DIFFERENTIAL-PRESSURE FLOW MEASUREMENT

Orifice Plate Assemblies

Precision primary elements for flow measurement in closed conduits.

Globe United FZE presents a configurable portfolio of orifice plate assemblies built around plate geometry, pressure-taking method, process connection and order-defined materials.

This catalog provides technical selection guidance. Final configuration is governed by approved order documentation.

Product photograph shown for catalog illustration.

Product positioning

Controlled configuration for dependable differential-pressure measurement.

Catalog purpose

Selection-oriented product guidance for process applications where final geometry, materials and performance are project defined.

This publication is a technical catalog, not a calculation sheet, manufacturing drawing or order release.

01 / Product overview

Defined around the process duty

A configurable differential-pressure primary-element family for applications requiring controlled plate geometry, pressure taking and project-defined interfaces.

Product purpose

An orifice plate assembly is a differential-pressure primary element used to measure flow rate in a closed conduit. The selected plate creates a controlled restriction; the upstream/downstream pressure relationship forms the basis for the specified measurement system.

Typical application sectors

Sector	Typical requirement context
Oil and gas	Process, utility and export measurement duties.
Petrochemical	Process monitoring and engineered plant interfaces.
Power generation	Utility and process flow measurement applications.
Fertilizer plants	Process-fluid and utility measurement duties.
Water plants	Treated-water and plant utility measurement applications.

Selection route

1 Process inputs Fluid, phase, operating condition, flow range and installation basis.

2 Plate selection Profile category, bore, beta ratio and materials are calculation dependent.

3 Order definition Facing, tapping, accessories, documentation and final drawing release.

Conceptual selection route only; it is not a manufacturing, installation or product-configuration drawing.

Catalog guidance

Plate selection, bore, profile, material and marking are defined through the approved calculation and order documentation.

Configurable plate families

Plate family	Typical application context	Catalog treatment
Square-edge	Conventional differential-pressure measurement geometry.	Project calculation defines final bore and plate detail.
Quarter-circle / conical entrance	Specialized plate profile for application review.	Order-defined geometry.
Eccentric / segmental	Application-dependent plate geometries.	Process review required.
Multihole	Multiple openings with total opening area selected for duty.	Calculation and application dependent.

02 / Configuration guide

Pressure-taking is part of the configuration

The pressure-taking arrangement should be selected together with the plate family, flange construction and piping interface.

Typical pressure-tap options

Method	Configuration guidance
Flange taps	Pressure taps located on flanges or on a carrier ring.
Corner taps	Pressure taps on flanges, annular chambers or a monolithic plate.
Radius taps	Pressure tappings located at D and D/2; the relevant spool pipe forms part of the assembly.
Pipe taps	Pressure tappings at 2½D upstream and 8D downstream; the relevant spool pipe forms part of the assembly.

Order-document control

Final flange class, facing, process connection, pressure-taking orientation, materials, bolting, gaskets and accessories are defined by the approved order data sheet and drawing.

Product construction context

Product photograph shown as a visual reference only; final configuration is project defined.

Project-defined interface

Flange-tap and corner-tap arrangements, RF and RJ facing context, thread form, tap position and connection details require approved project definition.

Construction and supply options

Plate only

Primary element provided as a plate.

Plate assembly

Plate configured with associated pressure-boundary components.

Carrier rings

Plate held between rings that provide the process interface and tapping arrangement.

Monolithic type

Plate and pressure-tapping features formed as one integral component for compact installation.

03 / Profile selection

Reference categories for application review

Globe United reference data identifies profile categories. Values on this page provide technical guidance; final selection remains subject to application review and calculation release.

Profile families

Category	Reference application context	Catalog control
Square-edge	General applications with clean liquids and gases.	Final selection requires approved calculation and project documentation.
Quarter-circle / conical entrance	Low-Reynolds liquid application review.	Final profile and applicable range are project defined.
Eccentric / segmental	Two-phase, dirty or particle-laden media contexts.	Final suitability, orientation and geometry require project review.
Multihole	Multiple openings with total opening area selected for duty.	Calculation and application dependent.

Typical eccentric and quarter-circle plate examples. Product photography does not define final bore, material or geometry.

Reference parameter bands

Profile	Reference standard	Nominal size	Beta ratio	Coefficient uncertainty
Square-edge	ISO 5167-2	≥ 2 in / 50 mm	0.20–0.75	±0.5% of rate at mid-β; assess range limits
Quarter-circle / conical	ISO/TR 15377	≥ 2 in / 50 mm	0.245–0.600 / 0.100–0.316	±2% of rate
Eccentric	ISO/TR 15377	≥ 4 in / 100 mm	0.46–0.84	Beta dependent; % of rate
Segmental	Application-defined	≥ 4 in / 100 mm	0.35–0.80	±1–2% of rate
Multihole	Application-defined	Application-defined	Application-defined	Application-defined

Order-document control

Do not interpret the profile categories or reference bands as a production drawing, standard bore profile, published performance commitment, material commitment or final application approval. The final profile, bore, beta ratio, material and dimensional detail require approved calculation and drawing release.

04 / Interface review

Pressure-taking and sealing-face review

Reference interface categories are presented for project review rather than as a fixed assembly design.

Pressure-taking context

Flange tap Pressure taps are located on flange or carrier-ring interfaces.

Corner tap Pressure taps are located at the plate / flange interface.

Thread form, tap position, spacing and orientation are project and order defined.

