

### Hydrocarbon Automatic sampling system (BSW)

This automatic sampling system (BSW) has been designed for sample oils from upstream crude-oils to refined products according to the requirements of the most usual standards : ISO 3171 ; ASTM D 4177 ; IP Petroleum Measurement ( Manual Part VI, section 1 ).

A main benefit of the automatic sampling system (BSW) is to integrate the complete line of features to keep sample integrity e.g.:

- Large bore by-pass loop isokinetic sampling with large opening size and 2.4 m/s constant velocity as per the API recommendations related to automatic sampling system (BSW)
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- Accurate automatic sample extractor grab size repeatability assured by positive displacement principle .
- Sample extracted from process line is directly stored in the sample receiver chamber integrated to the autosampler .
- Autosampler receiver chamber is equipped with a mixer to prevent stratification of heavier fractions during the sample transfer to the 1 liter portable receiver .
- -The automatic sampling system (BSW) receiver chamber is a floating piston cylinder to suit with split phase crude-oil ; sampling is operated at constant pressure .
- A feed back to the automatic sampling system (BSW) Control Unit indicates the amount of sample contained inside of the sample receiver and a local indication of level is given by the piston shaft position .
- An other feed-back free contact is issued to verify that pulses have been transferred to the sample solenoid valve of the automatic sampling system (BSW) ..
- The automatic sampling processing is operated by pilot pulses issued by separate Control Unit for safe or flammable area .
- Grabs are taken in proportion to flow or time .
- A permanent comparison between the sample collected in the receiver and the batch volume actually monitored on line is achieved , therefore confirmation that the automatic sampling system (BSW) extracts a uniform grabs in flow or time proportional manner is made .
- At the end of automatic sampling , compliance with service factor requirement specified by ISO 3171 is checked and reported

The automatic sampling system (BSW) wetted materials are Stainless Steel 316L with PTFE seals ; the grab rate can be set up to 100 grabs /mn and the sample maximum viscosity acceptable is 8 000 cst .  
All electrical parts are ex-proof Class 1 Division 1 Groups C&D (NEC ) or ATEX II 2G EEx dIIB T4 .

