

PFS-A-SL PULVERIZED FUEL SAMPLER – AUTOMATIC SNAP - LOCK

HANDY PORTABLE AUTOMATIC MEASURING UNIT
FOR ISO 9931 COMPATIBLE SAMPLING



General description

This instrument extracts a sample according to the ISO 9931 Standard coal sampling.

Why an M&W sampling device?

- Demand for a sampling procedure which can be performed independent of the operating person (no human error) has paced the development of the PFS-A
- The number of operators is reduced from two to one.
- The Snap-Lock by M&W will reduce time spend on each sampling.

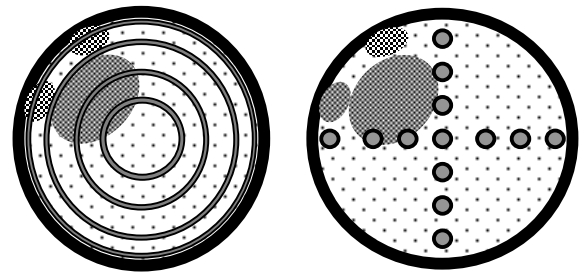
The sampling probe is rotated by an electric motor
The control unit is equipped with a PLC which controls the isokinetic velocity of the extraction air as well as the performance of the complete sampling cycle

Based on electronic signals from the built-in scale weighing the sample, the PLC calculates the total mass flow of pulverized coal in the complete cross section (t/h).

We believe that working with the right information, is the best way you can optimise your combustion process. The coal flow balance and mill performance are important factors in this process

Getting your coal dust samples for fineness control and coal flow balancing is often considered as a "dirty job", which no one really enjoy doing. The result is that this task is not performed as often as it should be.

Difference between ISO 9931 and ASME



ISO 9931

ASTM / ASME

The ISO 9931 method extract a fuel sample while 4 nozzles are rotated in one full circle. Each nozzle extracts from an equally sized area of the fuel pipe. This ensures a uniform collection of the sample

The ASTM / ASME method extract a series of fuel samples from points in a cross pattern. As seen there is great risk that the roping of the fuel (shaded area) is not detected.



The benefits of combustion optimization

- Minimum NO_x emissions (*On request we send you the paper "Effect on No_x Emissions and Carbon in Ash of Coal Flow Imbalance to Coal Burners"*).
- Quality fly-ash for commercial use instead of disposal
- Minimized slagging, fouling and fireside corrosion
- Fuel savings by minimizing excess air
- Minimized wear in pulverizers
- Reduction in outages
- Enhanced control of firing conditions when testing new coal types

Considerations on accuracy of the samples

How precise is this instrument ?

The formulation of this question should be directed onto the subject of relative accuracy, not absolute accuracy !
If you agree that in any instrument there will be a certain error margin, then follows, that this margin will follow the instrument from pipe to pipe and the data from the instrument will reflect the relative difference between the pipes.

Margin on manual rotor probe sampling:

A traditional rotor probe sampling consist of the unavoidable margin by the instrument, + the margin caused by the human operator who manually turn and operates the sampler = Constant margin from instrument + variable margin from operator.

Margin on automated rotor probe sampling:

The automated rotor probe sampling consist of the unavoidable margin by the instrument = Constant margin from instrument.

Conclusion: There will forever be an ongoing debate about how to take an absolute 100% correct sample. The PFS-A will deliver a sample where the repeatability is at maximum, and thereby the relative differences between the samples are at a minimum.

The PFS-A consists of

- 1.1 1 pc. Dustless Connection**, more to ordered eparately.
- 1.2 Sampling lance** Power driven sampling device with hard steel abrasion resistant nozzles and cyclone
- 1.3 High efficiency precipitating cyclone** with connector for sampling lance, snap coupling for reinforced air hose, as well as adapter for sample bottle.
- 1.4 10 pc. Sample bottle**, 500 ml plastic container coupling for precipitating cyclone.
- 1.5 Reinforced vacuum/compressed air hose** with snap couplings at both ends, standard L= 2,5M (7.5').
- 1.6 Portable aluminium control box** with PLC, pre-heater, venturi nozzle, built-in scale, differential pressure gauge, pneumatic valves.
- 1.7 Connecting cable** f. sampling unit. L= 2,5M (7.5').
- 1.8 Power supply cable** (supplied without wall plug) Standard L= 1M (3').
- 1.9 Hose to DC**, Standard L= 2,5M (7.5').
- 1.10 Hose to DAP**, Standard L= 2,5M (7.5').
- 1.11 3/8 hose to air supply** (only fitting to control box), Standard L= 25M (75').

