



AFLEX®

Metal Bellows Maintenance Procedures





AFLEX METAL BELLOWS MAINTENANCE PROCEDURES

Metal bellows assemblies are designed for long-term operation under specified conditions with minimal intervention. When installed and operated within design parameters, bellows are generally considered maintenance-free. However, periodic inspections are recommended to ensure continued safe operation and to identify any signs of abnormal wear, damage, or environmental factors that may affect performance.

GENERAL GUIDELINES

- Bellows assemblies require no routine maintenance under normal operating conditions.
- Scheduled visual inspections should form part of the site's general piping or plant maintenance routines.
- Maintenance actions are typically limited to inspection and ensuring surrounding equipment does not impose unexpected loads or movements on the bellows.

INSPECTION PROCEDURE

Recommended Frequency:

- Visual inspection during routine shutdowns or as per site inspection plan.

INSPECTION STEPS

1. Visual Examination:

-Inspect bellows convolutions for deformation, cracks, corrosion, or leaks.

2. Attachment Points:

-Check welds, flanges, and tie rods for cracks, corrosion, or loose fasteners.

3. Alignment and Supports:

-Verify pipe alignment remains within design tolerances. Confirm supports are intact.

4. Movement Check:

-Ensure bellows are free to absorb designed movement and are not restricted.

5. Protective Components:

-Inspect liners, covers, and insulation for damage or corrosion.



CORRECTIVE ACTIONS

If leaks, cracks, severe deformation, or excessive corrosion are detected:

- Isolate the system.
- Replace the bellows assembly (bellows are generally non-repairable components).

If alignment or support issues are identified:

- Rectify pipe misalignment or faulty supports before restarting the system.

OPERATIONAL CONSIDERATIONS

- Ensure system pressure, temperature, and movement stay within the bellows design limits.
- Avoid excessive vibration, torsional loads, or over- extension beyond rated movement.

RECORD KEEPING

Document inspection findings, including:

- Date of inspection
- Observations
- Corrective actions (if any)

Retain inspection records as part of the plant maintenance log.

IMPORTANT NOTES

- Bellows are not designed for fieldmodification.
- Ifdamage or defects are suspected, consult the manufacturer before attempting repairs orreplacements.
- Replacement bellows should match the original design specifications to maintain system integrity.

Partner with Afex

With over 30 years of bellows application experience, Afex helps engineers, consultants and plant operators avoid costly failures through correct expansion joint selection and practical pipeline solutions.

Please note that any information provided in this document and in any of the included attachments is general in nature and in no way constitutes professional advice.

Afex Pty Ltd requires that you seek professional engineering advice to ensure that any Expansion Joints installed will operate safely and effectively.

