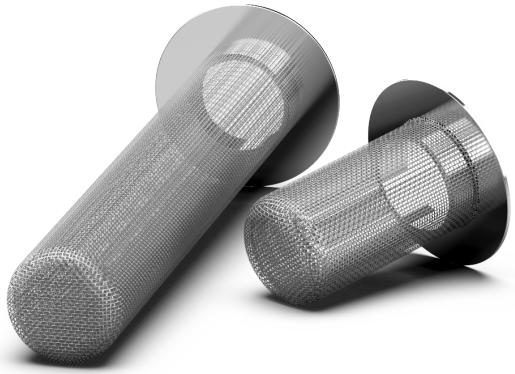
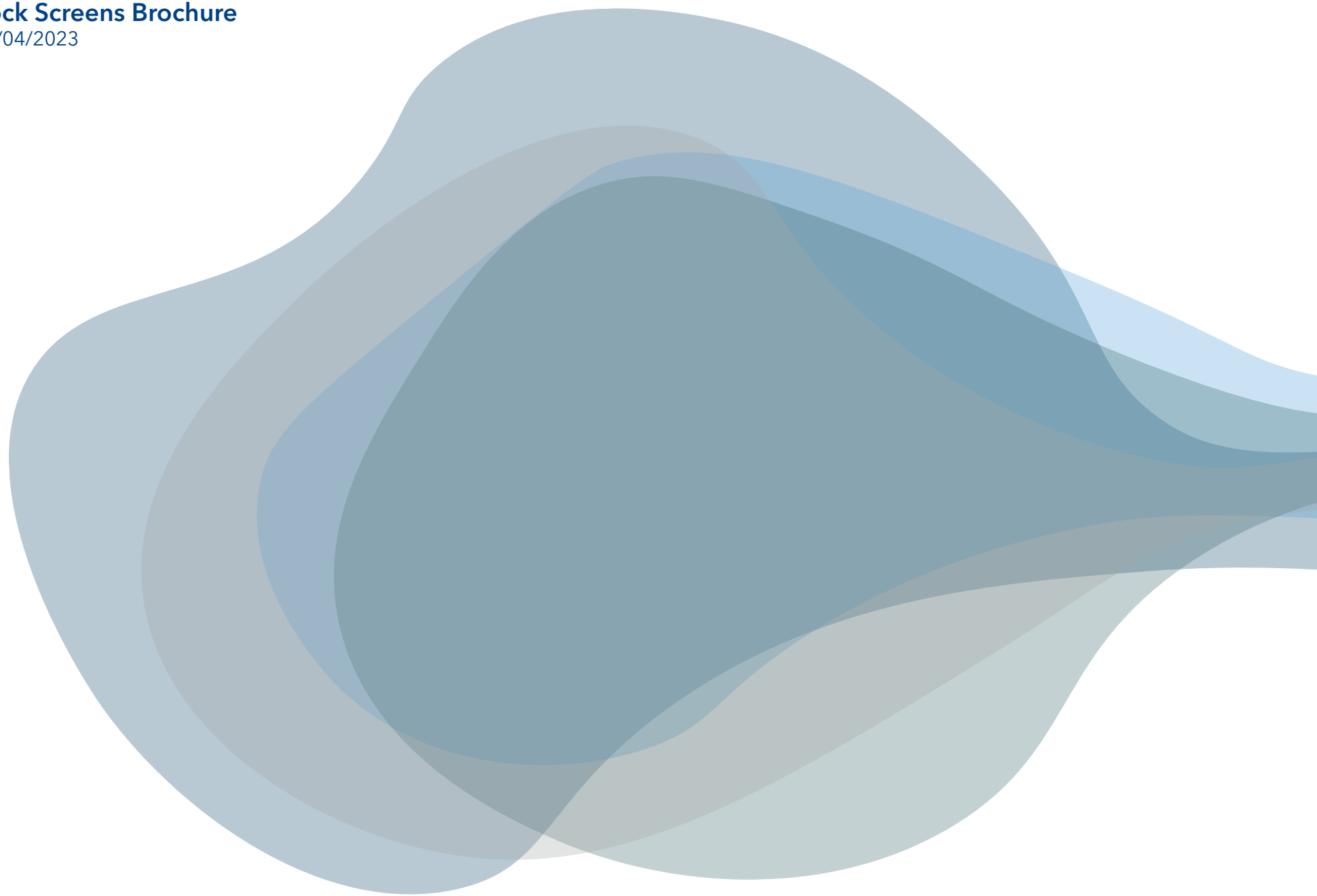


Sock Screen

Property of Ultrapharma BV

Sock Screens Brochure

12/04/2023



Ultrapharma bv

Table of Contents

Sock Screens Brochure
12/04/2023

1. Introduction

Sock screens offer a greater soil collection capacity than standard flat screens. If the capacity of a standard flat in situ filters is not sufficient then the Sock screen is a good alternative. They are available in 150 mm (6in) and 50 mm (2in) lengths.

All of our Sock screens are produced in house at Ultrapharma (The Netherlands). After production they will be chemically cleaned to avoid impurities.

