Pressure Digestion Vessels

Vessels, Liner Systems, and Accessories for the Microwave Pressure Digestion System speedwave MWS-3”

The Right Pressure Vessel for Every Application

BERGHOF Products + Instruments offers task-specific pressure vessels for practically every application.
Vessels ranging in volume from 10 ml to 100 ml are available.
Options such as high-pressure inserts up to 130 bar (1,880 psi) or multiple tube systems expand the vessels’ application areas.

Highest Quality

All vessels are manufactured in our own facilities under the strictest quality controls. They are made of high-quality TFM and are characterized by the highest level of reliability and an extraordinarily long service life.
Pressure Digestion Vessels *speedwave* MWS-3

**Easy Handling**

The pressure vessels comprise only a few components and can be opened and closed without the need for tools. Residual pressure is released in a controlled manner during opening, providing safety for the user. The design is free of dead-spaces, making the vessels easy to clean. Patented, optical measuring procedures for temperature and pressure, together with the integrated gas collection system eliminate the need for connections for hoses and sensors.

**Flexibility and Productivity**

The pressure vessels are positioned in the microwave oven by suspending them in a rotor system. The standard design allows for 12 vessels per rotor. Vessels and the rotor system represent independent components, allowing the pressure vessels to be individually removed or installed. Digestion with only partially filled rotors is also possible. Vessels and samples can be exchanged after only a short cooling off period and without having to first vent the system. This flexibility results in high sample throughput rates and thus to extraordinarily high productivity.

**Safety**

All pressure vessels are equipped with metal rupture discs to provide protection against overpressure. Their large diameter guarantees reliable, reproducible activation behavior and ensures the required, rapid pressure reduction.

Emissions are effectively avoided during digestion because all vessels are absolutely sealed to a gas collection system.
Pressure Digestion Vessels speedwave MWS-3+

Pressure Measurement (Optional)
The vessels can also be equipped with a “touch-free” optical pressure measuring system. This retrofit merely involves replacement of the vessel lid. Any desired number of vessels can be outfitted with this option, from a reference vessels right up to individual measurement of all samples.

Pressure measurement is a contactless process performed by a sensor mounted on the microwave oven’s interior wall.

Application Areas
Active temperature monitoring in all vessels permits even high-boiling acids (sulfuric acid, phosphoric acid) to be used at any desired concentrations and in combination with other chemicals.

**DAP-30+**: small-volume vessel, particularly well suited for digestion of hard-to-digest, inorganic samples; oxides, metals, and alloys < 300mg; polymers < 300mg.

**DAP-60+/ DAP-80+**: standard vessels with a wide application spectrum. Inorganic samples such as oxides, metals, and alloys < 200 mg; polymers < 300 mg; food products < 500 mg, as well as environmental samples such as soils, sludges, waste water.

**DAC-100**: high-pressure vessel for digesting hard-to-digest inorganic samples such as oxides, metals, and alloys < 500 mg and larger sample volumes of organic sample materials; polymers, pharmaceuticals < 700 mg; food products < 1000 mg.

Liner Systems
Using the **MT multiple tube system** for the DAC-100 high-pressure vessel, up to 24 samples can be digested simultaneously. Typical applications include food products < 300 mg and samples from the pharmaceutical industry or from medical labs.

The **DAQ-20H quartz glass inserts** can be used to retrofit the DAP-60+ and DAP-80+ vessels for smaller sample volumes e.g., medical and pharmaceutical products.

The **DAC-17 high-pressure insert** expands the application area for DAP-80+ vessels to include hard-to-digest samples such as SiC, Alumina, Coke.
# Pressure Digestion Vessels speedwave MWS-3+

## Data + Options

<table>
<thead>
<tr>
<th>Vessel type</th>
<th>Volume</th>
<th>Operating pressure</th>
<th>Test pressure</th>
<th>Temperature, Tmax</th>
<th>Sample capacity vessels / rotor</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAP-30+</td>
<td>30 ml</td>
<td>80 bar (1,160 psi)</td>
<td>120 bar (1,740 psi)</td>
<td>260°C</td>
<td>12</td>
<td>XX</td>
</tr>
<tr>
<td>DAP-60+</td>
<td>60 ml</td>
<td>40 bar (580 psi)</td>
<td>60 bar (870 psi)</td>
<td>260°C</td>
<td>12</td>
<td>XX</td>
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<tr>
<td>DAP-80+</td>
<td>80 ml</td>
<td>35 bar (510 psi)</td>
<td>50 bar (725 psi)</td>
<td>260°C</td>
<td>12</td>
<td>XX</td>
</tr>
<tr>
<td>DAC-100</td>
<td>100 ml</td>
<td>100 bar (1,450 psi)</td>
<td>150 bar (2,180 psi)</td>
<td>260°C</td>
<td>8</td>
<td>X</td>
</tr>
</tbody>
</table>

**Liner systems expand the vessels’ application area**

(X = option can be used in conjunction with the indicated vessel type.)

| DAC-17 high-pressure insert | 17 ml | 130 bar (1,880 psi) | 195 bar (2,830) | 300°C | 12 |
| DAQ-20H | 20 ml | 100 bar (1,450 psi) | 150 bar (2,180 psi) | 260°C | 12 |
| MT multiple tube system | 10 ml | 100 bar (1,450 psi) | 150 bar (2,180 psi) | 230°C | 24 |

**Accessories to complete or compliment the vessels**

(X = option can be used in conjunction with the indicated vessel type.)

- Gr1 lid, w/o. pressure measurement
- Gr1 lid, w. pressure measurement
- Gr2 lid, w/o. pressure measurement
- Gr2 lid, w. pressure measurement

Currently not available.