Sealing-face context

Raised face RF context may be considered during application review.

Ring joint RJ context may be considered during application review.

Final facing, gasket strategy and flange interface are defined by the approved order documents.

Reference interface categories

Review field	Catalog-safe guidance
Pressure-taking	Flange-tap and corner-tap categories may be considered during application review.
Sealing-face context	Raised-face and ring-joint contexts may be considered; final facing is order defined.
Pipe schedule	Specified by the customer / approved project documentation.
Thread and tap position	Project and order defined; no fixed thread form, position or spacing is implied.
Interface standard	Confirm against approved project requirements and drawings.

Reference-data control

Final delivered geometry, plate profile, dimensions, thickness, pressure-taking arrangement, threads, materials, sealing face, ratings, inspection scope and documentation are governed exclusively by the approved order data sheet, approved drawings, calculation basis and nameplate.

05 / Drain, vent and thickness review

Reference guidance, controlled for project use

Drain or vent provision and plate thickness are application-dependent selections. The values below provide reference guidance and are not a standard-product commitment.

Drain or vent review

Depending on the medium, a drain or vent feature may be required. Its provision, size and position require calculation and approved drawing release.

1 / Process medium	Establish fluid, phase and any potential accompanying phase.
2 / Plate profile	Confirm profile and bore requirement against the approved calculation basis.
3 / Drawing release	Set final hole geometry only through the approved order drawing.

Project control

No generic vent or drain size, position or configuration is implied by this catalog.

Raised-face thickness reference bands

Nominal size [D]	Plate thickness (reference) [t]
< 2 in	Application-defined
2–6 in	3 mm
8–14 in	6 mm
16–24 in	10 mm
≥ 26 in	16 mm

These reference bands apply to a differential pressure of 1,000 mbar. Other plate thicknesses are available on request.

Thickness control

Do not use these reference bands as a dimensional release or standard-product commitment. Final plate detail is governed by the approved calculation, order data sheet, drawing and nameplate.

06 / Engineering support

Project-defined inspection, accessories and documentation

Inspection, accessories and documentation are defined by the project specification and approved order documentation.

Engineering outcome

Connect technical selection, drawing release, manufacture, inspection and final documentation.

The final supply route is controlled through approved project requirements and order documents.

Material and application review

Materials are selected to customer requirements and may include standard or special material grades. Material selection, welding scope, finishing, test requirements and certification shall be established through the final project specification.

Support scope

Support area	Typical availability statement
Inspection	Dye penetrant, hydrostatic, radiographic, magnetic particle, ultrasonic and PMI are available on request.
Welding	ASME IX / EN ISO 15614-1 procedures and qualifications are available on request.
Finishing	Standard painting cycles or customer-requested finishing are available on request.
Accessories	Isolation valves, condensate pots and manifolds are available subject to application requirements.
Documentation	Final inspection, testing and documentation scope is defined by approved order requirements.

Order-document control

Availability does not imply standard supply. Confirm the final configuration, inspection scope and documentation package against approved project documentation and the final order data sheet.

07 / Enquiry definition

Build the enquiry before release

This configuration logic supports dialogue with the engineering team; it is not a binding commercial coding commitment.

Example configuration logic

Selection field	Typical configuration choices
Product family	ORI — Orifice Plate Assembly
Type	P plate only; F with flanges; M monolithic; C carrier configuration
Nominal diameter	Typical selection begins at 1 in; sizes below 2 in remain application-defined.
Rating	Typical classes 150, 300, 400, 600, 900, 1500 and 2500.
Face	FF flat face; RF raised face; RJ ring joint.
Flange material	Typical materials include A105N, LF2, F11 / F22, SS 304/316, duplex, Alloy 625, Alloy 400 and Alloy C-276.
Identification	Final identification is order defined.

Configuration logic supports enquiry development. Confirm final selection against approved order documentation.

Define the enquiry

Provide process fluid and phase, operating and design pressure / temperature, flow conditions, pipe size and schedule, governing standard, pressure class, facing, tap method, material requirements, accessory scope, test scope and documentation requirements.

Globe United FZE
Precision Measurement & Process Instrumentation

www.globeunitedae.com info@globeunitedae.com
+971 50 330 1384

Selection guidance

These examples enable enquiry development only. They do not establish a standard product code, material availability, pressure rating, interface or documentation package.

08 / Document control

Configuration is released through approved order documents

This catalog supports engineering dialogue and enquiry definition. It does not replace the approved order data sheet, calculation basis, drawings or nameplate.

Order-document precedence

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

Catalog status

Document field	Controlled value
Document code	GUF-CAT-OPA-001
Revision	Rev. 13
Issue date	24 August 2026
Catalog scope	Orifice Plate Assemblies

Revision history

Revision	Lineage reference	Description / approvals
R00–R08	Controlled document register	Historical detail maintained in controlled register.
R09–R13	Follow-up summary	Audit, cover and editorial corrections · RN / AK / UM

Project-definition inputs

For final release, confirm process conditions, flow calculation, plate geometry, materials, pressure class, process connections, tapping method, facing, accessories, test scope, inspection requirements, documentation package and identification marking.

Contact

Globe United FZE
www.globeunitedae.com info@globeunitedae.com
+971 50 330 1384

Publication control

Named standards, ranges and performance points in this catalog provide technical guidance. Where a value is not a standard Globe United offering, the catalog identifies the need for application review and approved order documentation.