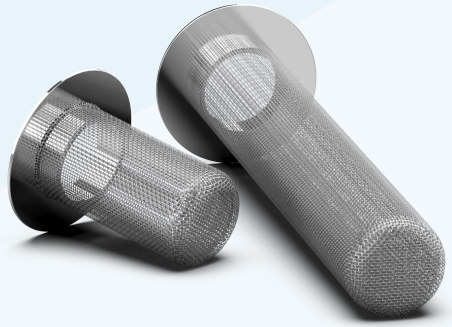
The Sock screen is made of 3.1 certified stainless steel and supplied with:

- Removable elastomeric gasket
- Removable PTFE gasket
- Removable Steam-Flon® gasket

All materials will be supplied with Heat number/ Lot number. Bonded PTFE or Steam-Flon® on request, a longer delivery time may apply.

Available Sizes

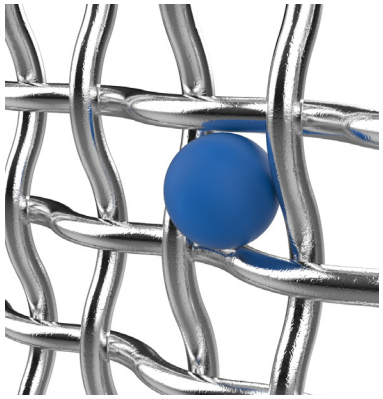
1in through 3in (TC 50.5 -TC 91)
DIN32676 A, B, C same TC diameters

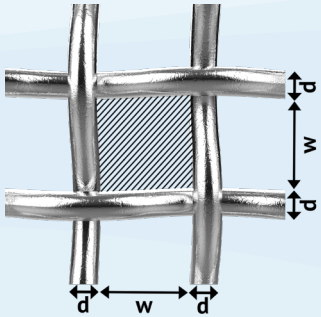


2. Mesh explained

Retention

The nominal retention of a square mesh screen is based on the size of a perfectly spherical ball which then is just retained. In real life, the objects we would like to retain are not perfectly square and the absolute retention might be slightly different. A particle can have many different shapes. For example a hair has a diameter Ø 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 the single layer screen which we are discussing now it is not an exact science. It is important to take into account the physical shape of the particles anticipated in your system when choosing your mesh sizes.





Warp, Weft, Aperture & Wire diameter

The length wires are called warp wires, the wires which are weaved into it in width are called weft wires. Do note that with a square weave as shown in the picture, these two are interchangeable.

The space in between two warp or weft wires is called the aperture (w), whereas the wire diameter (d) is the thickness of the wire.

Mesh Open Area (A_0)

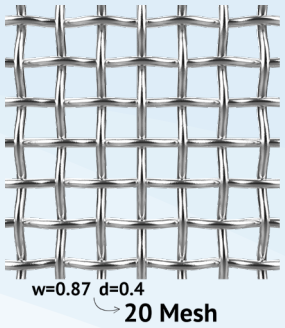
The mesh open area describes the total of all apertures as percentage of the mesh surface.

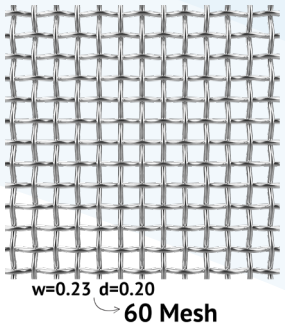
$$\text{Mesh Open Area } (A_0) = \left(\frac{w}{w + d}\right) \times 100\%$$

Mesh calculation

The mesh count describes the number of apertures per imperial inch is calculated as follows:

$$\text{Mesh} = \frac{25.4 \text{ mm}}{w \text{ (mm)} + d \text{ (mm)}}$$





3. Available mesh sizes

Plain weave

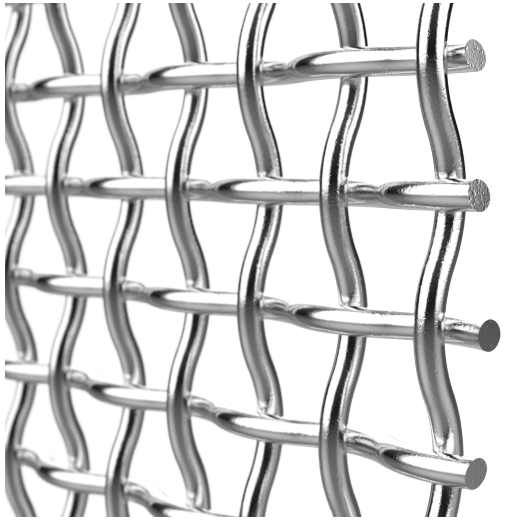
Mesh (wire/inch)	Approx. retention in microns	Wire Ø in mm	Open area in %
16x16	1220µ	0,37	50,7
20x20	870µ	0,34	46,2
30x30	527µ	0,27	37,2
40x40	415µ	0,22	42,7
60x60	260µ	0,16	30,3
80x80	180µ	0,14	31,4

