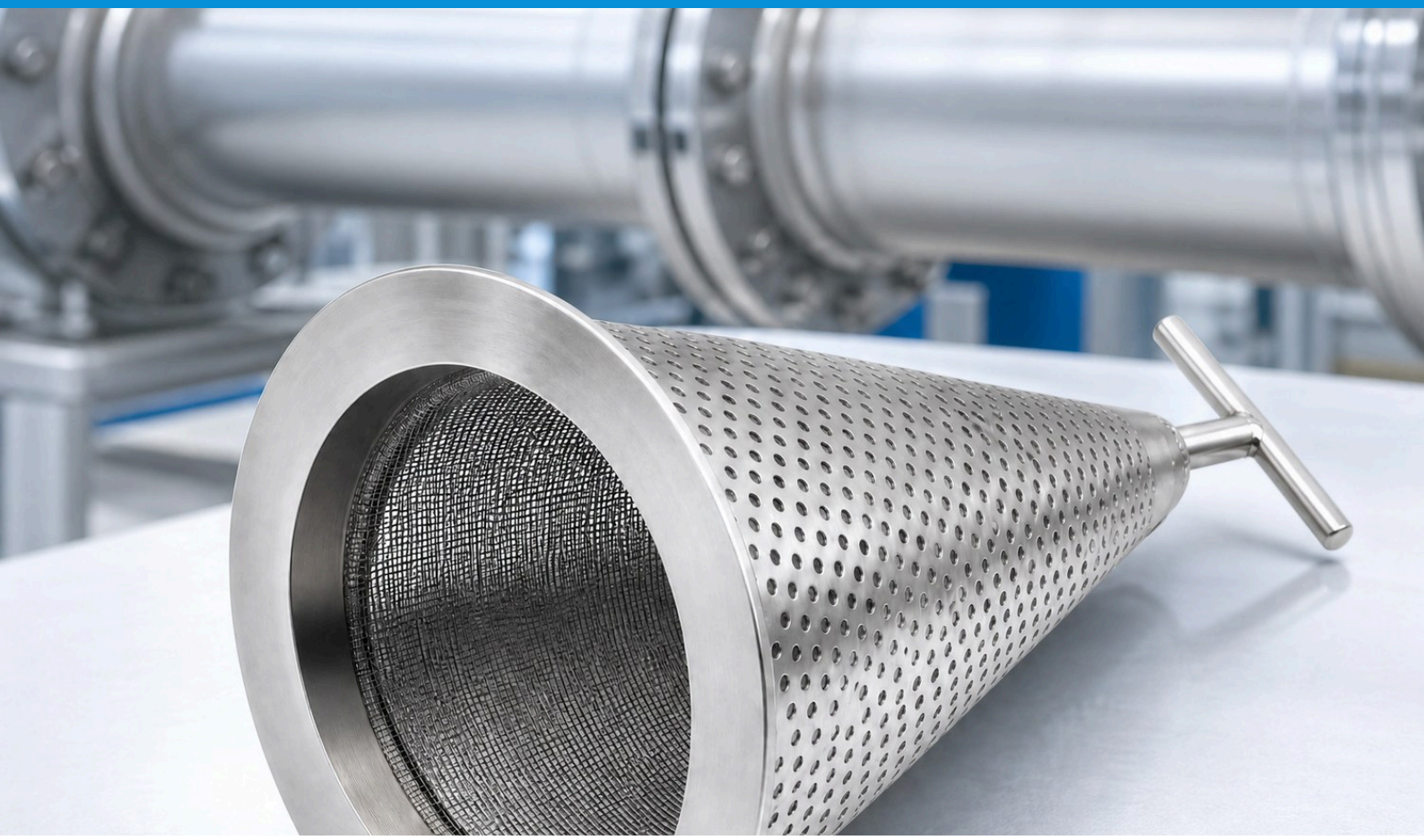
Globe United

Process Instrumentation & Piping Specialties
United Arab Emirates



INSTALLATION AND OPERATION MANUAL

Conical Strainers

Temporary Cone-Type Pipeline Strainers for Flanged Piping Systems

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NOTE

This manual must be read in full and understood by all personnel responsible for the handling, installation, commissioning, operation, maintenance, and removal of Globe United FZE conical strainers **before** any work is carried out. Retain this document for the service life of the product and ensure it is available at the point of use. In case of conflict between this manual and project-specific documentation approved by Globe United FZE, the project-specific documentation shall govern.

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1 Introduction

1.1 About Globe United FZE

Globe United FZE is a United Arab Emirates based supplier and manufacturer of process instrumentation and piping specialties serving the oil and gas, petrochemical, power generation, water treatment, and general process industries. Our product portfolio includes temperature sensors and thermowells, sight flow indicators, restriction orifices and orifice flange assemblies, injection quills, static mixers, level gauges, and a complete family of pipeline strainers comprising Y-type, T-type, basket, and conical (temporary) strainers. Every product is engineered, fabricated, and inspected to recognised international standards and is supported by full material traceability and documentation.

