

spirax sarco

CSF16 Stainless Steel Steam Filters

Sizes and pipe connections

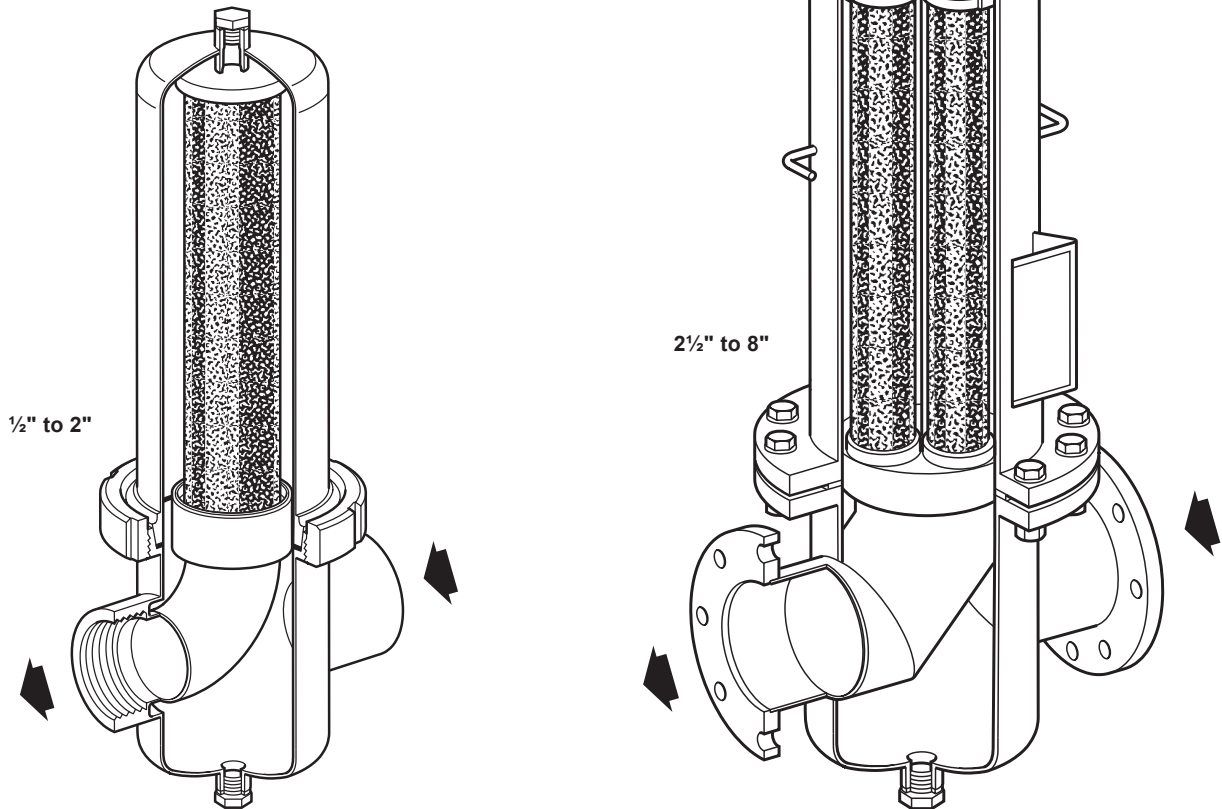
Screwed

NPT: ½", ¾", 1", 1½", and 2"

Flanged

ASME 150: 2½", 3", 4", 6" and 8"

Note: Other sizes and connections available on request.



Description

The CSF16 are horizontal, in-line high efficiency filters used to remove contaminate particles from steam systems. The filter housing is available in 316L designated CSF16. The ½" to 3" (DN15 to DN80) housing is externally polished with an internal natural finish whereas the 4" to 8" (DN100 to DN200) housing will have a natural finish both internally and externally. The housings are constructed in two halves, ½" to 3" (DN15 to DN80) will be joined by a food industry fitting to DIN 11851. 4" to 8" (DN100 to DN200) will be joined by bolts and nuts. Replaceable elements in sintered austenitic stainless steel are available with either 1 or 5 micron absolute rating.

