

spirax

sarco

S5

Carbon Steel

Separator

TI-P023-11

CMGT Issue 14


Description

The S5 is a carbon steel baffle type separator used for the removal of entrained liquids in steam, compressed air and gas systems.

Optional extras

Insulation jackets are available which will increase the performance of the separator, (see TI-P138-01).

Standards

This product fully complies with the requirements of the EU Pressure Equipment Directive/UK Pressure Equipment (Safety) Regulations and carries the  mark when so required.

Certification

This product is available with certification to EN 10204 3.1.  
**Note:** All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

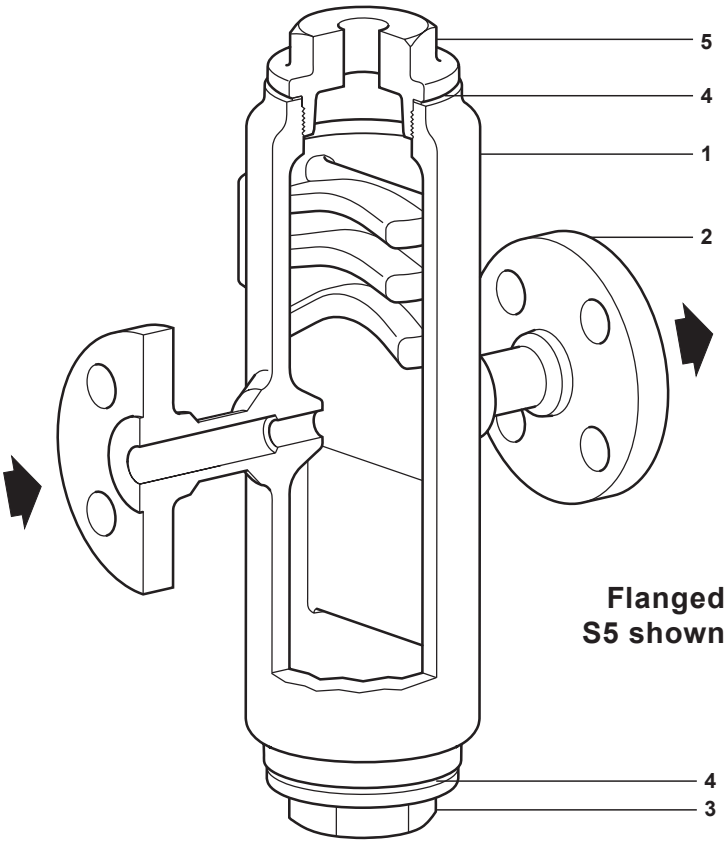
½", ¾", 1", 1¼", 1½" and 2"  
Screwed BSP or NPT, butt weld, socket weld.

DN15, DN20, DN25, DN32, DN40 and DN50.  
Flanged EN 1092 PN40 with screwed BSP drain and air vent.

Flanged BS 1560 (ASME) Class 150 or 300 with screwed NPT drain and air vent.

Flanged JIS/KS 10K and 20K with screwed BSP drain and air vent.

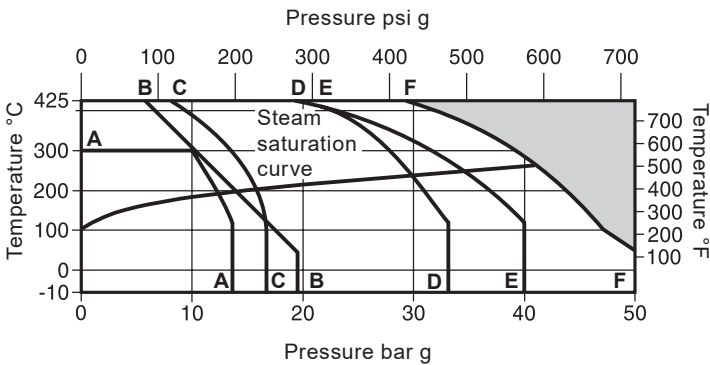
**Note:** For larger sizes use an S7 separator.  
See TI-P138-03.



