

## Screens

## Screens (filter) explained

Our screens are not used the same way as conventional filters, although it can be considered a filter.

Conventional filters are build differently and have many layers to prevent particles to pass through, these can reach efficiencies of almost 100%. A particle can have many different shapes. For example a hair has a diameter  $\varnothing$  0,1 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. Retentions of standard screens are calculated according to international standards by means of perfectly round spheres. Our screens are only one layer and therefore they cannot be considered the same as a filter.

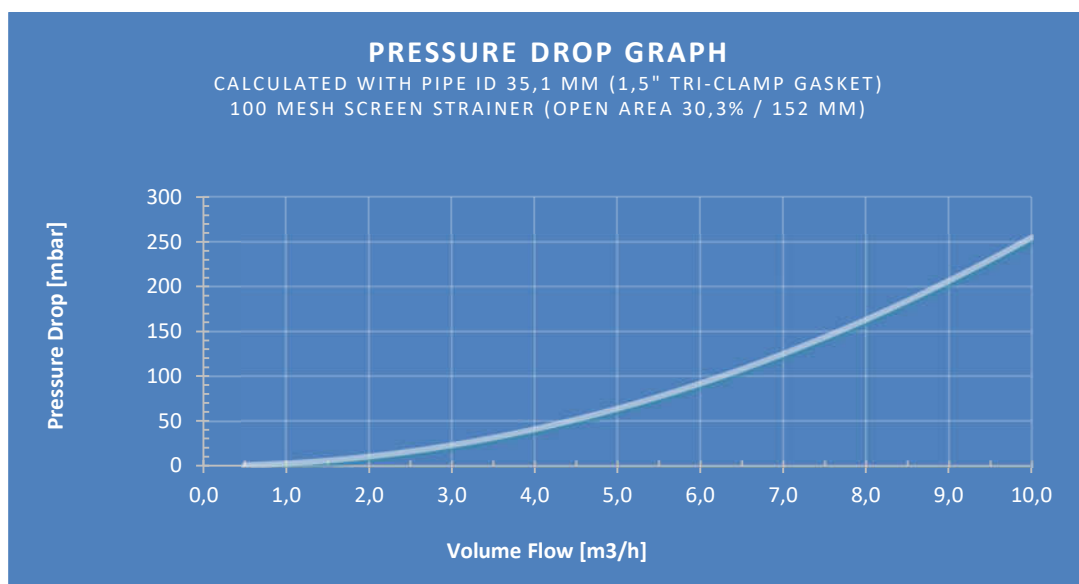
Screens are designated in mesh sizes. Mesh 20, 40, 100 etc. 20 mesh means 20 wires per inch, in both directions, the opening is therefore square. The higher the mesh number the smaller the hole size. The smallest size has a 10  $\mu$ m retention, 200 x 1150 wires.

It is important to take into account the physical shape of the particles anticipated in your system when choosing your mesh sizes. It is surely not an exact science.

Typical **application** for a screen is a **pump protection**. Think about what can be pumped through a new build piping system in a startup! Some pumps (Lobe pumps) might not survive this first run.

Another application is a fine filter in front of **filling needles** in the final stage of a filling line. Just to prevent an isolated loose particle to end up in a vial or bag.

Screens can also be used at the **point of use** in **WFI** systems, it is fascinating to know that the pressure drop over a 1,5" screen with 100 mesh is only 90 mbar at 6m<sup>3</sup>/h. Frequent cleaning of the screen is required, because the captured particles will create a higher pressure drop eventually.



## Screen Reference Chart

Approx. Retention in Microns	Opening in mm	Mesh (wire/inch) Plain Weave	Open Area %	Filter Cloth Twilled Weave	Double Mesh Sintered + 24 Mesh @ PTFE seal
11000μ	11,00	2x2	66		
5156μ	5,16	4x4	65,9		
3340μ	3,34	6x6	62,4		
2464μ	2,46	8x8	60,2		
1905μ	1,91	<b>10x10</b>	56,3		
1617μ	1,52	12x12	52,4		
1414μ	1,30	14x14	51,8		
1218μ	1,14	16x16	50,7		
1061μ	0,99	18x18	48,2		
870μ	0,87	<b>20x20</b>	46,2		
703μ	0,71	24x24	44,1		
527μ	0,51	30x30	37,2		
415μ	0,41	<b>40x40</b>	43		
308μ	0,31	50x50	30,3		
233μ	0,23	<b>60x60</b>	30,3		
180μ	0,18	<b>80x80</b>	31,4		
140μ	0,14	<b>100x100</b>	30,3		x
118μ	0,12	120x120	30,9		
103μ	0,10	<b>150x150</b>	37,2		x
80μ	0,08	<b>200x200</b>	33,6		x
61μ	0,06	<b>250x250</b>	36		x
50μ	0,05	<b>300x300</b>	34		x
43μ	0,04	<b>325x325</b>	30	-	x
30μ	0,03		-	<b>165x800</b>	x
21μ	0,02		-	<b>165x1400</b>	x
14μ	0,01		-	<b>200x1400</b>	x
10μ	0,01		-	<b>325x2300</b>	x

\*Double mesh Sintered screens are 0,40 – 0,70 mm thick, therefore stronger than filter cloth.

