along with the sample conditioning system and sensors, to be mounted at the sampling point of the process.

Continuous gas or liquid samples requiring pretreatment and conditioning prior to entering an analyzer.

The ASTUTE system permits the analyzer, along with the sample conditioning system and sensors, to be mounted directly on the fast loop of the sample system, nearest to the process.

For liquid samples ASTUTE can integrate a tangential filter (up to 0.2μ), an inline blowback system, and the appropriate treatment for the sample, be it coalescing filters, separators, etc.

For gas samples ASTUTE, installed in conjunction with a sample probe, a treatment column, or a CCIMS systems, can be installed directly on the process lines. Its infinite modularity permits any type of configuration for analysis and instrumentation. ASTUTE is an excellent platform for the next generation of sensors and analyzers being developed for the ISA/ANSI SP76 specification. It allows for different sample streams, regulation of physical characteristics of the sample, and sample filtration all in one system.



Our commitments

Reliability

Minimized response time

Minimal maintenance

Reduction in the amount of sample sent to vent

Minimized congestion for a maximized accessibility

Complete modularity

Open system design with the ability to adapt to future needs

Proven track record

Economies of scale

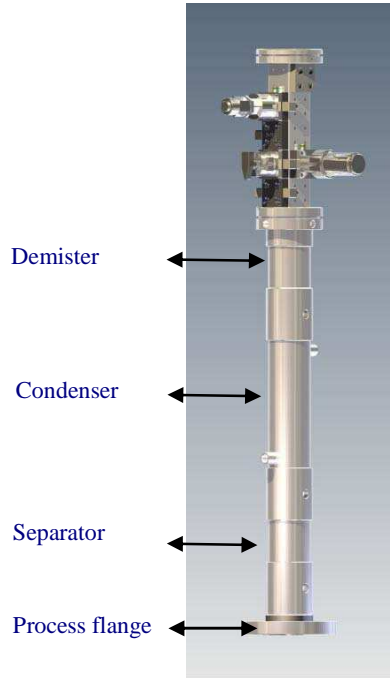
Reduction in the consumption of utilities





MOUNTING DIRECTLY ON A TREATMENT COLUMN ON THE PROCESS

- Complete pretreatment of the sample
- Modularity of the pretreatment system
- Connected directly to the process



APPLICATIONS

- * **Process Gas Measurements**
- * **CO₂, O₂, etc.**
- * **Process inerting control systems**

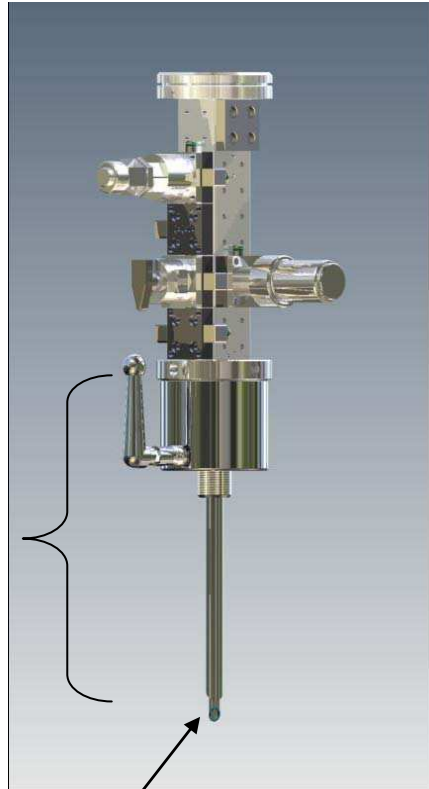


MOUNTING ON AN EXTRACTIVE PROBE

- Short response time
- Minimal dead volume
- Adapted for high pressure systems
- Internal fast loop