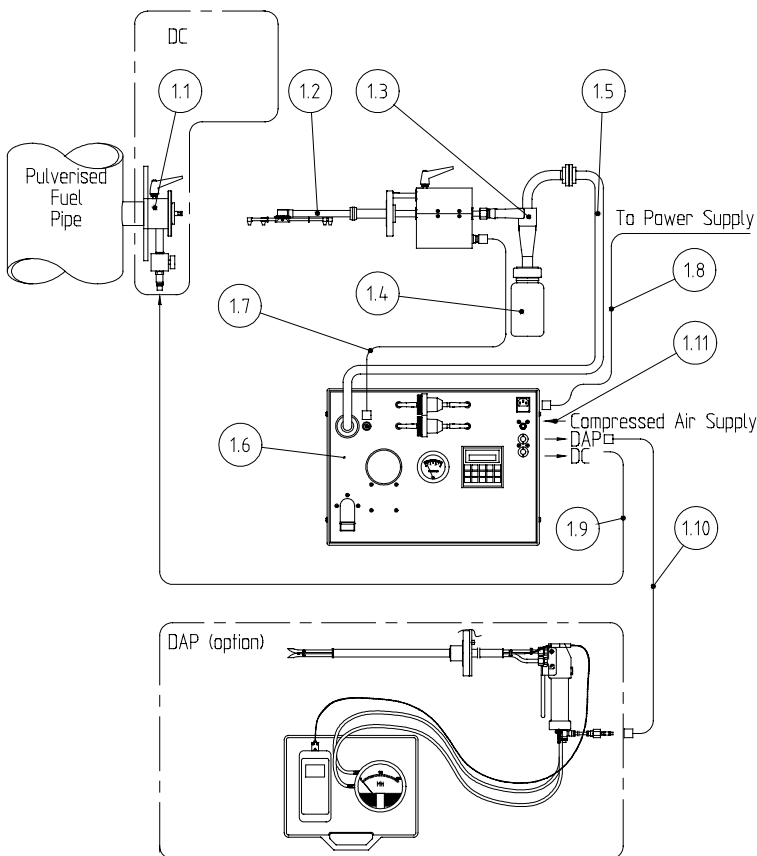
Technical specifications for PFS-A

Sampling according to ISO 9931
 Produced for any fuel pipe Min: Ø 210mm.(8")
 Max: Ø 1.400mm.(4ft.55")

Continuous sampling: 4 equal sized areas
 Power supply: 230V/50Hz (Standard)
 115V/60Hz (Option)

Power consumption: 0,8 kW
 Weight Sampler unit: 7 kg. (14lb.)
 Weight Control unit: 17 kg. (35lb.)
 Compressed air requirements: Min. 6 bar Clean oil-free air

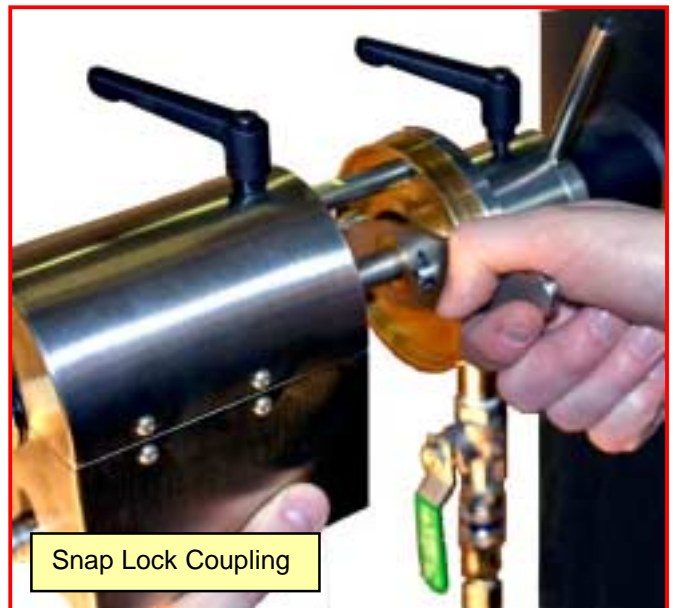
To ensure perfect fit, all PFS-A-SL are manufactured to customers specifications.