Standards

The CSF16, when fitted with a 5 micron element are capable of removing 95% of particles 2 microns and larger in size, in accordance with the requirements for the production of culinary steam to 3A accepted practice number 609-03. Accepted in the U.S. Department of Agriculture for use in federally inspected meat and poultry plants.

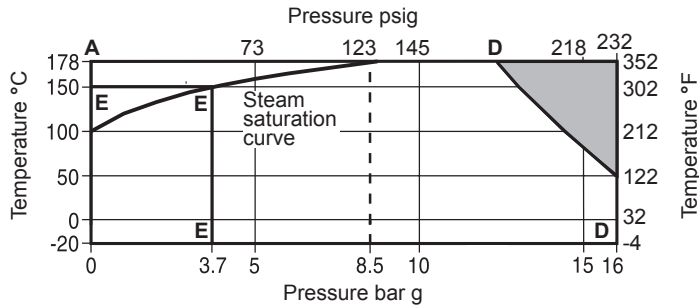
All materials meet the requirements as stipulated by the US FDA Regulations.

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.

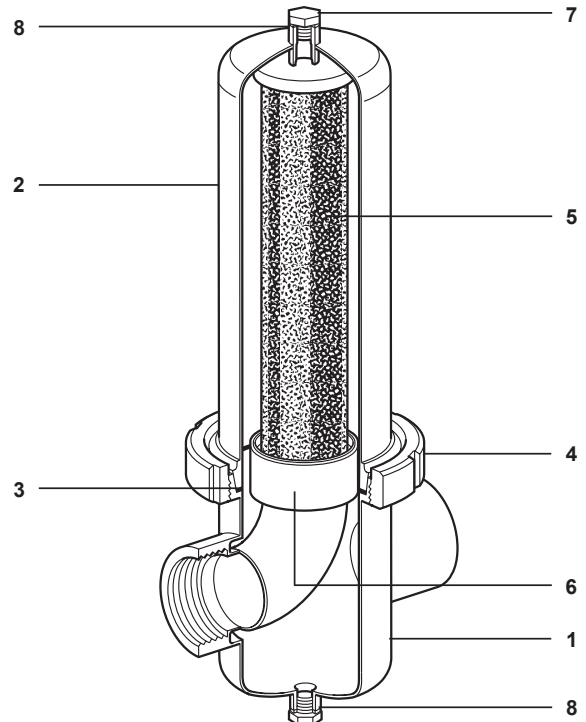
A-D-D Screwed NPT, flanged ASME 150.

E-E-E Maximum operating limits for sizes 4" to 8" (DN100 to DN200).

