PILODIST ®

laboratory & process technology

PETRODIST® 400 CC

Processor controlled combined crude oil distillation system for fully automatic operation according to ASTM D-2892 (TBP) and ASTM D-5236 (Potstill). PETRODIST 400 CC is a combination of the following systems:

- PETRODIST 100 CC – 10 l flask size (ASTM D-2892)
- PETRODIST 200 CC – 6 l flask size (ASTM D-5236)

The combination system provides a central vacuum supply, thermostat and computer control and evaluation station for alternative use of either of the two distillation systems. System provides Windows(R) -based software with fully automatic data acquisition and analysis as well as LIMS connection. Both systems provide weight measurement as well as volume measurement.

The systems can be operated alternatively in fully automatic, uninterrupted and unattended mode. By adding options the system will be able to operate simultaneously!

The data evaluation software provides also a combined TBP-curve for both systems.

Compact design with control system and safety items for unattended operation. No operator intervention and no intermediate stops are required.

All necessary accessories will be supplied together with the turn-key system. The installation requires water, nitrogen, compressed air and electricity.

The optionally quoted accessories will enable the user to run both systems simultaneously.

1.Distillation acc. to ASTM D-2892 (PETRODIST 100 CC)

Processor controlled crude oil distillation system for fully automatic, unattended operation exactly conforming to ASTM D-2892 (TBP).

The system is computer controlled and designed for fully automatic operation throughout the different distillation runs at different pressure levels which includes:

- dehydration (manual/semi-automatic process prior to automatic distillation)
- debutanization
- 1. run at atmospheric pressure
- 2. run at vacuum 100 Torr
- 3. run at vacuum 10 Torr
- 4. run at vacuum 2 Torr

These different distillation runs are performed automatically without any intervention of the operator. The individual fractions are being collected in an inbuilt balance receiver with online high precision weight measurement via an in-built electronic balance and the volume of each fraction is detected automatically prior to the discharge from the system into the automatic fraction collector, which operates with 20 septum-sealed receivers. By replacing the 20 receivers after each of the 4 runs the overall numver of cuts/receivers for all 4 runs is 80. The receiver change is performed according to a pre-selected boiling temperature or when a receiver is filled up.

Optional online density measurement can also be provided for each fraction.

Due to the fully automatic uninterrupted operation the complete distillation procedure takes only a period of up to approx. 18 hours, depending on the individual crude oil charge.

After the distillation the operator has to weigh from the gas trap as well as the flask residue by the external balance (part of delivery), the weights are automatically taken by the system and as a result the final data evaluation and TBP-curves in weight-% and volume-% are printed out and can be stored.

The system requires for operation water, nitrogen, compressed air and electricity to be supplied by lab infrastructure.

2.Distillation acc. to ASTM D-5236 (PETRODIST 200 CC)

Processor controlled crude oil distillation system for fully automatic operation according to ASTM D-5236 (Standard Test Method for Distillation of Heavy Hydrocarbon Mixtures, Vacuum Potstill Method).

The system is designed for unattended operation (during the distillation), the safety devices are designed accordingly. Data station for data input as well as for display and print out of all operation parameters, distillation results and distillation curve.

The distillation ensues automatically from the start to the pre-selected or detected end point. The distillate volume is automatically recorded by means of an integrated volume follower system. The volume is measured separately on every individual receiver. The unit does not contain any intermediate receiver i.e.: to avoid reblend of the distillate. The weight of each fraction is automatically taken by an integrated electronic balance.

The volume calculation is expressed as percentage corresponding to the weight and the volume of the flask charge or total recovery. The distillation curve is printed out in weight and volume percent.

The fraction changes are carried out automatically, alternatively according to a pre-selected boiling temperature or distillate volume or when the receivers are filled up. The vacuum-tight fraction collector contains 12 receivers with a capacity related to the flask size. The boil up rate is controlled according to a pre-selected distillation rate in ml/min. An accurate vacuum control guarantees the required stability of the distillation pressure.

All necessary accessories will be supplied together with the system. The installation requires water, nitrogen, compressed air and electricity.

3.Central control and evaluation station

The central control system is based on a multifunctional serial bus system integrated into the system basis and connected to a PC with the windows based operation software to operate either each system individually or both systems simultaneously.

The software allows a comfortable overview and input of all parameters, as well as the automatic creation of the final data tables and curves. All Parameters can be changed during the operation process and saved and recalled at any time. The final data tables, curves and the combination of distillation data's prepared under the standards ASTM-D2892 and ASTM-D5236 will be created automatically in Microsoft Excel.

The password protected service area gives the user an easy possibility to do calibration and maintenance work.

It consists of:

2 independent serial bus control systems (integrated into the system basis)
2 computer systems with flat screen and color printer.
1 software package with operating software and Microsoft excel.
1 electronic Balance
1 set connection- and power cables

For more information consult your distributor