This manual provides comprehensive instructions for the safe handling, storage, installation, commissioning, operation, monitoring, maintenance, and removal of Globe United FZE **conical strainers**, also referred to in industry practice as cone-type strainers, witch-hat strainers, temporary strainers, or start-up strainers.

1.2 Purpose and Scope of This Manual

The purpose of this manual is to ensure that Globe United FZE conical strainers deliver their intended protective function without risk to personnel, equipment, or the environment. It applies to all standard conical strainers supplied by Globe United FZE in sizes NPS ½″ through 24″ (DN 15 through DN 600), suitable for installation between flanges conforming to ASME B16.5 (Class 150 through Class 900) or EN 1092-1 (PN 6 through PN 100), in both perforated-plate-only and mesh-lined configurations. Project-specific or custom-engineered units may be accompanied by supplementary documentation, which takes precedence over the general guidance given here.

1.3 Product Overview and Principle of Operation

A conical strainer is a passive, in-line filtration device clamped between a pair of mating pipe flanges. It consists of a fabricated cone of perforated plate — optionally lined with fine wire mesh — welded to a flat sealing ring (rim) that is captured between the flange gaskets. As process fluid passes through the strainer, solid contaminants larger than the screen openings, such as welding slag, rust, mill scale, sand, weld spatter, and gasket fragments, are retained on the screen surface while the cleaned fluid continues downstream.

The conical geometry is deliberate: compared with a flat-plate strainer of the same nominal size, the cone presents a substantially larger effective screening area, typically 150% to 300% of the internal cross-sectional area of the pipe. This greater open area reduces the clean pressure drop across the device, extends the interval between cleanings, and provides superior structural resistance to differential pressure loading, making conical strainers the preferred choice for higher-pressure and higher-velocity services.

Figure 1: Globe United FZE conical strainer — perforated cone with mesh lining, sealing ring, and optional removal T-handle (provided as per the customer-approved GAD).

Conical strainers are principally intended for **temporary duty**: they are installed immediately upstream of sensitive equipment such as pumps, compressors, control valves, flow meters, turbines, and heat exchangers during pipeline flushing, pre-commissioning, and initial start-up, when construction debris is most likely to be present in the line. Once the system has been demonstrated to run clean, the strainer is removed. Extended or permanent service is possible only where the strainer has been specifically selected and rated for it, and where a differential-pressure monitoring and cleaning regime is in place (refer to Sections 7 and 8).

1.4 Definitions and Abbreviations

Term	Definition
ΔP (DP)	Differential pressure — the difference between the pressure measured immediately upstream (P1) and downstream (P2) of the strainer.
NPS / DN	Nominal Pipe Size (inches, ASME) / Diamètre Nominal (millimetres, EN-ISO).
RF / FF / RTJ	Raised Face / Flat Face / Ring-Type Joint — standard flange facing types.
Mesh	Woven wire cloth lining, designated by the number of openings per linear inch (e.g., 40 mesh) or by aperture size in micrometres.
Open-area ratio	Total effective screen open area divided by the pipe internal cross-sectional area, expressed as a percentage.
LOTO	Lock-Out / Tag-Out — formal procedure for isolating energy sources before intrusive work.
PPE	Personal Protective Equipment.
MOC	Material of Construction.

2 Safety Information

2.1 General Safety Requirements

The installation, operation, and maintenance of pipeline strainers involves work on pressurised piping systems that may contain fluids that are hot, cold, toxic, flammable, corrosive, or otherwise hazardous. All work described in this manual must be performed only by qualified and trained personnel who are familiar with the piping system, the process fluid, and the site permit-to-work, isolation, and LOTO procedures. National regulations, site safety rules, and the project health, safety, and environment (HSE) plan always take precedence over the general guidance in this document.

Throughout this manual, safety messages are classified as follows:

DANGER

Indicates a hazardous situation which, if not avoided, **will or can result in death or serious injury** — for example, opening a flanged joint on a line that has not been fully depressurised, drained, and isolated.

WARNING

Indicates a hazardous situation which, if not avoided, **could result in death or serious injury** — for example, exceeding the rated differential pressure of the strainer screen, which can cause sudden screen rupture and downstream equipment damage.

CAUTION

Indicates a hazardous situation which, if not avoided, **could result in minor or moderate injury or equipment damage** — for example, incorrect bolt tightening leading to flange leakage.

NOTE

Highlights information considered important for correct installation, reliable operation, or protection of the product and adjacent equipment, but not directly related to personal injury.

2.2 Specific Hazards

Before any work on or near the strainer, personnel must consider the following hazards and apply appropriate controls.

Stored pressure and residual fluid. Piping between isolation valves can remain pressurised even after the system is shut down, and the cone of the strainer retains a volume of process fluid and collected debris. The line must be positively isolated, depressurised, vented, and drained — and verified as such — before any flange is loosened. Loosen flange bolts gradually and initially only on the side away from the body to allow any residual pressure to relieve in a controlled direction.