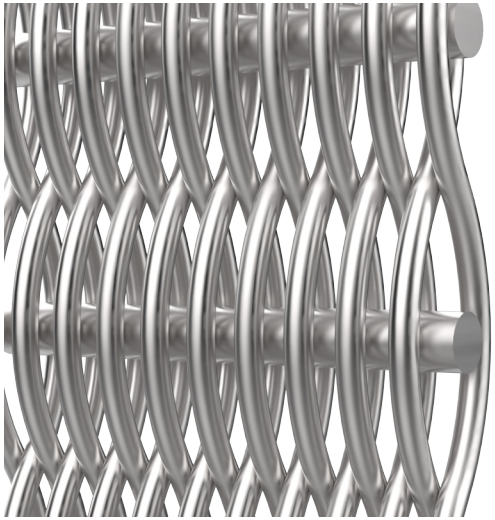
Plain Dutch weave

Mesh (wire/inch)	Approx. retention in microns	Wire Ø in mm	Porosity %
24x110	120µ	0.35 / 0.26	49
28x240	100µ	0.33 / 0.12	55
42x400	70µ	0.17 / 0.07	50
70x800	42µ	0.10 / 0.08	42

Plain Dutch weave does not have an upright opening, but an opening at an angle. As a result, the percentage of open surface cannot be calculated, only to indicate how porous the fabric is in %.

Other Mesh sizes on request, minimum order quantity and a longer delivery time may apply.



