

spirax sarco

TI-P185-11
ST Issue 2

CSF16 and CSF16T Stainless Steel Sterile Air Filters

Sizes and pipe connections

Screwed

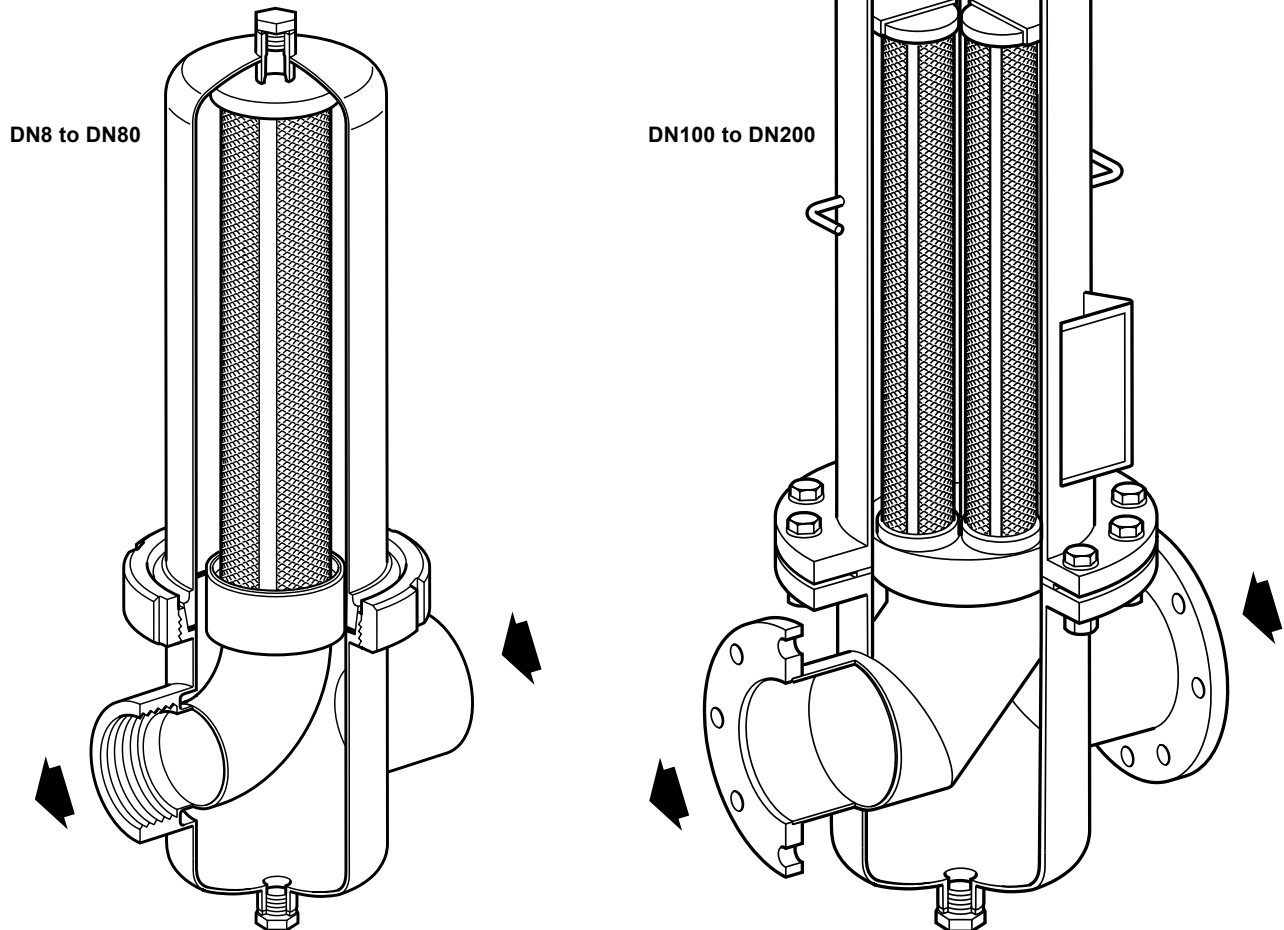
BSP and NPT: ¼", ⅜", ½", ¾", 1", 1¼", 1½", 2", 2½" and 3".

Flanged

EN 1092 PN16: DN8, DN10, DN15, DN20, DN25, DN32, DN40, DN50, DN65 and DN80.

EN 1092 PN10: DN100, DN150 and DN200.

