



Steel Separator S4A

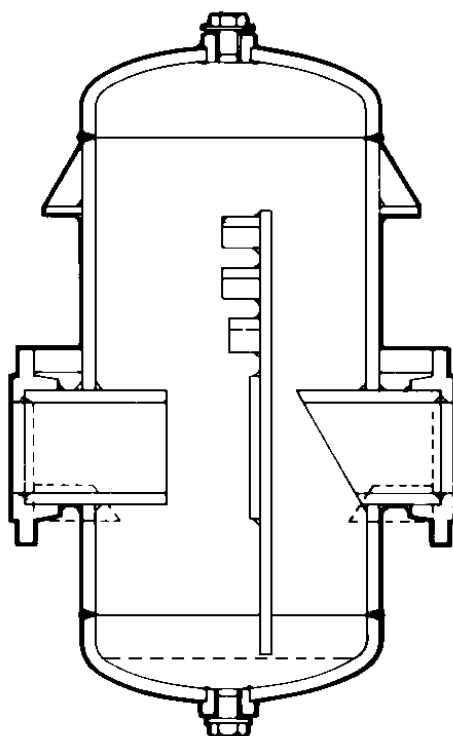
Description

Moisture Separators are used to improve the quality of steam or compressed air either within the distribution system or on the supply inlet to equipment. Removal of moisture is by a series of baffles on which the suspended water droplets impinge and fall out by gravity to the drain, which must be piped to a trap.

Model	S4A	
PMO	600 psi g	150/300 psi g
Sizes	½" to 2"	2½" to 6"
Connections	NPT, SW	ANSI 150, ANSI 300
Construction	Fabricated steel body	
ASME code stamped	600 psi g	150 psi g/300psi g
Options stamped	2½" to 6" to 600 psi g ASME code Gauge Glass Assembly 2½" to 6"	

Typical applications

On steam mains, as a drip station ahead of steam pressure reducing or temperature control valves. On the steam inlet to laundry presses and other process equipment which require dry saturated steam. On the compressed air supply to sensitive instruments and before filters.



Pressure shell design conditions

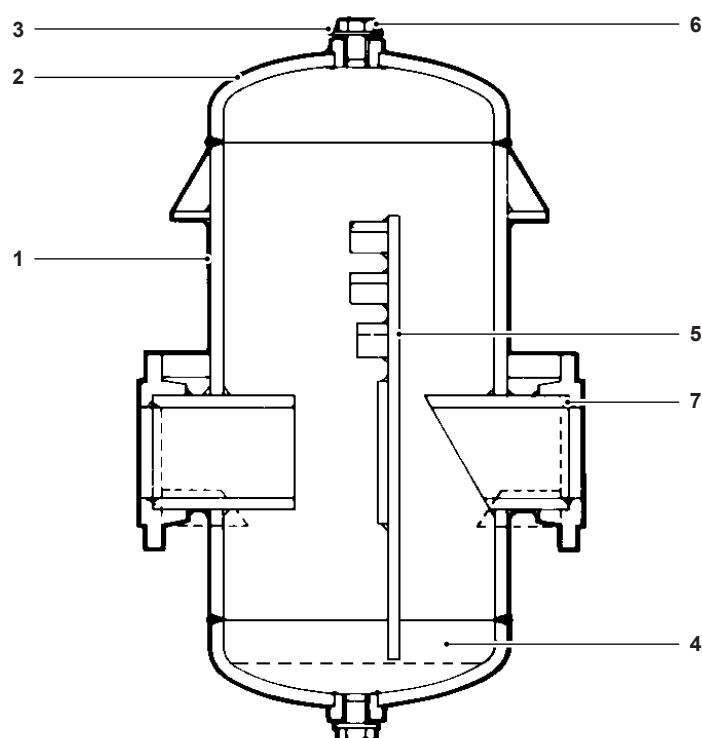
(½" to 2")

PMA	Maximum allowable pressure	NPT and Socket Weld	600 psi g @ 650 °F	41.4 bar g @ 344 °C
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(2½" to 6")