\*Other retention screens on request



## Double mesh screens

Fine mesh screens are fragile and could break away when solid material builds up . It is possible to use two screens on top of each other, one for support and one for the final filtration. When using double mesh screens it is important to place them in the correct orientation towards the flow direction. Reversed in process conditions could lead to failure of the fine mesh by braking off.

A better solution is the use of Sintered mesh screens. The screen is build up with a supporting screen and a fine mesh screen on top. These are “welded” together and cannot be separated. This Double mesh product provides better pressure resistance and is suitable for backwashing cycles.

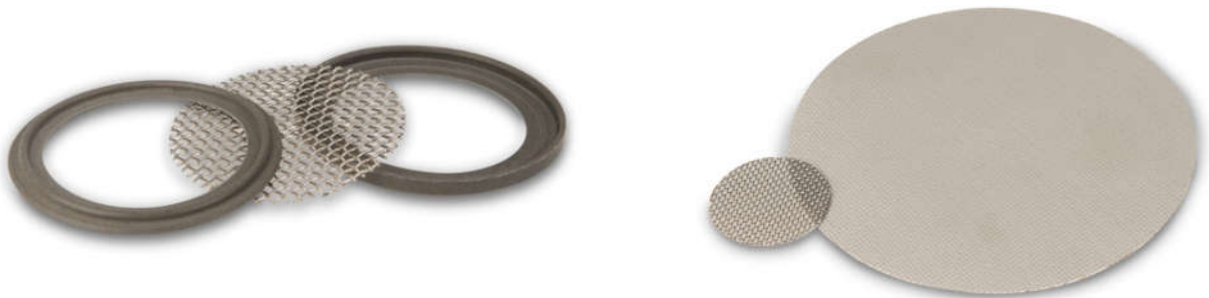


Double mesh screen sintered



Flow direction Double Mesh Screen

We recommend to use Double mesh sintered screens from 100 mesh and down, as per the table on the previous page last column. Double mesh sintered screens are very good in combination with our Removable Steam-Flon® gaskets.



## Sock screens

Sock Screens are designed to take up large amount of soil. Flat screens will finally block if too much soil is accumulated, with a potential chance that they can break. Sock screens can take 8 to 10 times more soil and are therefore used in processes where high particle collection is expected.

Sock screens are available in 50 and 150 mm lengths and can be made in a wide range of mesh sizes.



Standard mesh sizes for sock screens are: 10, 20, 40 and 100 mesh.  
Other mesh sizes on request.

Sock screens are mounted with Elastomeric Slit Gaskets. These can be removed when they wear out.  
Materials: EPDM (**CMD-1004**), FKM (**CMD-1010**), and Platinum Silicone (**CMD-1012**), and our Removable Steam-Flon® (**CMD-1019**) when PTFE is required.



## Perforated screens

Perforated screens are basically stainless plates with specific hole sizes. The hole size variation is limited to a couple of perforation sizes. The holes are relatively large and the plates are used to capture large debris, which is possible because they are very strong. ( $\pm 1,00$  mm thick).

The perforated screens are supplied with so called slit gaskets so when the gasket is damaged it can be replaced.

Available in EPDM (**CMD-1004**), FKM (**CMD-1010**) and Platinum Silicone (**CMD-1012**).

They can also be utilized in combination with our unique removable Steam-Flon<sup>®</sup> gaskets (**CMD-1019**).



### Perforated Screen Reference Chart

Hole Diameter (mm)	Centre line Diameter (mm)	Thickness (mm)	TC flange Diameter (mm)
0,80	2,00	1,00	25, 34, 50, 64, 77, 91, 106, 119
1,00	2,20	1,00	25, 34, 50, 64, 77, 91, 106, 119
1,50	2,50	1,00	25, 34, 50, 64, 77, 91, 106, 119
2,50	5,00	1,00	50, 64, 77, 91, 106, 119
3,00	5,00	1,00	50, 64, 77, 91, 106, 119

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

Perforated screens can also be used as a backer in combination with a fine mesh filter. The perforated backer plate will protect the fine mesh from breaking out when collecting particles. It is important to position the combined filter in the correct flow direction, identical as the double mesh screens discussed earlier.



The perforated disc and screen can be used in combination with our Elastomeric slit gaskets and the Removable Steam-Flon<sup>®</sup> gaskets.

Assembly with EPDM slit gasket, 150 mesh screen and a perforated disc.

## 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)  
Meets: EC 10/2011 (EC1935/2004)  
Meets: FDA 177.2600 + FDA 177.1550 (PTFE)  
Certified TSE/BSE (ADIF) free (EME/410/01)

## Available sizes

Flat screens available in MINI (Ø25 mm flange) series to 6" (Ø167 mm)  
In DIN32676 series 1, 2 and 3, respectfully DIN32676, ISO1127 and ASME BPE  
Sock Screens are available from 1,5" up to 4" (DN100)



SMS 1149 screen



DIN 11864 screen

# Screens

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