Sample probe



Pitot tube

APPLICATIONS

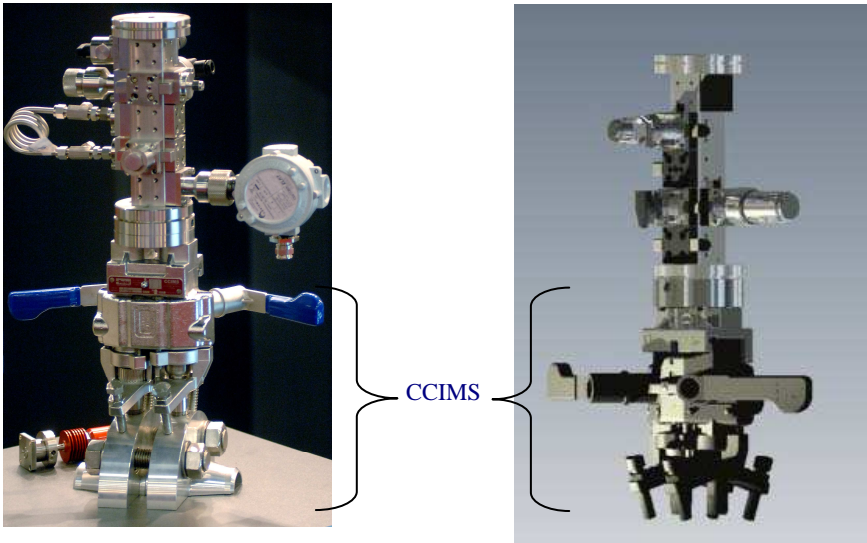
- * **Process Gas Measurements**
- * **Moisture and H₂S Measurements**
- * **BTU / GC... analysis.**





MOUNTING ON THE PROCESS WITH A CCIMS

- Short response time
- Easily decoupled from the process line
- No bleed



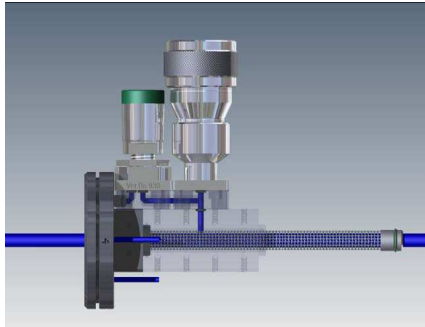
APPLICATIONS

- * **Gas**
- * **H₂O, H₂S, etc, analysis**
- * **BTU / GC/ etc.**



Mounting on a fast loop

- Integrated tangential filter
- Associated blowback system
- Compact system



APPLICATIONS

- * **Designed for liquid systems**
- * **Hydrocarbones**
- * **Sulfur analysis**





Mounting box

- Decrease congestion
- Fast installation
- Easy maintenance



APPLICATIONS

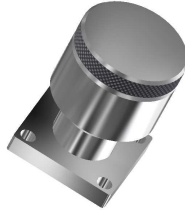
- * Gas / Liquid
- * O₂, CO, H₂O, H₂S,... analysis
- * IRTE, Chromato,....



Functional components

Water fuse

SEC STPE
Aqueous phase
arrestor



Filter

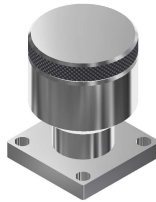
SW UF

Available in 2 and 3
ports configurations
Filtration and coa-
lescing applications
Sheet#2122



Separator

SEC 12 UF
Gas applications
SEC 12 UF HV
Liquid/liquid
Applications
Sheet #2123



Filter

SV UF

Available in 2 and 3
ports configuration
Filtration and coa-
lescing applications
Sheet#2122



Separator

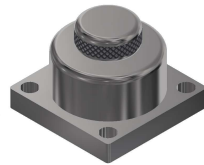
SEC 25 UF
Gas applications
SEC 25 UF HV
Liquid/liquid
applications



Filter

SV6600

Available in 2 and 3
ports configurations.
Sintered stainless
steel filter elements
Sheet#2122