Materials

No.	Part	Material	
1	Body	Carbon steel	1.0619 +N/ASTM A216 WCB
2	Flange	Carbon steel	DIN 17243 C22.8/ASTM A105N
3	Cap	Carbon steel	1.0460
4	Cap gasket	Reinforced exfoliated graphite	
5	Cap	Carbon steel	1.0460

Pipeline ancillaries  
Separators and insulation jackets  
Pressure/temperature limits



The product **must not** be used in this region.

- A - A** Flanged JIS/KS 10K.
- B - B** Flanged ASME Class 150.
- C - C** Flanged EN 1092 PN16.
- D - D** Flanged JIS/KS 20K.
- E - E** Flanged EN 1092 PN40.
- F - F** Screwed BSP, NPT, socket weld and butt weld.

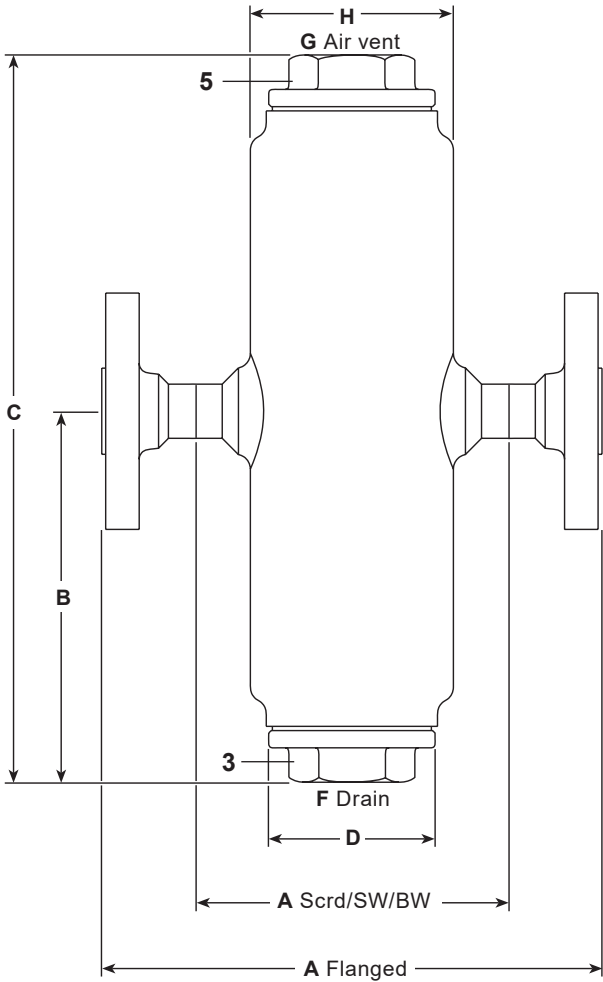
Body design conditions			PN50 or ASME 300
PMA	Maximum allowable pressure	50 bar g @ 50 °C	(725 psi g @ 122 °F)
TMA	Maximum allowable temperature	425 °C @ 28 bar g	(797 °F @ 406 psi g)
Minimum allowable temperature		-10 °C	(14 °F)
PMO	Maximum operating pressure for saturated steam service	JIS/KS 10K	12.5 bar g (181 psi g)
		PN16	13.8 bar g (200 psi g)
		ASME 150	15.0 bar g (217 psi g)
		JIS/KS 20K	30.0 bar g (435 psi g)
		PN40	35.9 bar g (520 psi g)
		ASME 300	41.4 bar g (600 psi g)
		Scrd/SW/BW	41.4 bar g (600 psi g)
TMO	Maximum operating temperature	425 °C @ 28 bar g	(797 °F @ 406 psi g)
Minimum operating temperature		-10 °C	(14 °F)
<b>Note:</b> For lower operating temperatures consult Spirax Sarco.			
Designed for a maximum cold hydraulic test pressure of:	JIS/KS 10K	20.6 bar g	(299 psi g)
	PN16	24.0 bar g	(348 psi g)
	ASME 150	30.0 bar g	(435 psi g)
	JIS/KS 20K	50.0 bar g	(725 psi g)
	PN40	60.0 bar g	(870 psi g)
	ASME 300	76.6 bar g	(1 111 psi g)
	Scrd/SW/BW	76.6 bar g	(1 111 psi g)

**Note:** Flanged separators (S5) may be supplied with a lower pressure rating than that cast into the body. Reference should be made to the appropriate operating chart to determine the actual product limitations.