ASME 150: ¼", ⅜", ½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6" and 8".



Description

The CSF16 and CSF16T are horizontal, in-line high efficiency filters used to remove contaminate particles from compressed air systems. The filter housing is available in a choice of austenitic stainless steel (1.4301) designated CSF16 or (1.4404) designated CSF16T. The DN8 to DN80 (¼" to 3") housing is externally polished with an internal natural finish whereas the DN100 to DN200 housing will have a natural finish both internally and externally. The housings are constructed in two halves, DN8 to DN80 will be joined by a food industry fitting to DIN 11851. DN100 to DN200 will be joined by bolts and nuts. Replaceable borosilicate depth filter elements are available with a retention rate of >than 99.9998% related to 0.01 µm. In some pipe sizes the element is available in a choice of low capacity designated 'L' and high capacity designated 'H'.

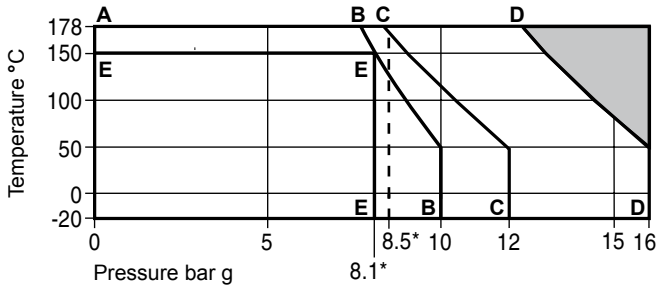
Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the **CE** mark when so required. Please note that all materials meet the requirements as stipulated by the US FDA Regulations.

Certification

These products can be supplied with a modified housing in order to provide certification to EN 10204 3.1. **Note:** All certification/inspection requirements must be stated at the time of order placement.

Pressure/temperature limits



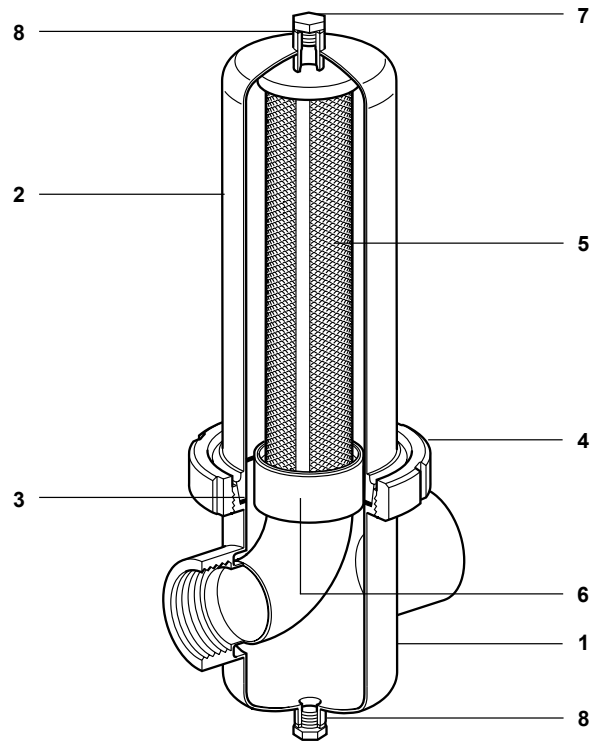
The product must not be used in this region.

- A-B-B** Flanged PN10.
- A-C-C** Maximum allowable pressure for the DN80H.
- A-D-D** Screwed BSP or NPT, flanged PN16 and ASME 150.
- E-E-E** Maximum operating limits for sizes DN100 to DN200.