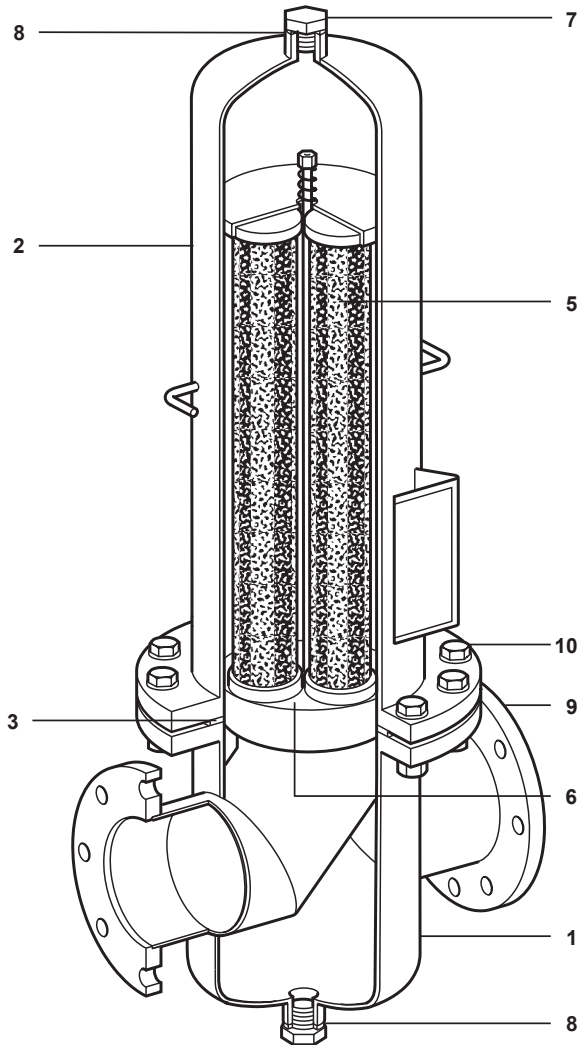
Body design rating		PN16	
PMA	Maximum allowable pressure	1/2" - 2 1/2" (DN15 - DN65)	232 psig (16 bar g)
		3" (DN80)	174 psig (12 bar g)
		4" to 8" (DN100 - DN200)	145 psig (10 bar g)
TMA	Maximum allowable temperature	1/2" to 3" (DN15 - DN80)	352°F @ 123 psig (178°C @ 8.5 bar g)
		4" to 8" (DN100 - DN200)	302°F @ 54 psig (150°C @ 3.7 bar g)
Minimum allowable temperature		-4°F (-20°C)	
PMO	Maximum operating pressure	1/2" to 3" (DN15 - DN80)	123 psig @ 352°F (8.5 bar g @ 178°C)
		4" to 8" (DN100 - DN200)	54 psig @ 302°F (3.7 bar g @ 150°C)
TMO	Maximum operating temperature	1/2" to 3" (DN15 - DN80)	352°F @ 123 psig (178°C @ 8.5 bar g)
		4" to 8" (DN100 - DN200)	302°F @ 54 psig (150°C @ 3.7 bar g)
Minimum allowable temperature		32°F (0°C)	
ΔPMX Maximum differential pressure		15 psig (1 bar g)	
Designed for a maximum cold hydraulic test pressure of		1/2" to 2 1/2" (DN15 - DN65)	372 psig (27.5 bar g)
		3" (DN80)	299 psig (20.6 bar g)
		4" to 8" (DN100 - DN200)	265 psig (18.3 bar g)

Materials

No.	Part	Materials	
1	Filter housing bowl	Stainless steel	CSF16 1.4404
2	Filter housing head	Stainless steel	CSF16 1.4404
3	Housing seal	For sizes 1/2" to 3" (DN15 to DN80) EPM is supplied as standard	
		For sizes 4" to 8" (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 1/2" to 3" (DN15 - DN80)	Stainless steel	1.4301
5	CSF16 filter element	Stainless steel	Outer core 1.4301
			End cap 1.4301
6	Filter element seal (2 off)	EPM	
7	Plug	Stainless steel	CSF16 1.4404
8	Gasket	PTFE	
9	Flange	Stainless steel	1.4541
10	Bolts and nuts 4" to 8" (DN100 - DN200)	Stainless steel	A2 - 70