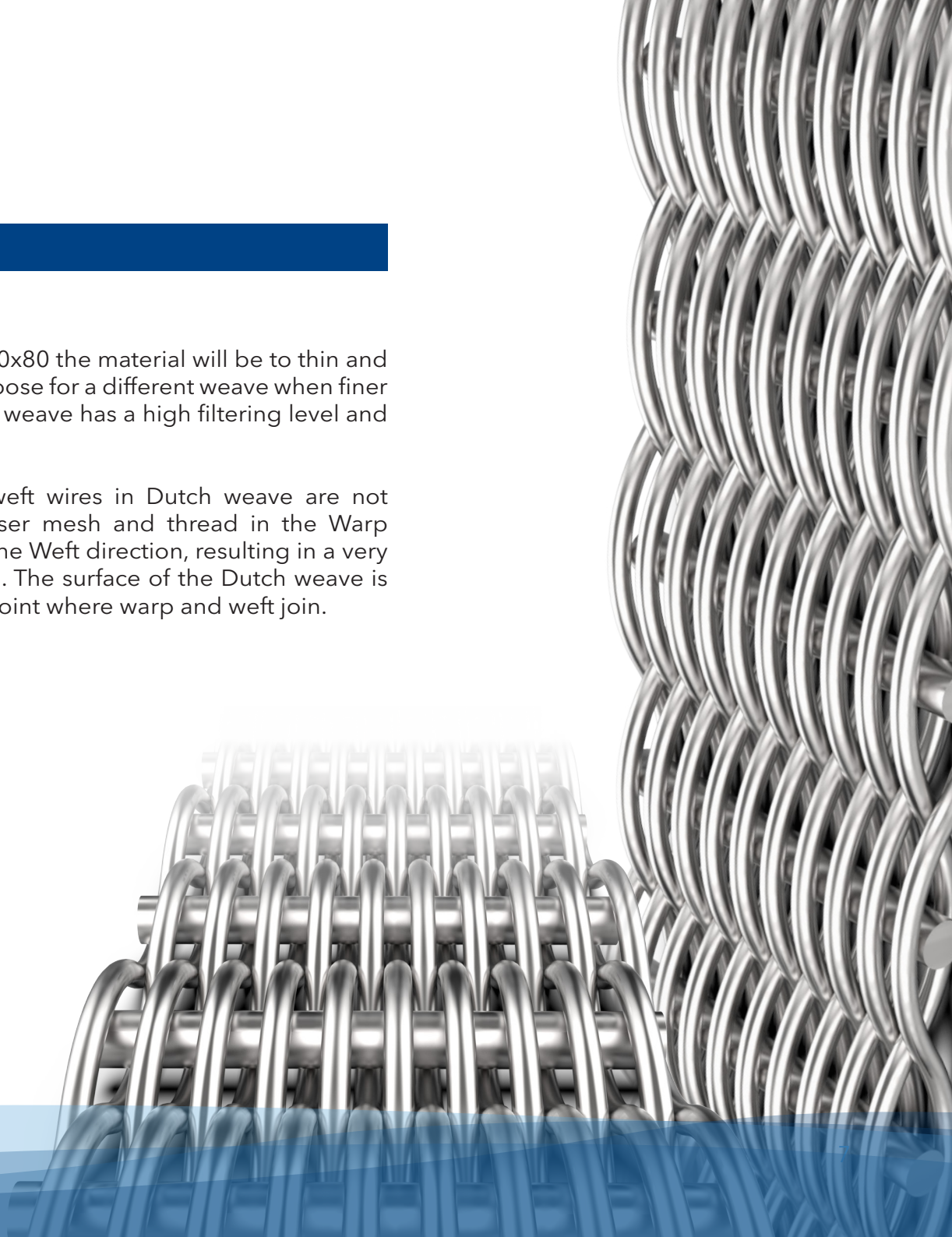


4. Plain Dutch weave

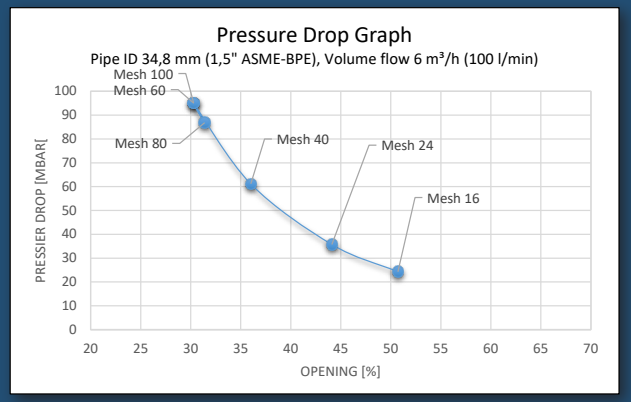
Explained

When the mesh of plain weave is above 80x80 the material will be to thin and fragile for a Sock screen. This is why we choose for a different weave when finer filtration is needed, the Dutch weave. This weave has a high filtering level and high pressure load resistance.

Instead of plain weave, the warp and weft wires in Dutch weave are not interchangeable. This weave has a coarser mesh and thread in the Warp direction and a finer mesh and thread in the Weft direction, resulting in a very compact, sturdy mesh with great strength. The surface of the Dutch weave is closed so that the filtration occurs at the point where warp and weft join.



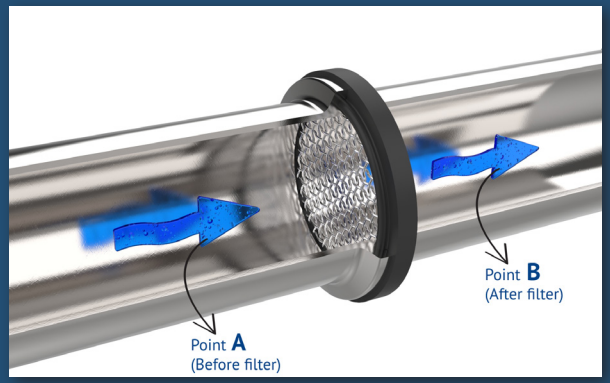
5. Pressure drop calculation



What is Pressure Drop?

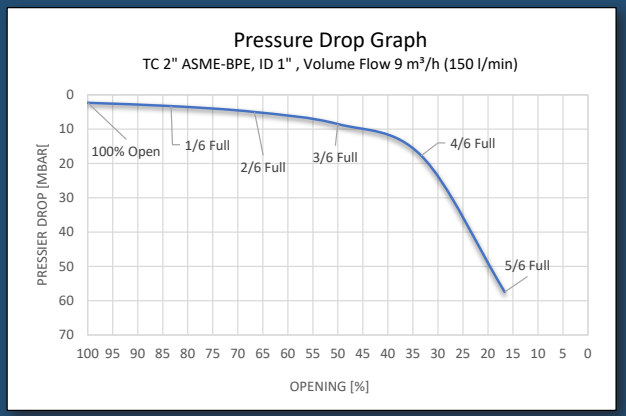
Because filters in your process equipment can be an obstruction to the flow, depending on the Mesh Open Area (Ao), they can cause the phenomenon known as pressure drop. Simply put, pressure drop is the difference in total pressure between two points in your system. In our case it describes a change in pressure from point A (before filter) to point B (after filter). With filters, the higher the drop, the greater the impact on performance.

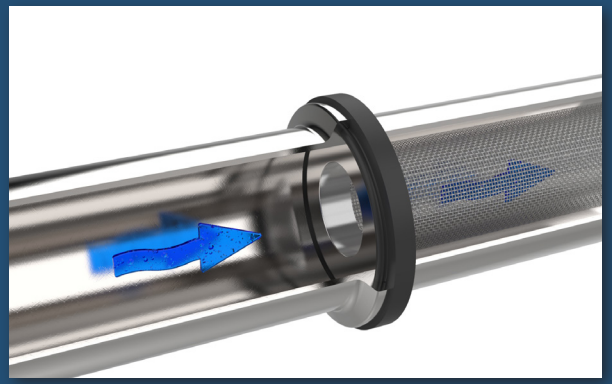
When using a flat screen we can calculate the pressure drop (Mbar) using the Mesh Open Area (Ao) and the Volume flow (m³/h) in your system. This pressure drop is calculated with unused screens, you can imagine that when the screen gets clogged the Pressure Drop will rise. As you can see in the table below, less opening means more pressure drop.