Hazardous process media. Where the process fluid is toxic, corrosive, flammable, or asphyxiating, the line must be purged, flushed, or decontaminated in accordance with site procedures before the strainer is removed. Debris retained in the cone must be treated as contaminated with the process fluid and disposed of accordingly.

Temperature extremes. Strainer bodies, flanges, and retained debris can be at process temperature. Allow hot lines to cool (or cold/cryogenic lines to warm) to a safe handling temperature, and wear thermally rated gloves where contact is possible.

Mechanical hazards. Strainer screens have sharp perforated and mesh edges; trapped debris may include sharp metallic fragments. Handle screens with cut-resistant gloves. Larger strainers are heavy — use appropriate lifting aids, and never place hands between flange faces while the joint is being spread or closed.

Pressure-boundary integrity. The conical strainer is not a pressure-retaining anchor and must never be used to bridge misaligned flanges, support piping loads, or compensate for missing gasket thickness. Doing so can overload the sealing ring and cause joint failure.

> **WARNING**
>
> Never exceed the rated pressure, temperature, or maximum allowable differential pressure of the strainer as stated on the product tag or order documentation. A blocked screen subjected to excessive differential pressure can collapse or burst without warning, releasing accumulated debris into the equipment the strainer was installed to protect.

2.3 Personal Protective Equipment

As a minimum, personnel installing or removing conical strainers shall wear safety helmet, safety glasses or goggles, cut-resistant gloves, safety footwear, and flame-resistant coveralls where required by the site. Where hazardous media are present, the PPE assessment must additionally consider chemical-resistant gloves and clothing, face shields, and respiratory protection as dictated by the safety data sheet (SDS) of the process fluid.

3 Product Description

3.1 Construction and Components

Each Globe United FZE conical strainer comprises four principal elements, fully welded into a single rigid assembly.

The **perforated cone** forms the structural core of the screen. It is rolled and seam-welded from perforated plate, with standard perforation diameters from 2 mm to 6 mm selected to suit the specified filtration duty and structural requirements. The cone apex is closed with a formed cap or welded tip.

The **wire mesh lining** (where specified) provides fine filtration down to 25 µm (approximately 500 mesh). The mesh is fitted on the **upstream** face of the perforated plate so that the operating differential pressure presses the mesh against its support rather than peeling it away. Standard linings range from 8 mesh to 400 mesh in stainless steel wire cloth.

The **sealing ring (rim)** is a flat, machined ring sized to locate concentrically on the flange gasket surface and to be captured between two gaskets when the flange joint is assembled. Rings are available to suit ASME B16.5 raised-face and flat-face flanges (NPS ½″–24″, Class 150–900) and EN 1092-1 flanges (DN 15–DN 600, PN 6–PN 100). Ring-type-joint and tongue-and-groove facings are available on request.

The **front (removal) handle** is a welded T-bar or rod handle, typically 25 mm wide × 75 mm long, attached to the sealing ring or cone base. Besides facilitating extraction of the strainer from between spread flanges, the protruding handle acts as a visible external indicator that a temporary strainer is installed in the line — an important operational safeguard against strainers being forgotten in service.

> **NOTE**
>
> The front handle is an **optional** feature. It is provided only where specified and shown on the customer-approved General Arrangement Drawing (GAD). Where the approved GAD does not call for a handle, the strainer is supplied without one, and identification of the installed strainer relies on the external identification tag and the visible edge of the sealing ring at the flange joint.

3.2 Standard Materials of Construction

Component	Standard MOC	Options on Request
Perforated cone	SS 316 / 316L	SS 304/304L, carbon steel, duplex 2205, super duplex 2507, Monel 400, Hastelloy C-276, titanium
Mesh lining	SS 316 wire cloth	SS 304, Monel, special alloys; multi-layer mesh packs
Sealing ring	SS 316 / 316L	Matching cone material; galvanised CS for utility service
Handle (optional, per approved GAD)	SS 316	Matching cone material

All wetted materials are supplied with EN 10204 Type 3.1 mill test certificates upon request, and welding is performed by qualified welders to approved procedures. Each strainer is permanently marked or tagged with size, rating, material, screen specification, and flow direction.

3.3 Filtration Selection Guide

Selecting the correct screen opening is a balance: a screen that is too coarse passes particles capable of damaging downstream equipment, while a screen that is too fine blinds rapidly, generates excessive pressure drop, and demands frequent cleaning. The table below gives typical industry guidance; the final selection must account for the equipment manufacturer's maximum permissible particle size.