Dimensions (approximate)

	Size	Screwed SW, BW A	PN16 A	PN40 A	ASME 150 A	ASME 300 A	JIS/KS 10K & 20K A	B	C	D	F	G	H
mm	DN15 - ½"	130	-	204	204	204	204	150	294	68	25.4	12.7	83
	DN20 - ¾"	130	-	212	212	212	212	146	347	68	25.4	12.7	83
	DN25 - 1"	178	-	260	260	260	260	170.5	386	68	25.4	12.7	130
	DN32 - 1¼"	190	-	277	277	277	277	195	440	68	25.4	12.7	144
	DN40 - 1½"	220	-	314	314	314	314	208	508	68	25.4	25.4	168
	DN50 - 2"	214	-	314	314	314	314	208	558	68	25.4	25.4	168

	Size	Screwed SW, BW A	PN16 A	PN40 A	ASME 150 A	ASME 300 A	JIS/KS 10K & 20K A	B	C	D	F	G	H
inches	DN15 - ½"	5.11	-	8.03	8.03	8.03	8.03	5.90	11.57	2.67	1"	½"	3.26
	DN20 - ¾"	5.11	-	8.34	8.34	8.34	8.34	5.74	13.66	2.67	1"	½"	3.26
	DN25 - 1"	7.00	-	10.23	10.23	10.23	10.23	6.71	15.19	2.67	1"	½"	5.11
	DN32 - 1¼"	7.48	-	10.90	10.90	10.90	10.90	7.67	17.32	2.67	1"	½"	5.66
	DN40 - 1½"	8.66	-	12.36	12.36	12.36	12.36	8.18	20.00	2.67	1"	1"	6.61
	DN50 - 2"	8.42	-	12.36	12.36	12.36	12.36	8.18	21.96	2.67	1"	1"	6.61



Pipeline ancillaries


Separators and insulation jackets

Weights/volume (approximate)

kg and litres	Size	Weight		Volume	
		Scrd/SW/BW	Flanged	Scrd/SW/BW	Flanged
	DN15 - ½"	5.8	7.4	0.71	0.72
	DN20 - ¾"	6.75	9.1	0.90	0.92
	DN25 - 1"	12	14.8	2.83	2.86
	DN32 - 1¼"	15.9	20	4.15	4.19
	DN40 - 1½"	22.0	26.6	6.93	7.00
	DN50 - 2"	23.9	30.1	7.74	7.88

lbs and gallons	Size	Weight		Volume	
		Scrd/SW/BW	Flanged	Scrd/SW/BW	Flanged
	DN15 - ½"	12.78	16.31	0.18	0.19
	DN20 - ¾"	14.88	20.06	0.23	0.24
	DN25 - 1"	26.45	32.62	0.74	0.75
	DN32 - 1¼"	35.05	44.09	1.09	1.10
	DN40 - 1½"	48.50	58.64	1.83	1.84
	DN50 - 2"	52.69	66.35	2.04	2.08

Recommended tightening torques

Item	Size		N m	(lbf ft)
3 and 5	DN15 - DN50	46 A/F	180 - 200	133 - 150)

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P023-55) supplied with the product.

**Installation note:**  
Install in a horizontal pipeline with the drain directly below.  
To ensure that any separated liquid is drained quickly, a suitable steam trap/liquid drainer must be connected to the drain connection.  
For those steam systems where air can be present, air can collect in the upper portion of the separator. In this situation a suitable air vent should be connected to the air vent connection.  
If an air vent is not being fitted then the connection must have the plastic transit protection plug removed and must have a carbon steel class 3000 lb plug fitted.

**Disposal:**  
The product is recyclable. No ecological hazard is anticipated with disposal providing due care is taken.

