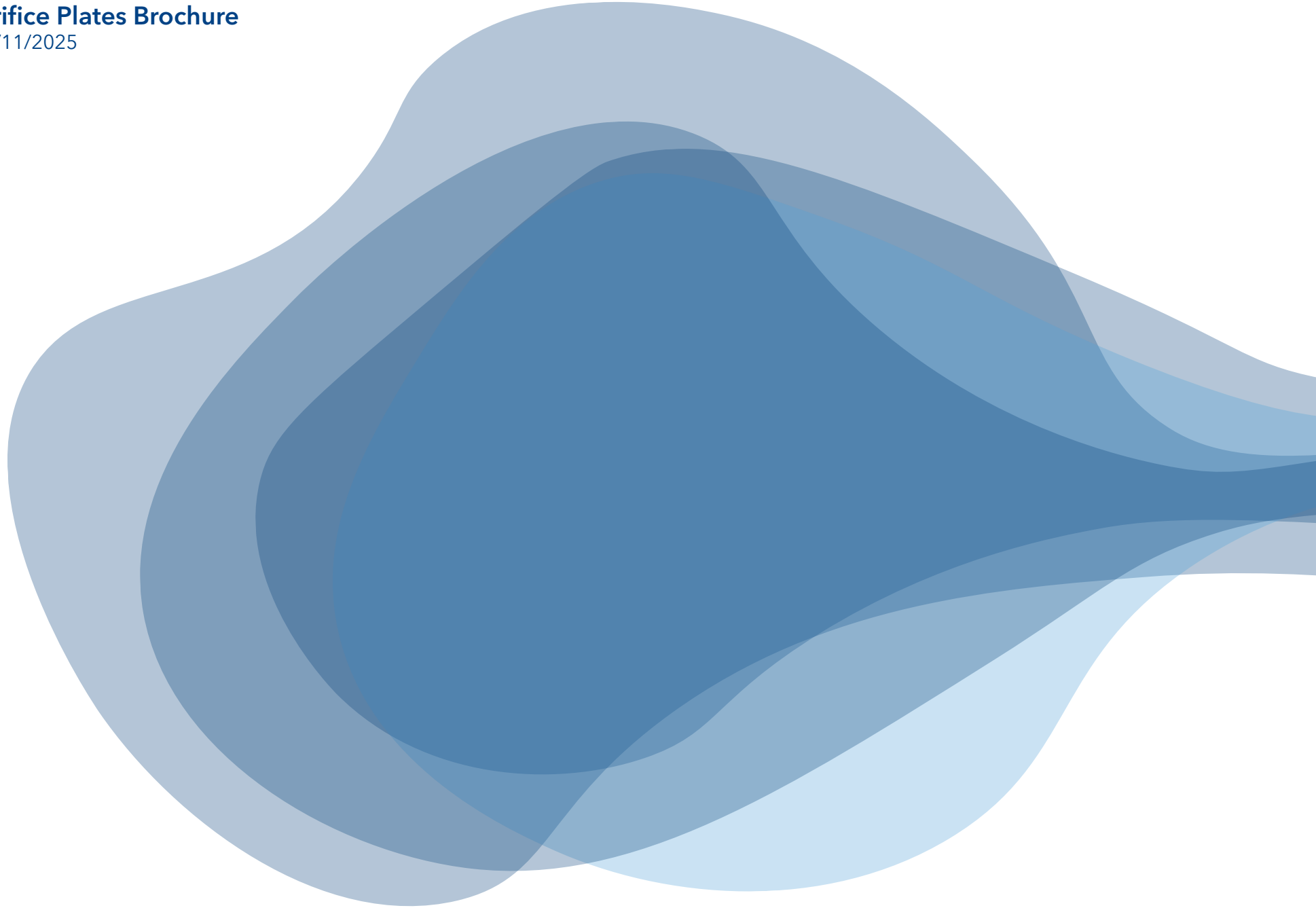
Orifice Plates

Property of Ultrapharma BV

Orifice Plates Brochure

05/11/2025



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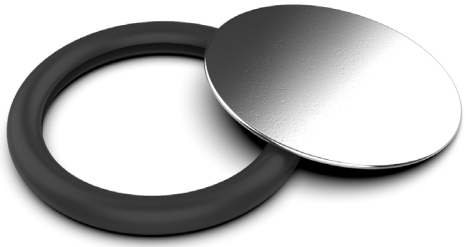
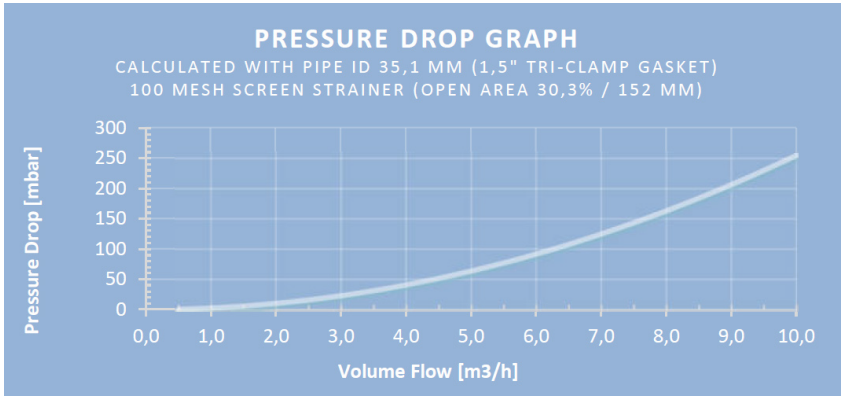


A particle can have many different shapes. Think about hair, it has a diameter of Ø0,1 mm but the length can be centimeters long. If the hair arrives perpendicular to the screen, it might pass a 100 mesh screen. With a conventional filter, the second or third layer will prevent the hair to pass. Retention of standard screens is calculated according to international standards utilizing perfectly round glass spheres. Our screens are only one layer and therefore they cannot be considered the same as conventional filters. Each screen gasket has a high-performance gasket made out of one of the validated compounds that we use for our standard Sanitary Gaskets range.

Screens are designated in mesh sizes such as mesh 20, 40, 100, and so on (Photo 1). 20 Mesh means 20 wires per inch, in both directions, the opening is therefore square. The higher the mesh number the smaller the hole size. The smallest size has a 10µm retention: 200 x 1150 wires. Moreover, it is important to take into account the physical shape of the particles anticipated in your system. It is surely not an exact science.

2. Tabbed Orifice plates