PMA	Maximum allowable pressure	ANSI 150 flanged	150 psi g @ 560 °F	10.4 bar g @ 293 °C
		ANSI 300 flanged	300 psi g @ 650 °F	20.7 bar g @ 344 °C
TMA	Maximum allowable temperature	NPT and SW	650 °F @ 600 psi g	344 °C @ 41.4 bar g
		ANSI 150	650 °F @ 125 psi g	344 °C @ 8.6 bar g
		ANSI 300	650 °F @ 300 psi g	344 °C @ 20.7 bar g
		ANSI 600	650 °F @ 600 psi g	344 °C @ 41.4 bar g
		Minimum allowable temperature	-20 °F	-28 °C

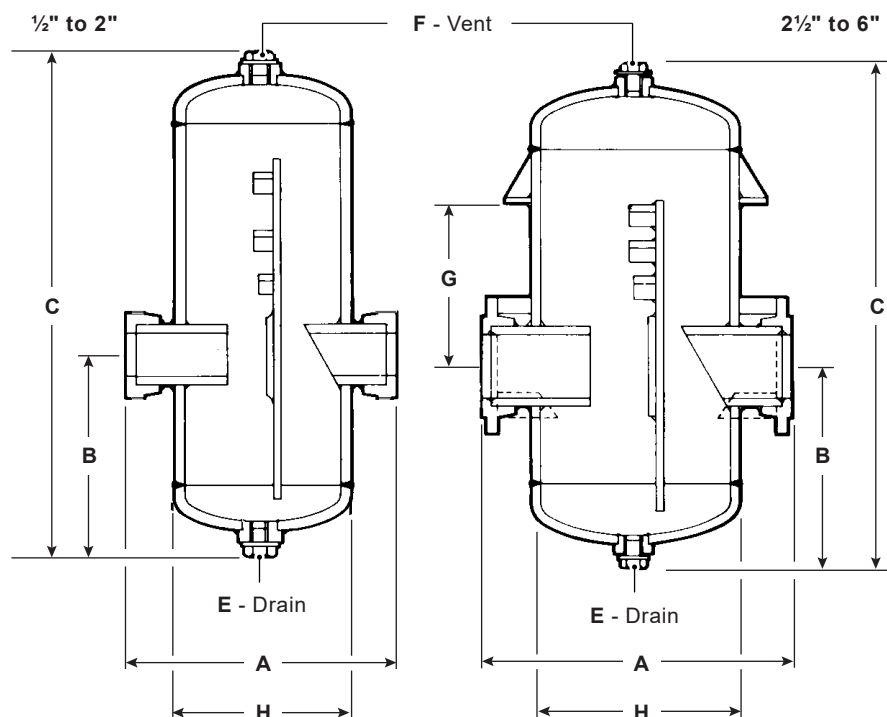
Materials



No.	Part		Material	
1	Body	(½" to 2")	SA-106 GRB	Designed to Section VIII Division I of the ASME Boiler & Pressure Vessel Code.
		(2½" to 6")	ASTM A 53 GRB	
2	End Caps	(½" to 6")	SA-234 WPB	
3	Coupling			
4	Screen	(4" & 6")	Steel	
5	Baffle		ASTM A 569	
6	Plug		ASTM A105	
7	End connections	(½" to 2")	SA-105	
		(2½" to 6")	ASTM A105	

Dimensions/weight (nominal) in inches (millimeters) and lbs (kg)