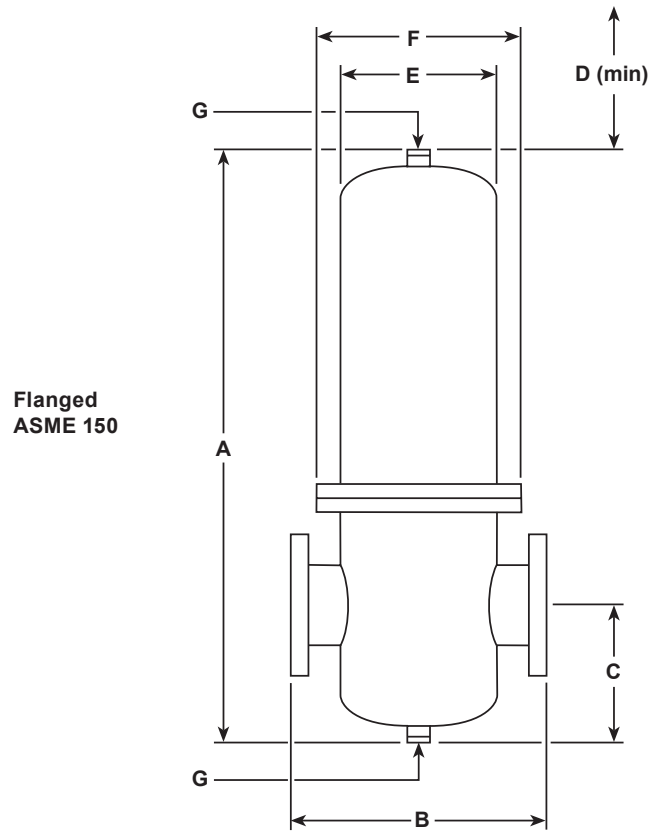
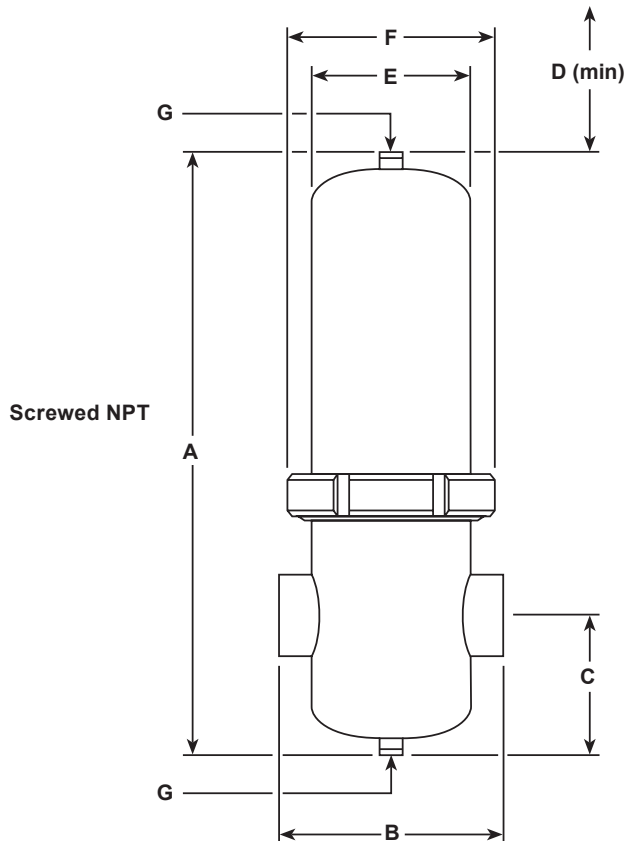


1/2" to 2" (DN15 to DN50)



2 1/2" to 8" (DN65 to DN200)

Dimensions



Dimensions and weights (approximate)