**How to order**  
**Example:** 1 off Spirax Sarco DN20 S5 separator with a carbon steel body flanged to EN 1092 PN40.

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S7

Carbon Steel

Separator DN65 to DN350

TI-P138-03

CMGT Issue 13

Description

The S7 is a carbon steel baffle type separator for the efficient removal of entrained liquids from steam, air and gas systems. A suitable steam trap (FT) or liquid drainer (CA) is required to drain the collected condensate/liquid depending on the application:

For steam service fit an FT ball float steam trap and AV air vent

For air/gas service fit a CA ball float liquid drainer

Standards

This product fully complies with the requirements of the European Pressure Equipment Directive (PED) and is designed and manufactured in accordance with EN 13445:2002 – 'Unfired Pressure Vessels'.

Certification

This product is available with material certification to EN 10204 3.1 as standard. A full data dossier is available at extra cost – consult Spirax Sarco.

**Note:** All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipeline connections

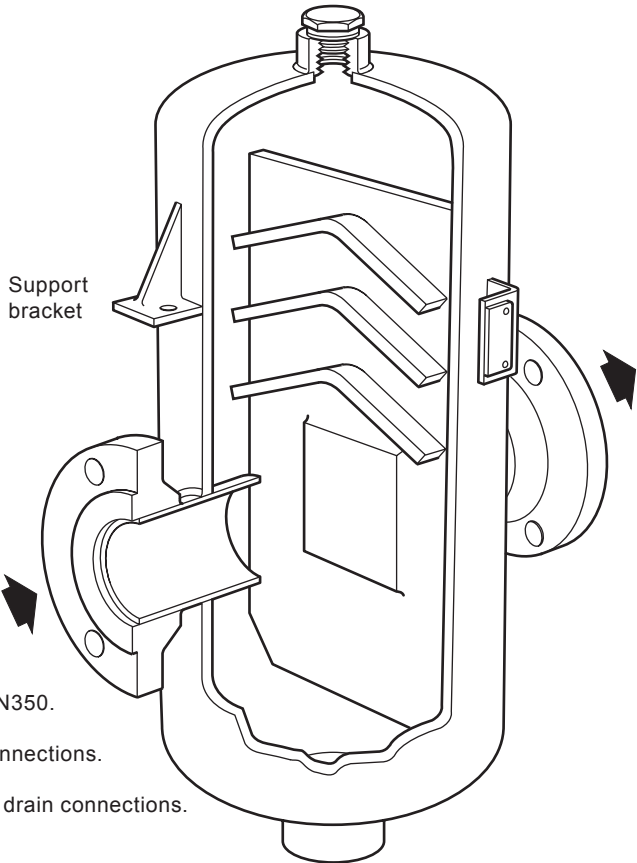
DN65, DN80, DN100, DN125, DN150, DN200, DN250, DN300 and DN350.

Flanged EN 1092 PN16 or PN40 with screwed BSP vent and drain connections.

Flanged ASME B16.5 Class 150 and 300 with screwed NPT vent and drain connections.

Flanged JIS/KS 20K with screwed BSP vent and drain connections.

Screwed, socket weld and other connections are available to special order – consult Spirax Sarco.



Materials

All components of the S7 are manufactured from carbon steel. For a complete stainless steel version (S8) see TI-P138-10.