Blowback

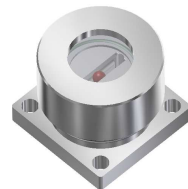
HP 5 UF

Sheet #2124



FIB

Flow indicator, ball
Sheet#2118



Eductor

ES1T UF

Sheet#2121



PG 13 Probe support

PG 13

Sheet#2128



**Manual valves
2&3 way**



Manual valve



**Pneumatic
diaphragm valve
(low pressure)**



**Micrometre
valve**



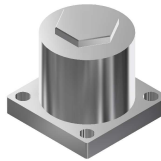
Regulator



Needle valve



Check valve



**Safety relief
valve**



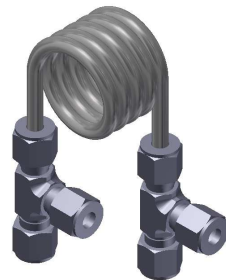
**Rmax Valve
Single 3-way valve**



**Rmax Valve
Stream switching valves**



**Permapure
Fixed on 2 substrates**





Regulator

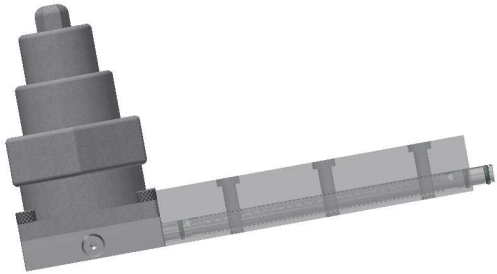
DM 4000

10 to 500 psig



Vaporizing regulator

25 to 50 psig



ATEX Heater



Heat exchanger

Sheet #2131



Measuring probe support H₂O, O₂



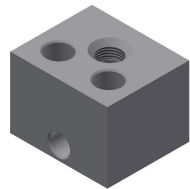
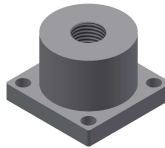
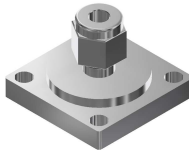
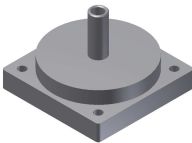
Adapters

