

**THE NETHERLANDS**  
(N E D E R L A N D)**EC TYPE-APPROVAL CERTIFICATE**

Communication concerning:

- EC type-approval <sup>(1)</sup>
  - ~~extension of EC type-approval <sup>(1)</sup>~~
  - ~~refusal of EC type-approval <sup>(1)</sup>~~
  - ~~withdrawal of EC type-approval <sup>(1)</sup>~~
- } of a type of  
hydrogen component

with regard to Regulation (EC) number 79/2009, as implemented by Regulation (EU) number 406/2010.

**EC type-approval number** : e4\*79/2009\*406/2010\*0035\*00

Reason for extension : N.A.

## SECTION I

- 0.1. Make (trade name of manufacturer) : Swagelok Company
- 0.2. Type : TF series filters, FW series filters



- 0.3. Means of identification of type, if marked on the component <sup>(2)</sup> : **TF series filter**  
: SS-4TF-  
SS-6TF-  
SS-8TF-  
SS-6TF-MM-  
SS-8TF-MM-  
SS-10TF-MM-  
SS-12TF-MM-  
SS-2TF4-MM-  
SS-4TF2-MM-
- FW series filter**  
SS-4FWS-05  
SS-4FW-2  
SS-4FW-7  
SS-4FW-15  
SS-6FWS-MM-05  
SS-6FW-MM-2  
SS-6FW-MM-7  
SS-6FW-MM-15  
SS-4FW4-2  
SS-4FW4-7  
SS-4FW4-15  
SS-4FW2-2  
SS-4FW2-7  
SS-4FW2-15  
SS-4FW5-2  
SS-4FW5-7  
SS-4FW5-15
- 0.3.1. Location of that marking : Body of the component (see drawing)
- 0.5. Name and address of manufacturer : Swagelok Company  
29500 Solon Road 44139  
Solon, Ohio  
United States of America
- 0.7. In the case of components and separate technical units, location and method of affixing of the EC approval mark : On sample.
- 0.8. Name(s) and address(es) of assembly plant(s) : Swagelok Company  
Order Fulfillment Center (OFC)  
29495 FA Lennon Drive  
Solon, OH 44139
- 0.9. Name and address of manufacturer's representative (if any) :

SECTION II

1. Additional information (where applicable) : see Addendum



**Approval number: e4\*79/2009\*406/2010\*0035\*00**

2. Technical service responsible for carrying out the tests : Kiwa Nederland B.V.  
P.O.Box 137  
7300AC Apeldoorn  
The Netherlands
3. Date of test report : 06-08-2020
4. Number of test report : 191101449
5. Remarks (if any) : see Addendum
6. Place : Zoetermeer
7. Date : 21 October 2020
8. Signature :



**R.F.R. Clement**

Attachments:

- Information package.
- Test report.

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<sup>(1)</sup> Delete where not applicable.

<sup>(2)</sup> If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this information document, such characters shall be represented in the documentation by the symbol '?' (e.g. ABC??123??).

ADDENDUM

to EC type-approval certificate number: e4\*79/2009\*406/2010\*0035\*00

relating to EC component type-approval of a hydrogen component or system

1. Additional information
  - 1.1. Hydrogen system designed to use liquid hydrogen/Hydrogen system designed to use compressed (gaseous) hydrogen/Hydrogen component designed to use liquid hydrogen/Hydrogen component designed to use compressed (gaseous) hydrogen <sup>(1)</sup>
2. Specifications and test results
  - 2.1. Containers designed to use compressed (gaseous) hydrogen
    - 2.1.1. Container material specifications

Material specifications	Applicable to material						Details
	Steel	Aluminium alloy	Plastic liner	Fibre	Resin	Coating	
Material manufacturer	✓	✓	✓	✓	✓		
Type of material	✓	✓	✓	✓	✓		
Material identification	✓	✓	✓	✓	✓		
Heat treatment definition	✓	✓					
Chemical composition	✓	✓					
Cold or cryoforming procedure	✓						
Welding procedure definition	✓	✓					

- 2.1.2. Container material test results

Material test	Applicable to material						Specified material value	Test value
	Steel	Aluminium alloy	Plastic liner	Fibre	Resin	Coating		
Tensile test	✓	✓	✓					
Charpy impact test	✓							
Bend test	✓	✓						
Macroscopic examination	✓							