Pressure Drop of a Sock screen

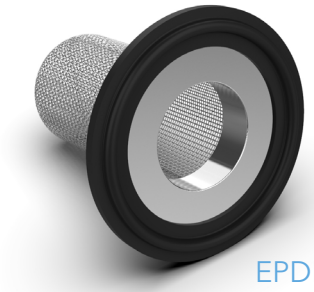
Clogged up screens can have a large impact on the performance of your system, because they can cause high Pressure Drops. This is where Sock screens have the advantage. Sock screens can be partially clogged up, but still don't have a large pressure drop. In the graph you can see the Pressure Drop of a 1.5in, 40 mesh, length 150mm Sock screen when it gets clogged up more and more. You can notice that when it's 5/6 full, the pressure drop is still the same as a flat mesh 40 screen.



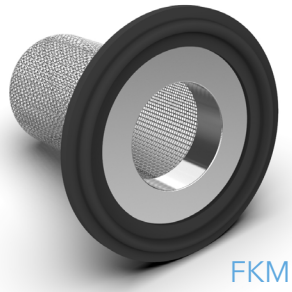


6. Suitable gaskets & materials

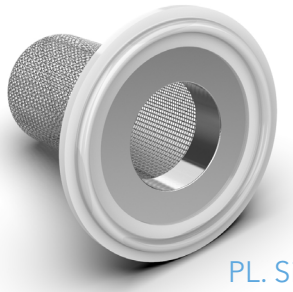
Material	Compound Number	FDA CFR 177.2600	USP Cytotoxicity <87>	USP Class VI-121° <88>	USP Physicochemical testing	Conform ADIF	Temperature Range
EPDM	CMD-1004	✓ 177.2600	✓	✓	✓	✓	-40°/+150° (short +170)
FKM	CMD-1010	✓ 177.2600	✓	✓		✓	-30°/+170°
PL. Silicone	CMD-1012	✓ 177.2600	✓	✓	✓ EP 3.1.9.	✓	-60°/+200°
TFM	CMD-1028	✓ 177.1550	✓	✓	✓	✓	-75°/+260°
Steam-flon®	CMD-1019	✓ 177.1550	✓	✓	✓	✓	-195°/+288°



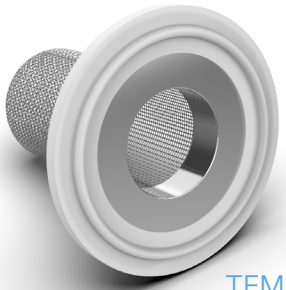
EPDM
Removable



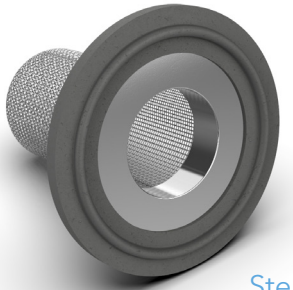
FKM
Removable



PL. Silicone
Removable



TFM/PTFE
Removable



Steam-Flon®
Removable

7. Size & Mesh options

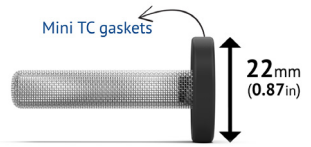
Size	Lengths*	MESH 16x16	MESH 20x20	MESH 30x30	MESH 40x40	MESH 60x60	MESH 80x80	DUTCH WEAVE 70Micron
½″	XS				✓	✓	✓	✓
¾″	XS & S				✓	✓	✓	✓
34mm	XS & S				✓	✓	✓	✓
1″	XS & S	✓	✓	✓	✓	✓	✓	✓
1½″	S & L	✓	✓	✓	✓	✓	✓	✓
2″	S & L	✓	✓	✓	✓	✓	✓	✓
2½″	S & L	✓	✓	✓	✓	✓	✓	✓
3″	S & L	✓	✓	✓	✓	✓	✓	✓
4″	S & L	✓	✓	✓	✓	✓	✓	✓

*XS (Extra small 25mm) - S (small 50mm) - L (Large 150mm)

8. ½in Sock Screen

½'' Sock Screen available for TC:

ASME ½in
DIN DN12
DIN DN14
ISO DN10

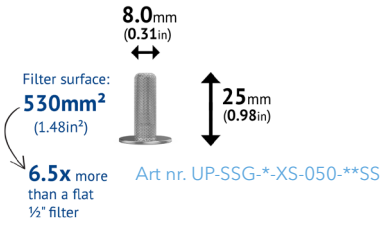


* Material:

E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)

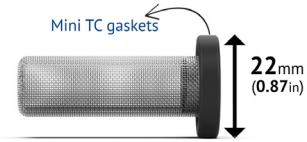


Art nr. UP-SSG-*-XS-050-**SS

9. ¾in Sock Screen

¾" Sock Screen available for TC:

ASME ¾in

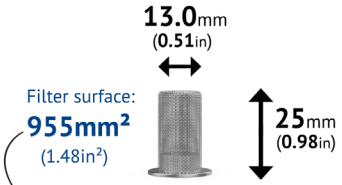


* Material:

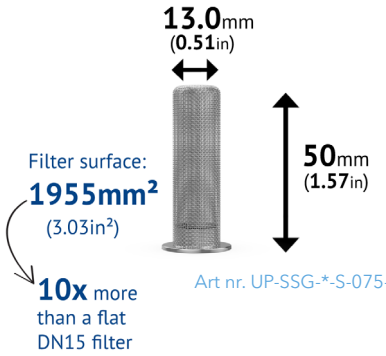
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-XS-075-**SS

