Solid Particle Counting System
MEXA-2000SPCS series
Euro 5/6, Euro VI Compliant
Solid Particle Counting System

MEXA-2000SPCS series

The HORIBA MEXA-2000SPCS series measures the number of solid particles from engine exhaust gas in real-time. The series can complete engine/vehicle certification testing in the latest regulations (Euro 5/6 and Euro VI), which requires complied dilution systems, along with R&D testing of engines and particulate filters by direct sampling without dilution.

- **Certification tests for Euro 5/6 and Euro VI**
  - MEXA-2000 / 2200SPCS

- **Tests with a partial flow dilution tunnel connected**
  - MEXA-2200 / 2300SPCS

- **R&D tests with high pressure direct sampling**
  - MEXA-2100 / 2300SPCS

### Line-ups

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*1: When ordering, please specify intended applications and expected sampling methods.
*2: Direct sample gas should be supplied to SPCS without pre-classifier or hatted probe.
*3: With high-accuracy sample return function for connecting to a partial flow tunnel. (R49 compliant)

### Line-ups

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</tr>
</tbody>
</table>

*1: When ordering, please specify intended applications and expected sampling methods.
*2: Direct sampling at a pressure less than 5 kPa is possible. Acceptable maximum concentration is limited to the same value as the full flow tunnel.
*3: A DSU predilution unit with pressure adjusting function realizes direct sampling for high pressure applications of up to 100 kPa.

### High accuracy dilution

Reliable diluter developed by HORIBA Group

→ Patent number: 7201071 (US)

### High performance sampling system

The set DF *1 is not affected by changes in sample pressure in the CVS or sampling system. The VPR *2 calibration factor (PCRF *3) can be used for many applications without specific calibration/correction of the diluters in VPR.

### Dedicated particle number counting

Fully integrated system for stand-alone operation with the comprehensive data logging functions. Also available for operation with host CPU control using the AK-LAN host interface.

*1: DF: Dilution Factor
*2: VPR: Volatile Particle Remover
*3: PCRF: Particle Concentration Reduction Factor
Compact design
- Easy to install and transport in a laboratory
- Small footprint

Various optional units
The combination of the main unit and optional units allows a wide range of applications and sampling configurations.

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<tr>
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<td>×</td>
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<td></td>
<td>Linearity Check Unit (LCU)</td>
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</tr>
<tr>
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</table>

*1: For MEXA-2000/2200SPCS, select a hatted probe or an external cyclone unit set at full flow tunnel side.

*2: Mounted in an optional 19-inch cabinet with main unit.

For Certification Tests

MEXA-2000/2200SPCS conforms to the requirements of UN/ECE R83 and UN/ECE R49, adopting the method recommended by the Particle Measurement Program (PMP) of the Working Party on Pollution and Energy (GRPE) under the auspices of United Nations Economic Commission for Europe (UN ECE).

Euro 5/6 (UN/ECE Regulation No. 83)
When connected to partial flow dilution tunnel

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All-in-one system equipped with a calibration unit ---

MEXA-1000SPCS
**Models**

<table>
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<td>—</td>
<td>UN/ECE Regulation No. 83 (Rev. 4)</td>
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</table>

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**Conformed standards**

- **UN/ECE Regulation No. 83 (Rev. 4)**
- **UN/ECE Regulation No. 49 (Rev. 6)**

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**Measuring principle**

- Laser scattering condensation particle counting (CPC)

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**Lower particle size limit**

- Counting efficiency of 23 mm particles: 50% ± 12%
- Counting efficiency of 41 mm particles: 90% or more

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**Measuring components and range**

- Number concentration of solid particles: 0 – 10000 particles/cm³ (after internal dilution)³

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**Sample handling temperature**

- 52°C or less (Dilute sampling)

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**Diluted sample temperature**

- Primary diluter (PND1): 191°C ± 10°C
- Evaporation tube (ET): 350°C ± 10°C
- Secondary diluter (PND2): 35°C or less

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**Dilution factors in diluters**

- Di, 1.0 to 200³
- Primary diluter (PND2): 15
- Diluter in DSU: 10
- Secondary diluter (PND2): 15

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**PCRF**

- 0.95 < fr(30 nm) / fr(100 nm) < 1.3
- 0.95 < fr(50 nm) / fr(100 nm) < 1.2

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**Volatile particle removal efficiency**

- 99% or more, for C<sub>50</sub> (30 nm of particle size, and 10000 particles/cm³ or more)

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**Accuracy of dilution factor**

- Within ± 0.5% of nominal dilution factor setting (for VPR total dilution factor of 150 to 3000, gas based)

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**Operating environment**

- Without CLU (optional): Ambient temperature: 5°C to 30°C, Ambient humidity: 80% or less as relative humidity
- With CLU (optional): Ambient temperature: 5°C to 45°C, Ambient humidity: 80% or less as relative humidity

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**Power requirements**

- Main unit: Max. 2.3 kW
- Main unit and all optional units: Max. 4.5 kW

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**Dimensions (excluding any projections)/Mass**

| Main unit (without transfer tube, control unit and optional units) | Approx. 115 kg |
| 434(W)×731(D)×637(H) mm | Approx. 4 kg |

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**Please read the operation manual before using this product to assure safe and proper handling of the product.**

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**Bulletin: HRE-2260**

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