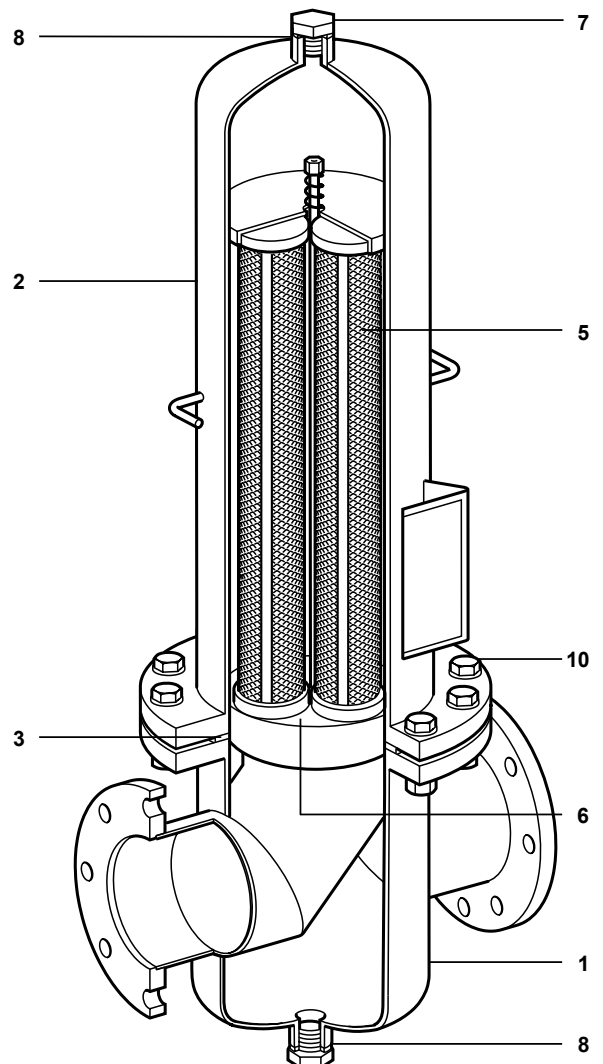
Body design rating		PN16		
PMA	Maximum allowable pressure	DN8 - DN65 (¼" - 2½")	16 bar g	
		DN80 (3")	L version	16 bar g
			H version	12 bar g
		DN100 - DN200	10 bar g	
TMA	Maximum allowable temperature	DN8 - DN80	178°C @ 8.5 bar g	
		DN100 - DN200	150°C @ 8.1 bar g	
Minimum allowable temperature		-20°C		
* PMO	Maximum operating pressure	DN8 - DN80	8.5 bar g @ 178°C	
		DN100 - DN200	8.1 bar g @ 150°C	
TMO	Maximum operating temperature	DN8 - DN80	178°C @ 8.5 bar g	
		DN100 - DN200	150°C @ 8.1 bar g	
Minimum operating temperature		0°C		
ΔPMX Maximum differential pressure		5 bar g		
		DN8 - DN65 (¼" to 2½")	27.5 bar g	
Designed for a maximum cold hydraulic test pressure of:		DN80 (3")	L version	27.5 bar g
			H version	20.6 bar g
				DN100 - DN200

Materials

No.	Part	Materials			
1	Filter housing bowl	Stainless steel	CSF16	1.4301	
			CSF16T	1.4404	
2	Filter housing head	Stainless steel	CSF16	1.4301	
			CSF16T	1.4404	
3	Housing seal	For sizes DN8 to DN80 EPM is supplied as standard.			
		For sizes DN100 to DN200 PTFE spirally wound gasket with stainless steel inner and outer rim support is supplied as standard - No other option is available.			
4	Housing ring (DN8 - DN80)	Stainless steel	1.4301		
			Filter medium	Borosilicate	
5	CSF16-A filter element		Outer core		1.4301
			End cap		1.4301
6	Filter element seal (2 off)	Silicone VMQ			
7	Plug	Stainless steel	CSF16	1.4301	
			CSF16T	1.4404	
8	Gasket	PTFE			
9	Flange	Stainless steel			1.4541
10	Bolts and nuts (DN100 - DN200)	Stainless steel			A2 - 70