Size	Dimensions in inches (mm)								Weight (w/out Element)	
	A	B		C	D	E Dia.	F Dia.	G	in pounds (kg)	
		NPT	ASME 150						NPT	ASME 150
½" (DN15)	9.8 (248)	4.3 (108)		2.2 (55)	4.7 (120)	2.8 (70)	4.4 (112)	0.25 (6)	4.9 (2.2)	
¾" (DN20)	10.7 (272)	4.9 (125)		2.2 (55)	5.9 (150)	2.8 (70)	4.4 (112)	0.25 (6)	5.3 (2.4)	
1" (DN25)	11.7 (298)	4.9 (125)		2.9 (74)	5.9 (150)	3.3 (85)	5.0 (127)	0.25 (6)	7.1 (3.2)	
1½" (DN40)	15.3 (388)	6.7 (170)		3.7 (94)	7.9 (200)	4.1 (104)	5.8 (148)	0.25 (6)	11.5 (5.2)	
2" (DN50)	23.2 (590)	6.7 (170)		3.7 (94)	17.7 (450)	4.1 (104)	5.8 (148)	0.25 (6)	12.8 (5.8)	
2½" (DN65)	29.1 (740)		12.0 (306)	4.2 (107)	22.8 (580)	5.1 (129)	7.0 (178)	0.25 (6)		35.1 (15.9)
3" (DN80)	40.4 (1027)		15.0 (380)	4.4 (113)	33.5 (850)	6.1 (154)	8.3 (210)	0.25 (6)		48.1 (21.8)
4" (DN100)	51.2 (1300)		16.1 (410)	7.5 (190)	33.5 (850)	8.6 (219)	13.4 (340)	1.0 (25)		143.3 (65)
6" (DN150)	55.5 (1410)		21.3 (540)	9.6 (245)	33.5 (850)	12.8 (324)	17.5 (445)	1.0 (25)		220.5 (100)
8" (DN200)	61.0 (1550)		26.0 (660)	11.6 (295)	33.5 (850)	16.0 (406)	22.2 (565)	1.0 (25)		370.4 (168)

Capacities - The following table list CSF16 capacities, in lb/hr (kg/hr) of saturated steam, based on a pipeline velocity of 100 ft/s (30.5 m/s) and an approximate differential pressure across the filter of 1 psig (0.07 barg).

Steam Supply Pressure in psig (barg)	Capacity of 1 Micron Elements in lb/hr (kg/hr)									
	½" (DN15)	¾" (DN20)	1" (DN25)	1½" (DN40)	2" (DN50)	2½" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)
10 (0.69)	14 (6.6)	20 (9.1)	32 (15)	56 (25)	125 (57)	167 (76)	335 (152)	671 (304)	1,342 (609)	2,238 (1,015)
20 (1.4)	20 (9.1)	29 (13)	46 (21)	79 (36)	177 (80)	236 (107)	472 (214)	945 (429)	1,890 (857)	3,151 (1,429)
30 (2.1)	25 (11)	38 (17)	95 (27)	102 (46)	228(103)	304 (138)	609 (276)	1,219 (553)	2,438 (1,106)	4,064 (1,843)
40 (2.8)	31 (14)	46 (21)	72 (33)	125 (57)	280 (127)	373 (169)	746 (338)	1,493 (677)	2,986 (1,354)	4,978 (2,258)
50 (3.5)	37 (17)	55 (25)	86 (39)	148 (67)	331 (150)	441 (200)	883 (401)	1,767 (802)	3,534 (1,603)	5,891 (2,672)
60 (4.1)	43 (20)	63 (29)	99 (45)	170 (77)	382 (173)	510 (231)	1,020 (463)			
70 (4.8)	49 (22)	72 (33)	112 (51)	193 (88)	434 (197)	578 (262)	1,157 (525)			
80 (5.5)	55 (25)	80 (36)	126 (57)	216 (98)	485 (220)	647 (293)	1,294 (587)			
90 (6.2)	60 (27)	89 (40)	139 (63)	239 (108)	536 (243)	715 (324)	1,431 (649)			
100 (6.9)	66 (30)	98 (44)	152 (69)	262 (119)	588 (267)	784 (356)	1,568 (711)			
110 (7.6)	72 (33)	106 (48)	166 (75)	285 (129)	639 (290)	852 (386)	1,705 (773)			
120 (8.3)	78 (35)	115 (52)	179 (81)	308 (140)	691 (313)	921 (418)	1,842 (836)			

