

# Examine Gas Hydrate Formation

with the

## Gas Hydrate Autoclaves GHA 200 & 350



### Characteristics

- Tests gas hydrates and KHI
- Simulates pipeline conditions
- Testing up to 350 bar (5,000 psi)
- Captures photos and videos during test
- Up to 3 cameras simultaneously
- Torque measurement for AA testing
- Easy opening mechanism
- Sour gas compatible (optional)

### See what is going on!

The Gas Hydrate Autoclaves GHA 200 and GHA 350 provided by PSL Systemtechnik are the renewed and updated versions of the standard pressure vessels for examining gas hydrate formation processes.

In a pressure range up to 200 bar / 2,900 psi (GHA 200) or up to 350 bar / 5,000 psi (GHA 350) the effectiveness and efficiency of thermodynamic and kinetic hydrate inhibitors and anti-agglomerants can be analyzed. The Gas Hydrate Autoclaves provide multiple features on a small footprint.

Up to 6 hydrate cells can be operated simultaneously via PC software. With boroscope cameras gas hydrate formation can be visually observed. The GHA 200 has one top view camera or alternatively an overhead stirrer, the GHA 350 offers three cameras (1 top view, 2 side views at different heights) and simultaneously the overhead stirrer. Photos and videos can be taken during tests. For sour gas testing all autoclaves are available as Hastelloy® model including all wetted parts.



Gas Hydrate Autoclave GHA 200



GHA 350 with 3 cameras  
in compact trolley

### Long term experiments

With the PSL software *Hydrate* automated tests can be run. The optical control of tests and the measurement of temperature, pressure and torque provide versatile test schedules and possibilities to analyze different requirements.

Double seal sets prevent even smallest pressure losses through leakage and permit long term experiments up to 30 days and longer.

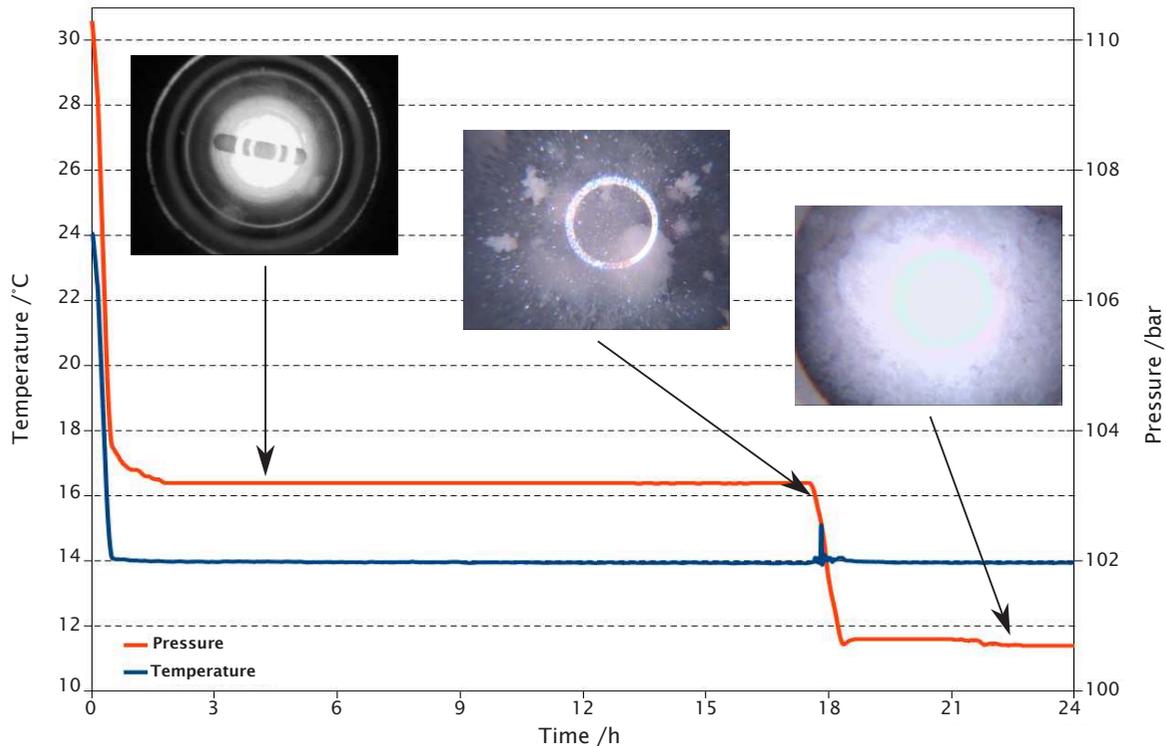
Due to an auto restart feature, the test results are save even in case of power failure.

### Highly ergonomic

Furthermore, the Gas Hydrate Autoclaves are highly ergonomic and requires small space on your laboratory desk.

The specially designed locking mechanism, to be opened by hand - no tools needed - and the integrated quick connectors make operation easy and comfortable.

The Gas Hydrate Autoclave can be adapted to your requirements.



Pressure decrease with kinetic gas hydrate inhibitor

### Specifications:

	GHA 200	GHA 350
Temperature range:	-10 ... +60 °C (+14 ... +140 °F)	
Accuracy / Reproducibility:	0.1 °C / 0.1 °C	
Pressure range:	up to 200 bar (2,900 psi)	up to 350 bar (5,000 psi)
Pressure accuracy:	0.5 %	
Cell volume:	450 ml total, 200 ml fluid (recommended)	
Optics:	Macro-boroscope, LED light source, fibre-optic	
Camera resolution:	1x 1280 x 1024 px, RGB32	3x 1280 x 1024 px, RGB32
Torque sensor:	instead of camera	additional to cameras
Measuring range:	0 - 1 Nm	
Accuracy / Resolution	0.1 % of total torque range	
Material:	Stainless steel (V4A), Viton®, Hastelloy® optional	
Power consumption:	max. 2,200 Watts	
Power supply:	230 V~ or 115 V~	
Weight:	40 kg (without PC)	45 kg (without PC)
Dimensions (WxDxH):	50 x 60 x 60 cm (without PC)	60 x 60 x 110 cm (without PC)