DC-SL Closed



DC-SL Ready



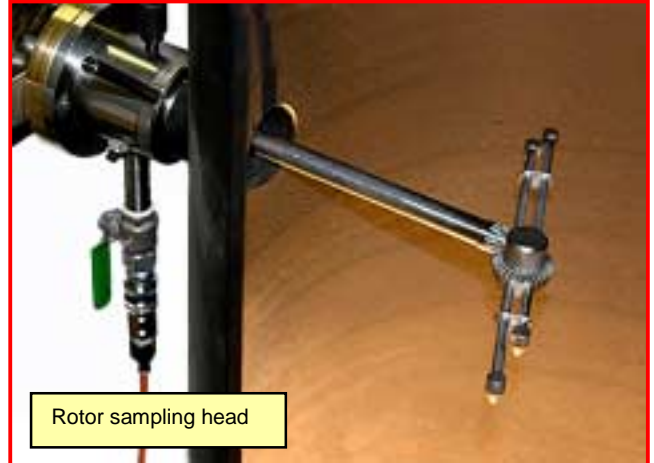
Snap Lock Coupling

Operation of the PFS-A-SL

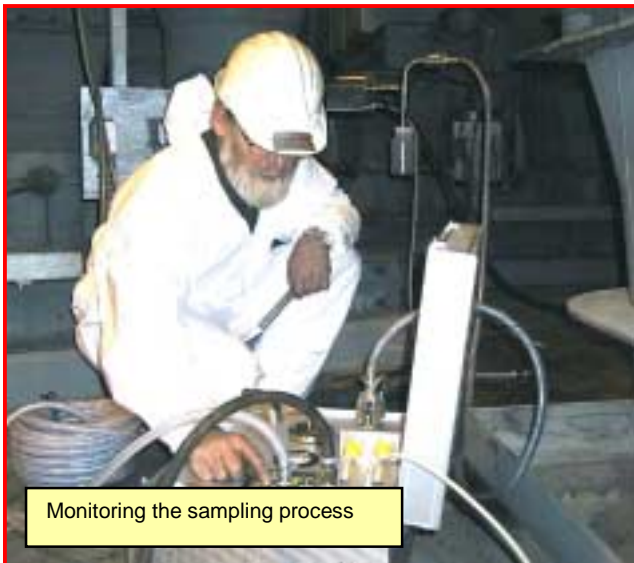
These few snap-shots demonstrate the easy and simple operation of the PFS-A-SL. The snap-lock coupling (not shown) makes the connection and disconnection very swift. Before sampling, the present temperature and dirty air speed inside the coal pipe has been verified by the Dirty Air Pitot (optional).



Inserting the pre-heated lance



Rotor sampling head



Monitoring the sampling process

The Company and its product line

M&W is an internationally working engineering company specialized in the design, manufacturing and supply of analysing and sampling systems for optimising processes and controlling by-products in coal-fired power plants and other utility boilers world-wide.

M&W 's product line

Pulverized Fuel Sampler (PFS) +(PFS-A)+(PFS-A-SL)
Dirty Air Pitot (DAP)+(DAP-SL)
Dustless Connection (DC)+DC-SL)
Automatic Coal Flow Monitor (ACFM)
Automatic Trimming Damper (ATD)
Automatic Dust Sampler (ADS)
Residual Carbon Analyser (RCA)
Fly-Ash Sampler (FAS)
Raw Coal Sampling Systems (RCS)



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