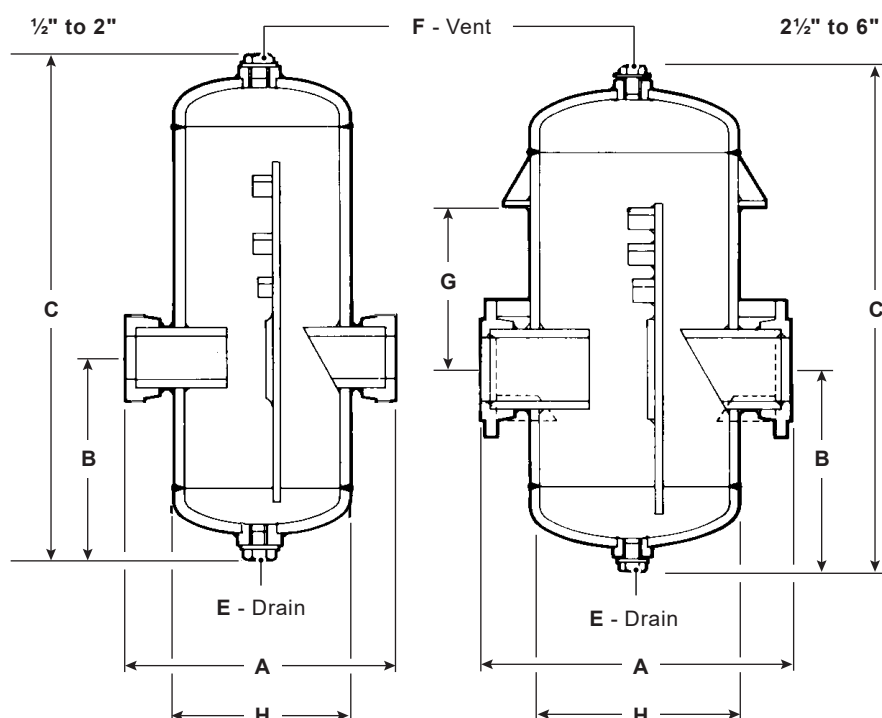
Screwed/socket weld connections



Size	Connection	A	B	C	E	F	G	H	Weight
½" DN15	Scr/SW	9.0 (229)	5.2 (132)	10.6 (269)	¾"	¾"	—	2.5"	9.0 lb (4.1 kg)
¾" DN20		9.3 (236)	5.9 (150)	12.1 (307)					10.0 lb (4.5 kg)
1" DN25		11.8 (300)	6.0 (152)	14.1 (358)				4"	19.0 lb (8.6 kg)
1¼" DN32		13.3 (338)	7.1 (180)	16.3 (414)				5"	30.0 lb (13.6 kg)
1½" DN40		15.4 (391)	7.6 (193)	19.0 (483)	1"			6"	43.0 lb (19.5 kg)
2" DN50		15.9 (404)	8.1 (206)	20.6 (523)					50.0 lb (22.7 kg)

Dimensions/weight (nominal) in inches (millimeters) and lbs (kg)