Material test	Applicable to material						Specified material value	Test value
	Steel	Aluminium alloy	Plastic liner	Fibre	Resin	Coating		
Corrosion test		√						
Sustained load cracking test		√						
Softening temperature test			√					
Glass transition temperature test					√			
Resin shear strength test					√			
Coating test						√		
Hydrogen compatibility test	√	√	√	√	√			

2.1.3. Container test results

Container test	Specified design value	Test result
Burst Test		
Ambient Temperature Pressure Cycle Test		
LBB Performance Test		
Bonfire test		
Penetration Test		
Chemical Exposure Test		
Composite Flaw Tolerance Test		
Accelerated Stress Rupture Test		
Extreme Temperature Pressure Cycle Test		
Impact Damage Test		
Leak Test		
Permeation Test		
Boss Torque Test		
Hydrogen Gas Cycling Test		

3. Restriction of use of the device (if any) : None

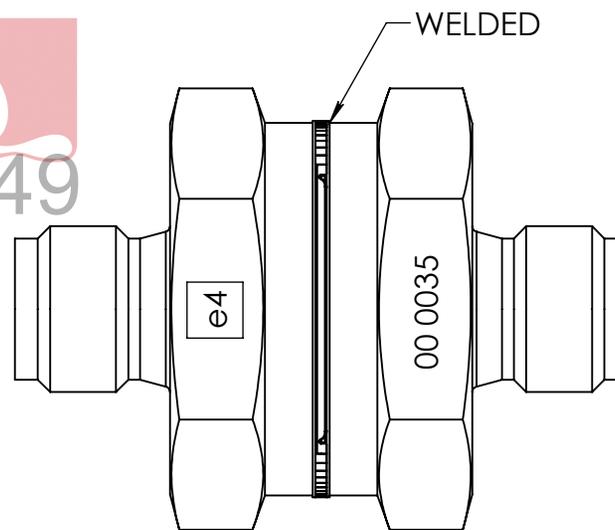
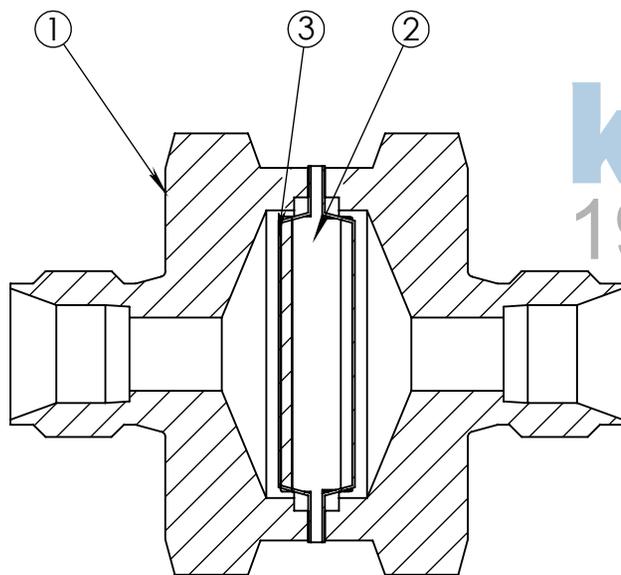
4. Remarks : None

<sup>(1)</sup> Delete where not applicable.



NOMINAL PRESSURE RATING: UP TO 35 Mpa (5,076 psi)  
 MAWP AS TESTED PER EN406: 43.75 Mpa (6,345 psi)  
 MARKING METHOD: LASER MARKED  
 TEMPERATURE RATING: (-40C TO +85C)

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	BODY	ASTM A276-316/316L	2
2	FILTER ELEMENT	ASTM E353 316	1
3	SUPPORT SCREEN	ASTM E353 316	2



UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES  
 .XX .01  
 .XXX .005  
 .XXXX .0015  
 ANGLES 30 MINUTES

INTERPRET DIM. AND TOL. PER ASME Y14.5M-1994

TITLE

APPROVAL/SCHEDULE DRAWING

MATERIAL

SAP CHANGE NUMBER DCN-00199926

SCALE 4:1

DATE 12/2/2020

DWG. NO. FW FILTER-EC79-APPROVAL



SHEET 1 of 2

vs. 00

REV. -

NOTE(S):

1.) THE TWO ENDS ARE AVAILABLE IN ANY COMBINATION.

