



# Iron Separators

## S1, S2, S3

### 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.

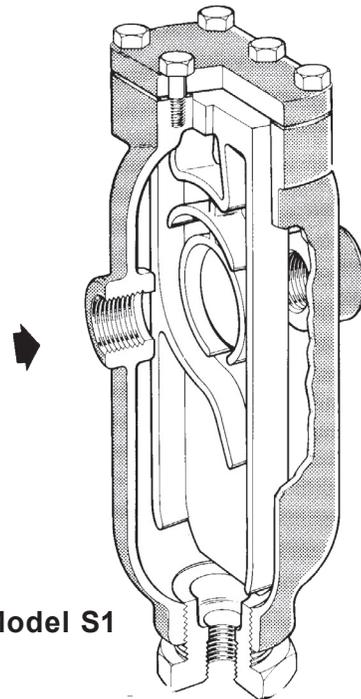
Model	S1	S2	S3
PMO	200 psi g	150 psi g	
Sizes	½", ¾", 1"	1½", 2"	1½" to 6"
Connections	NPT		ANSI 125
Construction	Ductile Iron	Cast Iron	

### Limiting operating conditions

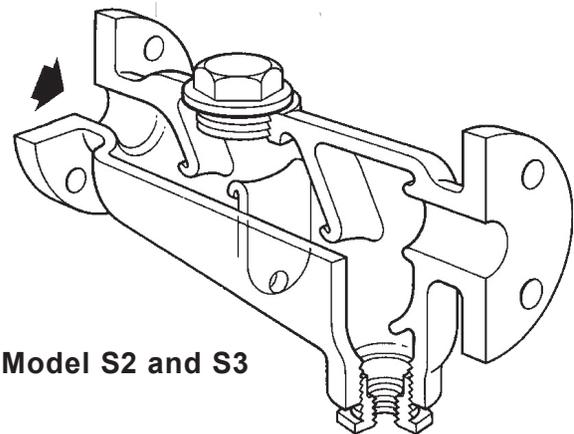
Maximum operating pressure (PMO)	S1	200 psi g (14 bar g)
	S2, S3	150 psi g (10 bar g)
Maximum operating temperature	S1	388 °F (198 °C)
	S2, S3	363 °F (184 °C)

### Pressure shell design conditions

PMA	Maximum allowable pressure	S1	232 psi g/0-248 °F (16 bar g/0-120 °C)
		S2, S3	160 psi g/572 °F (11 bar g/300 °C)
TMA	Maximum allowable temperature	S1	572 °F/0-160 psi g (300 °C/0-11 bar g)
		S2, S3	428 °F/0-188 psi g (220 °C/0-13 bar g)



Model S1

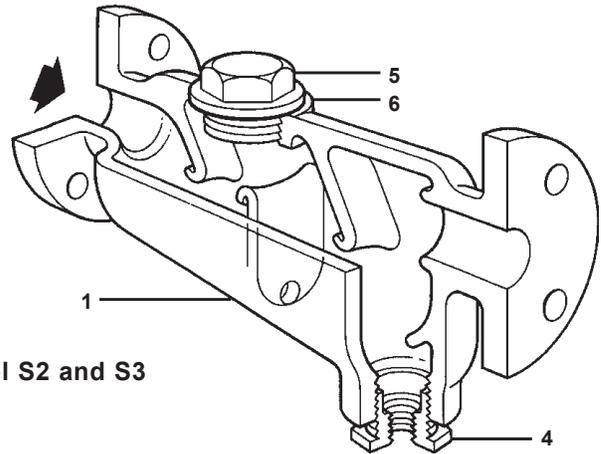
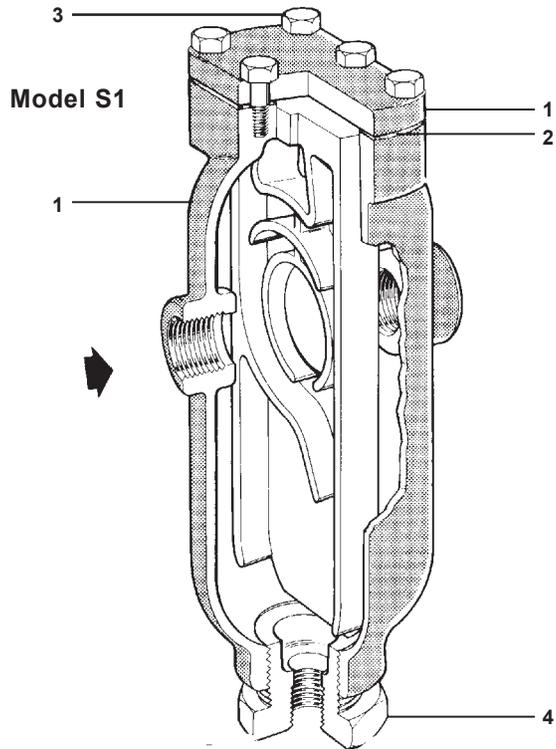


Model S2 and S3

### 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.

## Materials



No.	Part	Material
1	S1 Body and Cover	Ductile (SG) Iron     DIN 1693 Gr GGG 40
	S2 and S3 Body	Cast Iron     ASTM A126 CLB
2	Gasket	Semi Rigid Graphite Laminate
3	Bolts	Steel UNF     BS 1768 Gr 5
4	Bushing	Malleable Iron
5	Plug	Malleable Iron
6	Gasket	Reinforced Exfoliated Graphite