ANSI connections



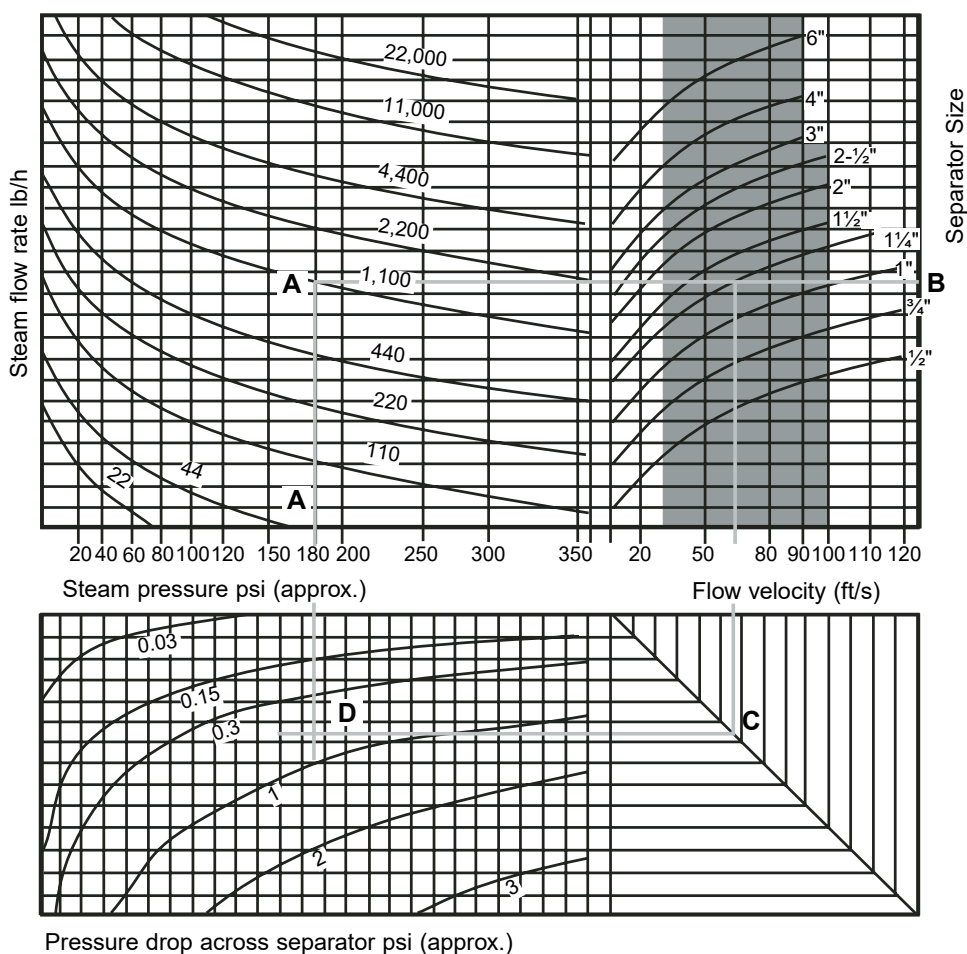
Size	Connection	A	B	C	E	F	G	H	Weight
2 1/2"	ANSI 150	22.5 (572)	9.4 (239)	24.5 (622)	1"	3/4"	7.1 (180)	8.7"	109.0 lb (49.4 kg)
	ANSI 300								112.0 lb (50.8 kg)
	ANSI 600		9.9 (251)	25.6 (650)					113.0 lb (51.3 kg)
3"	ANSI 150	25.3 (643)	12.0 (305)	28.6 (726)	2"	1 1/2"	7.9 (201)	10.8"	163.0 lb (73.9 kg)
	ANSI 300		12.0 (305)	28.8 (732)					169.0 lb (76.7 kg)
	ANSI 600		12.7 (323)	29.9 (759)					189.0 lb (85.7 kg)
4"	ANSI 150	29.0 (737)	12.6 (320)	31.2 (792)	2"	1 1/2"	8.8 (224)	12.8"	237.0 lb (107.5 kg)
	ANSI 300								256.0 lb (116.1 kg)
	ANSI 600		13.2 (335)	32.1 (815)			9.0 (229)		297.0 lb (134.7 kg)
6"	ANSI 150	35.8 (909)	12.3 (312)	36.7 (932)	2"	1 1/2"	11.4 (290)	16.0"	365.0 lb (165.6 kg)
	ANSI 300		12.4 (315)	36.9 (937)			11.4 (290)		401.0 lb (181.9 kg)
	ANSI 600		3.0 (330)	37.8 (960)			11.4 (290)		551.0 lb (249.9 kg)

S4A Steam Sizing Chart

Sizing Example for Model S4A

1. Taking a steam pressure of 180 psi g and flow rate of 1100 lb/h draw line A-A.
2. Draw horizontal line A-B.
3. Any separator curve that is bisected by line A-B within the shaded area will operate at near 100% efficiency.
4. Line velocity for any size can be determined by dropping a vertical line B-C (eg. 60 ft/s for 1½" unit).
5. Pressure drop is determined by plotting lines CD and A-D. The point of intersection is the pressure drop across the separator, ie: 0.5 psi.
6. Separators should be selected on the basis of the best compromise between line size, velocity and pressure drop for each application.

The shaded area denotes recommended selection for better than 99% separation efficiency.



S4A Separator Flow Velocity and Pressure Drop for compressed Air

Note: Any Separator curve that is bisected within the shaded area will operate at near 100% efficiency.

Sample Specification

Moisture Separator shall be of the high efficiency internal baffle type having a pressure drop that does not exceed an equivalent length of pipe. Separator shall be of steel construction in accordance with Section VIII, Division I of the ASME Boiler and Pressure Vessel Code. ASME Code Stamped for maximum working pressures of 150, 300, or 600 psig. A screwed bottom drain connection shall be provided for the installation of a trap to discharge accumulated liquid. A Spirax Sarco Float Operated Drain Trap and "Y" Type Strainer shall be installed on the drain connection.