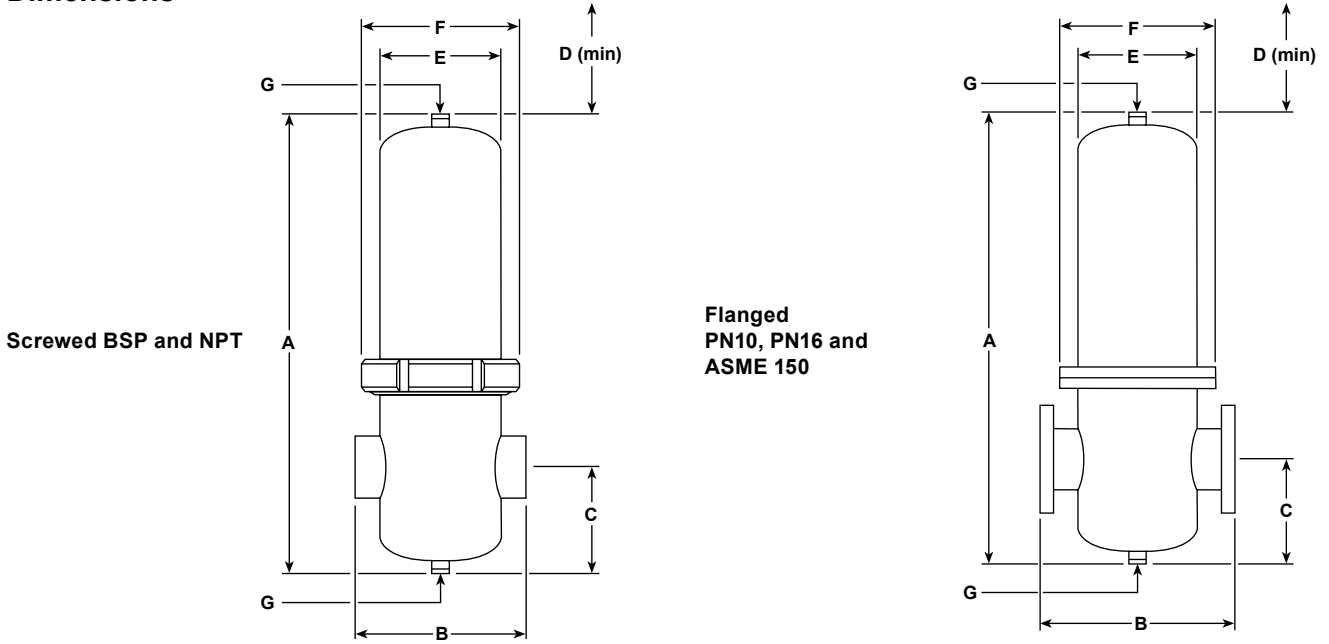


DN8 to DN80



DN100 to DN200

Dimensions



Dimensions / volume and weights (approximate) in mm, litres and kg

Filter	Size	Dimensions									Vol. Litres	Weight (kg) without element		
		A	B		C	D	E Ø	F Ø	G	Screwed		Flanged		
			Screwed	PN								ASME	PN	ASME
CSF16 and CSF16T	¼" DN8	220	108	180	203	55	90	70	112	¼"	0.60	2.0	3.3	3.1
	⅜" DN10	248	105	180	203	55	120	70	112	¼"	0.70	2.1	3.4	3.2
	½" DN15	248	108	180	203	55	120	70	112	¼"	0.70	2.2	3.6	3.2
	¾" DN20	272	125	202	230	55	150	70	112	¼"	0.84	2.4	4.4	3.9
	1" DN25	298	125	212	247	74	150	85	127	¼"	1.40	3.2	5.7	5.4
	1¼" DN32	350	140	220	254	74	200	85	127	¼"	1.80	3.7	7.2	6.3
	1½" DN40	388	170	254	294	94	200	104	148	¼"	3.00	5.2	8.9	8.0
	2½" DN65	740	216	306	356	107	580	129	178	¼"	9.30	8.1	13.7	15.9
CSF16L and CSF16LT	2" DN50	463	170	260	297	94	280	104	148	¼"	3.60	5.2	9.9	9.9
	3" DN80	1002	240	316	356	111	850	129	178	¼"	12.60	10.2	17.2	19.2
	4" DN100	1040		430	430	190	850	219	340	1"	36.00		60.0	60.0
	6" DN150	1370		480	480	240	850	273	395	1"	77.00		85.0	85.0
	8" DN200	1550		660	660	295	850	406	565	1"	190.00		168.0	168.0
CSF16H and CSF16HT	2" DN50	590	170	260	297	94	450	104	148	¼"	4.60	5.8	10.5	10.6
	3" DN80	1027	240	340	380	113	850	154	210	¼"	18.30	13.2	19.9	21.8
	4" DN100	1300		410	410	190	850	219	340	1"	45.00		65.0	65.0
	6" DN150	1410		540	540	245	850	324	445	1"	110.00		100.0	100.0
	8" DN200	1550		660	660	295	850	406	565	1"	190.00		168.0	168.0

Capacity correction factors for air pressure

Air pressure	bar g	1	2	3	4	5	6	7	8
Correction factor		0.25	0.375	0.5	0.625	0.75	0.875	1.0	1.125
Air pressure	bar g	9	10	11	12	13	14	15	16
Correction factor		1.25	1.375	1.5	1.625	1.75	1.875	2.0	2.125

CSF16 and CSF16T air sizing:

Select an air filter for a flowrate of 500 m³/h with air pressure at 4 bar g.