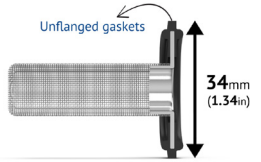


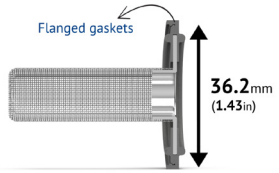
Art nr. UP-SSG-*-S-075-**SS

10. 34mm Sock Screen

34mm Sock Screen available for TC:

DIN DN15
ISO DN15* (FLANGE 34mm)
DIN DN20



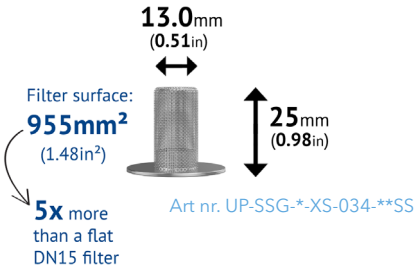


* Material:

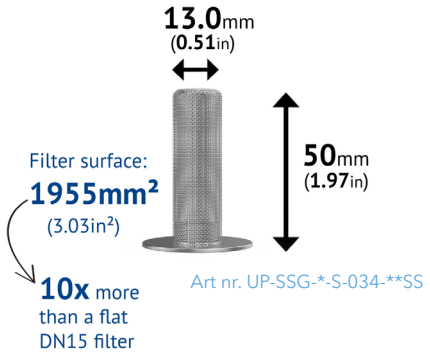
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-XS-034-**SS

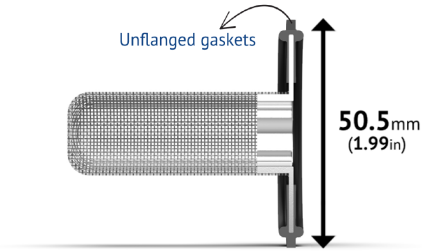


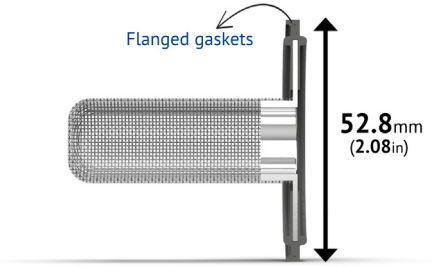
Art nr. UP-SSG-*-S-034-**SS

11. 1in Sock Screen

1'' Sock Screen available for TC:

ASME 1in
SMS DN25
ISO DN25
DIN DN25



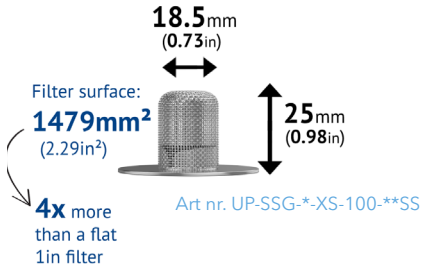


* Material:

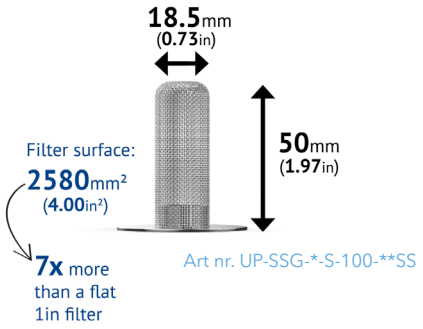
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-XS-100-**SS

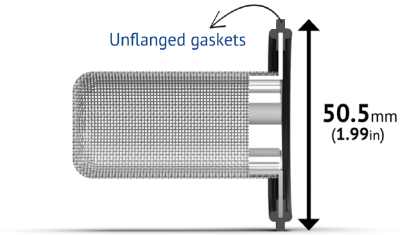


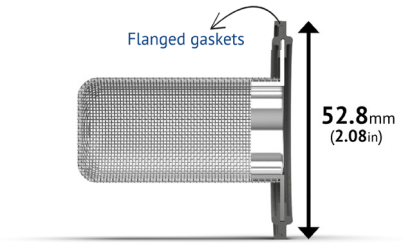
Art nr. UP-SSG-*-S-100-**SS

12. 1.5in Sock Screen

1.5" Sock Screen available for TC:

ISO DN25
SMS DN33.7
DIN DN32
ASME 1.5in
SMS DN38
DIN DN40



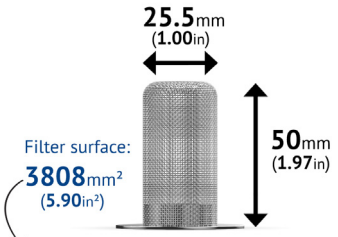


* Material:

E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

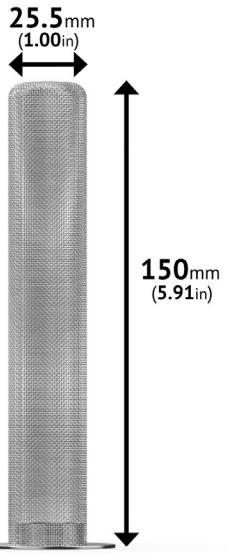
(example: 40SS = 40 MESH)



Filter surface:
3808mm²
(**5.90**in²)

4x more than a flat 1.5in filter

Art nr. UP-SSG-*-S-150-**SS



Filter surface:
11190mm²
(**17.34**in²)

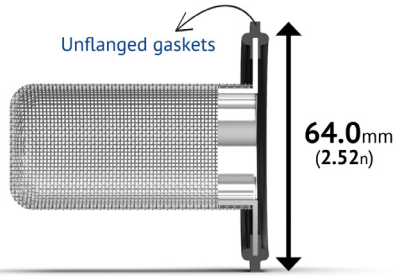
12x more than a flat 1.5in filter

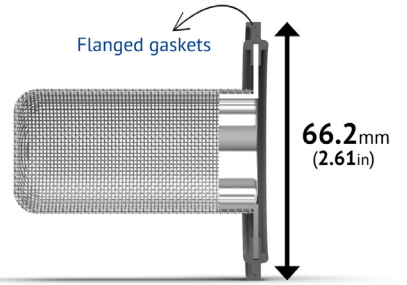
Art nr. UP-SSG-*-L-150-**SS

13. 2in Sock Screen

2'' Sock Screen available for TC:

ISO DN32
ISO DN40
ASME 2in
SMS DN51
DIN DN50



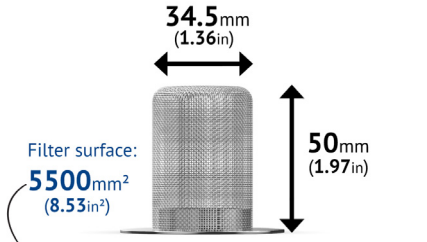


* Material:

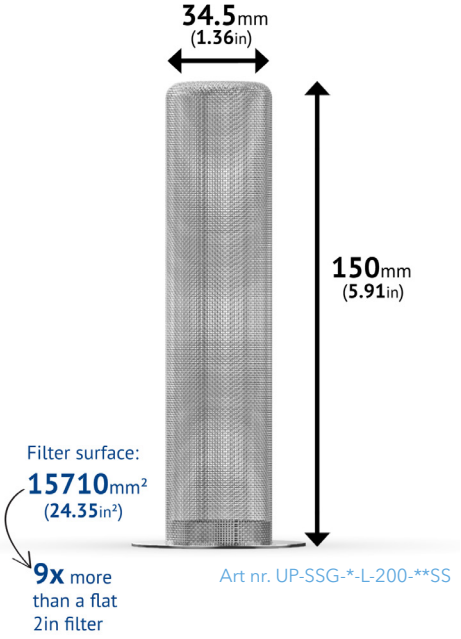
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-S-200-**SS

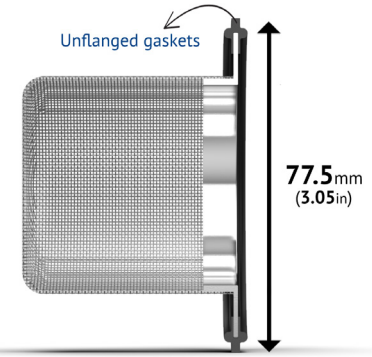


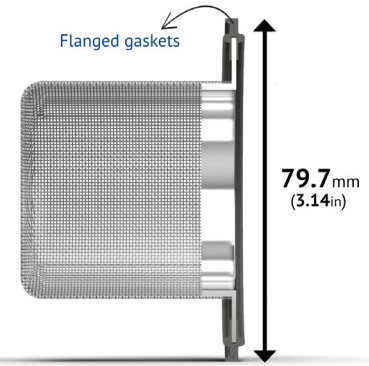
Art nr. UP-SSG-*-L-200-**SS

14. 2.5in Sock Screen

2.5'' Sock Screen available for TC:

ISO DN50
ASME 2.5in
SMS DN63.5



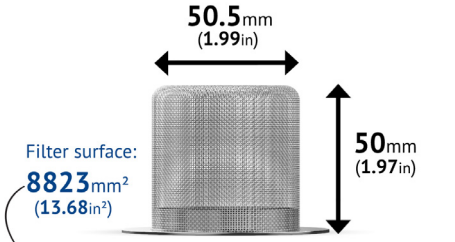


* Material:

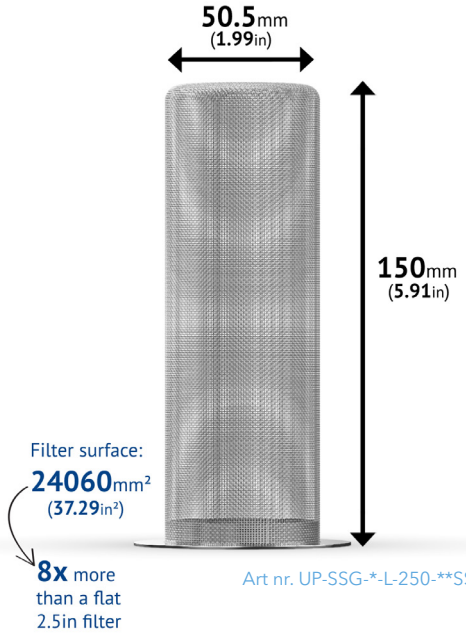
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-S-250-**SS