Downstream Equipment	Typical Screen	Typical Aperture
Centrifugal pumps (general)	Perforated 3–5 mm	3.0–5.0 mm

Gear / screw pumps, blowers	20–40 mesh lining	0.4–0.85 mm
Control valves, flow meters	40–100 mesh lining	0.15–0.4 mm
Compressors, turbines, spray nozzles	100–250 mesh lining	60–150 µm
Precision instrumentation	250–400 mesh lining	25–60 µm

NOTE

For start-up duty, Globe United FZE recommends an effective open-area ratio of at least 150% of the pipe cross-section for perforated-only screens and at least 200% where fine mesh linings are fitted, to provide adequate dirt-holding capacity and a low clean pressure drop. State the expected debris load at enquiry stage so the cone length and open area can be optimised.

3.4 Flow Orientation Configurations

Conical strainers can be supplied and installed in either of two orientations, and the correct one is stated on the product tag.

In the **standard configuration (apex downstream)**, the open base of the cone faces the incoming flow and fluid passes from the inside of the cone outwards. Debris is captured and retained **inside** the cone, concentrating at the apex, where it is securely contained during removal. Because internal pressure loads the cone in tension, this orientation offers the greatest structural resistance and is the default for start-up dirt-trap duty.

In the **reverse configuration (apex upstream)**, flow passes from outside the cone inwards and debris collects on the external surface. This arrangement can be advantageous in certain high-velocity or self-cleaning applications, but the cone is loaded in external compression and is more susceptible to buckling at high differential pressure. It shall be used only where the order documentation specifically calls for it.

WARNING

Installing a strainer against its designated flow direction drastically reduces its collapse resistance and can allow captured debris to be flushed downstream during removal. Always match the flow-direction arrow or tag on the strainer to the actual flow direction in the pipe.

4 Technical Specifications

The table below summarises the standard design envelope for Globe United FZE conical strainers. Values for a specific unit are stated on its tag and order documentation, which govern in case of difference.

Parameter	Standard Range / Value
Size range	NPS ½″ – 24″ (DN 15 – DN 600); larger sizes on request
Flange compatibility	ASME B16.5 Class 150 / 300 / 600 / 900; EN 1092-1 PN 6 – PN 100

Facing types	Raised face (RF), flat face (FF); RTJ and tongue-and-groove on request
Design temperature	–46 °C to +425 °C (material dependent)
Perforation sizes	2 mm – 6 mm standard
Mesh linings	8 mesh – 400 mesh (down to 25 µm)
Open-area ratio	150% – 300% of pipe cross-section
Maximum recommended ΔP (clean-up duty)	0.7 bar (10 psi) unless otherwise specified
Screen collapse rating	Stated per order; typically ≥ 1.7 bar (25 psi) for standard cones
Recommended service life in line	Temporary duty: removal after successful flushing / start-up (typically 24–72 operating hours); extended duty only if specified at order
Marking	Size, rating, material, screen spec, flow direction, PO/tag number

CAUTION

The strainer sealing ring is rated for clamping between standard flanges with gaskets on both faces. The strainer itself is not a flow-rated pressure vessel: the pressure boundary is formed by the pipe flanges and gaskets. Do not install the strainer in a joint whose rating, facing, or gasket type differs from that stated in the order documentation.

5 Receiving, Handling, and Storage

5.1 Receiving Inspection

On receipt, unpack the strainer carefully and inspect it against the delivery documentation. Confirm that the size, flange rating, material, perforation, and mesh specification marked on the strainer tag match the purchase order and the intended installation location. Examine the sealing ring for flatness, nicks, and scratches across the gasket seating surface; inspect the cone and mesh for dents, tears, distorted perforations, or damaged welds; and, where a handle is specified on the customer-approved GAD, verify that it is intact and securely attached. Any transit damage or discrepancy must be reported to Globe United FZE and to the carrier within seven days of receipt, and a damaged strainer must not be installed.

5.2 Handling

Small strainers may be carried by hand using the handle, where fitted. Strainers larger than approximately DN 200 (8″) should be lifted with soft slings around the sealing ring — never through the mesh or around the cone tip, which can distort the screen. Do not stack strainers on top of one another without protective separation, and never rest a strainer on its cone apex.

5.3 Storage

Until installation, store strainers indoors in their original packaging, in a clean, dry environment between −10 °C and +50 °C, away from direct sunlight, welding and grinding operations, and chloride-containing atmospheres. Keep the protective covers on the sealing faces in place. Stainless steel screens must not be stored in contact with carbon steel items, which can cause contamination and subsequent corrosion staining.

6 Installation

6.1 Pre-Installation Requirements

Before installation begins, confirm that all of the following conditions are satisfied. The pipeline must be depressurised, drained, and isolated in accordance with the site permit-to-work and LOTO procedures. The line section should have been mechanically flushed or blown clean of gross debris — the conical strainer is a polishing safeguard, not a substitute for line flushing, and pre-loading it with construction debris drastically shortens the interval to its first cleaning. New gaskets of the correct type, size, and rating (two per strainer, one for each face of the sealing ring) must be available; used gaskets shall never be reinstalled. Flange faces must be clean, dry, undamaged, parallel, and correctly aligned; the strainer must never be used to draw misaligned flanges together.