Step 1: Divide the flowrate required by the capacity correction factor for the operating air pressure. In this case, 500 m³/h is divided by 0.625 for an equivalent 800 m³/h flow.

Step 2: Using the look up tables below select a filter to pass the equivalent flow in this case a 2"H CSF16 or CSF16T with a maximum flowrate of 1080 m³/h

CSF16 and CSF16T air sizing table

Please note that the flowrates displayed on the CSF16 and CSF16T air sizing table are based on an air pressure of 7 bar g.

Size of unit	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50L	DN50H
	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"L	2"H
Maximum flowrate m ³ /h	60	90	120	180	270	360	480	720	1080
Size of unit	DN65	DN80L	DN80H	DN100L	DN100H	DN150L	DN150H	DN200L	DN200H
	2½"	3"L	3"H	4"L	4"H	6"L	6"H	8"L	8"H
Maximum flowrate m ³ /h	1440	1920	2880	4320	5760	7680	11520	15360	19200

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P185-02) which is supplied with the product.

How to order

The following information must be specified when ordering a Spirax Sarco CSF filter:

Compressed air flowrate	m ³ /h
Compressed air flowrate	bar
Allowable pressure drop bar	(0.07 bar maximum recommended)
Housing material	1.4301 or 1.4404
Size	DN or NPS (")
Pipe connections	EN, ASME, BSP or NPT
Housing seal/element seal material	

Note: For DN50 and DN80 high capacity version denoted by 'H' and low capacity by 'L'. For a 1.4404 housing version, the suffix 'T' must be added to the nomenclature e.g. CSF16T.

Supply

The CSF16 and CSF16T are supplied in two parts:

1. The filter housing head and bowl with housing seal packed in one carton.
2. The filter element complete with filter element seals (2 off).

Note: The job of the filter is to remove (and retain) unwanted contamination. In time, the filter element will become saturated. To ensure a minimum downtime, we recommend that a spare filter element set is ordered at the same time as the CSF16 and CSF16T filter housing.

Example:

1 off Spirax Sarco DN20 CSF16 to pass compressed air at 4 bar g. Housing to be 1.4301 having NPT connections element with EPM body seal.

1 off CSF16-A borosilicate depth filter element.

Spare parts

The spare parts available are shown in solid outline. Parts drawn in broken line are not supplied as spares.

Available spares

CSF16-A filter element kit	5, 6 (2 off)
Seal kit	3, 6 (please see table below for quantities)