To stand-out and to be identified in the system we can offer orifice plates with a tab. The tab has the heat number permanently laser engraved. The tabbed orifice plates are always mounted with a removable gasket either in one of the standard elastomers or with our unique Removable Steamflon® (PTFE/316SS) gasket. For removable Steam-Flon gaskets we recommend to use MHP clamps (13MHP), these are also available with a slit for tabbed orifice plates (e.g. page 8). Follow the torque recommendations for a solid connection.



3. Available sealing materials

Available Elastomer Compounds:	EPDM (CMD-1004) Platinum Silicone (CMD-1012) FKM (CMD-1010)
PTFE (plastic) Compounds:	Virgin PTFE (CMD-1018) Steam-Flon® (CMD-1019)
Meets:	USP Class VI-121°C (CMD-1012 also EP 3.1.9) EC 10/2011 (EC1935/2004) FDA 177.2600 + FDA 177.1550 (PTFE) Certified TSE/BSE (ADIF) free (EME/410/01)

All standard Orifice Plates are made with 316L plates.
Our standard is electropolished on all plates.

4. Available sizes

Available standards: DIN32676 Reihe A, B and C, ASME BPE, ISO1127, ISO2852 and SMS3017.

Orifice Plates are available in MINI (Ø25 mm flange) series to 6" (Ø167 mm)
In DIN32676 series 1, 2 and 3, respectfully DIN32676, ISO1127 and ASME BPE
Tabbed Orifice plates are available from MINI (Ø25 mm flange) up to 6", with removable elastomeric gaskets or with our removable Steam-Flon® system.

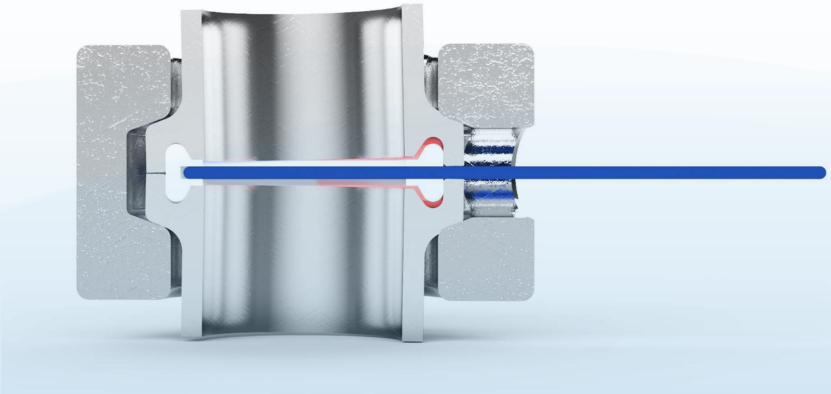
5. Tabbed (MINI) Orifice Plate PTFE - Improved

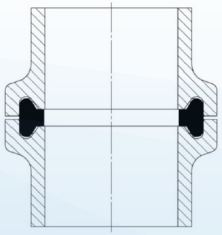
As a manufacturer of critical components for fluid handling systems we are constantly seeking for innovative solutions to improve existing product lines. This time we are introducing an improvement on our Mini Tabbed Orifice Plates with PTFE seal.