Verify from the piping and instrumentation diagram (P&ID) that the selected location places the strainer immediately upstream of the equipment to be protected, downstream of the last credible source of debris, and — wherever practicable — between isolation valves, with sufficient clearance for the flanges to be spread and the strainer withdrawn. Pressure gauges or a differential-pressure transmitter should be provided upstream and downstream of the strainer position (see Section 8).

> **IMPORTANT**
>
> Plan for removal at the time of installation. Record the strainer location, tag number, and installation date in the commissioning register, and attach a highly visible external tag or flag to the flange joint. Temporary strainers left in service unnoticed are a leading cause of unexplained pressure loss and pump damage after start-up.

6.2 Installation Procedure

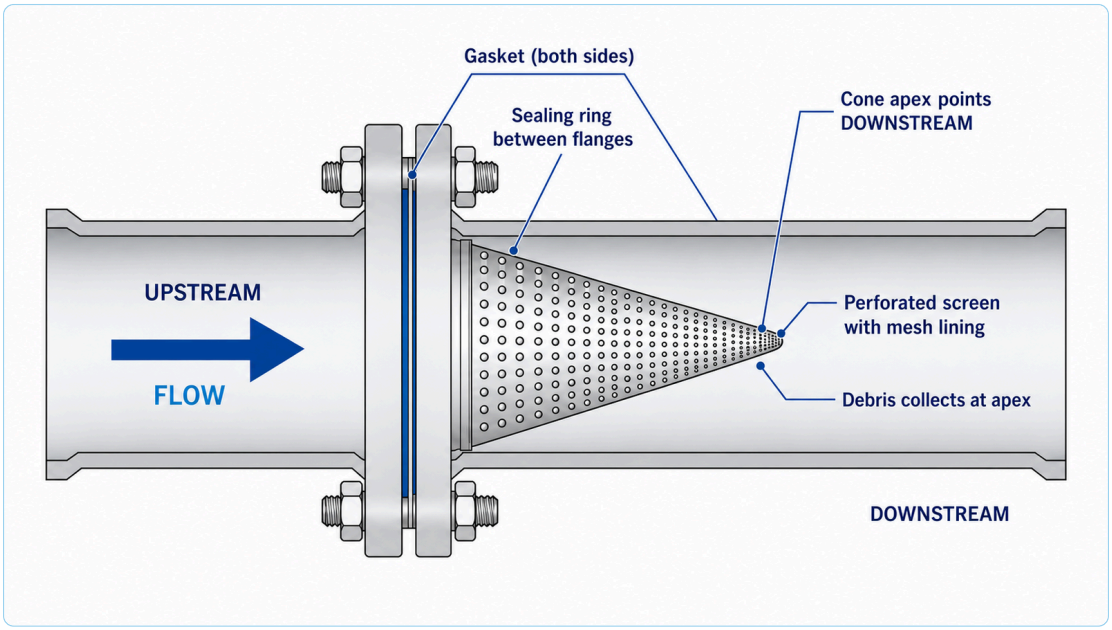

Figure 2: Cross-section of a conical strainer correctly installed at a single flanged joint, with the sealing ring captured between gaskets on both faces and the cone apex pointing downstream into the open pipe bore.

Step 1 — Confirm identity and orientation. Check the strainer tag against the installation location. Identify the specified flow orientation (standard: open base upstream, apex pointing downstream) and locate the flow-direction marking.

Step 2 — Spread the flanges. With the line isolated and the joint unbolted, use flange spreaders or wedges to open the gap sufficiently to admit the strainer and both gaskets without forcing. Support the adjacent piping so that no pipe loads are transferred through the strainer ring.

Step 3 — Fit gaskets and strainer. Place a new gasket on each face of the strainer sealing ring. Insert the assembly between the flange faces and centre it on the bolt circle so that the ring seats concentrically on the gasket surfaces. Where the optional handle is fitted (as per the customer-approved GAD), it should protrude radially where it is visible and accessible.

Step 4 — Insert bolts and hand-tighten. Insert all flange bolts or studs with lubricated threads (use the lubricant specified by the gasket manufacturer or site standard) and run the nuts up hand-tight. Verify that the strainer ring remains centred and both gaskets are evenly captured.

Step 5 — Torque in a star pattern, in stages. Tighten the bolts to the torque specified by the gasket manufacturer for the gasket type, size, and rating, using a calibrated torque wrench and a cross (star) sequence in at least three passes — approximately 30%, 60%, and 100% of final torque — followed by a final circular confirmation pass at 100%. Staged cross-tightening seats the gaskets evenly and prevents warping of the sealing ring.