Pressure/temperature limits

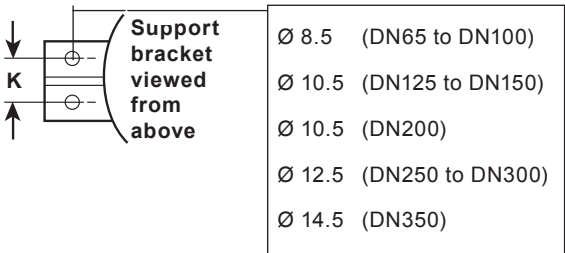
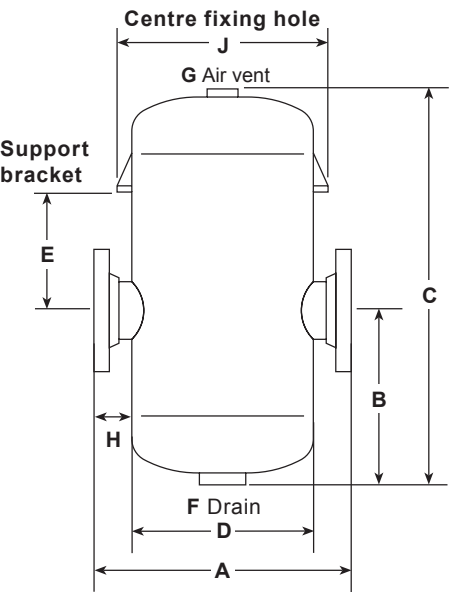
Size	Flange standard	Design pressure bar g	Design temperature °C	Designed for maximum cold hydraulic test pressure according to EN13445-5 2016 bar g
DN65 to DN350	PN16	14	198	21.8
	ASME 150	20	213	31.9
	JIS/KS 20K	23	217	37.0
	PN40	25	225	40.8
	ASME 300	25	225	40.8

**Please note:** For pressures and temperatures that exceed these operating conditions please contact Spirax Sarco for a quotation.

Pipeline ancillaries  
Separators and insulation jackets

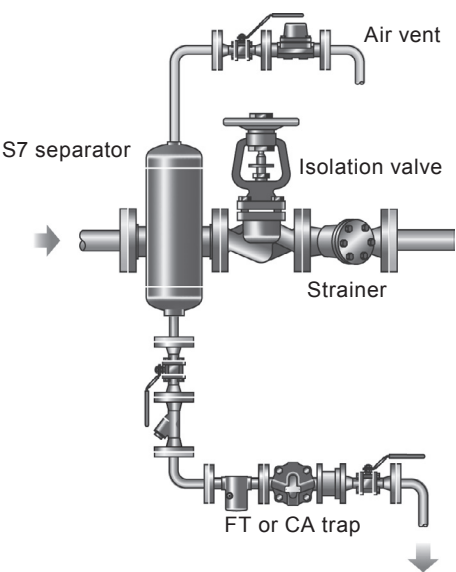
Dimensions, weight and volume (approximate) in mm, kg and litres

Size	Design pressure (bar g)	A	B	C	D	E	F	G	H	J	K	Weight (kg)	Volume (litres)
		(mm)						(inches)		(mm)			
DN65	14	420	252	638	219	181	1"	¾"	100.5	263	30	38	14
	20 and 23												
	25												
DN80	14	489	332	735	273	194	1"	¾"	108	318	30	58	31
	20 and 23												
	25												
DN100	14	574	337	795	324	180	2"	¾"	125	384	40	83	48
	20 and 23												
	25												
DN125	14	656	310	843	377	247	2"	¾"	139.5	436	44	118	66
	20 and 23												
	25												
DN150	14	706	347	935	426	273	2"	¾"	140	486	60	154	110
	20 and 23												
	25												
DN200	14	858	460	1200	530	372	2"	2"	164	585	60	292	223
	20 and 23												
	25												
DN250	14	950	615	1580	600	530	2"	2"	175	688	72	440	376
	20 and 23												
	25												
DN300	14	1010	740	1700	600	540	2"	2"	205	698	72	564	415
	20 and 23												
	25												
DN350	14	1100	754	1800	700	525	2"	2"	200	816	108	735	623
	20 and 23												
	25												



**How to order**  
**Example:** 1 off Spirax Sarco DN80 S7 carbon steel separator with PN40 flanges. Suitable for pressures up to 25 bar (please specify design conditions).

Separator on a steam line



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P023-55) supplied with the product.

Installation note:

To ensure efficient drainage of condensate a suitable ball float trap and air vent should be installed. For air/gas applications a balance line is required between the CA trap and the main line or top of the separator – consult Spirax Sarco for further details.

Disposal

The product is recyclable. No ecological hazard is anticipated with disposal of this product providing due care is taken.

Spare parts

The S7 is non maintainable - No spare parts are available.