Standard TC

The Problem

The MINI series of ferrules and gaskets have a different shape than the standard Tri-Clover seals. The MINIferrule has a shape that partially capsulate the gasket leaving a very small gap between the two ferrules. Thisgap closes further when the clamp is tightened.





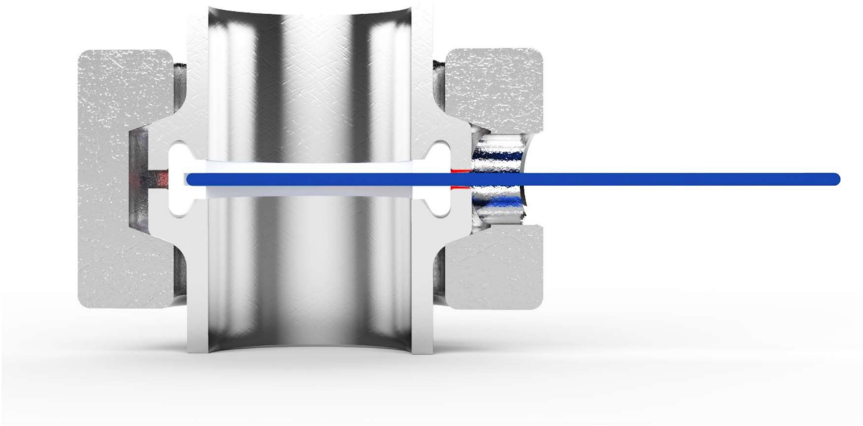
MINI

A metal-to-metal contact is almost inevitable. This leaves very little space for a Tabbed Orifice plate. The metal Tab is typically 1,00 mm thick. (blue line in the illustrations)

In the illustration on the previous page we show a standard Tabbed Orifice plate with PTFE gasket and a clear view of the interference of the Tab with the ferrule causing the ferrule to tilt. In this situation the small shift can cause leakage at the point of the tab. The gasket loses its ability to seal as it can no longer be compressed.

The Solution

To prevent tab interference with the ferrules we increased the thickness of the PTFE gasket. This will allow more space between the tab and the ferrules and therefore no leaks. The gasket can be compressed even after multiple steam cycles, the PTFE will settle after a while. The red area in the illustration below shows the extra room for the gasket to be compressed. Because we increased the thickness of the gasket we were also required to modify the V-grove inside the Clamp. We recommend to use High Pressure Clamps (MHP) for PTFE Orifice Plates, tabbed and non-tabbed.



The Product

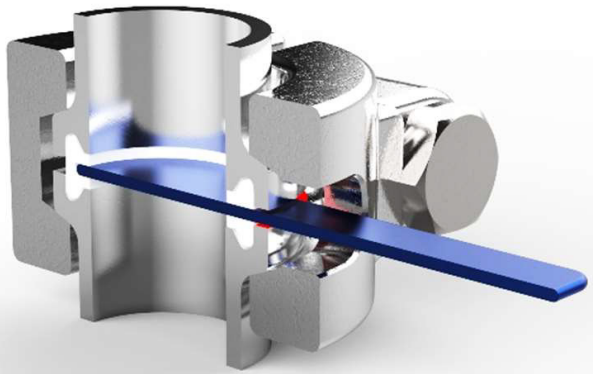
Typical PN
UPA80MPG-075-SS-TAB

Recommended Clamp PN
CL-TAB-ORI-050/075-MHP

Plate material
316L + Heat number laser etched

Recommended Torque
2 Nm

Gasket material
PTFE (CMD-1028), PTFE Removable (CMD1028), Steam-Flon® (CMD-1019) & Steam-Flon® Removable (CMD-1019)



The MINI Tabbed Orifice Plates can be delivered with pre-drilled holes. They are available with fixed PTFE or Steam-Flon® gaskets or in a version with a removable gasket. We recommend to apply 2Nm torque for the bolts. Ultrapharma offers a full range of Torque Knobs and extension tools that are helpful at the installation.

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Notes

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