Steam Supply Pressure in psig (barg)	Capacity of 5 Micron Elements in lb/hr (kg/hr)									
	½" (DN15)	¾" (DN20)	1" (DN25)	1½" (DN40)	2" (DN50)	2½" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)
10 (0.69)	40 (18)	61 (28)	96 (44)	165 (75)	370 (168)	494 (224)	988 (448)	1,976 (896)	3,953 (1,793)	6,590 (2,989)
20 (1.4)	59 (27)	86 (39)	135 (61)	233 (106)	521 (236)	695 (315)	1,391 (634)	2,783 (1,262)	5,566 (2,525)	9,278 (4,208)
30 (2.1)	76 (34)	112 (51)	175 (79)	300 (136)	673 (305)	897 (407)	1,795 (814)	3,590 (1,628)	7,180 (3,257)	11,968 (5,429)
40 (2.8)	93 (42)	137 (62)	214 (97)	368 (167)	824 (374)	1,099 (499)	2,198 (997)	4,396 (1,994)	8,793 (3,988)	14,657 (6,648)
50 (3.5)	110 (50)	162 (73)	253 (115)	435 (197)	975 (442)	1,300 (590)	2,601 (1,180)	5,203 (2,360)	10,407 (4,721)	17,347 (7,868)
60 (4.1)	127 (58)	187 (85)	293 (133)	503 (228)	1,126 (511)	1,502 (681)	3,005 (1,363)			
70 (4.8)	144 (65)	213 (97)	332 (151)	570 (259)	1,278 (580)	1,704 (773)	3,408 (1,546)			
80 (5.5)	162 (73)	238 (108)	371 (168)	638 (289)	1,429 (643)	1,905 (864)	3,811 (1,729)			
90 (6.2)	179 (81)	263 (119)	410 (186)	706 (320)	1,580 (717)	2,107 (956)	4,215 (1,912)			
100 (6.9)	196 (89)	288 (131)	450 (204)	773 (351)	1,731 (785)	2,309 (1,074)	4,618 (2,095)			
110 (7.6)	213 (97)	313 (142)	489 (222)	841 (381)	1,883 (854)	2,511 (1,139)	5,022 (2,278)			
120 (8.3)	230 (104)	339 (154)	528 (240)	908 (412)	2,034 (923)	2,712 (1,230)	5,422 (2,459)			