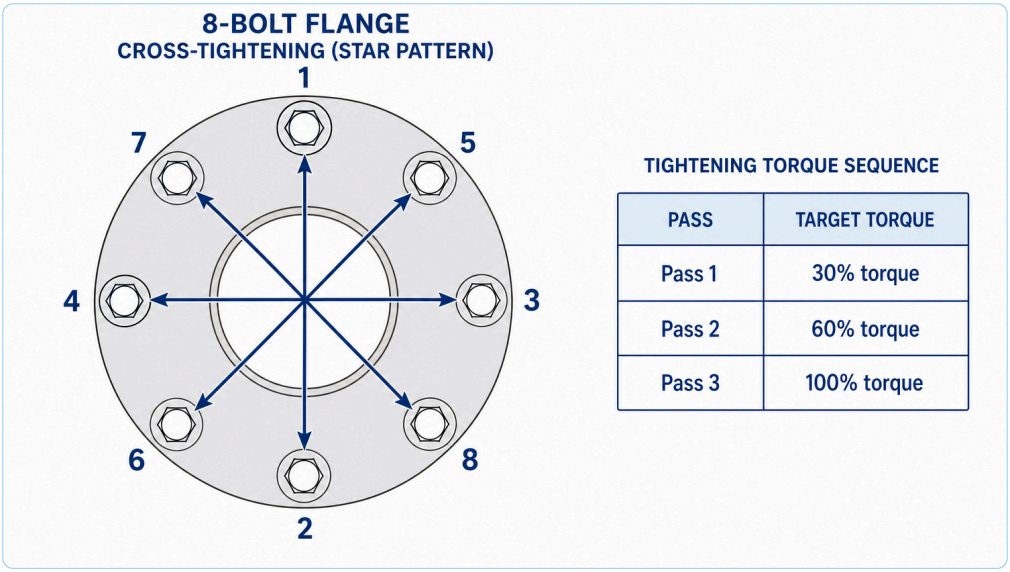

Figure 3: Star (cross) bolt-tightening sequence for an 8-bolt flange, applied in staged passes of 30%, 60%, and 100% of the specified torque.

Step 6 — Verify and tag. Confirm that the strainer is correctly fitted — indicated by the protruding handle where one is provided, or by the visible sealing-ring edge on handle-less units — apply the external identification tag, restore any insulation with provision for future access, and record the installation in the commissioning register.

> **CAUTION**
>
> Over-tightening can crush the gaskets and permanently dish the strainer sealing ring; under-tightening will allow the joint to leak under pressure. Always use the gasket manufacturer's torque values, never approximations, and re-check torque after the first thermal cycle where the gasket type requires it.

6.3 Installation in Vertical and Non-Horizontal Lines

Conical strainers may be installed in vertical or inclined lines provided the specified flow orientation is preserved. In vertical lines with upward flow, captured solids fall back toward the cone tip when flow stops; verify that this settled debris cannot be re-entrained as a slug on restart, particularly upstream of rotating machinery. In vertical lines with downward flow, debris tends to remain packed against the screen; monitor differential pressure closely as blinding can progress more rapidly. Where a choice exists, a horizontal installation — with the handle, where fitted, oriented sideways or upward — is preferred for ease of removal.

7 Commissioning and Start-Up

7.1 Pre-Start Checks

Before pressurising the system, walk down the installation and confirm that the strainer tag matches the register, all flange bolts are torqued and marked, gaskets are correctly seated with

no visible protrusion or extrusion, upstream and downstream pressure instruments are installed, isolated-verified, and zeroed, and drains and vents in the strainer section are closed.

7.2 First Pressurisation

Bring the line up to pressure gradually. Open upstream isolation valves slowly to avoid pressure shock and water hammer, which impose sudden differential loads capable of collapsing a screen, and vent trapped air or gas from high points as liquid fills the line. During the first minutes of flow, observe the flange joint for leakage and record the initial (clean) differential pressure across the strainer at normal operating flow. This baseline value is the reference against which fouling is judged for the remainder of the run.

> **WARNING**
>
> The first hours of a new system's operation are when debris loading is heaviest. During initial start-up, monitor differential pressure continuously or at short intervals (typically every 15–30 minutes for the first 4 hours), and be prepared to shut down and clean the screen if ΔP rises rapidly.

8 Operation and Differential Pressure Monitoring

8.1 Why Differential Pressure Matters

A strainer works by capturing solids, and every particle captured reduces the open area of the screen. As the screen blinds, the pressure drop across the strainer rises — slowly at first, then increasingly steeply. Unchecked, the differential pressure will reach the structural limit of the cone, at which point the screen deforms or bursts and releases its entire accumulated debris load into the protected equipment. Differential pressure is therefore the single most important operating parameter of the strainer, and its measurement is not optional for any service of meaningful duration.