NOMINAL PRESSURE RATING: UP TO 35 Mpa (5,076 psi)

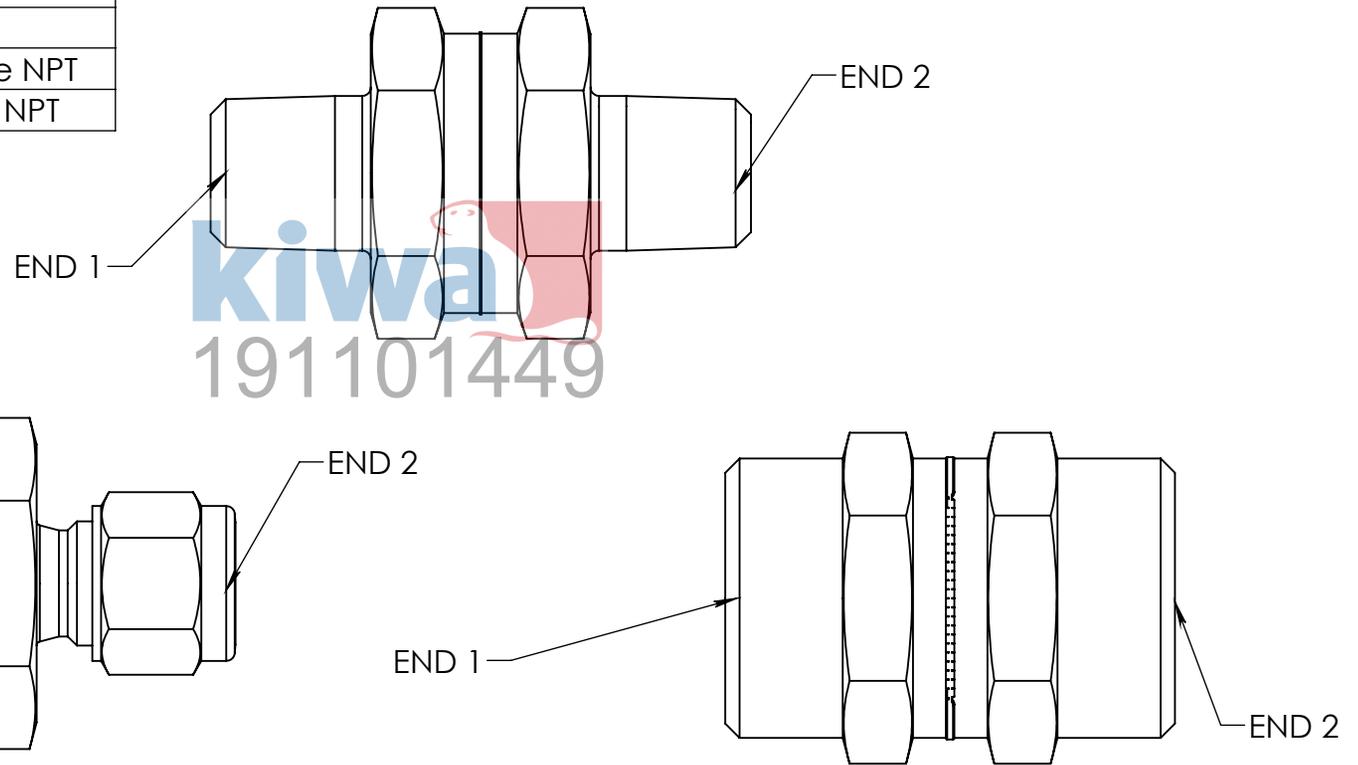
MAWP AS TESTED PER EN406: 43.75 Mpa (6,345 psi)

MARKING METHOD: LASER MARKED

TEMPERATURE RATING: (-40C TO +85C)

NOM. PORE SIZE
15 µm
7 µm
2 µm
0.5 µm

End 1	End 2
400	400
6M0	6M0
1/4" Female NPT	1/4" Female NPT
1/4" Male NPT	1/4" Male NPT



UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 .XX .01  
 .XXX .005  
 .XXXX .0015  
 ANGLES 30 MINUTES  
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TITLE		APPROVAL/SCHEDULE DRAWING	
MATERIAL	SAP CHANGE NUMBER	DCN-00199926	SCALE 1:1
	DATE	12/2/2020	DWG. NO.