Spare parts

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

Available spares

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

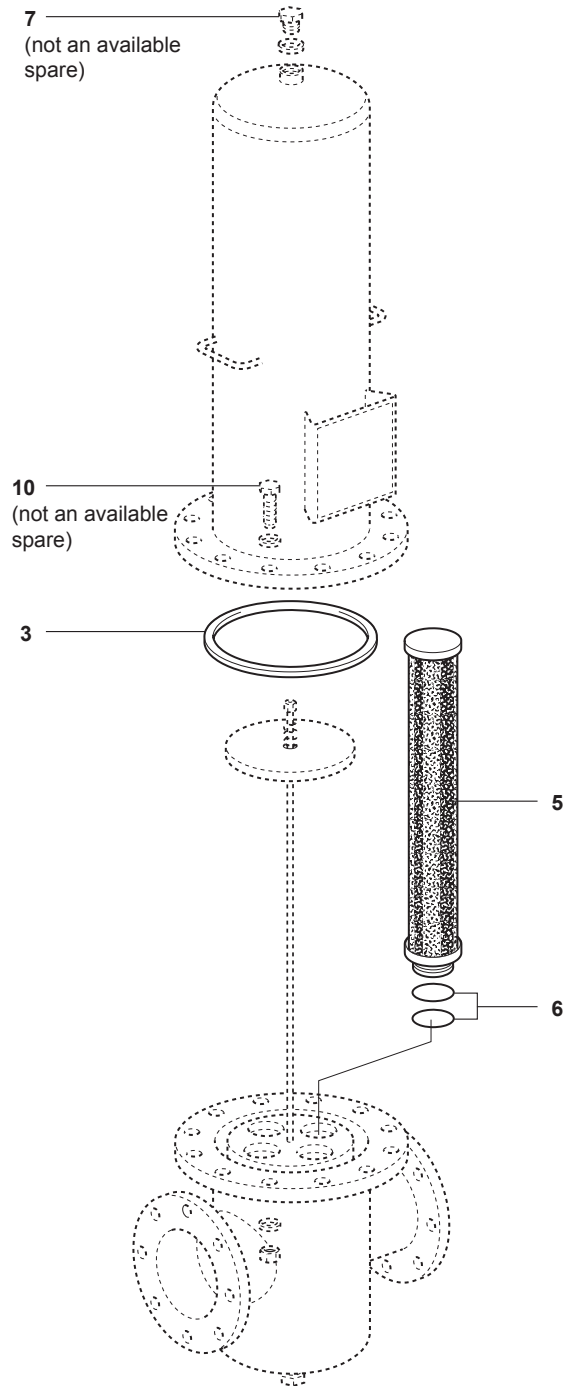
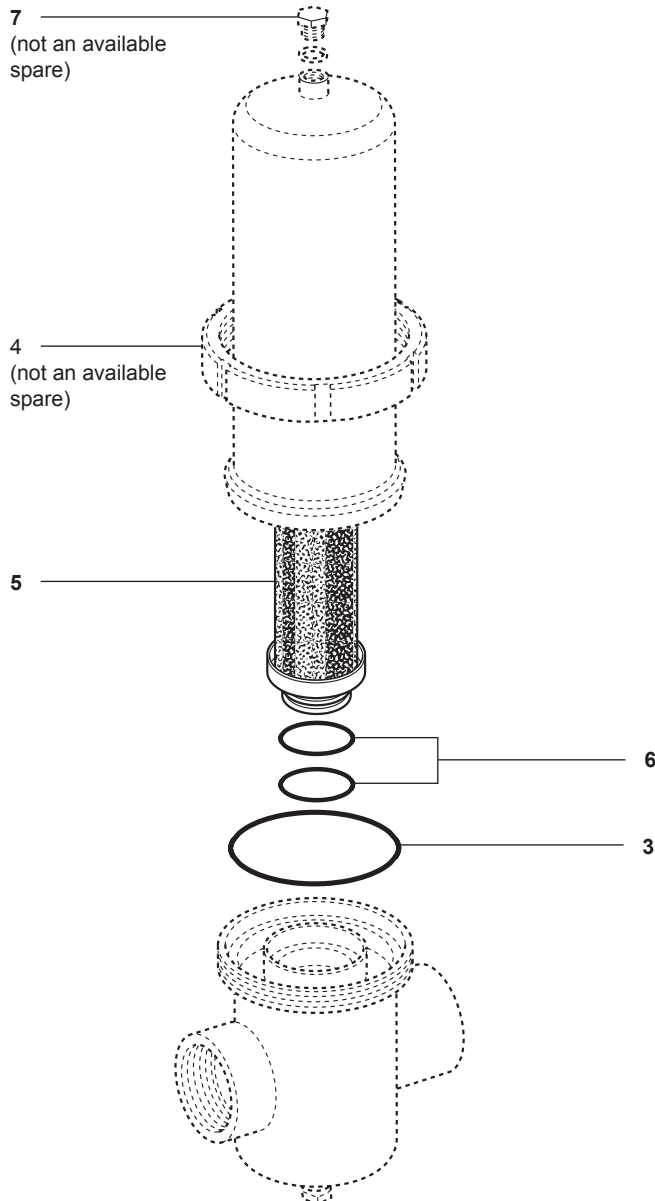
Seal kit contents

Unit size	Housing seal (3)	Element seals (6)
½" to 3" (DN15 - DN80)	1	2
4" (DN100)	1	6
6" (DN150)	1	12
8" (DN200)	1	20



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, filter element rating and housing/filter element seal material required.

Example: 1 off 5 micron CSF16 filter element kit for a Spirax Sarco 1" (DN25) CSF16 clean steam filter, with EPM filter element seals.



Recommended tightening torques

Item	 or 	mm	Lb ft (N m)
4	use C spanner		As required
7	½" to 3" (DN15 - DN80)	¼" BSP	As required
	4" to 8" (DN100 - DN200)	1" BSP	As required
10	4" (DN100)	A/F 30	251 (340)
	6" (DN150)	A/F 30	199 (270)
	8" (DN200)	A/F 36	295 (400)