IF 4TA 1P OFFSET 045

IF 4A 1P SS

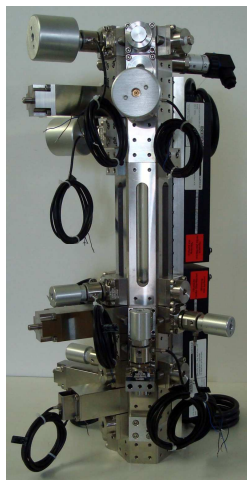
IF 2F 1P SS

IF 2F TOP SS

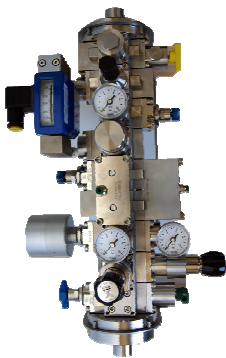




H₂ measurement head space on a reactor



**Sampling with reactor include in
ASTUTE 6 sides**



C₃ measurement in hydrocarbon



Preconditioning system



Moisture measurement with
ASTUTE in PVDF

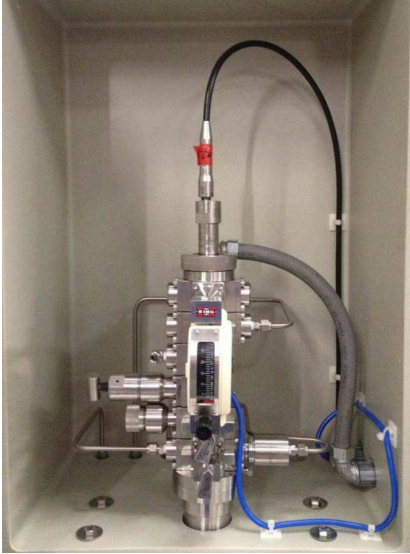


Explosimetry measurement by
IR

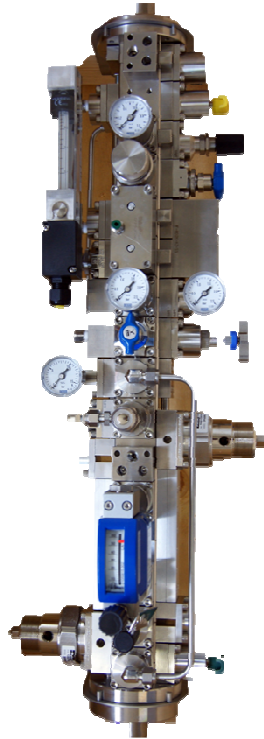


O₂ measurement in VF2 by TDL





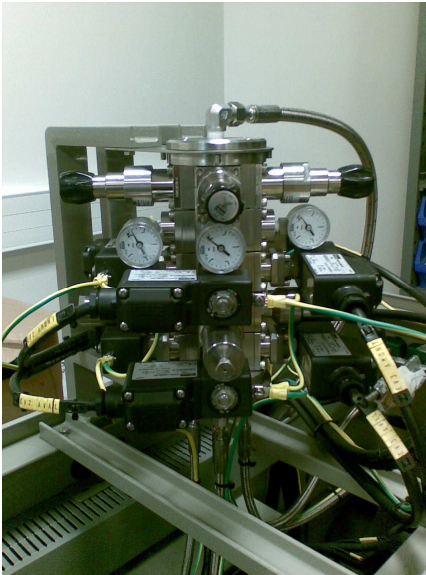
Adaptation Raman probe



Butadiene on GC



Moisture measurement by TDL



Sampler



Laboratory test bench



CO2 measurement by PIR with fast loop

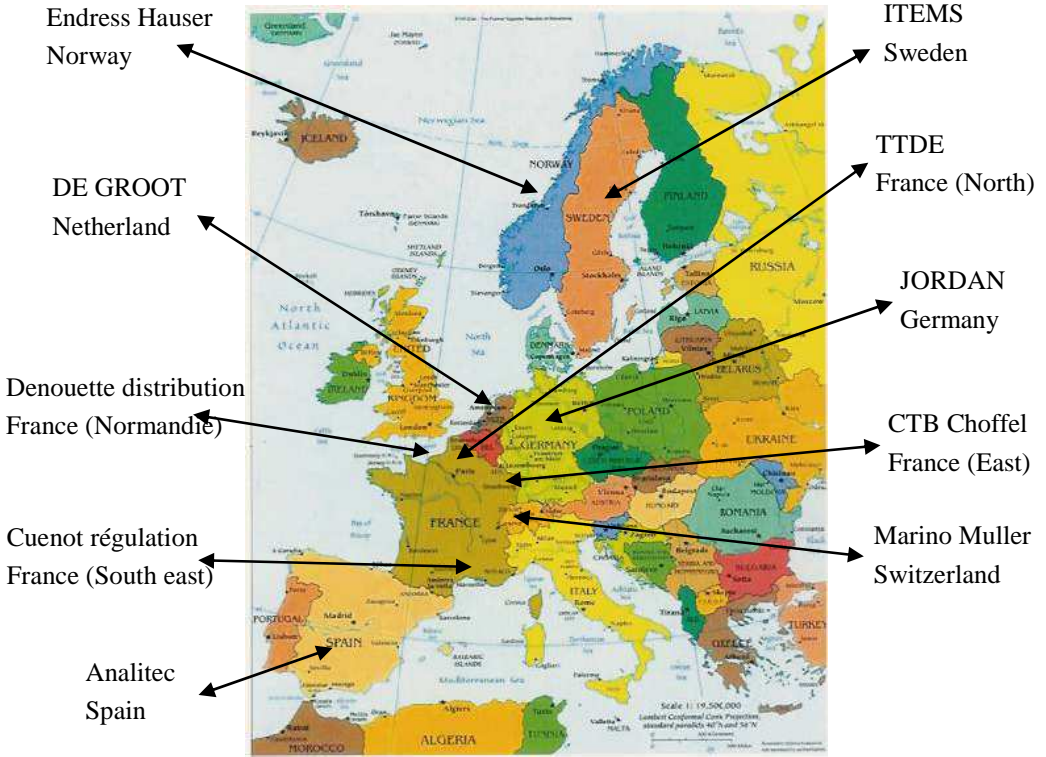


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