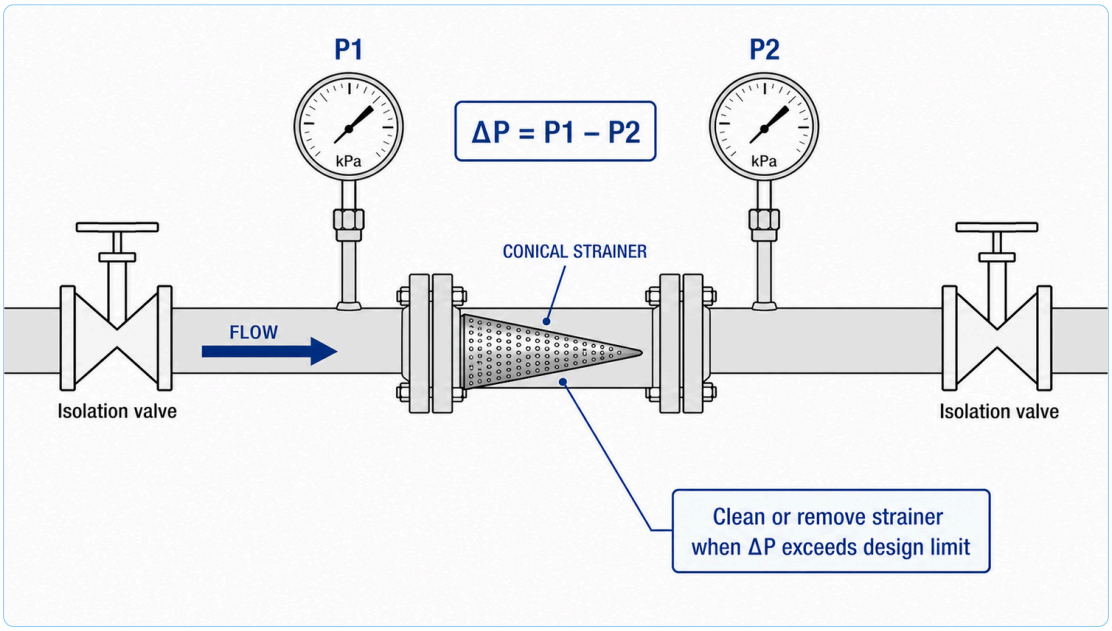

Figure 4: Recommended differential pressure monitoring arrangement: pressure gauges (P1, P2) or a DP transmitter installed across the strainer between isolation valves.

8.2 Monitoring Regime and Action Levels

Record the clean baseline ΔP at start-up, then trend the differential pressure at intervals appropriate to the debris load — continuously by transmitter where available, otherwise by logged local gauge readings. The following action levels apply unless the order documentation states otherwise.

Condition	Typical Value	Required Action
Clean baseline	0.03 – 0.15 bar	Record as reference; continue normal monitoring.
Rising trend	Baseline + 0.3 bar	Increase monitoring frequency; plan a cleaning window.
Cleaning limit	Baseline + 0.5 bar, or 0.7 bar total	Shut down / isolate at the next safe opportunity and clean the screen.
Never exceed	Screen collapse rating (per order)	Immediate controlled shutdown — risk of screen rupture.

8.3 Duration of Service

Conical strainers are designed as **temporary** devices. In typical start-up duty they remain in the line for 24 to 72 operating hours, or until two consecutive inspections show the screen essentially clean, after which they must be removed (Section 11). Leaving a temporary strainer in service indefinitely leads to unnecessary permanent pressure loss, progressive corrosion or erosion of the screen, and the ever-present risk of unmonitored blinding. Where continuous straining is a genuine process requirement, a permanent Y-type, T-type, or basket strainer from the Globe United FZE range should be installed instead; contact our engineering team for selection support.

9 Maintenance and Cleaning

9.1 Safe Removal from the Line

Cleaning requires the strainer to be taken out of the flanged joint. Obtain a permit to work and apply LOTO. Isolate the strainer section, depressurise, vent, drain, and allow the line to reach a safe temperature; where the medium is hazardous, purge or flush according to site procedure. Loosen the flange bolts gradually, beginning with the bolts furthest from personnel, and pause after initial loosening to confirm that no residual pressure or fluid remains. Spread the flanges, support the strainer, and withdraw it by the handle where one is fitted (otherwise grip the sealing ring with suitable gloved hands or extraction tooling), keeping the cone opening upward (standard orientation) so that captured debris remains contained.

> **DANGER**
>
> Never loosen flange bolts on a line that has not been verified as depressurised, drained, and isolated. Stored energy in trapped fluid can eject the strainer, gaskets, and debris with lethal force.

9.2 Inspection and Cleaning Procedure

Empty the contents of the cone into a suitable container and **examine the debris before discarding it**: its quantity and nature (weld slag, scale, sand, gasket material) is direct evidence of the condition of the upstream system, and a sudden change in debris character often reveals a developing problem such as corrosion or a failing component. Record the findings in the maintenance log.

