

LEVEL MEASUREMENT

STILLING WELL

Installation, Operation, and Maintenance Manual

EQUIPMENT SCOPE

The stilling well is a perforated guide chamber mounted inside a process vessel. It isolates the level measurement from turbulence in the main liquid volume, providing a stable surface for the installed radar transmitter.

This manual provides general instructions for the installation, operation, and maintenance of Globe United Stilling Wells. Final dimensions, materials, and configuration details are governed by the approved order data sheet and nameplate.

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01 / Document Control

Revision History

Rev.	Date	Description
R0	August 2026	Initial release.
R1	August 2026	Revised phrasing and typography; added revision history.
R2	August 2026	Corrected section numbering, list formatting, and email display.

ORDER-DOCUMENT PRECEDENCE

Final supplied configuration, materials, dimensions, limits, process connections, accessories, inspection scope, and documentation are governed exclusively by the approved order data sheet, approved drawings, and nameplate.

02 / Safety and Equipment Overview

Safety Instructions and Overview

2.1 General Safety Installation, commissioning, and maintenance must only be performed by qualified personnel in accordance with local regulations and plant safety standards. Ensure the process vessel is depressurized, drained, and properly isolated before commencing any work on the stilling well.

2.2 Operating Principle The stilling well contains and guides the microwave signal from the installed radar transmitter. It isolates the level measurement from turbulence in the main liquid volume and allows a portion of the process fluid inside the well to calm the surface, providing a stable target for the radar signal. This design provides a stronger signal return from the liquid surface, which offers a significant advantage for low dielectric applications, while shielding the signal from internal obstructions, agitators, and false echoes.

2.3 Salient Features & Applications

SALIENT FEATURES

- Reliable and robust level measurement
- Shields the signal from internal obstructions and false echoes
- Effective for low dielectric liquid applications

TYPICAL APPLICATIONS

- Crude Hydrocarbons
- Oil & Gas Industry
- Chemical Industry

2.4 Configuration Parameters

Parameter	Available Options
Pipe Size	2" to 8"
Materials of Construction (MOC)	SS316 / 316L, Carbon Steel, Hastelloy, Monel, Inconel, 6Mo, DSS, etc.

03 / Installation

Installation Guidelines

3.1 Pre-Installation Checks

1. Verify the stilling well specifications against the approved order data sheet and nameplate.
2. Inspect the equipment for any transit damage. Ensure all perforations are clear of debris.
3. Confirm that the process connections on the vessel match the stilling well flanges.

3.2 Mechanical Installation

The stilling well is typically mounted vertically inside the process vessel.

1. Carefully lower the stilling well assembly into the vessel nozzle.
2. Ensure the internal guide chamber is perfectly vertical to prevent the radar signal from reflecting off the internal walls incorrectly.
3. Align the flange holes and insert the appropriate gaskets as specified in the approved project documentation.
4. Tighten the bolting in a crisscross pattern to the recommended torque values.
5. If bottom support is required (for long assemblies), ensure the support brackets are securely fastened without restricting the thermal expansion of the pipe.

3.3 Transmitter Mounting

1. Mount the radar transmitter onto the top flange of the stilling well.
2. Ensure the antenna is properly aligned within the center of the guide chamber.
3. Secure the transmitter flange, ensuring a proper seal to maintain vessel pressure integrity.

CAUTION

Do not modify the perforations or the internal diameter of the stilling well, as this will adversely affect the radar signal propagation and measurement accuracy.

04 / Operation and Maintenance

Operation and Maintenance

4.1 Commissioning and Operation Once installed, the stilling well acts as a passive mechanical guide for the radar signal and process fluid. No specific operational adjustments are required for the stilling well itself.

- Verify that the process fluid enters the stilling well smoothly through the perforations.
- Calibrate the radar transmitter according to the manufacturer's instructions, taking into account the inner diameter of the stilling well.

4.2 Routine Maintenance The stilling well requires minimal maintenance under normal operating conditions. However, periodic inspection is recommended, especially in dirty or viscous applications.

1. **Visual Inspection:** During scheduled plant shutdowns, inspect the internal surface of the stilling well.
2. **Cleaning:** If deposits or build-up are observed on the inner walls or blocking the perforations, clean the pipe using appropriate solvents or mechanical cleaning tools (e.g., a soft brush).
3. **Flange Integrity:** Check the mounting flanges and gaskets for any signs of leakage.

4.3 Troubleshooting

Symptom	Possible Cause	Corrective Action
Erratic or loss of level reading	Build-up inside the stilling well or blocked perforations.	Isolate, depressurize, and clean the internal walls and perforations.
Constant offset in measurement	Stilling well is not perfectly vertical.	Check installation alignment and adjust as necessary.
False echoes detected	Debris or damage inside the guide chamber.	Inspect internally for foreign objects or mechanical damage.

SERVICE AND SUPPORT

For technical support, spare parts, or service inquiries, please contact Globe United FZE.

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