FW FILTER-EC79-APPROVAL

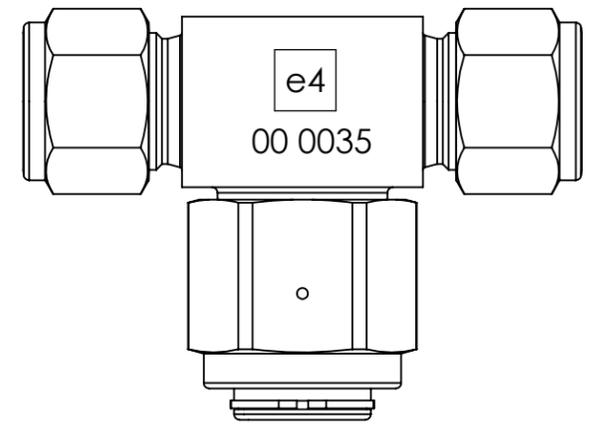
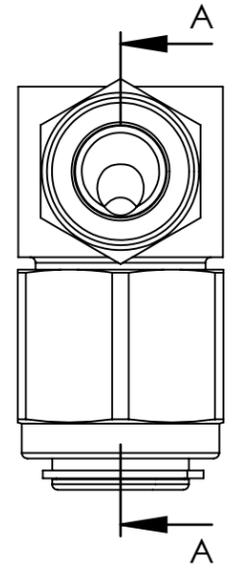
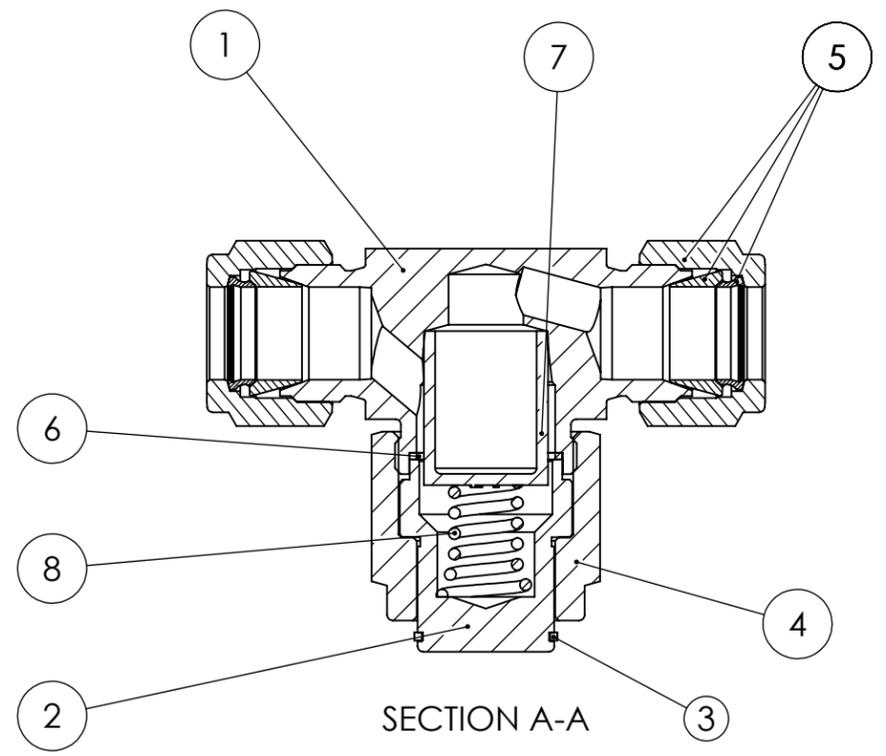
SHEET	2 of 2
vs.	00
REV.	-

REVISIONS	
REV.	DCN
-	00199926

NOMINAL PRESSURE RATING: UP TO 35 MPa (5,076 psi)  
 MAWP AS TESTED PER EN406: 43.75 MPa (6,345 psi)  
 MARKING METHOD: LASER MARKED  
 TEMPERATURE RATING: (-40°C TO +85°C)



ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	FILTER BODY	ASTM A276-316/316L	1
2	BONNET	ASTM A276-316/316L	1
3	RETAINING RING	15-7 MO STAINLESS STEEL	1
4	BONNET NUT	ASTM A276-316/316L	1
5	SWAGELOK HARDWARE	ASTM A276-316/316L	2
6	FILTER GASKET	ASTM A276-316/316L	1
7	SINTERED ELEMENT	ASTM E353-316/316L	1
8	SPRING	302 STAINLESS STEEL	1



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TOLERANCE ON ENGLISH DIMENSIONS UNLESS OTHERWISE SPECIFIED  
 .XX ±.031  
 .XXX ±.015  
 ANGLES ±1 DEGREE  
 -- DIMENSIONS ARE INCHES NEXT TO [MILLIMETERS].