Clean the screen by soaking and rinsing with water or a solvent compatible with both the process fluid and the screen material, brushing with a soft nylon or brass brush, and blowing through with low-pressure compressed air from the clean side. Do not use steel scrapers, wire wheels, or high-pressure lances on mesh-lined screens, as these destroy the mesh. After cleaning, inspect the entire assembly: the mesh for tears, holes, or detachment; the perforated cone for dents, cracks, or corrosion; the welds for cracking; the sealing ring for flatness and scoring; and the handle for security.

Inspection Point	Acceptance Criterion	Action if Not Met
Mesh lining	No tears, holes, or lifted edges	Replace mesh or complete strainer
Perforated cone	No dents > 3 mm, cracks, or thinning	Replace strainer
Welds (seam, ring, handle)	No visible cracks or corrosion	Replace strainer
Sealing ring	Flat within gasket tolerance; no radial scores	Re-machine (minor) or replace
General corrosion	No pitting or crevice attack	Review material selection with Globe United FZE

Reinstall only a screen that passes all inspection points, always with two new gaskets, following the full installation procedure of Section 6. A strainer that fails inspection must be quarantined and replaced; repair of pressure-loaded screen components by welding is not permitted without the written concurrence of Globe United FZE.

10 Troubleshooting

Symptom	Probable Cause	Remedy
Rapid rise in ΔP	Heavy debris load; screen blinding	Clean screen; investigate upstream debris source; consider coarser two-stage straining
Persistently high clean ΔP	Mesh finer than required; insufficient open area	Re-select screen with Globe United FZE; verify flow rate against design
Low or zero ΔP with dirty system	Screen ruptured or collapsed; strainer bypassed or missing	Shut down; inspect strainer and downstream equipment immediately
Leakage at flange joint	Gasket damage; uneven or incorrect bolt torque; scored sealing ring; misaligned flanges	Replace gaskets; re-torque in star pattern to specification; inspect ring; correct alignment
Screen collapse / deformation	ΔP exceeded collapse rating; wrong flow orientation; water hammer	Replace strainer; review monitoring regime, orientation, and valve operating practice
Noise or vibration at strainer	Flow-induced vibration; partial blockage; cavitation downstream	Clean screen; verify velocity within design; investigate downstream pressure profile
Corrosion staining of screen	MOC incompatible with fluid; contamination from carbon steel contact	Review material selection; segregate stainless components in storage
Debris found downstream	Screen aperture too coarse; mesh damaged; strainer installed backwards	Verify aperture against equipment requirement; inspect mesh; confirm orientation

If a fault cannot be resolved with the guidance above, contact Globe United FZE technical support with the strainer tag number, order reference, service conditions, and a description or photographs of the observed condition.

11 Removal After Commissioning

Once the system has demonstrated clean operation — typically when differential pressure remains at the clean baseline for two consecutive inspection intervals — the temporary strainer should be permanently removed. Follow the safe removal procedure of Section 9.1, then reassemble the flange joint with new gaskets sized for the joint **without** the strainer ring, and

re-torque in accordance with Section 6.2. Update the commissioning register and remove the external identification tag so that records accurately reflect that the line is clear. Cleaned strainers in good condition should be returned to stores, identified, and preserved for future start-up duties; screens that have reached the end of their life shall be disposed of in accordance with site waste procedures, with any process residues handled per the applicable SDS.

> **NOTE**
> Removing the strainer changes the compressed stack-up of the flange joint. Never reuse the old gaskets or attempt to fill the gap left by the sealing ring with additional gaskets stacked together; use the correct single gasket per face as specified for the plain joint.

12 Spare Parts, Warranty, and Contact Information

12.1 Ordering Spares and Replacements

Because the conical strainer is a fully welded assembly, the standard replacement item is the complete strainer. When ordering replacements or additional units, quote the original purchase order number and strainer tag, the nominal size and flange standard and rating, the material of construction, the perforation size and mesh specification, and the flow orientation. Where service conditions have changed — different fluid, flow rate, temperature, or debris load — advise Globe United FZE so the selection can be re-validated. Replacement gaskets, which are consumed at every installation and removal, should be stocked in quantities of at least two pairs per strainer location.

12.2 Warranty

Globe United FZE warrants its conical strainers to be free from defects in materials and workmanship for a period of twelve (12) months from the date of first installation or eighteen (18) months from the date of delivery, whichever occurs first, when stored, installed, operated, and maintained in accordance with this manual. The warranty does not cover damage arising from operation beyond the stated design limits, incorrect flow orientation, excessive differential pressure, corrosion by media not disclosed at the time of order, unauthorised modification or repair, or normal wear of the screen in service. Claims must be notified in writing, quoting the order reference and tag number, before any product is returned.

12.3 Contact

Globe United FZE — Process Instrumentation & Piping Specialties
United Arab Emirates
Email: info@globeunitedae.com **Phone:** +971 50 330 1384
Web: www.globeunitedae.com

Our engineering team is available to assist with strainer sizing and selection, pressure-drop and open-area calculations, material recommendations for corrosive services, and the specification of permanent strainers (Y-type, T-type, and basket) where continuous filtration is required.