### Recommended air capacities in SCFM

(SCFM based on approximately 60 ft/s for ½" – 2½" units, and 55 ft/s for 3" – 6" units)

$$\text{Convert CFM to SCFM} = \frac{35.4 \times P_1 \times \text{CFM}}{460 + T} \quad \begin{array}{l} T = ^\circ\text{F} \\ P_1 = \text{psia} \end{array}$$

### Operating Pressure psi g

Size	20	40	60	80	100	150	200
½"	20	30	40	55	65	95	125
¾"	30	50	65	85	100	145	190
1"	50	80	105	135	165	240	315
1½"	120	185	255	325	395	570	
2"	200	310	425	540	655	940	
2½"	280	445	605	770	930	1340	
3"	360	570	780	990	1200	1725	
4"	625	985	1345	1705	2070	2970	
6"	1420	2240	3060	3880	4695	6745	

### Recommended saturated steam capacities

(lb/h based on approximately 100 ft/s)

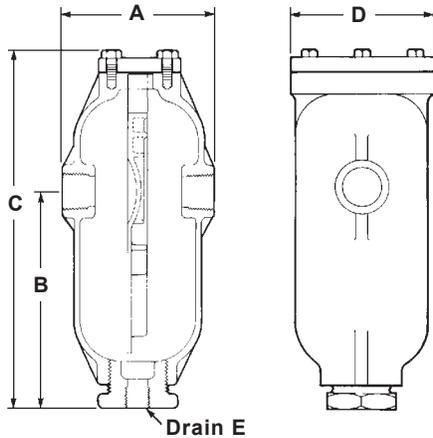
Based on flows and velocity indicated, the pressure drop will be no more than equivalent length of pipe.

### Operating Pressure psi g

Size	5	10	25	50	100	150	200
½"	37	46	71	113	195	277	354
¾"	66	80	125	199	342	486	622
1"	107	130	203	323	555	788	1009
1½"	253	308	480	761	1308	1792	
2"	417	508	791	1255	2156	2953	
2½"	595	725	1129	1791	3076	4214	
3"	919	1120	1743	2766	4751	6507	
4"	1583	1928	3002	4764	8182	11206	
6"	3593	4377	6813	10813	18567	25431	

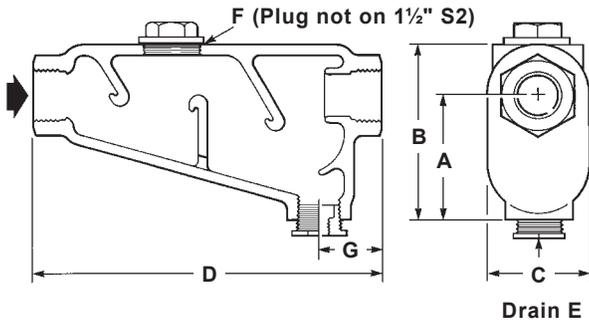
**Dimensions/weights (nominal) in inches (mm) and lbs (kg)**

**Type S1**



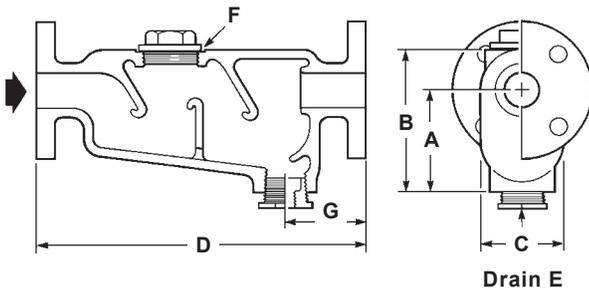
Size	A	B	C	D	E	Weight
½"	3.5	4.8	8.9	3.4	½"	6.0 lb
	89	124	225	86		2.7 kg
¾"	4.5	6.1	10.3	4.4	½"	9.3 lb
	114	156	260	111		4.2 kg
1"	6.0	8.8	15.0	5.6	½"	18.0 lb
	152	222	381	143		8.1 kg

**Type S2 with screwed connections**



Size	A	B	C	D	E	F	G	Weight
1½"	4.4	6.1	3.5	12.0	½"	–	2.4	21.5 lb
	111	156	89	304			60	9.6 kg
2"	6.5	8.1	4.6	15.6	½"	M72	2.8	42.0 lb
	166	205	117	397			71	19.0 kg

**Type S3 with flanged connections**



Size	A	B	C	D	E	F	G	Weight
1½"	4.4	6.1	3.5	14.4	½"	M56	3.7	31.0 lb
	111	156	89	365			94	14.0 kg
2"	5.7	8.1	4.6	18.0	½"	M72	3.85	56.0 lb
	146	206	117	456			98	25.4 kg
2½"	7.2	9.1	5.6	16.0	¾"	M56	3.85	81.0 lb
	184	232	146	406			98	36.7 kg
3"	7.4	10.4	6.0	19.0	1"	M72	3.85	99.0 lb
	187	264	152	483			98	44.9 kg
4"	9.4	13.3	7.8	27.3	1"	M72	4.6	165.0 lb
	238	337	197	692			118	74.8 kg
6"	9.1	16.1	15.0	27.8	1"	M72	4.8	400 lb
	232	409	381	706			121	181.4 kg

## 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. Body shall be iron with screwed or flanged connections. A screwed bottom drain shall be provided for the installation of a trap to discharge any accumulated liquid.

## Installation

Install in a horizontal pipeline with the drain directly below the line. Recommended trap is a continuous draining float operated type.

## Maintenance

The trap at the separator drain should be serviced periodically according to the manufacturer's instructions.  
The separator itself requires no maintenance.