ExIS
INSTRUMENTS & MEASUREMENTS

ExIS Newsletter

2009-04-30

New MD19-3E

MD19-3E features

- improved geometry and material for the MD19-3E Block/Disk with 1000 hours lifetime; also available for upgrade of MD19-2E units
- optimised general design of diluter head with more durable construction of bearings and axle coupling
- easier and quicker block/disk assembly with fast lock system
- pressure-resistant for exhaust pressure up to 500 mbar above ambient
- temperature-tolerant for exhaust temperatures up to 200°C
- smaller and simpler cyclone without dedicated pump with easy access to the cyclone cup
- low-maintenance raw gas pump
- improved aerosol tubing for reduced particle losses
- raw gas probe inlet at the mobile diluter head and option to feed raw gas back into source - outlet at diluter head
- Sample flow up to 5 l/min at pressures of 900 to 1100 mbar (absolute)
- stand-alone operation or in combination with a secondary thermo diluter (ASET15-1)
- redesigned block and dilution air heating system
- fully remote controlled (in association with the CU-1/2)
- visual display (remote)
- reports temperature and rotating speed errors
- monitors dilution factor (nominal and actual value)

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The new MD19 diluter – small changes, big effects

Operation principle

The new MD19-3E is a re-engineered diluter. It keeps all advantages which a rotary diluter system brings, e.g. a dilution ratio ranging from 1:15 up to 1:3 000.

The mobile dilution head method allows to dilute close to the aerosol source. This flexibility in the probe intake saves costly add-ons to avoid particle coagulation. New tubing material from the dilution head to the pump reduces the particle losses (according to PMP R83) with improved accuracy as a result.

Dilution head

The target for the new MD19-3E diluter was to achieve a lifetime of 1 000 hours for the diluter head. After testing a broad variety of materials and designs, the new MD19-3E fulfils this target. It is also available as an exchange sub-unit for existing MD19-2E. The routine repair of the block/disk set is available at much reduced price and downtime.

Total cost of ownership

To achieve the 1000 hour target, the main improvements are a redesigned block/disk set and a new disk material. The disk material has a high heat conduction giving reduced temperature gradients, and a low thermal expansion coefficient.

Furthermore, the disk and block were improved by some new additional component modifications. The bush bearings were replaced by two ball bearings. The spiral coupling was replaced by an excenter cross coupling which is less sensitive to shaft misalignment. The torque now is transferred to the disk by a bolt crossing the axle while the disk is pushed onto the block by a new cap with springs. The two heat resistors were replaced by one heating cartridge which is put inside the block.

In addition to the above mentioned modifications, the peristaltic pump was replaced with a rotating pump. The maintenance is dramatically reduced as there is no more need to change the peristaltic pump tube.

The new cyclone is much smaller and does not need an extra pump. The lightweight cyclone contributes also to the reduction of the general size of the diluter head, improving handling, flexibility and ultimately save installation and maintenance costs.

Software improvements

The software has been updated in order to allow full remote operation. The internal pump can be started directly from a remote computer as well as the diluter head temperature or any other parameter.

The AK protocol will be implemented later during the year to enhance test cell integration.

More information

Contact us for more information about the MD19-3E diluter. An upgrade of older systems can also be made during instrument service. Ask us for a quotation.