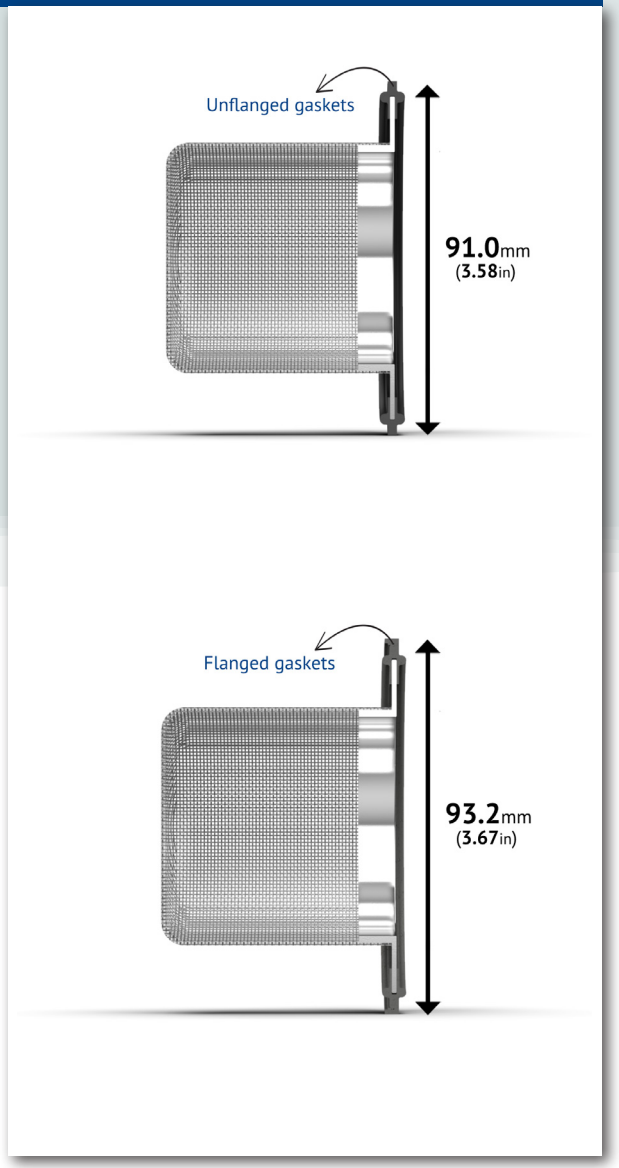


Art nr. UP-SSG-*-L-250-**SS

15. 3in Sock Screen

3'' Sock Screen available for TC:

DIN DN65
ISO DN65
ASME 3in
SMS DN76.1

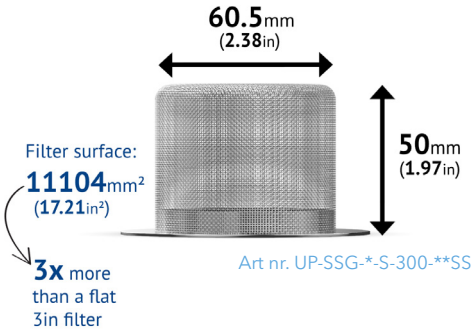


* Material:

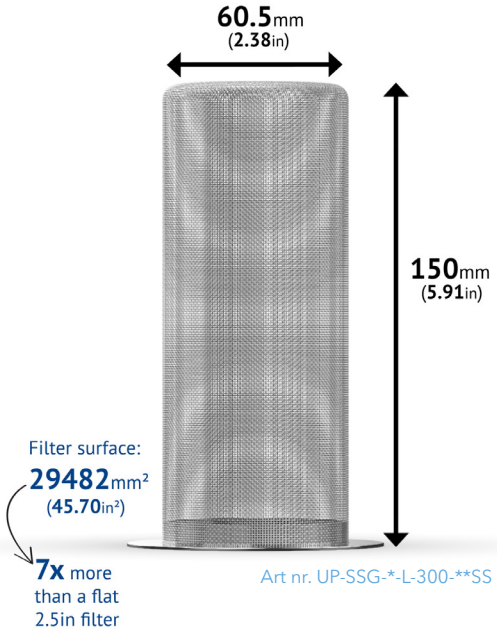
E	=	EPDM
RXPX	=	Platinum Silicone
SFY	=	FKM
MPFG	=	PTFE (Flanged)
MPFG-SF	=	Steam-Flon (Flanged)

** MESH size

(example: 40SS = 40 MESH)



Art nr. UP-SSG-*-S-300-**SS



Art nr. UP-SSG-*-L-300-**SS

Ultrapharma bv

Notes

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