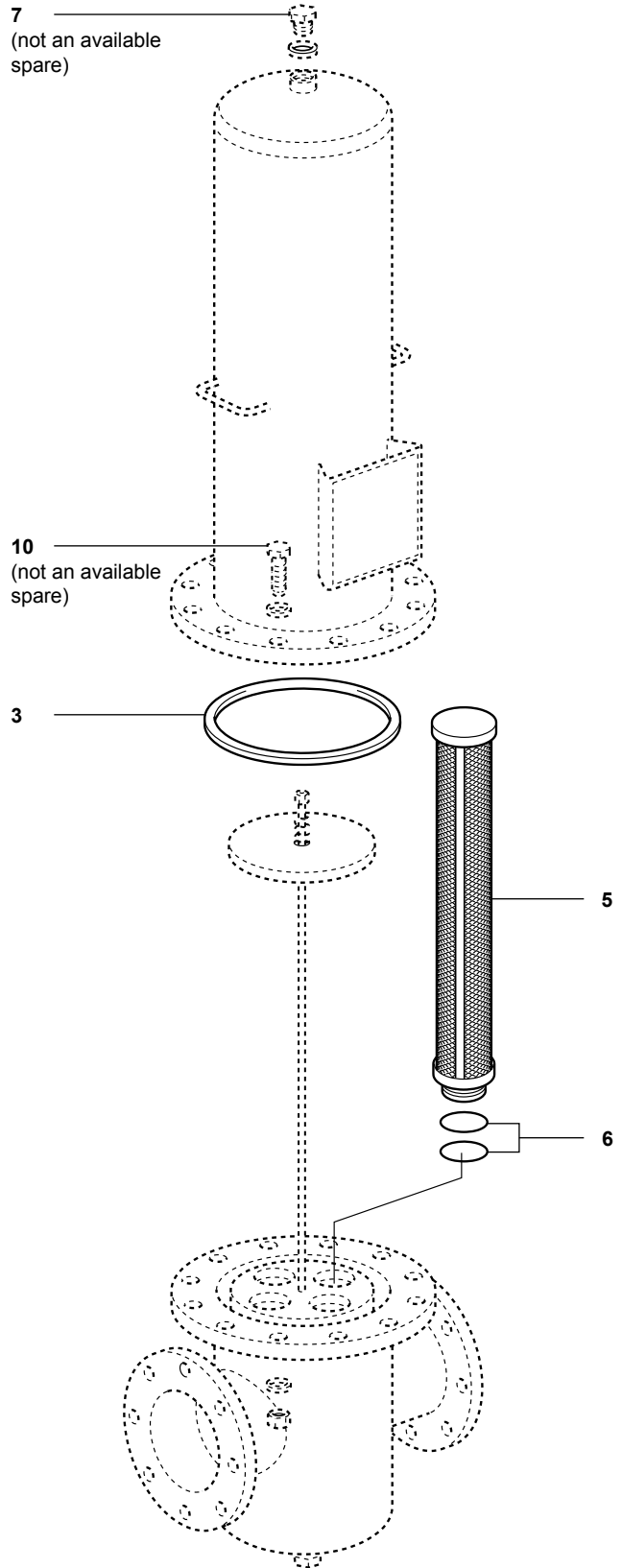
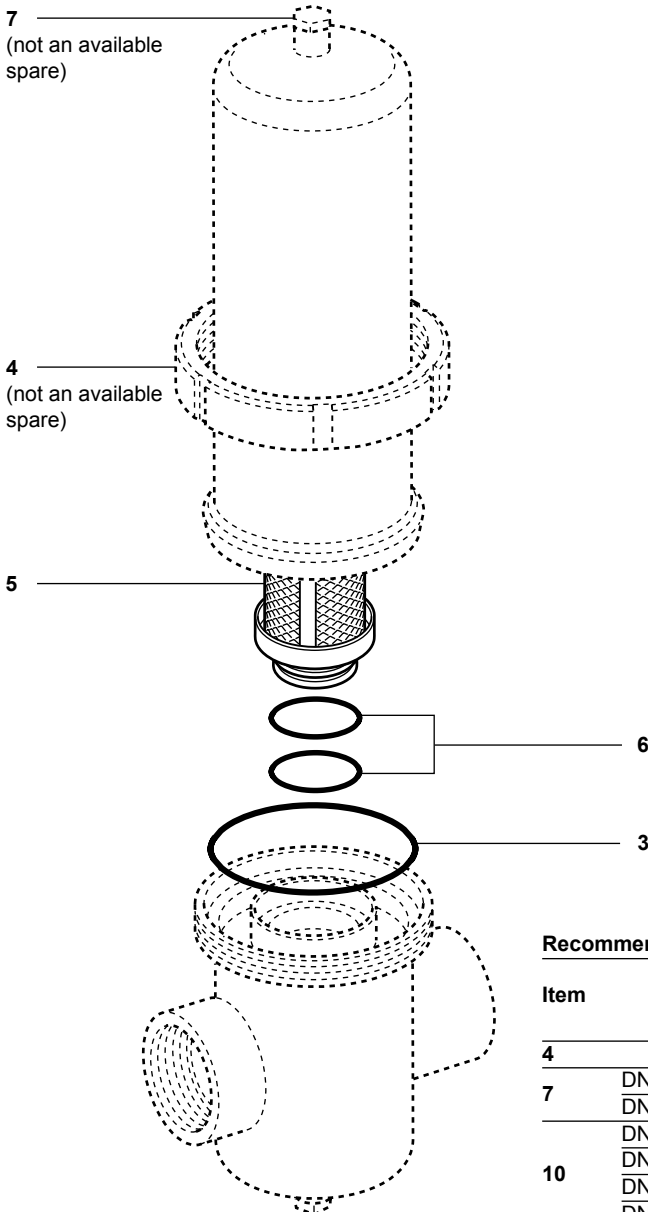
Seal kit contents

Unit size	Housing seal (3)	Element seals (6)
DN8 - DN80	1	2
DN100	1	6
DN150	L	1
	H	1
DN200	L	1
	H	1



How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of filter housing.

Example: 1 off Seal kits for a Spirax Sarco DN200H CSF16 clean air filter.



Recommended tightening torques

Item	 or mm		N m	
4	use C spanner		As required	
7	1/4" BSP		As required	
	1" BSP		As required	
10	DN100	A/F 30	M20	340
	DN150L	A/F 30	M20	235
	DN150H	A/F 30	M20	270
	DN200	A/F 36	M24	400