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Swagelok logo  
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SHEET 1 of 2  
 SCALE NONE  
 REV. -

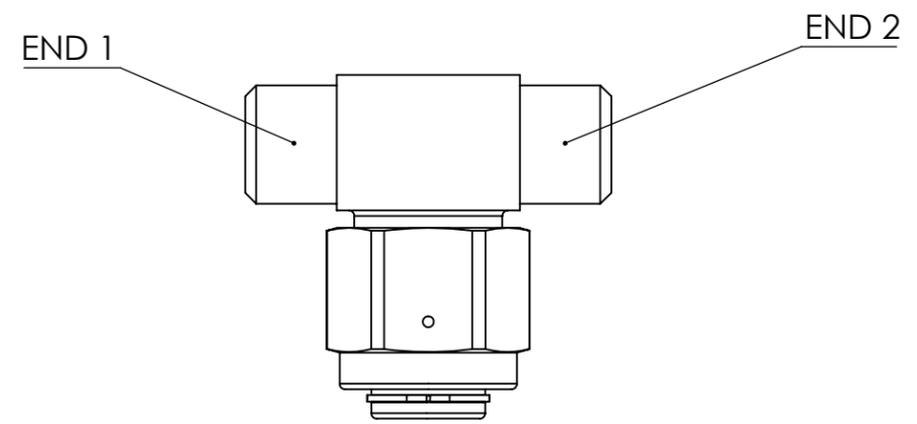
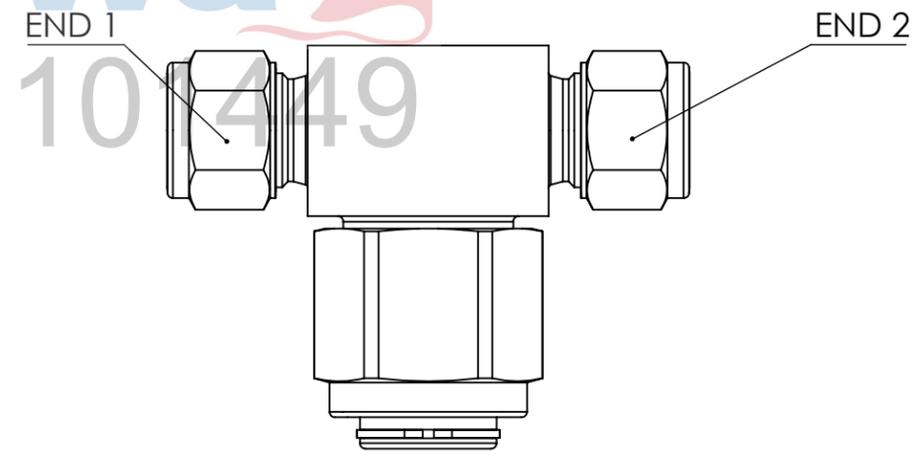
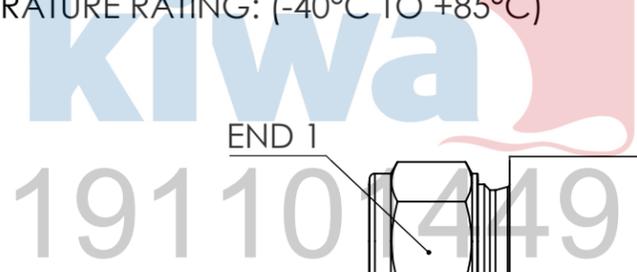
REVISIONS	
REV.	DCN
-	00199926

DWG. NO. TF FILTER EC79 APPROVAL

NOTE(S)  
 1.)THE TWO ENDS ARE AVAILABLE IN ANY COMBINATION  
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 MAWP AS TESTED PER EN406: 43.75 MPa (6,345 psi)  
 MARKING METHOD: LASER MARKED  
 TEMPERATURE RATING: (-40°C TO +85°C)

END 1	END 2
400	400
600	600
800	800
6mm	6mm
8mm	8mm
10mm	10mm
12mm	12mm
1/8" Female NPT	1/8" Female NPT
1/4" Male NPT	1/4" Male NPT

Element Nominal Pore Size	Element Designator
0.5 μM	05
2 μM	2
7 μM	7
15 μM	15



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 DWG. NO. TF FILTER EC79 APPROVAL  
 SHEET 2 of 2  
 SCALE NONE  
 REV. -